

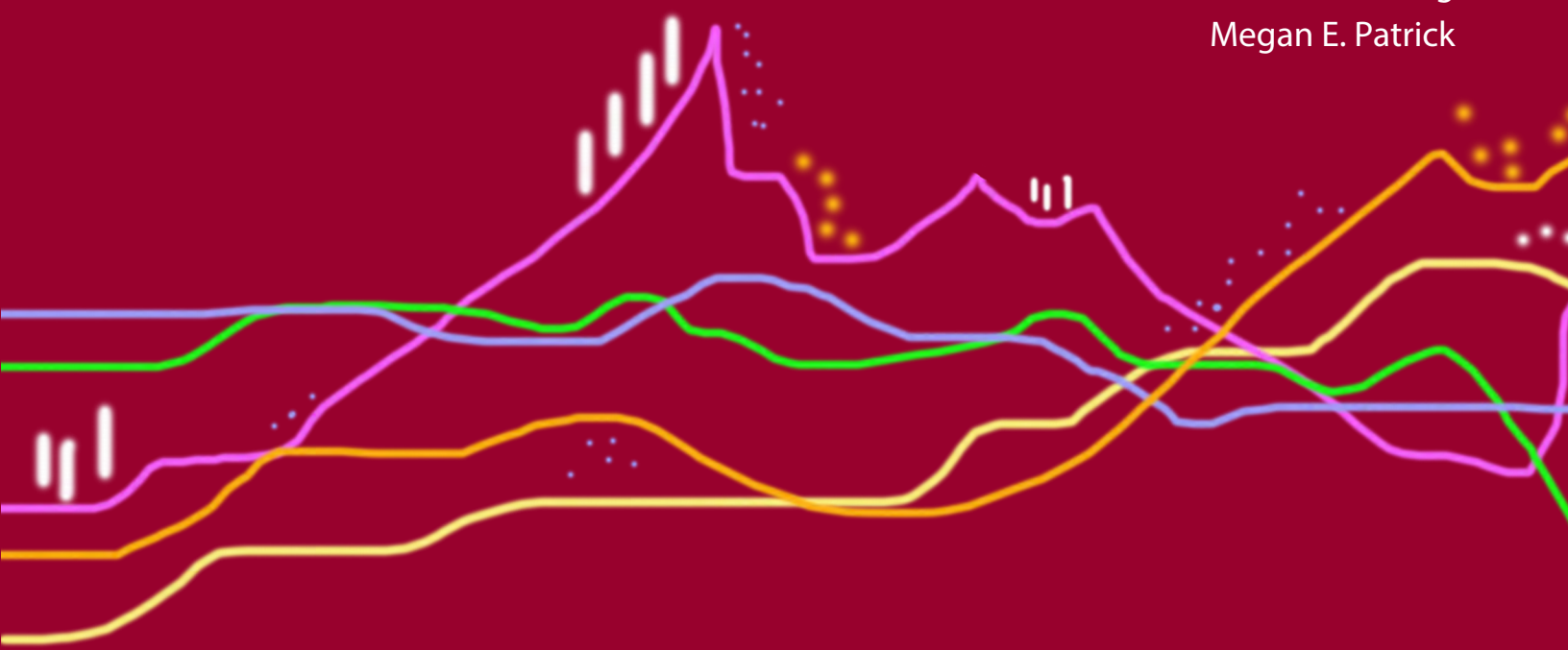
MONITORING *the* FUTURE

NATIONAL SURVEY RESULTS
ON DRUG USE
1975-2021

2021
Volume I

Secondary School Students

Richard A. Miech
Lloyd D. Johnston
Patrick M. O'Malley
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by

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The University of Michigan
Institute for Social Research

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ABBREVIATED CONTENTS*

Click on any item below (in [blue](#)) to go directly to that page.

Detailed Contents	i
List of Tables	vi
List of Figures	x
<i>Chapter 1</i> Introduction	1
<i>Chapter 2</i> Key Findings in 2021	10
<i>Chapter 3</i> Study Design and Procedures	16
<i>Chapter 4</i> Prevalence and Frequency of Drug Use	32
<i>Chapter 5</i> Trends in Drug Use	111
<i>Chapter 6</i> Initiation Rates and Trends in Initiation Rates	262
<i>Chapter 7</i> Degree and Duration of Drug Highs	300
<i>Chapter 8</i> Attitudes and Beliefs about Drug Use	320
<i>Chapter 9</i> The Social Context	406
<i>Chapter 10</i> Study Publications	493
<i>Appendix A</i> Prevalence and Trend Estimates Adjusted for Absentees and Dropouts	518
<i>Appendix B</i> Definition of Background and Demographic Subgroups	527
<i>Appendix C</i> Trends in Specific Subclasses of Hallucinogens, Amphetamines, Tranquilizers, Narcotic Drugs other than Heroin, and Sedatives	531
<i>Appendix D</i> Trends in Drug Use for Three Grades Combined	553

*See next page for Detailed Contents.

DETAILED CONTENTS

Click on any item below (in [blue](#)) to go directly to that page.

<i>Chapter 1</i>	Introduction	1
	Content Areas Covered	2
	Drug Classes	2
	Attitudes, Beliefs, and Early Experiences	3
	Over-the-Counter Substances	3
	Cumulative Lifetime Daily Marijuana Use	4
	Trends in Use of Specific Alcoholic Beverages	4
	Sources of Prescription Drugs	4
	Synopsises of Other MTF Publications	4
	Appendixes	4
	Purposes and Rationale for This Research	5
<i>Chapter 2</i>	Key Findings in 2021	10
	Executive Summary	11
	A Broad and Deep Decline in Drug Use in 2021	11
	Marijuana Use Shows a Sharp Decline	11
	Vaping Declines Sharply in 2021	11
	Few Drugs Increased in Use in 2021	12
	Some Drugs Held Steady in 2021	13
	Psychotherapeutic Drugs	13
	Alcohol Use Also Declined in 2021	13
	Several Forms of Tobacco Use Continued to Decline	13
	Adolescent Drug Use During the COVID-19 Pandemic	14
<i>Chapter 3</i>	Study Design and Procedures	16
	Research Design and Procedures for the 12 th Grade Surveys	17
	The Population under Study	17
	The Omission of Dropouts	18
	Sampling Procedures and Sample Weights	18
	Questionnaire Administration	18
	Questionnaire Format	19
	2019 Estimates	19
	2020 Estimates	19
	Research Design and Procedures for the 8 th and 10 th Grade Surveys	20
	Anonymity	20
	Questionnaire Forms and Sample Proportions	21
	Representativeness and Sample Accuracy	21
	School Participation	21
	Student Participation	24
	Sampling Accuracy of the Estimates	25
	Validity of Measures of Self-Reported Drug Use	25
	Consistency and Measurement of Trends	27

DETAILED CONTENTS (continued)

Click on any item below (in blue) to go directly to that page.

<i>Chapter 4</i>	Prevalence and Frequency of Drug Use	32
	Prevalence and Frequency of Drug Use in 2021: All Students	32
	Prevalence of Lifetime, Annual, and 30-Day Use	32
	Drugs no Longer Tracked Annually.....	40
	Frequency of Lifetime, Annual, and 30-Day Use.....	41
	Prevalence of Current Daily Use	42
	Noncontinuation Rates	43
	Prevalence Comparisons for Important Subgroups.....	45
	Gender Differences	45
	Differences Related to College Plans	46
	Regional Differences	48
	Differences Related to Population Density.....	49
	Differences Related to Parental Education	50
	Racial/Ethnic Differences.....	51
<i>Chapter 5</i>	Trends in Drug Use	111
	Two Themes in Drug Trends from 1975–2021.....	111
	Trends in Prevalence of Use, 1975–2021.....	112
	Trends in Indices of Overall Illicit Drug Use	112
	Trends in Use of Specific Drugs.....	113
	Drugs no Longer Tracked Annually.....	134
	Summary of Trends.....	136
	Trends in Noncontinuation Rates: 12 th Graders	137
	Implications of Noncontinuation for Prevention.....	140
	Trend Comparisons among Subgroups	141
<i>Chapter 6</i>	Initiation Rates and Trends in Initiation Rates	262
	Incidence of Use by Grade Level.....	263
	Trends in Lifetime Prevalence at Earlier Grade Levels	265
	Drugs No Longer Tracked for Initiation Due to Low Levels of Use	271
<i>Chapter 7</i>	Degree and Duration of Drug Highs.....	300
	Degree and Duration of Highs among 12 th Graders in 2021	300
	Trends in Degree and Duration of Drug Highs	301
<i>Chapter 8</i>	Attitudes and Beliefs about Drug Use	320
	Perceived Harmfulness of Drug Use	321
	Beliefs about Harmfulness among 12 th Graders	321
	Risk from Regular Use	322
	Risk from Experimental Use	322
	Beliefs about Harmfulness among 8 th and 10 th Graders	323
	Trends in Perceived Harmfulness of Drug Use.....	324
	Trends in Perceived Harmfulness among 12 th Graders	324

DETAILED CONTENTS (continued)

Click on any item below (in blue) to go directly to that page.

Trends in Perceived Harmfulness among 8 th and 10 th Graders.....	334
Personal Disapproval of Drug Use.....	336
Extent of Disapproval among 12 th Graders.....	337
Extent of Disapproval among 8 th and 10 th Graders.....	338
Trends in Disapproval of Drug Use.....	339
Trends in Disapproval among 12 th Graders.....	339
Trends in Disapproval among 8 th and 10 th Graders.....	342
Attitudes Regarding the Legality of Drug Use.....	345
Attitudes about Legality of Drug Use among 12 th Graders.....	345
Trends in Attitudes about Legality of Drug Use among 12 th Graders.....	346
The Legal Status of Marijuana.....	347
Attitudes and Predicted Responses to Legalization of Marijuana.....	347
Trends in Attitudes and Predicted Responses to Legalization of Marijuana.....	348
<i>Chapter 9 The Social Context.....</i>	<i>406</i>
Perceived Attitudes of Friends and Parents: 12 th Graders.....	406
Perceptions of Friends' Attitudes.....	406
A Comparison of the Attitudes of Parents, Peers, and 12 th Graders.....	407
Trends in Perceptions of Friends' Attitudes.....	408
Methodological Implications.....	411
Friends' Use of Drugs.....	411
Exposure to Drug Use by Friends and Others: 12 th Graders, 2021.....	412
Friends' Use of Drugs: 8 th and 10 th Graders, 2021.....	413
Trends in Exposure to Drug Use and Friends' Use of Drugs.....	413
Trends in Exposure to Drug Use by Friends and Others: 12 th Graders.....	414
Specific Drugs.....	414
Trends in Friends' Drug Use: 8 th and 10 th Graders.....	416
Sources of Certain Prescription Drugs Used Without Medical Supervision.....	417
Perceived Availability of Drugs.....	418
Perceived Availability of Drugs: All Grades.....	418
Trends in Perceived Availability for All Grades.....	420
The Importance of Supply Reduction versus Demand Reduction.....	426
<i>Chapter 10 Study Publications.....</i>	<i>493</i>
Party, academic, or prepped for college? School norm profiles and adolescent well-being using national data.....	493
Tobacco 21 laws may reduce smoking and tobacco-related health disparities among youth in the US.....	493
Exploring how exposure to truth and state-sponsored anti-tobacco media campaigns affect smoking disparities among young adults using a national longitudinal dataset, 2002–2017.....	494
Examining truth and state-sponsored media campaigns as a means of decreasing youth smoking and related disparities in the U.S.	494
Daily-level analysis of drinking intensity and acute physical consequences.....	495
The link between depressive symptoms and vaping nicotine in U.S. adolescents, 2017–2019.....	496

DETAILED CONTENTS (continued)

Click on any item below (in blue) to go directly to that page.

Cohort and age trends in age 35–45 prevalence of alcohol use disorder symptomology, by severity, sex, race, and education	497
Age 18–30 trajectories of binge drinking frequency and prevalence across the past 30 years for men and women: Delineating when and why historical trends reversed across age.....	497
The destabilization and destandardization of social roles across the adult life course: Considering aggregate social role instability and its variability from a historical-developmental perspective.....	498
Cohort effects on gender differences in alcohol use in the United States: How much is explained by changing attitudes towards women and gendered roles?.....	498
Nicotine dependence symptoms in U.S. youth who use JUUL E-cigarettes.....	499
Pills to powder: A 17-year transition from prescription opioids to heroin among U.S. adolescents followed into adulthood	500
Trajectories of prescription drug misuse among US adults from ages 18 to 50 years	500
35-year-old parents do not approve of 17-year-olds’ cigarette, marijuana, or alcohol use: U.S. national data 1993–2018	501
Adolescent cannabis users who have never smoked a combustible cigarette: Trends and level of addictive drug use from 1976 to 2020	502
Recent, national trends in US adolescent use of menthol and non-menthol cigarettes	503
Failed attempts to quit combustible cigarettes and e-cigarettes among US adolescents.....	503
Increased nicotine vaping due to the COVID-19 pandemic among US young adults: Associations with nicotine dependence, vaping frequency, and reasons for use.....	504
Daily fluctuations in drinking intensity: Links with vaping and combustible use of nicotine and marijuana.....	505
Protective factors for nicotine and marijuana vaping among U.S. adolescents	505
Cigarette pack price and its within-person association with smoking initiation, smoking progression, and disparities among young adults	506
Building on a sequential mixed-mode research design in the Monitoring the Future study	507
Comparison of a web-push survey research protocol with a mailed paper and pencil protocol in the Monitoring the Future Panel survey	508
Using substances to cope with the COVID-19 pandemic: U.S. national data at age 19	508
Consideration of an upper-bound continuous maximum drinks measure for adolescent binge and high-intensity drinking prevalence.....	509
Patterns and predictors of high-intensity drinking and implications for intervention.....	510
Alcohol use and the COVID-19 pandemic: Historical trends in drinking, contexts, and reasons for use among US adults.....	510
Forecasting future prevalence and gender differences in binge drinking among young adults through 2040	511
Daily associations between affect, drinking motives, and drinking intensity among U.S. young adults.....	512
Social role, behavior, and belief changes associated with driving after using marijuana among U.S. young adults, and comparisons with driving after 5+ drinking	512
Characteristics and reasons for use associated with solitary alcohol and marijuana use among U.S. 12th Grade Students, 2015–2021	513
Self-reported perceived negative consequences of marijuana use among U.S. young adult users, 2008–2019	514
Smoke-free laws and disparities in youth smoking in the U.S., 2001–2018.....	515

DETAILED CONTENTS (continued)

Click on any item below (in blue) to go directly to that page.

A longitudinal analysis of smoke-free laws and smoking initiation disparities among young adults in the United States	515
Sociodemographic patterns of exclusive and dual combustible tobacco and e-cigarette use among US adolescents—a nationally representative study (2017–2020)	516
Other Data on Correlates and Trends	517
Website.....	517
Appendix A Prevalence and Trend Estimates Adjusted for Absentees and Dropouts.....	518
Corrections for 8th and 10th Grades	518
The Effects of Missing Absentees.....	519
The Effects of Missing Dropouts	519
 Drug Prevalence Estimates Taking Into Account Absentees and Dropouts.....	520
 Absenteeism during the Pandemic.....	522
 Effects of Omitting Dropouts in Trend Estimates	522
Examples of Trend Estimates for Two Drugs	523
Summary and Conclusions.....	523
Appendix B Definition of Background and Demographic Subgroups	527
Appendix C Trends in Specific Subclasses of Hallucinogens, Amphetamines, Tranquilizers, Narcotic Drugs other than Heroin, and Sedatives	531
Appendix D Trends in Drug Use for Three Grades Combined.....	553

LIST OF TABLES

Click on any item below (in [blue](#)) to go directly to that page.

Table 1-1	Added and Deleted Prevalence of Use Questions for 8 th , 10 th , and 12 th Graders.....	8
Table 3-1	Sample Sizes and Response Rates	28
Table 3-2	Percentage Original and Replacement School Selections, by Year.....	29
Table 4-1a	Lifetime Prevalence of Use for 8 th , 10 th , and 12 th Graders, 2021, With Ninety-Five Percent Confidence Limits.....	54
Table 4-1b	Annual Prevalence of Use for 8 th , 10 th , and 12 th Graders, 2021, With Ninety-Five Percent Confidence Limits	56
Table 4-1c	30-Day Prevalence of Use for 8 th , 10 th , and 12 th Graders, 2021, With Ninety-Five Percent Confidence Limits.....	58
Table 4-1d	Daily Prevalence of Use for 8 th , 10 th , and 12 th Graders, 2021, With Ninety-Five Percent Confidence Limits.....	60
Table 4-2	Prevalence of Use of Various Drugs for 8 th , 10 th , and 12 th Graders, 2021.....	62
Table 4-3	Prevalence of Use of Heroin <i>with</i> and <i>without</i> a Needle for 8 th , 10 th , and 12 th Graders, 2021	64
Table 4-4a	Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day for 8 th , 10 th , and 12 th Graders, 2021.....	65
Table 4-4b	Frequency of Occasions of Heavy Drinking, for 8 th , 10 th , and 12 th Graders, 2021	72
Table 4-4c	Frequency of Occasions for Selected Tobacco and Vaping Outcomes for 8 th , 10 th , and 12 th Graders, 2021	73
Table 4-4d	Frequency of Days Used in Lifetime and Past 30 Days for Various Tobacco and Other Substances for 8 th , 10 th , and 12 th Graders, 2021	76
Table 4-4e	Frequency of Use Per Day for Energy Drinks and Energy Shots for 8 th , 10 th , and 12 th Graders, 2021	77
Table 4-5	Lifetime Prevalence of Use of Various Drugs by Subgroups for 8 th , 10 th , and 12 th Graders, 2021	78
Table 4-6	Annual Prevalence of Use of Various Drugs by Subgroups for 8 th , 10 th , and 12 th Graders, 2021	85
Table 4-7	Thirty-Day Prevalence of Use of Various Drugs by Subgroups for 8 th , 10 th , and 12 th Graders, 2021	93
Table 4-8	Thirty-Day Prevalence of Daily Use of Various Drugs by Subgroups for 8 th , 10 th , and 12 th Graders, 2021	100

LIST OF TABLES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Table 5-1	Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12.....	144
Table 5-2	Trends in Annual Prevalence of Use of Various Drugs in Grade 12.....	150
Table 5-3	Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12.....	156
Table 5-4	Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12.....	162
Table 5-5a	Trends in Lifetime Prevalence of Use of Various Drugs in Grades 8, 10, and 12.....	168
Table 5-5b	Trends in Annual Prevalence of Use of Various Drugs in Grades 8, 10, and 12.....	176
Table 5-5c	Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grades 8, 10, and 12	186
Table 5-5d	Trends in Two Week Prevalence of Extreme Binge Drinking in Grades 8, 10, and 12	194
Table 5-6a	Trends in Lifetime Prevalence of Use of Heroin <i>with</i> and <i>without</i> a Needle in Grades 8, 10, and 12	201
Table 5-6b	Trends in Annual Prevalence of Use of Heroin <i>with</i> and <i>without</i> a Needle in Grades 8, 10, and 12	202
Table 5-6c	Trends in 30-Day Prevalence of Use of Heroin <i>with</i> and <i>without</i> a Needle in Grades 8, 10, and 12.....	203
Table 5-7a	Trends in Noncontinuation Rates among 12 th Graders Who Ever Used Drug in Lifetime	204
Table 5-7b	Trends in Noncontinuation Rates among 12 th Graders Who Used Drug 10 or More Times in Lifetime.....	207
Table 6-1	Incidence of Use of Various Drugs by Grade for 8 th Graders, 2021	272
Table 6-2	Incidence of Use of Various Drugs by Grade for 10 th Graders, 2021.....	273
Table 6-3	Incidence of Use of Various Drugs by Grade for 12 th Graders, 2021.....	274
Table 6-4	Incidence of Use of Various Drugs: A Comparison of Responses from 8 th , 10 th , and 12 th Graders, 2021	275

LIST OF TABLES (continued)

Click on any item below (in blue) to go directly to that page.

Table 7-1	Marijuana: Trends in Degree and Duration of Feeling High in Grade 12.....	305
Table 7-2	Hallucinogens other than LSD: Trends in Degree and Duration of Feeling High in Grade 12.....	307
Table 7-3	Cocaine: Trends in Degree and Duration of Feeling High in Grade 12.....	309
Table 7-4	Narcotics other than Heroin: Trends in Degree and Duration of Feeling High in Grade 12.....	311
Table 7-5	Amphetamines: Trends in Degree and Duration of Feeling High in Grade 12.....	313
Table 7-6	Tranquilizers: Trends in Degree and Duration of Feeling High in Grade 12.....	315
Table 7-7	Alcohol: Trends in Degree and Duration of Feeling High in Grade 12.....	317
Table 8-1	Trends in Harmfulness of Drugs as Perceived by 8th Graders	350
Table 8-2	Trends in Harmfulness of Drugs as Perceived by 10th Graders.....	355
Table 8-3	Trends in Harmfulness of Drugs as Perceived by 12th Graders.....	360
Table 8-4	Trends in Disapproval of Drug Use in Grade 8	367
Table 8-5	Trends in Disapproval of Drug Use in Grade 10	370
Table 8-6	Trends in Disapproval of Drug Use in Grade 12	373
Table 8-7	Trends in 12th Graders' Attitudes Regarding Legality of Drug Use	377
Table 8-8	Trends in 12th Graders' Attitudes Regarding Marijuana Laws	380
Table 9-1	Trends in Parents Disapproving of Drug Use for 12th Graders.....	428
Table 9-2	Trends in Friends Disapproving of Drug Use for 12th Graders	429
Table 9-3	Trends in 12th Graders' Exposure to Drug Use	432
Table 9-4	Trends in Friends' Use of Drugs as Estimated by 8th Graders.....	436
Table 9-5	Trends in Friends' Use of Drugs as Estimated by 10th Graders	439
Table 9-6	Trends in Friends' Use of Drugs as Estimated by 12th Graders.....	442
Table 9-7	Trends in Availability of Drugs as Perceived by 8th Graders.....	449
Table 9-8	Trends in Availability of Drugs as Perceived by 10th Graders.....	452
Table 9-9	Trends in Availability of Drugs as Perceived by 12th Graders.....	455

LIST OF TABLES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Table 9-10	Source of Prescription Drugs among Those Who Used in Last Year Grade 12, 2009-2021	459
Table A-1	Estimated Prevalence Levels for Selected Drug Outcomes, 2016-2018	524
Table C-1	Specific Hallucinogens Other Than LSD: Trends in Annual Prevalence of Use for All Seniors.....	535
Table C-2	Specific Amphetamines: Trends in Annual Prevalence of Use for All Seniors.....	538
Table C-3	Specific Tranquilizers: Trends in Annual Prevalence of Use for All Seniors.....	542
Table C-4	Specific Narcotics other than Heroin: Trends in Annual Prevalence of Use for All Seniors	546
Table C-5	Specific Sedatives: Trends in Annual Prevalence of Use for All Seniors	550
Table D-1	Trends in Lifetime Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined	554
Table D-2	Trends in Annual Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined	557
Table D-3	Trends in 30-Day Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined	560
Table D-4	Trends in Daily Prevalence of Use of Selected Drugs and Heavy Use of Alcohol and Tobacco for Grades 8, 10, and 12 Combined.....	563

LIST OF FIGURES

Click on any item below (in [blue](#)) to go directly to that page.

Figure 3-1	Schools included in 1 Year’s Data Collection: 8th, 10th, and 12th Grades	30
Figure 3-2	Percentage of Sampled Geographic Strata With At Least One School Surveyed in 12th Grade	31
Figure 4-1	Prevalence and Recency of Use of Various Types of Drugs in Grades 8, 10, and 12, 2021	103
Figure 4-2a	Thirty-Day Prevalence of Daily Use of Marijuana, Alcohol, and Other Drugs in Grade 12, 2021	106
Figure 4-2b	Thirty-Day Prevalence of Daily Use of Cigarettes, Smokeless Tobacco, and Nicotine Vaping in Grade 12, 2021	107
Figure 4-3	Noncontinuation Rates: Percentage of Lifetime Users Who Did Not Use in Last 12 Months in Grades 8, 10, and 12, 2021	108
Figure 4-4	States included in the 4 Regions of the Country	110
Figure 5-1a	Any Illicit Drug Use: Trends in Lifetime Prevalence by Grade	210
Figure 5-1b	Any Illicit Drug Use other than Marijuana: Trends in Lifetime Prevalence by Grade	211
Figure 5-2a	Any Illicit Drug Use: Trends in Annual Prevalence by Grade	212
Figure 5-2b	Any Illicit Drug Use other than Marijuana: Trends in Annual Prevalence by Grade	213
Figure 5-3a	Any Illicit Drug Use: Trends in 30-Day Prevalence by Grade	214
Figure 5-3b	Any Illicit Drug Use other than Marijuana: Trends in 30-Day Prevalence by Grade	215
Figure 5-4a	Marijuana: Trends in Annual Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12	216
Figure 5-4b	Synthetic Marijuana: Trends in Annual Prevalence in Grades 8, 10, and 12	217
Figure 5-4c	Inhalants: Trends in Annual Prevalence in Grades 8, 10, and 12	218
Figure 5-4d	Hallucinogens and PCP: Trends in Annual Prevalence in Grades 8, 10, and 12	219
Figure 5-4e	LSD and Hallucinogens other than LSD: Trends in Annual Prevalence in Grades 8, 10, and 12	220
Figure 5-4f	Ecstasy (MDMA): Trends in Annual Prevalence in Grades 8, 10, and 12	221

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 5-4g	Cocaine, Crack, and Cocaine other than Crack: Trends in Annual Prevalence in Grades 8, 10, and 12.....	222
Figure 5-4h	Heroin: Trends in Annual Prevalence in Grades 8, 10, and 12.....	223
Figure 5-4i	Narcotics other than Heroin: Trends in Annual Prevalence in Grade 12.....	224
Figure 5-4j	Amphetamines: Trends in Annual Prevalence in Grades 8, 10, and 12.....	225
Figure 5-4k	Methamphetamine and Crystal Methamphetamine (Ice): Trends in Annual Prevalence in Grades 8, 10, and 12.....	226
Figure 5-4l	Sedatives (Barbiturates): Trends in Annual Prevalence in Grade 12.....	227
Figure 5-4m	Tranquilizers: Trends in Annual Prevalence in Grades 8, 10, and 12.....	228
Figure 5-4n	Rohypnol: Trends in Annual Prevalence in Grades 8, 10, and 12.....	229
Figure 5-4o	Alcohol and Been Drunk: Trends in Annual Prevalence in Grades 8, 10, and 12.....	230
Figure 5-4p	Five or More Drinks in a Row: Trends in 2-Week Prevalence in Grades 8, 10, and 12.....	231
Figure 5-4q	Cigarettes: Trends in 30-Day Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12.....	232
Figure 5-4r	Smokeless Tobacco: Trends in 30-Day Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12.....	233
Figure 5-4s	Steroids: Trends in Annual Prevalence in Grades 8, 10, and 12.....	234
Figure 5-4t	Any Nicotine Use and Any Nicotine Use other than Vaping: Trends in 30-Day Prevalence in Grade 12.....	235
Figure 5-4u	Vaping Nicotine: Trends in Annual and 30-Day Prevalence in Grades 8, 10, and 12.....	236
Figure 5-4v	Vaping Marijuana: Trends in Annual and 30-Day Prevalence in Grades 8, 10, and 12.....	237
Figure 5-5a	Marijuana: Trends in 30-Day Prevalence of Daily Use in Grade 12 by Total and by Gender.....	238
Figure 5-5b	Alcohol: Trends in 30-Day Prevalence of Daily Use in Grade 12 by Total and by Gender.....	239

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 5-5c	Cigarettes: Trends in 30-Day Prevalence of Daily Use in Grade 12 by Total and by Gender.....	240
Figure 5-6a	Alcohol: Trends in 2-Week Prevalence of Heavy Drinking in Grade 12 by Gender.....	241
Figure 5-6b	Steroids: Trends in Annual Prevalence in Grade 12 by Total and by Gender.....	242
Figure 5-7	An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12 by Gender.....	243
Figure 5-8	An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12 by College Plans.....	244
Figure 5-9	Cigarettes: Trends in 30-Day Prevalence in Grades 8, 10, and 12 by College Plans.....	245
Figure 5-10a	An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12 by Region of the Country.....	246
Figure 5-10b	Cocaine: Trends in Lifetime Prevalence in Grade 12 by Region of the Country.....	247
Figure 5-10c	Cigarettes: Trends in 30-Day Prevalence in Grade 12 by Region of the Country.....	248
Figure 5-11a	An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12 by Population Density.....	249
Figure 5-11b	Alcohol and Marijuana: Trends in Annual Prevalence in Grade 12 by Population Density.....	250
Figure 5-11c	Cocaine and Ecstasy (MDMA): Trends in Annual Prevalence in Grade 12 by Population Density.....	251
Figure 5-11d	Cigarettes and Smokeless Tobacco: Trends in 30-Day Prevalence in Grade 12 by Population Density.....	252
Figure 5-12a	Marijuana: Trends in Annual Prevalence in Grade 12 by Average Education of Parents.....	253
Figure 5-12b	Cocaine: Trends in Annual Prevalence in Grade 12 by Average Education of Parents.....	254
Figure 5-12c	LSD: Trends in Annual Prevalence in Grade 12 by Average Education of Parents.....	255
Figure 5-12d	Amphetamines: Trends in Annual Prevalence in Grade 12 by Average Education of Parents.....	256

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 5-12e	Alcohol: Trends in 2-Week Prevalence of 5 or More Drinks in a Row in Grade 12 by Average Education of Parents	257
Figure 5-12f	Cigarettes: Trends in Daily Prevalence in Grade 12 by Average Education of Parents	258
Figure 5-13a	Marijuana and Cocaine: Trends in Annual Prevalence in Grade 12 by Race/Ethnicity	259
Figure 5-13b	Alcohol and Cigarettes: Trends in Prevalence in Grade 12 by Race/Ethnicity	260
Figure 5-13c	Inhalants and LSD: Trends in Annual Prevalence in Grade 12 by Race/Ethnicity	261
Figure 6-1	Any Illicit Drug: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th Graders	276
Figure 6-2	Any Illicit Drug other than Marijuana: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th Graders	277
Figure 6-3	Any Illicit Drug other than Marijuana or Amphetamines: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th Graders.....	278
Figure 6-4	Marijuana: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders.....	279
Figure 6-5	Daily Marijuana Use for a Month or More: Trends in Lifetime Prevalence for Earlier Grade Levels based on Retrospective Reports from 12th Graders.....	280
Figure 6-6	Inhalants: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders.....	281
Figure 6-7	Hallucinogens: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders.....	283
Figure 6-8	LSD: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders.....	284
Figure 6-9	Hallucinogens other than LSD: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	285
Figure 6-10	Cocaine: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders.....	286

LIST OF FIGURES (continued)

Click on any item below (in blue) to go directly to that page.

Figure 6-11	Crack Cocaine: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	287
Figure 6-12	Other Forms of Cocaine: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	289
Figure 6-13	Heroin: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	290
Figure 6-14	Narcotics other than Heroin: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th Graders	291
Figure 6-15	Amphetamines: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	292
Figure 6-16	Sedatives (Barbiturates): Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th Graders	293
Figure 6-17	Tranquilizers: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	294
Figure 6-18	Alcohol: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	295
Figure 6-19	Been Drunk: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	296
Figure 6-20	Cigarettes: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	297
Figure 6-21	Cigarette Smoking on a Daily Basis: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	298
Figure 6-22	Smokeless Tobacco: Trends in Lifetime Prevalence at Earlier Grade Levels based on Retrospective Reports from 12th and 8th Graders	299
Figure 7-1	Marijuana: Trends in Annual Prevalence, Percent of Recent Users Getting Moderately or Very High and Percent of Recent Users Staying High 3 or More Hours in Grade 12.....	319
Figure 8-1a	Marijuana: Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12.....	383

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 8-1b	Marijuana: Trends in Disapproval of Different Levels of Use in Grades 8, 10, and 12	384
Figure 8-2a	Cocaine: Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12	385
Figure 8-2b	Cocaine: Trends in Disapproval of Different Levels of Use in Grades 8, 10, and 12	386
Figure 8-3a	Crack: Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12	387
Figure 8-3b	Crack: Trends in Disapproval of Different Levels of Use in Grades 8, 10, and 12	388
Figure 8-4	Marijuana: Trends in Perceived Availability, Perceived Risk of Regular Use, and Prevalence of Use in Past 30 Days in Grade 12	389
Figure 8-5	Cocaine: Trends in Perceived Availability, Perceived Risk of Trying, and Prevalence of Use in Last 12 Months in Grade 12	390
Figure 8-6	Ecstasy (MDMA): Trends in Perceived Availability, Perceived Risk of Trying, and Prevalence of Use in Last 12 Months in Grade 12	391
Figure 8-7a	Amphetamines and Sedatives (Barbiturates): Trends in Perceived Harmfulness for Different Levels of Use in Grade 12	392
Figure 8-7b	Amphetamines and Sedatives (Barbiturates): Trends in Disapproval of Different Levels of Use in Grade 12	393
Figure 8-8a	LSD: Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12	394
Figure 8-8b	LSD: Trends in Disapproval of Different Levels of Use in Grades 8, 10, and 12	395
Figure 8-9a	Heroin: Trends in Perceived Harmfulness for Different Levels of Use in Grade 12	396
Figure 8-9b	Heroin: Trends in Disapproval of Different Levels of Use in Grade 12	397
Figure 8-10a	MDMA (Ecstasy): Trends in Perceived Harmfulness for Experimental Use in Grades 8, 10, and 12	398
Figure 8-10b	MDMA (Ecstasy): Trends in Disapproval of Experimental Use in Grades 8, 10, and 12	399

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 8-11a	Alcohol: Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12	400
Figure 8-11b	Alcohol: Trends in Disapproval of Different Levels of Use in Grades 8, 10, and 12	401
Figure 8-12a	Cigarettes: Trends in Perceived Harmfulness of Smoking 1 or More Packs per Day in Grades 8, 10, and 12	402
Figure 8-12b	Cigarettes: Trends in Disapproval of Smoking 1 or More Packs per Day in Grades 8, 10, and 12.....	403
Figure 8-13a	Smokeless Tobacco: Trends in Perceived Harmfulness of Regular Use in Grades 8, 10, and 12	404
Figure 8-13b	Smokeless Tobacco: Trends in Disapproval of Regular Use in Grades 8 and 10	405
Figure 9-1a	Marijuana: Trends in Disapproval; 12th Graders, Parents, and Friends.....	460
Figure 9-1b	Cocaine and LSD: Trends in Disapproval; 12th Graders, Parents, and Friends.....	461
Figure 9-1c	Amphetamines and Sedatives (Barbiturates): Trends in Disapproval; 12th Graders, Parents, and Friends.....	462
Figure 9-2a	Alcohol: Trends in Disapproval; 12th Graders, Parents, and Friends.....	463
Figure 9-2b	Cigarettes: Trends in Disapproval; 12th Graders, Parents, and Friends.....	464
Figure 9-3a	Any Illicit Drug: Trends in 30-Day Prevalence and Friends' Use in Grade 12	465
Figure 9-3b	Any Illicit Drug other than Marijuana: Trends in 30-Day Prevalence and Friends Use in Grade 12	466
Figure 9-3c	Marijuana: Trends in 30-Day Prevalence and Friends' Use in Grade 12.....	467
Figure 9-3d	Inhalants: Trends in 30-Day Prevalence and Friends' Use in Grade 12.....	468
Figure 9-3e	LSD: Trends in 30-Day Prevalence and Friends' Use in Grade 12.....	469
Figure 9-3f	Hallucinogens other than LSD: Trends in 30-Day Prevalence and Friends' Use in Grade 12	470

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 9-3g	MDMA (Ecstasy, Molly): Trends in 30-Day Prevalence and Friends' Use in Grade 12	471
Figure 9-3h	Cocaine: Trends in 30-Day Prevalence and Friends' Use in Grade 12	472
Figure 9-3i	Crack: Trends in 30-Day Prevalence and Friends' Use in Grade 12	473
Figure 9-3j	Cocaine Powder: Trends in 30-Day Prevalence and Friends' Use in Grade 12	474
Figure 9-3k	Heroin: Trends in 30-Day Prevalence and Friends' Use in Grade 12	475
Figure 9-3l	Narcotics other than Heroin: Trends in 30-Day Prevalence and Friends' Use in Grade 12	476
Figure 9-3m	Amphetamines: Trends in 30-Day Prevalence and Friends' Use in Grade 12	477
Figure 9-3n	Crystal Methamphetamine (Ice): Trends in 30-Day Prevalence and Friends' Use in Grade 12	478
Figure 9-3o	Sedatives (Barbiturates): Trends in 30-Day Prevalence and Friends' Use in Grade 12	479
Figure 9-3p	Tranquilizers: Trends in 30-Day Prevalence and Friends' Use in Grade 12	480
Figure 9-3q	Alcohol: Trends in 30-Day Prevalence and Friends' Use in Grade 12	481
Figure 9-3r	Been Drunk: Trends in 30-Day Prevalence and Friends' Use in Grade 12	482
Figure 9-3s	Cigarettes: Trends in 30-Day Prevalence and Friends' Use in Grade 12	483
Figure 9-3t	Steroids: Trends in 30-Day Prevalence and Friends' Use in Grade 12	484
Figure 9-4	Proportion of Friends Using Each Drug as Estimated by 8th, 10th, and 12th Graders, 2021	485
Figure 9-5a	Various Drugs: Trends in Perceived Availability in Grade 12	488
Figure 9-5b	Various Drugs: Trends in Perceived Availability in Grade 12	489
Figure 9-5c	LSD and Hallucinogens other than LSD: Trends in Perceived Availability in Grade 12	490

LIST OF FIGURES (continued)

Click on any item below (in [blue](#)) to go directly to that page.

Figure 9-5d	Ecstasy (MDMA) and Steroids: Trends in Perceived Availability in Grade 12.....	491
Figure 9-6	Source of Prescription Drugs among Those Who Used in Past Year Grade 12, 2016-2021	492
Figure A-1	High School Completion by 20- to 24-Year-Olds.....	525
Figure A-2	Estimates of Prevalence and Trends for the Entire Age/Class Cohort (Adjusting for Absentees and Dropouts) for 12th Graders	526
Figure D-1	Any Illicit Drug, Marijuana, and Inhalants: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined	565
Figure D-2	Hallucinogens: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined	566
Figure D-3	Ecstasy (MDMA): Trends in Annual Prevalence for Grades 8, 10, and 12 Combined.....	567
Figure D-4	Cocaine and Crack: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined	568
Figure D-5	Heroin and Narcotics other than Heroin: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined.....	569
Figure D-6	Stimulant Drugs: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined	570
Figure D-7	Tranquilizers and Steroids: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined.....	571
Figure D-8	Club Drugs: Trends in Annual Prevalence for Grades 8, 10, and 12 Combined.....	572
Figure D-9	Alcohol and Tobacco: Trends in 30-Day Prevalence for Grades 8, 10, and 12 Combined	573

Chapter 1

INTRODUCTION

Substance use is a leading cause of preventable morbidity and mortality; it is in large part why, among 17 high income nations, people in the U.S. have the highest probability of dying by age 50.^{1,2} Substance use is also an important contributor to many social ills including child and spousal abuse, violence more generally, theft, suicide, and more; and it typically is initiated during adolescence. It warrants our sustained attention.

Monitoring the Future (MTF) is designed to give such attention to substance use among the nation's youth and adults. It is an investigator-initiated study that originated with, and is conducted by, a team of research professors at the University of Michigan's Institute for Social Research. Since its onset in 1975, MTF has been funded continuously by the National Institute on Drug Abuse—one of the National Institutes of Health—under a series of peer reviewed, competitive research grants. The 2021 survey, reported here, is the 47th consecutive survey of 12th grade students and the 31st such survey of 8th and 10th graders (who were added to the study in 1991).

MTF contains ongoing national surveys of both adolescents and adults in the United States. It provides the nation with a vital window into the important but often hidden problem behaviors of use of illegal drugs, alcohol, tobacco, and psychotherapeutic drugs (used without a doctor's orders). For more than four decades, MTF has helped provide a clearer view of the changing topography of these problems among adolescents and adults, a better understanding of the dynamics of factors that drive some of these problems, and a better understanding of some of their consequences. It has also given policymakers, government agencies, and nongovernmental organizations (NGOs) in the field some practical approaches for intervening.

A widespread epidemic of illicit drug use emerged in the 1960s among U.S. youth, and since then dramatic changes have occurred in the use of nearly all types of illicit drugs, as well as alcohol and tobacco. Of particular importance, as discussed in detail below, are the many new illicit drugs that have emerged, along with new forms of alcoholic beverages and tobacco products. Among the substances that have arisen over the life of the survey are new classes of drugs that include over-the-counter medications, synthetic marijuana, synthetic stimulants such as “bath salts,” and drugs taken for strength enhancement. New devices for taking drugs, such as vaporizers and e-cigarettes, provide novel ways to use substances and use them in new combinations. Unfortunately, the number of new substances added to the list over the years substantially outnumbers the number removed because most substances remain in active use. Throughout these many changes, substance use among the nation's youth has remained a major concern for parents, teachers, youth workers, health professionals, law enforcement, and policymakers, largely because substance abuse is one of the largest and yet most preventable causes of morbidity and mortality during and after adolescence.

¹ Case, A. & Deaton, A. (2015) [Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century](#). *Proceedings of the National Academy of Sciences*, 112(49), 15078-15083.

² Murphy, S. L., Xu, J., Kochanek, K. D., & Arias, E.s (2020). [Mortality in the United States, 2020](#). NCHS Data Brief, no 395. Hyattsville, MD: National Center for Health Statistics.

The MTF annual monograph series is a key vehicle for disseminating MTF’s epidemiological findings. In addition to this monograph, the series includes an [Overview](#) that is an executive summary of the year’s key results; a separate, annual monograph that presents prevalence and trends among U.S. college students and same-age youth who do not attend college, as well as among adults through age 60 (scheduled for publication August 1, 2022); and an additional, periodic monograph that presents information on risk and protective behaviors for the spread of HIV/AIDS³ among young adults. All [MTF publications](#), including [press releases](#), are available on the project website at www.monitoringthefuture.org.

CONTENT AREAS COVERED

Two of the major topics included in the present volume are (a) the *prevalence and frequency* of use of a great many substances, both licit and illicit, among U.S. secondary school students in 8th, 10th, and 12th grades and (b) *historical trends* in use by students in those grades. Distinctions are made among important demographic subgroups in these populations based on gender, college plans, region of the country, population density, parent education, and race/ethnicity. MTF has demonstrated that key attitudes and beliefs about drug use are important determinants of usage trends, in particular the amount of risk to the user perceived to be associated with the various drugs and disapproval of using them; thus, those measures also are tracked over time, as are students’ perceptions of certain relevant aspects of the social environment—in particular, perceived availability, peer norms, use by friends, and exposure to use by others of the various drugs. Data on grade of first use, discontinuation of use, trends in use in lower grades, and intensity of use are also reported here.

Drug Classes

Initially, 11 separate classes of drugs were distinguished in order to heighten comparability with a parallel series of publications based on the National Survey of Drug Use and Health (NSDUH, formerly titled the National Household Survey of Drug Abuse): marijuana (including hashish), inhalants, hallucinogens, cocaine, heroin, narcotics other than heroin (both natural and synthetic), amphetamines, sedatives, tranquilizers, alcohol, and tobacco. Separate statistics have been presented for a number of subclasses of drugs within these more general categories: PCP and LSD (both hallucinogens), barbiturates and methaqualone (both sedatives), methamphetamine, crystal methamphetamine (“ice”), and crack and cocaine other than crack.

In the years since the study was launched, many additional categories of substances have been added to the MTF questionnaires—in many but not all cases in all three grades. Relatively few substances have been dropped due to very low prevalence. The substances added and dropped are shown in Table 1-1 sequentially by year and within year by the grade levels affected.

The large number of substances added over the years illustrates the dynamic and multidimensional nature of the country’s drug problems. As time passes and new trends develop, additional drugs will be added to the study’s coverage; occasionally ones that prove to have very low prevalence (such as bath salts, “look-alike” pseudo-amphetamines, kreteks, bidis, PCP, and Provigil) will be dropped. It is important, given this rapidly shifting smorgasbord of drugs, that information be

³ Johnston, L. D., O’Malley, P. M., Bachman, J. G., Schulenberg, J. E., Patrick, M. E., & Miech, R. A. (2020). [HIV/AIDS: Risk & protective behaviors among adults ages 21 to 30 in the U.S., 2004-2019](#). Ann Arbor: Institute for Social Research, The University of Michigan.

gathered relatively quickly to inform legislators, regulatory agencies, scientists, practitioners in the field, parents, and educators about the extent to which newer drugs are making inroads in the youth population and what subgroups are proving most vulnerable.

Most of the information reported here deals with illicit use of controlled substances. The major exceptions are alcohol, “vaping,” cigarettes, other tobacco products, inhalants, nonprescription stimulants, medicines taken appropriately by prescription in the treatment of ADHD, creatine, cough and cold medicines, and salvia. In the questions about nonmedical use of psychotherapeutic drugs, respondents are asked to exclude any use without a doctor’s order.

Throughout this report, we also focus attention on drug use at the higher frequency levels in addition to reporting proportions that have ever used various drugs. This is done to help differentiate levels of seriousness, or extent, of drug involvement. While there is no public consensus on what levels or patterns of use constitute abuse, there is a consensus that higher levels of use are more likely to have detrimental effects for the user and for society. We have also introduced indirect measures of dosage per occasion by asking respondents about the duration and intensity of highs they usually experience with each type of drug. These items have shown some interesting trends over the years, detailed in Chapter 7.

Attitudes, Beliefs, and Early Experiences

Separate sections or whole chapters are devoted to the following issues related to a number of licit and illicit drugs:

- grade of first use;
- noncontinuation of use;
- respondents’ own attitudes and beliefs about specific drugs;
- degree and duration of the highs attained;
- perceptions of availability of the drug; and
- perceptions of attitudes and behaviors of others in the social environment.

Some of these variables have proven to be very important in explaining changes in use, as we discuss in detail in Chapter 8.

Over-the-Counter Substances

This Volume discusses use of nonprescription stimulants, including diet pills and stay-awake pills. Questions on these substances were added in 1982 because their use appeared to be on the rise, and it seemed that some respondents inappropriately included these substances in their answers about amphetamine use. That inappropriate inclusion affected some of the observed trends in amphetamine use until the clarification in 1982. Tables on the performance-enhancing substances anabolic steroids and androstenedione (andro)—previously an over-the-counter substance—and creatine are also included.

Cumulative Lifetime Daily Marijuana Use

Also included are trend results from a set of questions about cumulative lifetime marijuana use at a daily or near-daily level. These questions were added to enable us to develop a more complete individual history of daily use over a period of years. They reveal some important facts about frequent users of this drug.

Trends in Use of Specific Alcoholic Beverages

Twelfth grade data are reported for a wide spectrum of substances, including beer, liquor, wine, wine coolers, and flavored alcoholic beverages. (For 8th and 10th graders, the measures of specific alcoholic substances are restricted to beer and wine coolers, though the category of wine coolers was dropped from the questionnaires in 2004 to make space for the more general class of flavored alcoholic beverages.) Results on these various substances are discussed in Chapters 4 and 5. We present trends on alcohol use as well as on most other substances among demographic subgroups and for specific classes of alcoholic beverages in a separate, accompanying publication.⁴

Sources of Prescription Drugs

MTF has previously reported on the growing importance of prescription-type psychotherapeutic drugs used without medical supervision. In 2007, new questions regarding where users secured several such drugs were added to one 12th grade questionnaire form. A section in Chapter 9 reports responses to these questions, as well as to other questions, which have since been elaborated. Since 2008, Chapters 4 and 5 also contain estimates of the proportion of 12th grade students who use *any* psychotherapeutic drug nonmedically in each prevalence period; these estimates can be made only for 12th graders, because estimates of use of sedatives and narcotics other than heroin are not reported for students in the lower grades due to concerns about the validity of their reports of these substances.

Synopses of Other MTF Publications

Chapter 10 contains short synopses of other MTF publications produced during the past year (journal articles, chapters, occasional papers, etc.). References to the full documents are provided, and many are available on the [MTF website](#).

Appendices

Appendix A addresses the issue of whether absentees and school dropouts affect MTF results and, if so, to what extent. For illustrative purposes, the appendix provides estimates of prevalence and trends adjusted for these missing segments of the population for marijuana, cocaine, any illicit drug use, cigarettes, and alcohol.

Appendix B gives the definitions of the various demographic subgroups discussed.

Appendix C provides trends for 12th grade only on various *subclasses* of drugs within each of the following five general classes: hallucinogens other than LSD, amphetamines, tranquilizers,

⁴ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2022). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2021](#) (Monitoring the Future Occasional Paper No. 97). Ann Arbor, MI: Institute for Social Research, University of Michigan.

narcotics other than heroin, and sedatives. These tables provide annual prevalence levels over time and show how the mix of subclasses has changed over the years within each of the general classes.

Appendix D provides trends since 1991 in drug use for the *three grades combined*, as well as the absolute decline and the proportional decline in the prevalence of each drug since the most recent *peak* level. Such tables are helpful in getting a quick read on the trends. By combining the three grades, however, much of the meaningful detail available from grade-specific estimates is lost, including evidence of cohort effects.

In years 2017 and earlier the Appendix C of Volume I reported information on how to calculate confidence intervals for point estimates and how to calculate statistics that test the significance of changes over time or of differences between subgroups. This appendix is no longer necessary with the opening of MTF's secure remote portal at the [National Addiction and HIV Data Archive Program](#), which now allows researchers to compute such statistics directly using MTF weights and clustering variables, after completing an application process that includes a signed pledge to protect the confidentiality of the data. Interested readers may refer to Appendix C of earlier volumes for the information it provides about design effects and how their computational influence varies by substance. They are listed under Publications on the study website: www.monitoringthefuture.org.

PURPOSES AND RATIONALE FOR THIS RESEARCH

Perhaps no social problem has proven more clearly appropriate for and in need of the application of systematic research and reporting than that of substance abuse. Substance-abusing behaviors are often hidden from public view, can change rapidly and frequently, and are of great importance to the well-being of the nation. Many legislative and programmatic interventions are aimed at these behaviors, such as the policies that were put into place in response to the increases in adolescent smoking and illicit drug use we reported in the 1970s and then again in the 1990s as a relapse in the drug epidemic unfolded.

Young people are often at the leading edge of social change, and this has been particularly true of drug use. The substantial changes in illicit drug use during the last 50 or so years have proven to be largely a youth phenomenon. MTF documented that the relapse in the drug epidemic in the early 1990s initially occurred almost exclusively among adolescents. Adolescents and adults in their 20s fall into the age groups at highest risk for illicit drug use. Moreover, for some drug users, use that begins in adolescence continues well into adulthood. This is indicated in the cohort effects that we report for a number of substances (and even in some attitudes and beliefs about them). The original epidemic of illicit drug use in the 1960s began on the nation's college campuses and then spread downward in age. By way of contrast, MTF has shown that the relapse phase in the 1990s first manifested itself among secondary school students and then started moving upward in age as those cohorts matured.

One purpose of MTF is to develop an accurate description of these important changes as they are unfolding. An accurate picture of the basic size and contours of the illicit drug use problem among youth in the U.S. is a prerequisite for informed public debate and policymaking. In the absence of reliable *prevalence* data, substantial misconceptions can develop and resources can be misallocated. The same is true for different forms of alcohol and tobacco use. In the absence of

reliable *trend* data, early detection and localization of emerging problems are more difficult and societal responses more lagged. For example, MTF provided early evidence that cigarette smoking among U.S. adolescents was rising sharply in the early 1990s, which helped stimulate and support some extremely important policy initiatives that culminated in the tobacco settlement between the tobacco industry and the states. MTF documented and described the sharp rise and subsequent decline in ecstasy use and earlier in cocaine use, illustrating the important role that *perceived risk* played in these changes, as it has done for a number of other drugs in the past. The study also helped draw attention to the rise in steroid and androstenedione use among adolescents in the late 1990s, resulting in legislative and regulatory action. It exposed a rise in the use of narcotic drugs other than heroin (especially certain prescription-type analgesics), stimulating an initiative at the White House Office of National Drug Control Policy aimed at reducing use. More recently, MTF has become a key source of information on vaping, and MTF results are cited by the FDA in its recent [regulations](#) prohibiting all flavoring of vaping cartridges except tobacco and menthol. In addition to enabling early detection and localization of problems, valid trend data make assessments of the impact of major historical and policy-induced events much less conjectural.

The accurate empirical comparison of subgroup differences has challenged conventional wisdom in some important ways. Accurately characterizing not only differences but also differential changes among subgroups has been an important scientific contribution from MTF. For example, dramatic racial/ethnic differences in cigarette smoking emerged during the life of the study – differences that were almost nonexistent when MTF began in 1975. Further, the misinformed assumption by some that African-American students use illicit drugs more than do White students has been disconfirmed since the beginning of the study, which shows lower levels of use for African-American students in most years, though these differences have been narrowing in recent years as overall use of many substances declined, thus leaving less room for differences.

MTF also monitors a number of factors – peer norms regarding drugs, beliefs about the dangers of drugs, and perceived availability – that help explain the historical changes observed in drug use. Monitoring these factors has made it possible to examine a central policy issue in this nation’s efforts to reduce drug use – namely, the relative importance of supply versus demand factors in bringing about some of the observed declines and increases in drug use.⁵ Our group has also put forth a general theory of drug epidemics that uses many of these concepts to help explain the rises and declines that occur in use and emphasizes the importance of demand-side factors.⁶

In addition to accurately assessing prevalence and testing explanations of their causes, the integrated MTF study of adolescents and adults has a substantial number of other important research objectives that are addressed in our other publications. These include (a) assessing the impact of historical events such as the COVID-19 pandemic on population levels of substance use; (b) helping to determine which young people are at greatest risk for developing various short- and long-term patterns of drug abuse; (c) gaining a better understanding of the lifestyles and value orientations associated with various patterns of drug use, and monitoring how subgroup differences shift over time; (d) determining the immediate and more general aspects of the social environment

⁵ Other major studies have adopted many of these measures including the National Survey on Drug Use and Health (NSDUH) and the European school surveys of substance use in nearly forty European countries (ESPAD), which is largely modeled after Monitoring the Future.

⁶ See Johnston, L. D. (1991). [Toward a theory of drug epidemics](#). In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–132). Hillsdale, NJ: Lawrence Erlbaum.

associated with drug use and abuse; (e) determining how major transitions in the social environment (e.g., entry into military service, civilian employment, college, homemaking, and unemployment) or in social roles (e.g., engagement, marriage, pregnancy, parenthood, divorce, and remarriage) affect changes in drug use; (f) determining the life course trajectories and comorbidity of the various drug-using behaviors from early adolescence to middle and later adulthood, and distinguishing such age effects from cohort and period effects; (g) determining the effects of social legislation, such as marijuana legalization and the long-term effects of the Master Tobacco Settlement Agreement of 1998 on various types of substance use; (h) examining possible consequences of using various drugs; (i) examining linkages between educational success or failure and substance use; and (j) determining the changing connotations of drug use and changing patterns of multiple drug use among youth.⁷ Readers interested in publications dealing with any of these topics should visit the MTF website at www.monitoringthefuture.org.

The differentiation of period, age, and cohort effects in the use of various substances has been a particularly important contribution of MTF and one for which the study's cohort-sequential research design is especially well suited.

Since 2004, we have also been reporting about factors related to the spread of HIV/AIDS. These factors include number of sexual partners, gender of sexual partners, condom use, injection drug use, injection drug use using shared needles, illicit drug and alcohol use more generally, and getting tested for HIV/AIDS. Most of the research objectives listed above for licit and illicit drug use can also be addressed in relation to these very important behaviors. Our emphasis is on measuring and reporting prevalence and trends in HIV/AIDS-related behaviors in the general population of young adults ages 21–30 who are high school graduates. We have also been measuring the extent to which these various risk and protective behaviors are correlated. Increasingly, as the numbers of cases cumulate, we will be looking at cross-time predictions and differences associated with age, period, and cohort effects.

Thus, our efforts over the years and going into the future cover both the epidemiology and etiology of substance use and related risk behaviors. Including both sets of efforts within the same large-scale study, and keeping measurement consistent across historical and developmental time, allows us to provide the nation with scientifically reliable, nationally representative estimates of historical trends of substance use as well as the developmental trends and possible causes, correlates, and consequences of substance use and other risk behaviors from adolescence through adulthood.

⁷ For an elaboration and discussion of the full range of MTF research objectives in the domain of substance abuse, see Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2016). *The objectives and theoretical foundation of the Monitoring the Future Study* (Monitoring the Future Occasional Paper No. 84). Ann Arbor, MI: Institute for Social Research, University of Michigan.

TABLE 1-1
Added and Deleted Prevalence of Use Questions
for 8th, 10th, and 12th Graders

Drug Name	Year in which added	Grades in which added			Year in which dropped	Grades in which dropped		
		8th	10th	12th		8th	10th	12th
PCP	1979			X	2014 ^c			X
Nonprescription Diet Pills	1982			X				
Stay-Awake Pills	1982			X				
Smokeless Tobacco ^a	1986, 1992			X	1990			X
Crack ^b	1986–1987, 1990			X				
Cocaine other than Crack	1987			X				
Steroids	1989			X				
Crystal Methamphetamine (Ice)	1990			X				
Been Drunk	1991			X				
Heroin With a Needle	1995	X	X	X				
Heroin Without a Needle	1995	X	X	X				
Ecstasy (MDMA)	1996	X	X	X				
Rohypnol	1996	X	X	X	2002 ^h			X
Methamphetamine	1999	X	X	X				
GHB	2000	X	X	X	2012 ⁱ	X	X	
Ketamine	2000	X	X	X	2012 ⁱ	X	X	
Androstenedione	2001	X	X	X	2016 ⁱ	X	X	
Creatine	2001	X	X	X				
Ritalin	2001	X	X	X				
OxyContin	2002	X	X	X				
Vicodin	2002	X	X	X				
Flavored Alcoholic Beverages (Alcopops) ^d	2003 2004			X				
ADHD Stimulant-type drug—prescribed	2005	X	X	X				
ADHD Non-stimulant-type drug—prescribed	2005	X	X	X				
Any Prescription Drug—not prescribed ^e	2005			X				
10+ drinks in a row in past two weeks	2005 2016			X				
15+ drinks in a row in past two weeks	2005			X				
Over-the-counter Cough/Cold Medicines	2006	X	X	X				
Adderall	2009	X	X	X				
Salvia	2009 2010			X				
Tobacco using a Hookah	2010, 2016 2016			X				
Small Cigars	2010			X				
Energy Drinks	2010	X	X	X				
Energy Shots	2010	X	X	X				
Synthetic Marijuana ^g	2011 2012			X				
Alcohol Beverages containing Caffeine ^f	2011	X	X	X				
Dissolvable Tobacco Products	2011 2012			X				
Snus	2011 2012			X				
Large Cigars	2014	X	X	X				
Flavored Little Cigars	2014	X	X	X				
Regular Little Cigars	2014	X	X	X				

(Table continued on next page.)

TABLE 1-1 (cont.)
Added and Deleted Prevalence of Use Questions
for 8th, 10th, and 12th Graders

	Year in which added	Grades in which added			Year in which dropped	Grades in which dropped		
		8th	10th	12th		8th	10th	12th
Vaping Nicotine	2017	X	X	X				
Vaping Marijuana	2017	X	X	X				
Vaping Just Flavoring	2017	X	X	X				
JUUL	2019	X	X	X				
Marijuana Under a Doctor's Orders	2017	X	X	X				
Methaqualone	1975			X	1990/2013			X
Nitrites	1979			X	2010			X
Provigil	2009			X	2012			X
Bidis	2000	X	X		2006	X	X	
	2000			X	2011			X
Kreteks	2001	X	X		2006	X	X	
	2001			X	2015			X
Electronic Vaporizers	2015	X	X	X	2017	X	X	X
Look-Alikes	1982			X	2018			X
Bath Salts (synthetic stimulants)	2012	X	X	X	2019	X	X	X
Powdered Alcohol	2016	X	X	X	2020	X	X	X

Source. The Monitoring the Future study, the University of Michigan.

Note. All prescription-type drugs listed refer to use without a doctor's orders, unless otherwise noted.

^aSmokeless tobacco was added to one questionnaire form in 1986, dropped in 1990, then added to a different questionnaire form in 1992.

^bA question on annual use of crack was added to a single form in 1986. The standard triplet questions (lifetime, annual, and 30-day use) were added to two forms in 1987 and to all forms in 1990.

^cFor 12th grade only: Lifetime and 30-day prevalence of use questions were dropped in 2002. A question on annual use remains in the study.

^dFor 12th grade only: A question on annual use of Alcopops was added to a single form in 2003. In 2004 it was replaced by the standard triplet questions (lifetime, annual, and 30-day use) about use of flavored alcoholic beverages.

^eFor 12th grade only: The use of any prescription drug includes use of any of the following: amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers...without a doctor telling you to use them.

^fFor all grades: In 2012 the alcoholic beverages containing caffeine question text was changed. See text for details.

^gFor all grades: Questions on the annual use of synthetic marijuana were added to the survey in the year specified in the table.

^hFor 12th grade only: Lifetime and 30-day prevalence of use questions were dropped in 2014. A question on annual use remains in the study.

ⁱOnly 8th and 10th grade questions were dropped from the study.

Chapter 2

KEY FINDINGS IN 2021¹

Monitoring the Future (MTF), now having completed its 47th year of data collection, has become one of the nation's most relied upon scientific sources of valid information on trends in use of licit and illicit psychoactive drugs by U.S. adolescents, college students, young adults, and adults up to age 60. During the last four decades, the study has tracked and reported on the use of an ever-growing array of such substances in these populations of adolescents and adults.

The annual MTF series of monographs is one of the primary mechanisms through which the epidemiological findings are reported. Findings from the inception of the study in 1975 through 2021 are included—the results of 47 national in-school surveys and 45 national follow-up surveys.

MTF has conducted in-school surveys of nationally representative samples of (a) 12th grade students each year since 1975 and (b) 8th and 10th grade students each year since 1991. In addition, beginning with the class of 1976, the study has conducted follow-up surveys of representative subsamples of the respondents from each previously participating 12th grade class. These follow-up surveys now continue well into adulthood, currently up to age 60. This volume focuses on the results from the in-school surveys of 8th, 10th, and 12th grade students; a companion Volume² focuses on the results from the follow-up surveys from ages 19 to 60.

MTF is designed to detect age, period, and cohort effects in substance use and related attitudes. Age effects are similar changes at similar ages seen across multiple class cohorts; they are common during adolescence. Period effects are changes that are parallel over a number of years across multiple age groups (in this case, all three grades under study—8, 10, and 12). Cohort effects are substance use behaviors or attitudes that distinguish a class cohort from others that came before or after them and are maintained as the cohort ages.

Below we summarize key findings for use of various substances by U.S. 8th, 10th, and 12th graders in 2021. In addition, the text below also refers to analyses for all three grades combined, the results of which are presented in Appendix D.

But first a few words about the context. The preceding year, 2020, was an unusual year for the study because data collection stopped earlier than usual, in March of that year, due to the emerging COVID-19 epidemic and the University of Michigan halting in-person research. This resulted in smaller sample sizes for 2020, but based on careful analyses we believe that the smaller samples reflect drug use for all students that year with reasonable accuracy.³ The 2020 data collection occurred early in 2020, covering the early months of the epidemic, but it did not cover most of the period of the epidemic that year nor of its effects. However, the 2021 data collection occurred

¹ Many of the findings in this chapter were previously reported in [Monitoring the Future national survey results on drug use, 1975-2021: Overview, key findings on adolescent drug use](#).

² Patrick, M. E., Schulenberg, J. E., Miech, R. A., Johnston, L. D., O'Malley, P. M., & Bachman, J. G. *Monitoring the Future Panel Study annual report: National data on substance use among adults ages 19 to 60, 1976-2021*. Monitoring the Future Monograph Series. University of Michigan Institute for Social Research: Ann Arbor, MI. Publication date scheduled for August 1, 2022. .Prior year versions are available at the [MTF website](#).

³ Miech, R., Leventhal A., Johnston, L., O'Malley, P.M., Patrick, M.E., and Barrington-Trimis, J. 2021. [Trends in use and perceptions of nicotine vaping among US youth from 2017 to 2020](#). *JAMA Pediatrics*, 175(2), 185-190.

more than a year into the COVID epidemic and quite dramatic changes in adolescent drug use took place, as will be summarized in this section.

EXECUTIVE SUMMARY

A Broad and Deep Decline in Drug Use in 2021

As a scan across the figures in this monograph demonstrates, most forms of drug use showed steep and atypical declines in 2021. For the three grades combined, lifetime prevalence of using [any illicit drug](#) declined by 7.8 percentage points and annual prevalence declined by 7.4 percentage points in 2021, both significant at the $p < .001$ level. They amount to relative declines from the prevalence levels in 2020 of 22% and 27% in just one year.

The comparable declines for using [any illicit drug other than marijuana](#) were 4.2 and 3.6 percentage points. (They amount to relative declines from the previous year of 22% and 29%.) These substantial one-year declines for the three grades combined are also significant at the $p < .001$ level.

These are substantial and unprecedented declines for a single year, as may be seen in the figures throughout this volume. Indeed, they are the largest and broadest to be seen by the study over its 47 year history.

Marijuana Use Shows a Sharp Decline

[Marijuana](#), which is by far the most prevalent of the illicit drugs, showed considerable decline in 2021 of 7.1 and 6.7 percentage points in lifetime and annual prevalence, respectively, for the three grades combined; and for 30 day prevalence, there was a 3.6 percentage point decline—all significant at the $p < .001$ level. These declines from 2020 to 2021 amount to relative declines of 24%, 27%, and 25%, for the three prevalence levels, respectively.

Daily use of marijuana in the prior thirty days also saw substantial declines, with a relative decline across the three grades combined of 24%. The daily prevalence levels in 2021 were 0.6%, 3.2%, and 5.8%, in 8th, 10th, and 12th grade respectively.

[Synthetic marijuana](#) use in the prior 12 months also declined appreciably for the three grades combined, dropping from 2.2% in 2020 to 1.6% in 2021 ($p < .01$) for a relative decline of 27%.

We turn next to some of the other high prevalence substances.

Vaping Declines Sharply in 2021

For the three grades combined [nicotine vaping](#) had the highest annual prevalence in 2020 at 27% of any of the substances we study aside from alcohol. It reflected what had been a very rapid rise in its use since we first started tracking it in 2017. (That rise halted in 2020 at 27%, as we reported last year.) But in 2021 annual prevalence for the three grades combined dropped by 7.9 percentage points (for a relative one-year decline of 29%), reaching 19% annual prevalence ($p < .001$).

Given that nicotine is a highly addictive substance, the earlier rise in vaping nicotine presented a serious threat to the hard won progress that we had tracked since the mid-1990s in cigarette

smoking among adolescents. So, the decline in nicotine vaping in 2021 may turn out to be a rare positive development of the pandemic, particularly if it holds into the future

The [JUUL](#) brand of vaping device was dominant in the nicotine vaping market, so we introduced questions specific to JUUL in 2019. The 30 day prevalence levels in the three grades combined were high in 2019, as expected; but they fell substantially in 2020 in all three grades. Then, in 2021 significant further decline in 30 day prevalence of 5.6 percentage points was observed for the three grades combined, with a relative decline of 54% (significant at the $p<.001$ level).

JUUL stopped selling flavors other than tobacco and menthol in October 2018, and adolescent use of the JUUL brand subsequently dropped dramatically. However, overall nicotine vaping levels did not decline to the same degree. This is in part because adolescents instead used other brands such as Puff Bar, which continues to offer flavors attractive to youth, such as mint and fruit flavors.

[Vaping marijuana](#) also had shown a rapid growth in annual prevalence for the three grades combined, rising from 7% in 2017, when it was first measured, to 16% in 2020. But in 2021 we observed a sharp decline in the three grades combined of 4.7 percentage points (which reflects a relative decline from 2020 of 29%, $p<.01$). (The decline in 30 day prevalence was significant at the $p<.001$ level.)

[Cocaine](#) use declined in 2021, with cocaine showing a relative decline in annual prevalence for the three grades combined of 57% ($p<.001$), leaving annual prevalence at 0.7%, down from 1.4% in 2020.

The annual prevalence of [amphetamine](#) use outside of medical supervision had been in decline since 2013 and declined by 1.9 percentage points in 2021 to 2.7% ($p<.001$) for the three grades combined, reflecting a relative decline of 41% in that one year.

Annual prevalence of [tranquilizer](#) use outside of medical supervision for the three grades combined dropped from 2.7% to 1.2% ($p<.001$) between 2020 and 2021.

[Narcotics other than heroin](#), a particularly important class of drugs in recent years, will be discussed below under psychotherapeutic drugs.

[Crystal methamphetamine](#) declined significantly in 12th grade—the only grade in which it is asked—between 2019 and 2020 from 0.6% to 0.0 % but then rebounded part of the way back to 0.4% in 2021 ($p<.05$).

Few Drugs Increased in Use in 2021

One of the few increases observed in 2021 was use of drugs for the medical treatment of [ADHD](#), at least in 8th grade. Thirty day prevalence more than doubled from 2.7% in 2020 to 5.5% in 2021 (a significant increase) and lifetime use also increased from 7.3% to 11.5% in this time period (also a significant increase) among 8th grade students. It is conceivable that there was an increase in the need for treatment during the pandemic due to adolescents being under more stress during the pandemic. Another possibility is that sheltering at home during the pandemic may have made any attention issues of adolescents more salient to their parents.

Some Drugs Held Steady in 2021

Among the drugs that showed no significant change in annual prevalence in 2021, based on the three grades combined, are [inhalants](#), [hallucinogens other than LSD](#), [crack cocaine](#), [heroin](#), [Oxycontin](#), [Vicodin](#), [Ritalin](#), and [dissolvable tobacco products](#).

Psychotherapeutic Drugs

Use of psychotherapeutic drugs outside of medical supervision warranted special attention as a substantial part of the overall U.S. drug problem in the 2000s. This was in part due to increases in nonmedical use of many prescription drugs over that period, and in part due to the fact that use of many of the street drugs declined substantially after the mid- to late-1990s.

It seems likely that young people are less concerned about the dangers of using these prescription drugs outside of medical regimen because they are widely used for legitimate purposes. (Indeed, the low levels of perceived risk for sedatives and amphetamines observed among 12th graders illustrate this point.) Also, many prescription psychotherapeutic drugs are now being advertised directly to the consumer, which implies that they are both widely used and safe.

Fortunately, the use of most of these drugs by youth has declined. The proportion of 12th graders misusing any of these prescription drugs (i.e., amphetamines, sedatives, tranquilizers, or narcotics other than heroin) in the prior year continued its decline in 2021, dropping 3.1 percentage points ($p < .001$) to 4.4%, down very substantially from a high of 17% in 2005, when this index was first calculated (see Table 5-5b). The relative decline from 2020 to 2021 was 41%.

Use of [narcotics other than heroin](#) without a doctor's orders (reported only for 12th grade) continued a decline begun after 2009, when annual prevalence was 9.2%; it was 1.0% after a significant one-year drop of 1.1 percentage points in 2021 (a relative decline of 52% from 2020, $p < .01$).

Given the epidemic of narcotics misuse in older populations along with concurrent rise in medical emergencies and overdose deaths, it is particularly good news that young people are moving away from the use of these drugs, not only because they will be less vulnerable to tragedies resulting from the use of these drugs during adolescence, but also because they may well take their more cautious behaviors with them into their twenties, thirties, and beyond—ages in which overdose deaths are currently most prevalent. In other words, a cohort effect may emerge.

Alcohol Use Also Declined in 2021

Gradual, long-term declines in of [alcohol](#) use continued into 2021, which marked the lowest levels for alcohol use ever recorded by the study. For the three grades combined annual prevalence fell by 8.1 percentage points to 30.2% ($p < .001$) from 2020 to 2021, while 30 day prevalence fell by 5.8 percentage points to 15.1% ($p < .001$).

Several Forms of Tobacco Use Continued to Decline

[Cigarette smoking](#) has had a long and very substantial decline since the mid-1990s. For the three grades combined through 2021, 30 day prevalence of cigarette use has fallen by 92%. Daily

prevalence has fallen by 94% and current half pack a day prevalence by 87% since their peaks in the 1990s. Despite the long and large declines, there was still further decline between 2020 and 2021, with 30 day prevalence falling by 1.0, 1.4, and 3.4 percentage points in grades 8, 10, and 12. These reflect large relative declines for the one year of 48%, 44%, and 45%, respectively. The declines are significant at $p < .05$ for 8th grade and $p < .01$ for 10th grade, with the change in 12th grade not significant. The changes in students' lives during the pandemic undoubtedly played a role in these sharp downturns. Because of the strong cohort effect that we have consistently observed for cigarette smoking, we expect that use at later ages will continue to show declines, as the lighter-smoking cohorts of 8th, 10th, and 12th graders grow older.

In 2021 the initiation of cigarette use continued its long term and extremely important decline. Lifetime prevalence declined appreciably in all three grades—by 4.5, 3.9, and 6.1 percentage points—significantly so in grades 8 ($p < .01$) and 10 ($p < .001$). The long term decline in the initiation of smoking is an important reason for the large declines in current use.

Adolescent use of [*cigarillos*](#) (also known as small cigars) continued to decline in 2021. Annual prevalence by 12th grade students have fallen from 23% in 2010 to 3.4% in 2021. Annual prevalence of [*regular small cigars*](#) has also declined dramatically since first measured in 2014 to 2021, from 2.5% to 0.8% in 8th grade, from 4.4% to 1.2% in 10th grade, and from 7.0% to 1.8% in 12th grade. Of note is the fact that the majority of adolescent users of small cigars smoke flavored ones, though that difference has been diminishing.

Annual prevalence of smoking tobacco using a [*hookah*](#) (water pipe) increased steadily until 2014 among 12th graders—reaching 23% in 2014—but has since been steadily declining. In 2021 it had declined by a relative 86% from its 2014 high of 23% and was at 2.1%.

From the mid-1990s to the early 2000s [*smokeless tobacco*](#) use declined substantially, but a slight rebound in use developed from the mid-2000s through 2010. The 8th and 10th graders showed some decline for a few years and then leveled, while 12th graders held level from about 2010–2015. Prevalence levels declined considerably in the upper grades in recent years. Between 2019 and 2021 there was a fair decline at all grades, likely reflecting the effects of the pandemic.

Adolescent Drug Use During the COVID-19 Pandemic

As should be clear by now, given the number of drugs that showed an extraordinary decline in 2021, it appears that the COVID-19 pandemic had a major impact on substance use of almost all kinds among U.S. adolescents. This may be seen visually in the many figures showing trends in use and factually in the many sizeable and record setting declines documented in this section.

What changed in 2021 to bring about that amount of decline in substance use? To some degree potential factors are documented in following chapters and include concurrent changes in perceived risk, personal disapproval, and perceived availability. Perceived availability, in particular, appears to have played a major role. That makes sense, especially considering the changes in the lives of adolescents during the pandemic. Many were not in school, some were locked down at home, likely more had a parent at home during the school week who could monitor their behavior, and many were told not to mingle with their friends or other teens—and the decline

in social events removed adolescents from parties and other social activities where drug use is likely to occur.

Chapter 3

STUDY DESIGN AND PROCEDURES

Monitoring the Future (MTF) incorporates several survey designs into one study, yielding analytic power beyond the sum of those component parts. The components include cross-sectional studies, repeated cross-sectional studies, and panel studies of individual cohorts and sets of cohorts. The annual cross-sectional surveys provide point estimates of various behaviors and conditions in any given year for a number of subpopulations (e.g., 8th graders, 10th graders, 12th graders, college students, all young adult high school graduates ages 19–30, as well as surveys at five-year intervals starting at age 35 and currently up to age 60) and provide point estimates for various subgroups within these different populations. Repeating these annual cross-sectional surveys over time allows an assessment of change across history in consistent age segments of the population, as well as among subgroups. The panel study feature permits the examination of developmental change in the same individuals as they assume adult responsibilities, enter and leave various adult roles and environments, and continue further into adulthood. It also permits an assessment of a number of outcomes later in life that MTF has shown to be linked to substance use in adolescence and beyond.

Finally, with a series of panel studies of sequential graduating class cohorts we are able to offer distinctions among, and explanations for, three fundamentally different types of change: period, age, and cohort. It is this feature that creates a synergistic effect in terms of analytic and explanatory power.^{1,2}

This Volume reports results for the 8th, 10th, and 12th graders, and Volume II³ reports results for panel respondents, including college students, followed up through age 60. It also focuses specifically on levels and trends in substance use among nationally representative samples of students enrolled in college and among high school graduates the same age not currently enrolled in college.

For the first time, in 2021 MTF administered surveys to 8th, 10th, and 12th graders using a web-based questionnaire. The student experience of completing the survey was similar to the previous year, in which all students answered the questionnaire using internet-connected electronic tablets, which MTF brought to the schools. A main difference in 2021 is that students used their own electronic devices. In addition, students who were schooling remotely took the survey in their homes rather than in their school building.

Because the pandemic came on suddenly and unexpectedly, it was not possible for MTF to conduct a randomized-controlled test of the web-survey mode in comparison to electronic tablets. For two

¹ Bachman, J. G., Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., & Miech, R. A. (2015). [The Monitoring the Future project after four decades: Design and procedures](#) (Monitoring the Future Occasional Paper No. 82). Ann Arbor, MI: Institute for Social Research.

² For a more detailed description of the full range of research objectives of Monitoring the Future, see Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2016). [The objectives and theoretical foundation of the Monitoring the Future study](#) (Monitoring the Future Occasional Paper No. 84). Ann Arbor, MI: Institute for Social Research.

³ Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2020). [Monitoring the Future national survey results on drug use, 1975-2020: Volume II, college students and adults ages 19-60](#). Ann Arbor: Institute for Social Research, The University of Michigan, 482 pp.

reasons we expect that such a test would have shown little to no differences in drug prevalence across the two modes, given that they are similar and both involve electronic devices connected to the internet. First, a 2019 MTF experiment that tested a much more substantial mode difference found no significant effect on drug prevalence estimates. In the 2019 administration, MTF surveyed a randomly-selected half of the schools using electronic tablets and the other half using paper-and-pencil questionnaires and found no mode differences in drug use prevalence.⁴ Second, 2021 trends were similar in analyses that used all participants and in analyses that restricted the analysis pool to the 46% of students who had all their classes in their school building, which suggests that at-home and in-school administrations produced similar results (analyses not shown here). Consequently, in this report we directly compare the 2021 drug prevalence estimates using all participants with estimates from previous years and use tests of statistical significance to consider differences. However, we cannot rule out possible mode effects for some of the attitudes and beliefs estimates in 2021, and consequently when presenting these results we interpret trends qualitatively and do not use statistical tests of significance.

RESEARCH DESIGN AND PROCEDURES FOR THE 12th GRADE SURVEYS

In 2021 the project surveyed 9,022 12th grade students in 98 schools distributed throughout the contiguous U.S. Twelfth graders have been surveyed in the spring of each year since 1975. Each year's data collection took place in both public and private high schools, which were selected to provide a representative cross-section of 12th graders throughout the coterminous United States (see Figure 3-1). A sampling statistician directed the selection of schools to ensure the rigor of the sampling procedures.

The Population under Study

Senior year of high school is a strategic point at which to monitor drug use and related attitudes of youth. First, completion of high school represents the end of an important developmental period in this society, demarcating both the end of universal education and, for many, the end of living full-time in the parental home. Therefore, it is a logical point at which to take stock of cumulated influences. Further, completion of high school represents a jumping-off point—a point from which young people diverge into widely differing social environments and experiences. Thus senior year is a good time to take a “before” measure, allowing for the subsequent calculation of changes that may be attributable to the environmental transitions occurring in young adulthood, including college attendance, civilian employment, military service, and role transitions such as marriage, parenthood, divorce, etc. Finally, there are some important practical advantages built into the original system of data collections with samples of 12th graders. The need for systematically repeated, large-scale samples from which to make reliable estimates of change requires that considerable emphasis be put on cost efficiency as well as feasibility. The last year of high school constitutes the final point at which a reasonably good national sample of an age-specific cohort can be drawn and studied economically.

⁴ Miech, R. A., Couper, M. P., Heeringa, S. G., & Patrick, M. E. (2021). [The impact of survey mode on US national estimates of adolescent drug prevalence: Results from a randomized controlled study](#). *Addiction*, 116(5), 1144–1151.

The Omission of Dropouts

One limitation in the MTF study design is the exclusion of individuals who drop out of high school before graduation—approximately 6–15% of each age cohort nationally, according to U.S. Census statistics. (The dropout rate has been declining in recent years; 6% is the most recent estimate.⁵) Clearly, the omission of high school dropouts introduces biases in the estimation of certain characteristics of the entire age group; however, for most purposes, the small proportion of students who drop out sets outer limits on the bias. Further, since the bias from missing dropouts should remain relatively constant from one year to the next, their omission should introduce little or no bias in year-to-year change estimates. Indeed, we believe the changes observed over time for those who are surveyed in the 12th grade are likely to parallel the changes for dropouts in most instances. Appendix A in this volume addresses in detail the likely effects of the exclusion of dropouts (as well as absentees from school) on estimates of drug use prevalence and trends for the entire age cohort.

Sampling Procedures and Sample Weights

A multistage random sampling procedure is used to secure the nationwide sample of 12th graders each year. Stage 1 is the selection of particular geographic areas, Stage 2 is the selection of one or more high schools in each area (with probability proportionate to the student enrollment size for the grade in question), and Stage 3 is the selection of 12th graders within each high school. Up to 500 twelfth graders in each school may be included. In schools with fewer 12th graders, the usual procedure is to include all of them in the data collection, though a smaller sample is sometimes taken to accommodate the needs of the school (either by randomly sampling entire classrooms or by some other unbiased, random method). Weights are assigned to compensate for differential probabilities of selection at each stage of sampling. Final weights are normalized to average 1.0 (so that the weighted number of cases equals the unweighted number of cases overall).

In 2020, to address the smaller sample size and associated greater variability, the analyses were additionally weighted by region of the country (West, Midwest, Northeast and South) and, within each region, by metropolitan/non-metropolitan status. The result of this weighting is that the impact of these two factors on the analysis is proportional to their size in the nation. Substance use levels and other demographics did not inform the sampling weights. This same weighting procedure was used for the 8th and 10th grade students.

In order to be able to check observed trends in any given one-year interval, schools participate in the study for two consecutive years on a staggered schedule, with one half of them being replaced with a new random half-sample of schools each year. Therefore, in any given year about half of the schools in the sample are participating for the first time and the other half are participating for their second and final year. This three-stage sampling procedure, with annual replacement of half of the sample of schools each year, has yielded the numbers of participating schools and students shown in Table 3-1.

Questionnaire Administration

Informed consent (active or passive, per school policy) is obtained from parents of students younger than 18 years and from students aged 18 years or older. About three weeks prior to the

⁵ U.S. Child Trends Databank. (2018). [High school dropout rates](#). Bethesda, MD.

questionnaire administration date, parents of the target respondents are sent a letter by first-class mail, usually from the principal, announcing and describing the MTF study and providing parents with an opportunity to decline participation of their son or daughter if they wish. A flyer outlining the study in more detail is enclosed with the letter. Copies of the flyers are also given to the students by teachers in the target classrooms in advance of the date of administration. The flyers make clear that participation is entirely voluntary. Local Institute for Social Research representatives and their assistants conduct the actual questionnaire administrations following standardized procedures detailed in an instruction manual. The questionnaires are administered in classrooms during a normal class period whenever possible; however, circumstances in some schools require the use of larger group administrations. Teachers are asked to remain present in the classroom to help maintain order, but to remain at their desks so that they cannot see students' answers.

Questionnaire Format

Because many questions are needed to cover all of the many topic areas in the MTF study, the questionnaire content for 12th graders is divided into six different questionnaire forms that are randomly distributed to participants to ensure six virtually identical random subsamples. (Five questionnaire forms were used between 1975 and 1988.) About one third of each form consists of key, or “core,” variables common to all forms. All demographic variables are contained in this core set of measures. Key drug use variables are also in the core, while many of the specific drugs that have been added over time are not in the core set, but are in one or more forms. Many questions on attitudes, beliefs, and perceptions of relevant features of the social environment are in fewer forms, and data are thus based on fewer cases—a single form would have one fifth of the total number of cases in 1975–1988 (approximately 3,300 per year) and one sixth of the total beginning in 1989 (approximately 2,500 per year). All tables in this report list the sample sizes upon which the statistics are based, stated in terms of the weighted number of cases (which, as explained above, is roughly equivalent to the actual number of cases).

2019 Estimates

The project's use of two different survey modes in 2019—both electronic tablets and paper-and-pencil—raises the possibility that differences in 2019 estimates in comparison to other years may stem in part from survey mode effects. We examined this possibility in detail, and for drug prevalence estimates we found no evidence of mode effects.⁶ Consequently, for all 2019 drug prevalence estimates we report results from the pooled sample of paper-and-pencil and electronic tablet responses.

2020 Estimates

In-school data collection in 2020 was halted on March 15, 2020 as a result of the COVID-19 pandemic. This halt resulted in a sample size about one-quarter the size of a typical data collection. The 2020 in-school data collection was also unique because it was the first year all students recorded their answers on electronic tablets, which MTF brought to the schools. This transition to electronic data collection was part of a plan that included a 2019 MTF administration in which a randomly selected half of schools used traditional paper-and-pencil questionnaires and the other

⁶ Miech, R. A., Couper, M. P., Heeringa, S. G., & Patrick, M. E. (2020). [The impact of survey mode on US national estimates of adolescent drug prevalence: Results from a randomized controlled study](#). *Addiction*, 116(5), 1144-1151.

half used electronic tablets. This allowed assessment of potential survey mode effects, and in 2020 and all future years the project will no longer use paper-and-pencil questionnaires.

Detailed analyses of the 2020 results indicate that the curtailed MTF 2020 sample did not differ significantly from the nationally representative results from previous years in terms of sociodemographics and prevalence of substances that have had stable prevalence in recent years.⁷

RESEARCH DESIGN AND PROCEDURES FOR THE 8th AND 10th GRADE SURVEYS

In 1991, MTF was expanded to include nationally representative samples of 8th and 10th grade students surveyed on an annual basis. Separate samples of schools and students are drawn at each grade level. In general, the procedures used for the annual in-school surveys of 8th and 10th grade students closely parallel those used for 12th graders, including the selection of schools and students, questionnaire administration, and questionnaire format. A major exception is that only two different questionnaire forms were used in 8th and 10th grade from 1991 to 1996, expanding to four forms beginning in 1997. The same four questionnaire forms are used for both 8th and 10th graders; most of the content is drawn from the 12th grade surveys, including the core section. Thus, key demographic variables and measures of drug use and related attitudes and beliefs are generally identical for all three grades. Many fewer questions about other values and attitudes are included in the 8th and 10th grade forms, in part because we think that many of them are likely to be more fully formed by 12th grade and, therefore, are best monitored there.

In 2021, the project surveyed 11,792 10th grade students in 100 schools and 11,446 8th grade students in 121 schools distributed throughout the contiguous U.S. Each year's data collection took place in both public and private schools, which were selected to provide a representative cross-section of 8th graders and 10th graders throughout the contiguous United States (see Figure 3-1). A sampling statistician directed the selection of schools to ensure the rigor of the sampling procedures.

Anonymity

Since 1999, all surveys for 8th and 10th graders have been fully anonymous. In previous years, MTF collected confidential, personal identification information from these respondents, and from 1991 to 1993 this information was used to follow up with 8th and 10th graders in a manner similar to follow-ups of 12th graders (see below).⁸ Follow-up of 8th and 10th graders was discontinued after 1993, precluding the need for further collection of confidential, personal identification information. Considerations supporting a switch to fully anonymous surveys in 8th and 10th grade included the following: (a) school cooperation might be easier to obtain; and (b) to the extent that collecting contact information had any effect on survey responses such an effect would be removed from the national data, which are widely compared with results of state and local surveys (nearly all of which use anonymous questionnaires), thus making those comparisons more valid.

⁸ A book reporting results from analyses of these younger panels was published in 2008. See Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education-drug use connection: How successes and failures in school relate to adolescent smoking, drinking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis.

MTF considered in detail the effects of an anonymous survey as compared to a confidential survey that collected personal identification information. In 1998 the half-sample of 8th and 10th grade schools beginning their two-year participation in MTF received fully anonymous questionnaires, while the half-sample participating for their second and final year continued to get the confidential questionnaires that had been previously in use by MTF since 1991.

Examination of the 1998 results, based on the two equivalent half-samples at both grades 8 and 10, revealed that there was no effect of anonymous as compared to confidential surveys among 10th graders and only a very modest effect, if any, in self-reported substance use rates among 8th graders (with prevalence levels slightly higher in the anonymous condition).⁹ All tables and figures in this volume combine data from both half-samples of 8th graders surveyed in a given year. This is also true for 10th graders, for whom we found no methodological effect, and 12th graders, for whom we assumed no such effect since none was found for 10th graders. (See this chapter's later section entitled "Representativeness and Sample Accuracy" for a further discussion of half-samples among all three grades.)

Questionnaire Forms and Sample Proportions

Beginning in 1997, in order to increase the measurement content in the study of 8th and 10th graders, the number of forms was expanded from two to four, although they are not distributed in equal numbers. Forms 1, 2, 3, and 4 are assigned to one third, one third, one sixth, and one sixth of the students, respectively. Thus, if a question appears on only one form, it is administered to either one third or one sixth of the sample. A question in two forms may be assigned to one third of the sample (one sixth plus one sixth), one half of the sample (one third plus one sixth), or two thirds of the sample (one third plus one third). A question in three forms may be assigned to two thirds (one third plus one sixth plus one sixth), or five sixths of the sample (one third plus one third plus one sixth). Footnotes to the tables indicate what proportions of all respondents in each grade were asked each question, if that proportion is other than the entire sample. All of the samples, whether based on one or more forms, are random samples and therefore representative of the larger population (the universe) of students at each grade.

REPRESENTATIVENESS AND SAMPLE ACCURACY

School Participation

Schools are invited to participate in the MTF study for a two-year period. With very few exceptions, each school participating in the first year has agreed to participate in the second year as well.

Figure 3-2 presents the percentage of geographical stratum in the U.S. where at least one school was successfully surveyed each year. For each grade the U.S. is divided into 72 geographical areas that together are nationally representative. MTF has successfully surveyed a school in 93%+ of the geographic strata every year in each grade, at least until the COVID-19 pandemic that began in 2020. That year the halt of data collection on March 15 reduced the geographic coverage of the

⁹ We have examined in detail the effects of administration mode using multivariable controls to assess the effects of the change on 8th-grade self-report data. Our findings generally show even less effect than is to be found without such controls. See O'Malley, P. M., Johnston, L. D., Bachman, J. G., & Schulenberg, J. E. (2000). [A comparison of confidential versus anonymous survey procedures: Effects on reporting of drug use and related attitudes and beliefs in a national study of students](#). *Journal of Drug Issues*, 30, 35–54.

survey considerably (as noted in Figure 3-2). In 2021 the coverage recovered substantially, with the percentage of U.S. geographical areas surveyed at 82% in 12th grade, 88% in 10th grade, and 92% in 8th grade.

When an original, randomly-drawn school in a geographic area declines to participate in the survey, a replacement school is selected in the same geographic area. In these cases the replacement is selected to be demographically similar to the original selection. This should almost entirely remove problems of bias in region, urbanicity, and the like that might result from schools that decline to participate. Table 3-2 presents yearly information on the percentage of originally-selected and replacement schools.

Two questions are sometimes raised about the replacement schools: (a) How do replacements affect the representativeness of the sample? (b) How does variation over time in the percentage of schools that are replacements contribute to changes in estimates of drug use?

Among participating schools, there is very little difference in substance use levels between the sample of participating schools that were original selections, taken as a set, and the schools that were replacements. Averaged over the years 2003 through 2015 for grades 8, 10, and 12 combined, the difference between original schools and replacement schools averaged 0.26 percentage points in the observed prevalence averaged across a number of drug use measures: two indices of annual illicit drug use, the annual prevalence of each of the major illicit drug classes, and several measures of alcohol and cigarette use. For half of the measures prevalence was higher in the replacement selections and in the other half it was higher in the original selections; specifically, out of 39 comparisons (13 drugs and drug indexes for each grade), prevalence was higher in 20 of the original selections and in 19 of the replacement selections.

Potential biases could be subtle, however. If, for example, it turned out that principals of schools with “drug problems” refused to participate, the sample could be biased. And if any other single factor were dominant in school refusals, that reason for refusal might also suggest a source of potential bias. However, the reasons principals give for declining to participate tend to be varied and are often a function of happenstance events specific to that particular year, such as a weather-related event that reduced the number of school days or the fact that the school already committed to participate in a number of other surveys that year; only very few schools, if any, object specifically to the drug-related survey content.

If it were the case that replacement schools differed substantially in drug use, then which particular schools participated could have a greater effect on estimates of drug use. However, the great majority of variance in drug use lies within schools, not between schools.¹⁰ For example, from 2003 to 2015 for schools with 8th, 10th, or 12th grade students, about 2% to 8% of the variance in smoking cigarettes or drinking alcohol in the past 30 days was between schools. Among the illicit drugs, marijuana showed the largest amount of between-school variation, averaging between slightly less than 4% up to 5% for annual use, and 3% to 4% for 30-day use. Annual prevalence of cocaine use averaged between less than 1% and 1.5%, while prevalence of annual heroin use averaged less than 0.5%. Further, some, if not most, of the between-schools variance is due to

¹⁰ O'Malley, P. M., Johnston, L. D., Bachman, J. G., Schulenberg, J. E., & Kumar, R. (2006). [How substance use differs among American secondary schools](#). *Prevention Science*, 7, 409–420.

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differences related to factors such as region and urbanicity, which remain well controlled in the present sampling design.

It is unlikely that replacement schools affect drug trends. If they did, then we would expect noticeable bumps up or down across all substance use estimates as the percentage of replacement schools varied over time. But MTF produces results that are very smooth and generally change in an orderly fashion from one year to the next. Moreover, different substances trend in distinctly different ways. We have observed, for example, marijuana use decreasing while cocaine use was stable (in the early 1980s), alcohol use declining while cigarette use held steady (in the mid- to late 1980s), ecstasy use rising sharply while cocaine use showed some decline (late 1990s, early 2000s); and marijuana use remaining steady while alcohol use hit historic lows (since 2011). Moreover, attitudes and perceptions about drugs have changed variously, but generally in ways quite consistent with the changes in actual use. All of these patterns are explainable in terms of psychological, social, and cultural factors; they cannot be explained by a common factor of changes in percentage of replacement schools.

Of course, there could be some sort of constant bias across the years, but even in the unlikely event that there is, it seems highly improbable that it would be of much consequence for policy purposes, given that it would not affect trends and likely would have a very modest effect on levels of prevalence. Thus, we have a high degree of confidence that school refusals have not seriously biased the survey results.

Nevertheless, securing the cooperation of schools has become increasingly difficult. This is a problem common to the field, not specific to MTF. Therefore, beginning with the 2003 survey, we have provided payment to schools as a means of increasing their incentive to participate. (By that time, several other ongoing school-based survey studies already were using payments to schools.)

At each grade level, half of each year's sample comprises schools that started their participation the previous year, and half comprises schools that began participating in the current year. (Both samples are national replicates, meaning that each is drawn to be nationally representative by itself.) This staggered half sample design is used to check on possible fluctuations in the year-to-year trend estimates due to school turnover. For example, separate sets of one-year trend estimates are computed based on students in the half-sample of schools that participated in both 2017 and 2018, then based on the students in the half-sample that participated in both 2016 and 2017, and so on. Thus, each one-year matched half-sample trend estimate derived in this way is based on a constant set of schools (about 65 in 12th grade, for example, over a given one-year interval). When the trend data derived from the matched half-sample (examined separately for each class of drugs) are compared with trends based on the total sample of schools, the results are usually highly similar, indicating that the trend estimates are affected little by school turnover or school replacements. Of course, levels of absolute prevalence are not as precisely estimated when the sample is only half the usual size.

Student Participation

In 2021, completed questionnaires were obtained from 82% of all sampled students in 8th grade, 78% in 10th grade, and 69% in 12th grade (see Table 3-1 for response rates in all years). In the large majority of cases, students are missed due to absence from school and/or class at the time of data

collection; for reasons of cost efficiency, we typically do not schedule special follow-up data collections for absent students. Because students with fairly high rates of absenteeism also report above-average rates of drug use, some degree of bias is introduced into the prevalence estimates by missing the absentees. Much of that bias could be corrected through the use of special weighting based on the self-reported absentee rates of the students who did respond; however, we decided not to use such a weighting procedure because the bias in overall drug use estimates was determined to be quite small, whereas the necessary weighting procedures would have introduced greater sampling variance in the estimates. Appendix A in this report illustrates the changes in trend and prevalence estimates that would result if corrections for absentees had been included.

Sampling Accuracy of the Estimates

Confidence intervals (95%) are provided in Tables 4-1a through 4-1d for lifetime, annual, 30-day, and daily prevalence of use for 8th, 10th, and 12th grade students. For example, Table 4-1a shows that lifetime prevalence of marijuana use for 12th graders could vary by up to ± 2.8 percentage points. The interpretation of this 95% confidence interval is that if we took a large number of samples of this size from the universe of all schools containing 12th graders in the contiguous United States, 95 times out of 100 the sample would yield a result that would be less than 2.8 percentage points divergent from the result we would get from a comparable massive survey of *all* 12th graders in *all* schools. Confidence intervals for the other prevalence periods (last 12 months, last 30 days, and current daily use) are generally smaller than those for lifetime use. In general, confidence intervals for 8th and 10th graders are very similar to those observed for 12th graders. Some drugs (smokeless tobacco, Rohypnol, and others, as indicated in the footnotes for Tables 2-1 to 2-4) are measured on only one or two questionnaire forms; these drugs will have larger confidence intervals because they are based on smaller sample sizes.

In 2020, as a result of the smaller sample size, these confidence intervals were wider than they have been in previous years, when confidence intervals averaged $\pm 1.4\%$ for lifetime prevalence across a wide variety of drug classes. Because of these larger confidence intervals in 2020, the minimum change in prevalence from 2019 to 2020 that was detectable as statistically significant was larger in 2020 than it was in earlier years.

In 2021 sample sizes, and consequently confidence intervals, were closer to their typical size.

The Appendix C of Volume I published in 2017 and earlier years reported information on how to calculate confidence intervals for point estimates and how to calculate statistics that test the significance of changes over time or of differences between subgroups. This appendix is no longer necessary with the opening of MTF's remote portal at the [National Addiction and HIV Data Archive Program](#), which now allows researchers to compute such statistics directly using MTF weights and clustering variables. Interested readers may refer to earlier publications of this monograph for the information it provides about design effects and how their computational influence varies by substance (e.g., see Appendix C [here](#)).

VALIDITY OF MEASURES OF SELF-REPORTED DRUG USE

Are sensitive behaviors such as drug use honestly reported? Like most studies dealing with sensitive behaviors, we have no direct, totally objective validation of the present measures;

however, the considerable amount of existing inferential evidence strongly suggests that the MTF self-report questions produce largely valid data. Here we briefly summarize this evidence.¹¹

First, using a three-wave panel design, we established that the various measures of self-reported drug use have a high degree of reliability—a necessary condition for validity.¹² In essence, respondents were highly consistent in their self-reported behaviors over a three- to four-year time interval. Second, we found a high degree of consistency among logically related measures of use within the same questionnaire administration. Third, the proportion of 12th graders reporting some illicit drug use has reached two thirds of all respondents in peak years and over 80% in some follow-up years, constituting *prima facie* evidence that the degree of underreporting must be very limited. Fourth, 12th graders' reports of use by their unnamed friends—about whom they would presumably have considerably less reason to conceal information about use—have been highly consistent with self-reported use in the aggregate, both in terms of prevalence and trends in prevalence, as discussed in Chapter 9. Fifth, we have found self-reported drug use to relate in consistent and expected ways based on theory to a number of other attitudes, behaviors, beliefs, and social situations—strong evidence of “construct validity.” Sixth, the missing data levels for the self-reported use questions are only very slightly higher than for the preceding nonsensitive questions, in spite of explicit instructions to respondents immediately preceding the drug section to leave blank those questions they feel they cannot answer honestly. Seventh, an examination of consistency in reporting of lifetime use conducted on the long-term panels of graduating seniors found quite low levels of recanting of earlier reported use of the illegal drugs.¹³ There was a higher level of recanting for the psychotherapeutic drugs, suggesting that adolescents may actually overestimate their use of some drugs because of misinformation about definitions, but that this knowledge improves as they get older. Finally, the great majority of respondents, when asked, say they would answer such questions honestly if they are or were users.¹⁴

As an additional step to assure the validity of the data, we check for logical inconsistencies in the answers to the triplet of questions about use of each drug (i.e., lifetime, annual, and 30-day use), and if a respondent exceeds a maximum number of inconsistencies across the set of drug use questions, his or her record is deleted from the data set. Similarly, we check for improbably high rates of use of multiple drugs and delete such cases, assuming that the respondents are not taking the task seriously. Fortunately, very few cases (<3%) have to be eliminated for these reasons.

This is not to argue that self-reported measures of drug use are necessarily valid in all studies. In MTF we have gone to great lengths to create a situation and set of procedures in which respondents

¹¹ A more complete discussion may be found in: Johnston, L. D. & O'Malley, P. M. (1985). Issues of validity and population coverage in student surveys of drug use. In B. A. Rouse, N. J. Kozel, & L. G. Richards (Eds.), *Self-report methods of estimating drug use: Meeting current challenges to validity* (NIDA Research Monograph No. 57 (ADM) 85 1402). Washington, DC: U.S. Government Printing Office; Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1984). *Drugs and American high school students: 1975–1983* (DHHS (ADM) 85 1374). Washington, DC: U.S. Government Printing Office; Wallace, J. M., Jr., & Bachman, J. G. (1993). Validity of self-reports in student-based studies on minority populations: Issues and concerns. In M. de LaRosa (Ed.), *Drug abuse among minority youth: Advances in research and methodology* (NIDA Research Monograph No. 130). Rockville, MD: National Institute on Drug Abuse.

¹² O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1983). *Reliability and consistency in self-reports of drug use*. *International Journal of the Addictions*, 18, 805–824.

¹³ Johnston, L. D. & O'Malley, P. M. (1997). *The recanting of earlier reported drug use by young adults*. In L. Harrison (Ed.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (NIDA Research Monograph No. 167, pp. 59–80). Rockville, MD: National Institute on Drug Abuse.

¹⁴ For a discussion of reliability and validity of student self-report measures of drug use like those used in MTF across varied cultural settings, see Johnston, L. D., Driessen, F. M. H. M., & Kokkevi, A. (1994). *Surveying student drug misuse: A six-country pilot study*. Strasbourg, France: Council of Europe.

recognize that their confidentiality will be protected. We have also tried to present a convincing case as to why such research is needed. The evidence suggests that a high level of validity has been obtained. Nevertheless, insofar as any remaining reporting bias exists, we believe it to be in the direction of underreporting. Thus, with the possible exception of the psychotherapeutic drugs, we believe our estimates to be lower than their true values, even for the obtained samples, but not substantially so.

Consistency and Measurement of Trends

MTF is designed to be sensitive to changes from one time period to another. A great strength of this study is that the measures and procedures have been standardized and applied consistently across many years. To the extent that any biases remain because of limits in school and/or student participation, and to the extent that there are systematic distortions (lack of validity) in the responses of some students, it seems very likely that such problems will exist in much the same proportions from one year to the next. In other words, biases in the survey estimates will tend to be consistent from one year to another, meaning that they should have very little effect on our measurement of trends. The smooth and consistent nature of most trend curves reported for the various drugs provides rather compelling empirical support for this assertion.

TABLE 3-1
Sample Sizes and Response Rates

Grade:	Number of Public Schools			Number of Private Schools			Total Number of Schools				Total Number of Students				Student Response Rate (%)		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	Total	8th	10th	12th	Total	8th	10th	12th
1975	—	—	111	—	—	14	—	—	125	—	—	—	15,791	—	—	—	78
1976	—	—	108	—	—	15	—	—	123	—	—	—	16,678	—	—	—	77
1977	—	—	108	—	—	16	—	—	124	—	—	—	18,436	—	—	—	79
1978	—	—	111	—	—	20	—	—	131	—	—	—	18,924	—	—	—	83
1979	—	—	111	—	—	20	—	—	131	—	—	—	16,662	—	—	—	82
1980	—	—	107	—	—	20	—	—	127	—	—	—	16,524	—	—	—	82
1981	—	—	109	—	—	19	—	—	128	—	—	—	18,267	—	—	—	81
1982	—	—	116	—	—	21	—	—	137	—	—	—	18,348	—	—	—	83
1983	—	—	112	—	—	22	—	—	134	—	—	—	16,947	—	—	—	84
1984	—	—	117	—	—	17	—	—	134	—	—	—	16,499	—	—	—	83
1985	—	—	115	—	—	17	—	—	132	—	—	—	16,502	—	—	—	84
1986	—	—	113	—	—	16	—	—	129	—	—	—	15,713	—	—	—	83
1987	—	—	117	—	—	18	—	—	135	—	—	—	16,843	—	—	—	84
1988	—	—	113	—	—	19	—	—	132	—	—	—	16,795	—	—	—	83
1989	—	—	111	—	—	22	—	—	133	—	—	—	17,142	—	—	—	86
1990	—	—	114	—	—	23	—	—	137	—	—	—	15,676	—	—	—	86
1991	131	107	117	31	14	19	162	121	136	419	17,844	14,996	15,483	48,323	90	87	83
1992	133	106	120	26	19	18	159	125	138	422	19,015	14,997	16,251	50,263	90	88	84
1993	126	111	121	30	17	18	156	128	139	423	18,820	15,516	16,763	51,099	90	86	84
1994	116	116	119	34	14	20	150	130	139	419	17,708	16,080	15,929	49,717	89	88	84
1995	118	117	120	34	22	24	152	139	144	435	17,929	17,285	15,876	51,090	89	87	84
1996	122	113	118	30	20	21	152	133	139	424	18,368	15,873	14,824	49,065	91	87	83
1997	125	113	125	27	18	21	152	131	146	429	19,066	15,778	15,963	50,807	89	86	83
1998	122	110	124	27	19	20	149	129	144	422	18,667	15,419	15,780	49,866	88	87	82
1999	120	117	124	30	23	19	150	140	143	433	17,287	13,885	14,056	45,228	87	85	83
2000	125	121	116	31	24	18	156	145	134	435	17,311	14,576	13,286	45,173	89	86	83
2001	125	117	117	28	20	17	153	137	134	424	16,756	14,286	13,304	44,346	90	88	82
2002	115	113	102	26	20	18	141	133	120	394	15,489	14,683	13,544	43,716	91	85	83
2003	117	109	103	24	20	19	141	129	122	392	17,023	16,244	15,200	48,467	89	88	83
2004	120	111	109	27	20	19	147	131	128	406	17,413	16,839	15,222	49,474	89	88	82
2005	119	107	108	27	20	21	146	127	129	402	17,258	16,711	15,378	49,347	90	88	82
2006	122	105	116	29	18	20	151	123	136	410	17,026	16,620	14,814	48,460	91	88	83
2007	119	103	111	32	17	21	151	120	132	403	16,495	16,398	15,132	48,025	91	88	81
2008	116	103	103	28	19	17	144	122	120	386	16,253	15,518	14,577	46,348	90	88	79
2009	119	102	106	26	17	19	145	119	125	389	15,509	16,320	14,268	46,097	88	89	82
2010	120	105	104	27	18	22	147	123	126	396	15,769	15,586	15,127	46,482	88	87	85
2011	117	105	110	28	21	19	145	126	129	400	16,496	15,382	14,855	46,733	91	86	83
2012	115	107	107	27	19	20	142	126	127	395	15,678	15,428	14,343	45,449	91	87	83
2013	116	103	106	27	17	20	143	120	126	389	15,233	13,262	13,180	41,675	90	88	82
2014	111	98	105	30	16	17	141	114	122	377	15,195	13,341	13,015	41,551	90	88	82
2015	111	102	101	30	18	20	141	120	121	382	15,015	16,147	13,730	44,892	89	87	83
2016	117	92	100	25	18	20	142	110	120	372	17,643	15,230	12,600	45,473	90	88	80
2017	109	89	105	22	17	18	131	106	123	360	16,010	14,171	13,522	43,703	87	85	79
2018	110	106	106	28	21	22	138	127	128	393	14,836	15,144	14,502	44,482	89	86	81
2019	114	104	108	29	22	20	143	126	128	397	14,223	14,595	13,713	42,531	89	86	80
2020	30	36	29	8	2	7	38	38	36	112	3,161	4,890	3,770	11,821	88	89	79
2021	91	84	82	30	16	16	121	100	98	319	11,446	11,792	9,022	32,260	82	78	69

Source. The Monitoring the Future study, the University of Michigan.

TABLE 3-2
Percentage Original and Replacement School Selections, by Year ^a

Percent of slots filled by...	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07
Original	59	63	62	63	71	71	66	72	67	66	72	71	68	70	59	55	60	53	52	53	51	51	57	62	56	49	53	62	63	59	58
Replacements	39	36	35	32	25	26	32	26	29	33	26	26	30	29	39	43	39	44	44	43	47	48	42	35	42	48	45	37	34	40	39
Total	98	99	97	95	96	97	99	98	96	99	99	98	99	99	98	98	99	97	96	96	98	99	97	98	97	98	99	97	99	97	
<u>filled by...</u>	<u>'08</u>	<u>'09</u>	<u>'10</u>	<u>'11</u>	<u>'08</u>	<u>'09</u>	<u>'10</u>	<u>'11</u>	<u>'12</u>	<u>'13</u>	<u>'14</u>	<u>'15</u>	<u>'16</u>	<u>'17</u>	<u>'18</u>	<u>'19</u>	<u>'20</u>	<u>'21</u>													
Original	53	54	58	56	53	54	58	56	53	54	51	44	44	41	40	41	13	27													
Replacements	43	44	39	40	43	44	39	40	43	41	41	49	47	49	50	50	13	52													
Total	96	98	97	96	96	98	97	96	96	95	92	93	91	90	90	91	26	79													

Source: The Monitoring the Future study, the University of Michigan.

^aIn 2020 data collection was halted prematurely as a result of the COVID-19 pandemic.

FIGURE 3-1
Schools included in 1 Year's Data Collection
8th, 10th, and 12th Grades



Source. The Monitoring the Future study, the University of Michigan.

Note. One dot equals one school.

FIGURE 3-2
Percentage of Sampled Geographic Strata With At Least One School
Surveyed, by Grade



Source. The Monitoring the Future study, University of Michigan.

Chapter 4

PREVALENCE AND FREQUENCY OF DRUG USE

Drug use can be measured in terms of prevalence (the proportion of a defined population or subpopulation who have used a drug once or more in a particular time interval) or frequency (how many times a drug was used in a particular time interval). In this chapter, both of these important dimensions of drug use are addressed in relation to each of the three time intervals used in the MTF questionnaires—lifetime, past 12 months, and past 30 days—utilizing data from the most recently completed cross-sectional surveys of 8th, 10th, and 12th grade students, conducted in the spring of 2021.

This chapter also reports prevalence of current *daily* use, defined as use on 20 or more occasions in past 30 days. It is provided for selected drugs, in particular marijuana, alcohol, and tobacco. For alcohol, the prevalence and frequency of being drunk and of having 5, 10, or 15 or more drinks in a row in the past two weeks are reported. For cigarettes, the prevalence of current daily smoking—defined as use of one or more cigarettes per day in the past 30 days—is reported as is the prevalence of smoking a half pack or more per day in the last 30 days. For some drug classes, only the prevalence and frequency of use in the past 12 months are reported because their use was addressed by only a single question. (We refer to such questions as “tripwire” questions because their purpose is to alert us to emerging problems. If a tripwire question reveals a sizeable problem, we usually convert our measurement of that drug to a full set of questions covering the three standard time intervals in the next survey year.)

It should be noted that all prevalence statistics are based on students in attendance on the day of survey administration. Selected prevalence estimates for 12th grade students, reflecting adjustments for absentees as well as for dropouts, appear in Appendix A. On the day of the survey in 2021, 31% of 12th graders were absent. The adjustments for absenteeism and dropouts are not particularly large and have virtually no effect on trend estimates. These adjustments for 8th and 10th graders would be much smaller than those shown in Appendix A for 12th graders because 8th and 10th graders generally have lower rates of both absenteeism and dropping out (see Appendix A).

PREVALENCE AND FREQUENCY OF DRUG USE IN 2021: ALL STUDENTS

Prevalence of Lifetime, Annual, and 30-Day Use

Prevalence-of-use estimates for 2021 are provided in Tables 4-1a through 4-1d for lifetime, past 12 months, past 30 days, and current daily use, respectively. These tables include the 95% confidence intervals around each estimate, meaning that if samples of this size and type were drawn repeatedly from all students in that grade level in the coterminous United States, they would be expected to generate observed prevalence levels that fell within the confidence intervals 95 times out of 100. The confidence intervals take into account the effects of sample stratification, the clustering of the sample in schools, the size of the subgroup samples and any unequal weighting. Of course, the single best estimate that we can make is the value actually observed in our sample—the point estimate.

To facilitate comparisons, Table 4-2 provides point estimates for all prevalence periods. Below we group results into the categories of illicit and licit drugs. Illicit drugs refer to substances that are not legal (based on federal law) for recreational use among adults. This includes recreational use of marijuana, which remains illegal at the federal level despite a growing number of U.S. states that nevertheless consider recreational marijuana use by adults legal within their borders. Licit drugs are legal for recreational use in adulthood, such as alcohol, cigarettes, and other tobacco products. Of course, all such drugs are illicit for teens.

The key findings are summarized below.

Indexes of Any Illicit Drug Use

- More than 2 out of 5 12th graders (41%) in 2021 reported ***any illicit drug use*** at any time in their lives.¹ One quarter of (25%) of 10th graders and 16% of 8th graders said they have used an illicit drug in their lifetime (Table 4-2).
- When inhalants are included in the index of illicit drug use, the percentages categorized as having ever used an illicit drug rise, especially for 8th graders. The percentages using ***any illicit drug including inhalants*** in their lifetime are 22% for 8th graders, 29% for 10th graders, and 43% for 12th graders.
- The proportion of 12th grade students having used ***any illicit drug other than marijuana*** (or ***inhalants***) in their lifetime was 13% in 12th grade. Thus, about one in eight of the 2021 high school seniors tried an illicit drug other than marijuana at some time.¹ In both 10th and 8th grade the proportion was 9%.
- Of all the students in each grade reporting any lifetime illicit drug use, not including inhalants, roughly half to two-thirds reported using ***only marijuana***: 69% of 12th grade users of any illicit drug or 28% of the total 12th grade sample; 64% of all 10th grade users of any illicit drug or 16% of the total 10th grade sample; and 45% of all 8th grade users of any illicit drug, which amounts to 7% of the total 8th grade sample. (These figures are not explicitly provided in the tables but can be derived from the information therein by comparing prevalence of “any illicit drug” to “any illicit drug other than marijuana.”) Put another way, 31%, 36%, and 55%, respectively, of those 12th, 10th, and 8th grade students who have ever used any illicit drug have used ***some illicit drug other than marijuana***, usually in addition to marijuana.

Marijuana

- ***Marijuana*** is by far the most widely used illicit drug. Almost two out of five 12th graders (39%), more than one out of five 10th graders (22%), and about one in ten 8th graders (10%)

¹ For 12th graders, “any illicit drug use” includes any use of marijuana (for which recreational use is illegal at the federal level), LSD, hallucinogens other than LSD, crack, cocaine other than crack, or heroin; and/or any use that is not under a doctor’s orders of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers. For 8th and 10th graders, the list of drugs is the same except that the use of narcotics other than heroin and sedatives (barbiturates) has been excluded both from the illicit drug indexes and from separate presentation in this volume. Questions on these drugs were included in the questionnaires given to 8th and 10th graders, but the results led us to believe that some respondents were including nonprescription drugs in their answers, resulting in exaggerated prevalence levels.

reported some marijuana use in their lifetime. Among 12th graders, 31% reported some use in the past year, and 20% reported some use in the past month. Among 10th graders, the corresponding percentages were 17% and 10%, respectively, and among 8th grade students, 7% and 4%.

- Current *daily marijuana* use or near daily use (defined as use on 20 or more occasions in the past 30 days) is also noteworthy. About one in 17 twelfth graders (5.8%) used marijuana daily in the month prior to the survey; prevalence levels for 10th and 8th graders were 3.2% and 0.6%, respectively.
- Use of *synthetic marijuana* in the past 12 months in 2021 is fairly low, with annual prevalence levels at 1.3%, 1.6%, and 1.8% in 8th, 10th, and 12th grade, respectively.
- *Marijuana vaping* has emerged in recent years as a new way to use marijuana. In 2021 the portion of adolescents who had ever tried it was 26%, 17%, and 7% in 12th, 10th, and 8th grade, respectively. More than two-thirds of the 12th grade students who had ever used marijuana had vaped it at some point (estimate derivable from Table 4-1a).
- *Medical marijuana* prescriptions for adolescents are rare. In 2021 the percentages of adolescents who reported that they had ever used marijuana because a doctor told them to do so were 1.3% in 8th grade, 1.4% in 10th grade, and 2.3% in 12th grade.

Other Illicit Drugs

- The ranking of *illicit* drugs by lifetime prevalence varies some by grade level (Figure 4-1; note that for each grade the drugs are shown in the same order as for 12th graders to contrast the sequencing across grades). For 8th graders, *inhalant* (11%) and *marijuana* (10%) use are followed in the lifetime prevalence rankings of illicit drugs by *amphetamines*, at 6%.² Among 10th graders, the ranking for lifetime prevalence of use is *marijuana* (22%), *inhalants* (7%), and *amphetamines* (5%). Among 12th graders, lifetime use is highest for *marijuana* (39%), followed by *hallucinogens other than LSD*, *inhalants*, *LSD* and *amphetamines*, all at 5%, and then *sedatives (barbiturates)*, *tranquilizers*, *MDMA* (ecstasy, Molly), *cocaine*, *narcotics other than heroin*, *crack*, and *crystal methamphetamine (ICE)*, which all had levels less than 4%.
- The illicit drug classes remain in roughly the same order whether ranked by lifetime, annual, or monthly prevalence of use, as Figure 4-1 illustrates. The only important change in ranking occurs for *inhalant* use among 10th and 12th graders, for whom use of inhalants declines substantially with advancing age. Use of a number of inhalants such as glues and aerosols tends to be discontinued at a relatively early age.
- Use of *amphetamines* without medical supervision ranked third in prevalence of illicit drugs for all three grades in 2021, behind marijuana and inhalants in 8th and 10th grade, and behind marijuana and hallucinogens other than LSD in 12th grade. Lifetime prevalence

² For findings on specific amphetamines, see Appendix C.

levels for amphetamines in 8th, 10th, and 12th grade in 2021 were 5.8%, 5.2%, and 4.9% respectively, and annual prevalence levels are 3.0% in 8th grade, 2.7% in 10th grade, and 2.3% in 12th grade.

- **Inhalants** rank first among the illicit drugs in lifetime prevalence for 8th graders (11.3%) and second among 10th graders (7.2%); but in 12th grade the low lifetime prevalence of 5% differs little from use of any of the other illicit drugs (other than marijuana, at 39%). Inhalants also rank second highest in 30-day prevalence among the illicit drugs for 8th graders (1.8%), but they rank lower for 10th graders (0.9%) and for 12th graders (0.7%). Note that the youngest respondents report the highest levels of use; this is the only class of drugs for which current use declines with age during adolescence.³
- **Tranquilizer** use without medical supervision ranks fourth in the prevalence rankings of illicit drugs, with lifetime prevalence levels of 2.5%, 2.6%, and 3.3% for grades 8, 10, and 12, respectively.
- Table C-3 in Appendix C reports trends for many of the **specific tranquilizers**. These more detailed questions about specific drugs within a class are asked only of 12th grade students. They are contained in a single questionnaire form and are asked in a branching format, wherein a respondent is first asked whether he or she used the general class of drugs (e.g., tranquilizers) in the prior 12 months, after which the respondent is branched to the more detailed questions about which specific drugs were used. The prevalence levels resulting for drugs in the branching format questions tend to be lower than levels obtained from questions asked directly about their use. Still, they should give good indications of trends in use and relative use in comparison to the other drugs in the same class. What follows is based on data obtained using the branching format.
- **Narcotics other than heroin** used without medical supervision ranked fairly high in lifetime prevalence among 12th graders at 2.3%. (Data for 8th and 10th graders are not reported for the general category of narcotics other than heroin due to questionable validity.)
- OxyContin and Vicodin have been among the most widely used narcotic drugs used by adolescents in recent years. **OxyContin**, a brand of oxycodone, showed annual prevalence levels in 2021 of 0.8%, 0.9%, and 0.9% for grades 8, 10, and 12, respectively. **Vicodin** use was lower, with the comparable prevalence levels of 0.6%, 0.5%, and 0.9% across the three respective grades.

³ The results also indicate declining lifetime inhalant prevalence at higher grades, which could be due to various factors. There might be lower lifetime prevalence at older ages because the eventual school dropout segment is included only in the lower grades. If those who will become dropouts are unusually likely to use inhalants, lifetime use rates could decline with grade level. That would lead to a relatively stable difference between the grades in lifetime use (because dropout rates have been fairly stable in recent years); however, the degree of difference has changed some over time, with larger differences emerging in the mid-1990s. Another possible factor is changing validity of reporting with age; but in order to account for the trend data, one would have to hypothesize that this tendency became stronger in the 1990s, and we have no reason to believe that it did. Cohort differences may be a factor, but cannot completely explain the large changes in lifetime prevalence. It seems likely that all of these factors contribute to the differences observed in the retrospective reporting by different ages and possibly some additional factors.

- Lifetime prevalence of *sedative (barbiturate)* use outside of medical supervision in 12th grade was 3.5% in 2021. The sedative (barbiturate) questions are included in the 8th and 10th grade questionnaires, but the results are not reported because we suspect that these respondents inappropriately include the use of non-prescription drugs.⁴
- Considerably lower prevalence levels are found for use of the specific stimulant class *methamphetamine*, with 0.3%, 0.4%, and 0.6% of 8th, 10th, and 12th graders, respectively, reporting any lifetime use. *Crystal methamphetamine* (“ice”) also has a low lifetime prevalence among 12th graders (0.7%); its use is not asked in the lower grades.
- *Hallucinogens* form another fairly widely used class of illicit substances. Lifetime prevalence of use is 1.8% for 8th graders, 3.5% for 10th graders, and 7.1% for 12th graders. Until 2001, hallucinogen prevalence ranked this high primarily due to the prevalence of LSD use. But in 2021, similar proportions of students indicated lifetime use of *hallucinogens other than LSD* (particularly “shrooms” or psilocybin), at 1.3%, 2.5%, and 5.3% for 8th, 10th, and 12th grade, respectively—compared to 1.2%, 2.5%, and 4.9% for *LSD*.
- *MDMA* (ecstasy, Molly), another drug used for its somewhat hallucinogenic properties, is reported at levels similar to LSD in all three grades. In 2021, the lifetime prevalence levels for this drug stood at 1.0%, 1.4%, and 2.8% in grades 8, 10, and 12, respectively, while annual prevalence stood at 0.6%, 0.7%, and 1.1%.
- A tripwire question asks about use of *salvia* (or *salvia divinorum*) in the last 12 months. Salvia is an herb with hallucinogenic properties, common to southern Mexico and Central and South Americas. Although it currently is not a drug regulated by the Controlled Substances Act, several states have passed legislation to regulate its use, as have several countries. The Drug Enforcement Agency lists salvia as a drug of concern and has considered classifying it as a Schedule I drug, like LSD or marijuana. Annual prevalence of this drug has been in a steady decline and in 2021 levels were at 0.6% or lower in all three grades.
- Lifetime prevalence levels for *cocaine* use by 8th, 10th, and 12th graders in 2021 were 0.6%, 1.2%, and 2.5%, respectively.
- *Crack*, a form of cocaine that comes in small chunks or “rocks,” can be smoked to produce a rapid and intense but short-lasting high. In 2021, it had lifetime prevalence levels less than 2.0% in all three grade levels: 0.4% for 8th, 0.7% for 10th, and 1.5% for 12th graders.
- *Heroin* is one of the least commonly used illicit drugs at each grade level. Lifetime use in 2021 was less than 1% in all grades and was 0.5% for 8th graders, 0.3% for 10th graders,

⁴ Barbiturates were the dominant form of sedatives in use when these questions were first introduced but have been largely displaced by the nonbarbiturate sedatives now on the market. In 2004 in what we call a “splicing design”, half of the questionnaires used the original question about barbiturates, while the other half had a question asking about “sedatives, which include barbiturates. . .” These two versions yielded 12th grade prevalence rates that were almost identical, suggesting that in the past, the users of nonbarbiturate sedatives had been including them in their answers about barbiturate use. In 2005, the remaining questionnaire forms were changed as well in the same manner.

and 0.4% for 12th graders. Annual prevalence levels were 0.2%, 0.1%, and 0.1% in 8th, 10th, and 12th grade. See Table 4-3 for more detail on heroin use in 2021 by mode of administration for each prevalence period.

Alcohol, Cigarettes, and Vaping

- Alcohol and nicotine in all of its forms (including smoking cigarettes, using smokeless tobacco, and vaping nicotine) are the two major licit drugs that are included in the MTF surveys, though these are legally prohibited for purchase by those under the age of 21. ***Alcohol*** use is more widespread than use of illicit drugs. Over one half of 12th grade students (54%) have drunk alcohol (more than just a few sips), and about one-quarter (26%) are current drinkers—that is, they reported consuming some alcohol in the 30 days prior to the survey (Table 4-2). Even among 8th graders, more than a fifth (22%) reported any alcohol use in their lifetime, and one in fifteen (7%) is a current (past 30-day) drinker.
- Of greater concern than just any use of alcohol is its use to the point of intoxication: in 2021 about two out of five 12th graders (39%), one fifth of 10th graders (18%), and one in thirteen 8th graders (8%) said they had ***been drunk*** at least once in their lifetime. The levels of self-reported drunkenness during the 30 days immediately preceding the survey are high: 16%, 5%, and 2%, respectively, for grades 12, 10, and 8.
- Another measure of heavy drinking asks respondents to report on how many occasions during the last *two weeks* they had consumed five or more drinks in a row. In 2021 prevalence levels for one or more occasions of this behavior, which we refer to as ***binge drinking***, were 12%, 6%, and 3% in the 12th, 10th, and 8th grade, respectively.⁵
- In 2021 past-year use of ***alcoholic beverages containing caffeine*** was considerable, at 6%, 8%, and 10% among 8th, 10th, and 12th grade students, respectively. Caffeine can mask the signs of alcohol impairment to the individual and to others and consequently increase risks of motor vehicle and other types of injury.
- Prevalence of ***cigarettes*** is generally higher than that of any of the illicit drugs, except for marijuana. Almost a fifth (18%) of 12th graders reported having tried cigarettes at some time, and 4% smoked in the prior 30 days. Even among 8th graders, 7% reported having tried cigarettes and 1% reported smoking in the prior 30 days. Among 10th graders, 10% reported having tried cigarettes, and 2% reported smoking in the prior 30 days. The percentages reporting smoking cigarettes in the prior 30 days are far lower in all three grades in 2021 than the percentages reporting using ***marijuana*** in the prior 30 days: 1% for cigarettes versus 4% for marijuana in 8th grade; 2% versus 10% in 10th grade; and 4% versus 20% in 12th grade. These numbers reflect mostly the considerable, steady decline in cigarette use that has occurred over the past two decades. Among 8th, 10th, and 12th graders,

⁵ We note that in 8th grade the portion who report having five more drinks in a row in the past two weeks is slightly higher than the number who reported being drunk in the past 30 days, which is logically inconsistent. We suspect that some 8th grade students may misinterpret the question and report “sips” of alcohol instead of full “drinks,” which the survey question explicitly describes as a glass of wine, bottle of beer, a wine cooler, a shot of liquor, or a mixed drink. We believe that of the two measures, the self-reports of getting drunk or very high are likely to be more accurate, at least for 8th graders.

lifetime prevalence of marijuana use in 2021 was also higher than lifetime prevalence of cigarette use. (Annual prevalence of cigarette use is not assessed.)

- **Nicotine vaping** has become a major avenue for nicotine consumption. In 2021 lifetime prevalence was considerably higher than lifetime cigarette prevalence in all grades, and was 39%, 28%, and 17% in 12th, 10th, and 8th grade, respectively. Past 30-day nicotine vaping is at least four times higher than past 30-day cigarette use in all grades.
- The percentage of students who reported they **vaped “just flavoring”** and did not vape nicotine during a reporting interval was small. Lifetime prevalence of “just flavoring” vaping and no lifetime nicotine vaping was 1.1% or less in all three grades in 2021. Similarly, both past 12-month and past 30-day prevalence was 1.2% or less in all three grades. These results indicate that it is a small portion of adolescents who vape only for flavors and avoid nicotine vaping—or at least believe they are avoiding nicotine vaping. Most adolescents who vape “just flavoring” are doing so as a supplement to their nicotine vaping and not as a substitute for it.
- A substantial portion of adolescents use **JUUL**-brand vaping devices. Prevalence of use in the past 30 days was 7% in 12th grade, 5% in 10th grade, and 3% in 8th grade.
- Among 8th and 10th graders **smokeless tobacco** lifetime prevalence levels was 5% for both grades, and among 12th grade students it was 9% in 2021. Past 30-day prevalence was 2% in 8th, 10th, and 12th grades.
- Prevalence of using a **hookah** water pipe in the last 12 months, an alternative to cigarette smoking, was only 2% among 12th graders in 2021.
- Two other forms of tobacco use, **snus** and **dissolvable tobacco**, are assessed. The question about **snus**—a moist form of snuff that is placed under the upper lip—asks on how many occasions in the past 12 months the student “...used snus (a small packet of tobacco that is put in the mouth).” Among 8th and 10th graders, the annual prevalence in 2021 was 1% in both grades, and among 12th grade students it was 3%. The question about **dissolvable tobacco** products asks on how many occasions in the past 12 months the student “... used dissolvable tobacco products (Ariva, Stonewall, Orbs).” These products, in the form of pellets, strips, or sticks, actually dissolve in the mouth unlike other forms of chewing tobacco. In all three grades past 12-month prevalence was 1.1% or less in 2021.

Steroids

- As with some other drugs covered by MTF, the distribution and sale of **anabolic steroids** are now legally controlled, but they often find their way into an illicit market. They also carry a particular danger for the transmission of HIV and other blood borne diseases when taken by injection using non-sterile needles. However, in contrast to most drugs, they are usually taken not for their direct psychoactive effects (although they may have some), but rather for muscle building and physical performance enhancement (which includes accelerated recovery times from injuries and workouts). Clearly, potential unintended

consequences, including the transmission of HIV, make illicit use of anabolic steroids a public health concern.

The overall levels of use for anabolic steroids are modest relative to many other drugs. For 8th, 10th, and 12th graders, respectively, *lifetime* prevalence levels in 2021 were 1.2% in all three grades, and both *annual* and *past 30-day* prevalence levels were 0.5% or less in 2021.

- Another physique-enhancing substance is *creatine*, though it is not usually considered a drug at all but rather a type of over-the-counter protein supplement believed to help build muscle mass. Because we thought that a number of adolescents were probably using this substance along with steroids and/or androstenedione, we added a tripwire question about its use in 2001. In 2021, the prevalence of past-year creatine use was 3%, 6%, and 7% in grades 8, 10, and 12, respectively.

Drugs Used in the Treatment of ADHD under Medical Supervision

Attention deficit hyperactivity disorder, or ADHD, is a chronic condition that is usually diagnosed in childhood or adolescence and can persist into adulthood. ADHD symptoms—inattention and hyperactive, impulsive behavior—have been treated for some years with prescribed *stimulant drugs*, often amphetamines. Such drugs have included Ritalin and more recently Adderall and Concerta, among others. *Nonstimulant medications* are also in use and are sometimes prescribed when stimulants have proven ineffective or not well tolerated. One of these is Strattera, which was approved by the FDA in 2003.

- Lifetime prevalence levels for using *either type of drug* (stimulant or nonstimulant) under medical supervision were 11.5%, 9.0%, and 10.9% in grades 8, 10, and 12, respectively, in 2021. Thus, about one in every ten 8th, 10th, and 12th grade students has received medication for ADHD at some time.
- Lifetime prevalence levels for *stimulant* drugs like Ritalin were 9.0%, 7.0%, and 8.0% for 8th, 10th, and 12th graders, respectively, in 2021.
- In 2021 lifetime prevalence for *nonstimulant* drugs like Strattera was somewhat lower, but still appreciable, at 2.8%, 3.0%, and 4.5% for 8th, 10th, and 12th grade, respectively.
- Current prevalence levels (as indicated by the answer, “I take them now”) for the use of *either type* of drug—stimulants or nonstimulants—were 5.5%, 4.8%, and 5.2% in grades 8, 10, and 12, respectively, in 2021. Thus, roughly one in every twenty students in each of these three grades is currently taking prescribed medication for ADHD.
- Current prevalence levels (as indicated by the answer, “I take them now”) for use of *stimulant* ADHD drugs in 2021 for the three grades were 4.2%, 3.6%, and 3.4% respectively in 8th, 10th, and 12th grade; for *nonstimulant* drugs levels were lower, at 0.9%, 1.5%, and 2.3%.

Thus, lifetime experience with *nonstimulant* drugs for treatment of ADHD is only modestly lower than it is for *stimulant drugs*, but current prevalence is considerably lower for the nonstimulant drugs.

Drugs No Longer Tracked Annually

The drugs listed below did not appear on the 2021 MTF surveys. In most cases prevalence levels fell so low that survey questions on the drug were removed to make room for questions on other drugs, as well as to reduce respondent burden. In some cases, as with “electronic vaporizers,” questions were removed to make place for updated terminology and measures.

- **Bath salts** is a term for products containing designer drugs—synthetic cathinones, which are stimulants that have effects similar to amphetamines. In the early 2010s these drugs received considerable media attention with examples of very serious health consequences that results from their use, despite their seemingly innocuous name. Use of these drugs did not catch on among adolescents and the highest prevalence level record for past year use was 1.3% among 12th grade students in 2012, when they were first included on the survey. In all subsequent years past year prevalence was 1% or less, and questions on the use of these drugs were discontinued after 2018. The chemicals commonly used in bath salts were controlled in 2012 under the [Synthetic Drug Abuse Prevention Act](#), which covered other classes of synthetic substances, as well. The act was initially temporary, but the substances were put under permanent control by DEA through an administrative process. This legislation likely accounts in considerable part for the decline in use.
- The study tracked use of **look-alikes** from 1982 to 2017. The prevalence of these over-the-counter stimulants had been hovering at historical low levels among 12th graders since 2010, and in 2017 it was at 1.5% (Table 5-5b). In subsequent years it was no longer included in the survey in order to make room for questions on other drugs. From 1982 onward the trend in look-alikes resembles the trend for illicit drug use during the same period. Annual prevalence declined from 10.8% in 1982 to 5.2% in 1991, followed by a period of some increase during the 1990s drug relapse (to 6.8% in 1995), stabilization, and some decline again after 2001, to a historical low of 1.4% in 2014. Most of the initial decline in use occurred among those who had used illicit drugs other than marijuana—the group primarily involved in the use of look-alikes.
- **Amyl and butyl nitrites**, one class of inhalants, became somewhat popular in the late 1970s, but their use has been almost eliminated in the years since. The annual prevalence level among 12th grade students was 6.5% in 1979 but only 0.9% in 2009. Because of this decrease in use, and to allow for the addition of other questions, the questions on nitrite use have not been included in the study since 2010.

When nitrites were included in the definition of inhalants, they masked the increase that was occurring in the use of other inhalants, because their use was declining at the same time that the use of the other inhalants was increasing.

- **Methaqualone** use (brand name Quaalude) had an annual prevalence among 12th graders of 0.4% in 2012, after which it was no longer included on the survey in order to make room

for questions on other drugs. Previously, use of this drug rose sharply from 1978 until 1981. Starting in 1982 use began to decline, helping to account for the overall adjusted sedative index resuming its decline that year. Annual prevalence for methaqualone plummeted from 7.6% in 1981 to 0.2% by 1993; it then inched up a bit during a relapse phase in the 1990s to 1.1% in 1996, where it remained in 1999. By 2012 it was 0.4%, a tiny fraction of its peak level.

- Questions on use of *Provigil* (a prescription stay-awake drug used for narcolepsy, shift work, etc.) were added to the 12th grade questionnaires in 2009. In 2011 past-year prevalence was 1.5%, suggesting that this drug had not made serious inroads among youth in terms of nonmedically supervised use. Given the low use, questions on Provigil were no longer included on the survey starting in 2012.
- A question about *bidis*, a type of flavored cigarette imported from India, was included in the MTF questionnaires for the first time in 2000, with a single tripwire question asking about the frequency of use in the past year. Some observers had been concerned that bidis might become popular among U.S. youth, but that does not seem to have been the case. The 2010 proportion of 12th graders using bidis at least once during the past year was only 1.4%. Thirty-day and daily use would be appreciably lower. Given the low prevalence levels, the question on bidis was dropped from 8th and 10th grade questionnaires in 2006, and from 12th grade questionnaires in 2011.
- Past MTF questionnaires included questions about use of *kreteks*, a type of clove cigarette that is usually imported from Indonesia. These questions were asked of all grades from 2001 to 2005 and for 12th grade students from 2001 to 2014. Because of low prevalence, the questions were dropped to make room for other drug-related questions. For a discussion of kretek prevalence see the [2006](#) and [2015](#) publications in this monograph series.
- A question on use of “*electronic vaporizers*” was added to the survey in 2015. While this term is technically accurate it may have not been familiar to many adolescents. In 2017 MTF revamped its vaping questions, which now use the term ‘vape.’

Frequency of Lifetime, Annual, and 30-Day Use

While this volume focuses largely on *prevalence* of use for different time periods, more detailed information about the *frequency* with which various drugs have been used is important for understanding severity of substance use. Table 4-4a provides data on frequency of use of various drugs for lifetime, 12-month, and 30-day time periods. Tables 4-4b, 4-4c, and 4-4d provide additional frequency of use estimates for vaping, binge drinking, cigarette use, and use of other tobacco products. As shown in these tables, considerable proportions of lifetime users of many drugs could best be characterized as experimental users, reporting use on only one or two occasions.

Certain drugs stand out for their high frequency of use:

- The percentage of adolescents who reported they had ever *vaped nicotine regularly* by 2021 was 13.9% for 12th grade students, 8.8% for 10th grade students, and 4.0% for 8th

grade students. Nicotine vaping ranks among the most frequently used of all substances in these grades.

- The percentage of adolescents who reported they had ever *vaped “just flavoring” regularly* by 2021 was 4.6% for 12th grade students, 3.4% for 10th grade students, and 2.0% for 8th grade students.
- The percentage of adolescents who report they had ever *vaped marijuana regularly* by 2021 was 4.6% for 12th grade students, 3.4% for 10th grade students, and 2.0% for 8th grade students.
- One measure of heavy drinking called *binge drinking* asks respondents to report how many times during the previous *two-week* period they had consumed *five or more drinks in a row*. Table 4-4b shows that in 2021 about half of students in each grade who had engaged in this behavior had done so more than once during the past two weeks.
- Among illicit drugs, *marijuana* shows some of the highest proportions reporting substantial use, with 15.8%, 8.4%, and 2.2% of 12th, 10th, and 8th graders, respectively, reporting use on 20 or more occasions in their lifetime.

Most other illicit drugs have far lower frequencies of using on 20 or more occasions. However, young people may tend to underestimate the frequency with which they have engaged in these behaviors in their lifetime or over a 12-month period, so the extent of frequent use may be somewhat underestimated.⁶

Prevalence of Current Daily Use

Frequent use of illicit or licit drugs is a great concern for the health and safety of adolescents. Table 4-2 and Table 5-4 in Chapter 5, and Figure 4-2 show the prevalence of current daily or near-daily use of the various classes of illicit drugs. Figure 4-2a shows levels of daily use for marijuana, alcohol, and other drugs, for which daily use is defined as use on 20 or more occasions in the preceding 30 days. Figure 4-2b shows levels of daily use for cigarettes, smokeless tobacco, and nicotine vaping. Daily use is defined for cigarettes and nicotine vaping as use on 30 days in the preceding 30 days. For smokeless tobacco daily use is defined by the response “about once a day” or more often in the past 30 days.

- Daily use of *marijuana* was high in 2021 with use on 20 more occasions during the past 30 days at 0.6%, 3.2%, and 5.8% in 8th, 10th, and 12th grade, respectively. Thus about one in 17 high school seniors is a current daily marijuana user.
- *Nicotine vaping* also ranked high for daily use, with prevalence levels of 1.1% in 8th grade, 2.5% in 10th grade, and 5.4% in 12th grade.

⁶ Bachman, J. G., & O’Malley, P. M. (1981). [When four months equal a year: Inconsistencies in student reports of drug use](#). *Public Opinion Quarterly*, 45, 536–548. Reprinted in E. Singer & S. Presser (Eds.), 1989, *Survey research methods*. Chicago: University of Chicago Press.

- The percentages who reported using one or more *cigarettes* per day in the last 30 days were 0.4%, 0.8%, and 2.0% in grades 8, 10, and 12, respectively. Many of these daily smokers say that they currently smoke a half pack or more per day (0.2%, 0.3%, and 0.8% of all respondents in grades 8, 10, and 12, respectively).
- Daily use of *smokeless tobacco* is considerably lower than daily use of cigarettes, at 0.4% in both 8th and 10th grade, and 0.7% in 12th grade in 2021, respectively. The levels among males are quite a bit higher, however, as discussed later in this chapter.
- The daily prevalence levels for *alcohol* in 2021 were less than 1% in all three grades and were 0.3%, 0.4%, and 0.9% in grades 8, 10, and 12, respectively.
- Between 13% and 14% of students in 8th, 10th, and 12th grade reported daily use of an *energy drink* (Table 4-4e), defined as consuming one or more energy drinks per day. Use of energy drinks is assessed with the question “‘Energy drinks’ are non-alcoholic beverages that usually contain high amounts of caffeine, including such drinks as Red Bull, Full Throttle, Monster, and Rockstar” and respondents are asked to report how many such drinks they consume daily.

Unlike most substances that MTF surveys energy drinks are legal for adolescents to purchase and consume (as are energy “shots,” below). Caffeine is the primary active ingredient in these products and it is not considered an addictive stimulant because it does not produce large surges in dopamine such as those caused by other stimulants like methamphetamine. Nevertheless, use of the high levels of caffeine in these products may cause dependency and result in mild withdrawal symptoms with reductions in use. MTF tracks the extent to which adolescents use these products daily, a high level of use that may have adverse effects and may also negatively interact with use of other drugs.

- Three to four percent of students in 8th, 10th, and 12th grade reported daily use of an *energy shot*, defined as consuming one or more energy shots per day. These typically come in containers that are just two or three ounces.

NONCONTINUATION RATES

One indication of the proportion of people who try a drug but do not continue to use it can be derived from calculating the percentage of those who ever used a drug in their lifetime (once or more) but did *not* use it in the 12 months preceding the survey.⁷ We use the word “noncontinuation” rather than “discontinuation” to describe this situation because the latter term might imply discontinuing an established pattern of use, whereas our current operational definition includes noncontinuation by experimental users as well as established users. Figure 4-3 provides these noncontinuation rates for most drug classes and all three grades in 2021; drugs are ordered from highest to lowest rates based on the

⁷ This operationalization of noncontinuation has an inherent limitation in that users of a given drug who initiated use *during* the past year by definition cannot be noncontinuers. Thus, the definition tends to understate the noncontinuation rate, particularly for drug use initiated late in high school rather than in earlier years or for newly popular drugs.

ranking shown for 12th graders. This set of three figures shows that noncontinuation rates vary widely by drug.

- Among 12th grade students, the lowest noncontinuation rates are observed for *alcohol* (14%), *marijuana* (21%), *been drunk* (26%), *vaping marijuana* (29%), and *vaping nicotine* (31%) These low noncontinuation rates indicate that the majority of youth who have started using these drug continue to use them. At the same time, it is important to recognize that substantial proportions of students who try the various illicit drugs do not continue use, even into later adolescence. (Note: Use of *heroin with and without a needle* is not included due to very low case counts.)
- The noncontinuation rate of 31% for *nicotine vaping* is the fifth lowest of all substances assessed (above vaping marijuana, been drunk, marijuana, and alcohol). Likely contributing to the low noncontinuation level is the very low level of perceived risk for nicotine vaping (discussed in Chapter 8).
- It is noteworthy that, of all the 12th graders who have ever used *crack* (1.5%), few report current use (0.3% of all 12th graders). While there is no question that crack is highly addictive, evidence from MTF has suggested consistently that it is not addictive on the first use, contrary to what was often alleged in the past.
- In contrast to illicit drugs, noncontinuation rates for *licit* drugs are extremely low. Among 12th grade students *alcohol* has a lifetime prevalence of 54% and an annual prevalence of 47%, yielding a noncontinuation rate of only 13% (1 - 47%/54%).
- Noncontinuation had to be defined differently for *cigarettes* because respondents are not asked to report on their cigarette use in the past year. The noncontinuation rate is thus defined as the percentage of those who say they had ever smoked who also reported not smoking at all during the *past 30 days* rather than the past year. Of the 12th graders who said they were ever regular smokers, 77% have ceased active use.
- Noncontinuation is defined for *smokeless tobacco* much the same way as for cigarettes. In 2021, 74% of lifetime regular users did not use in the past 30 days.
- In addition to providing 12th grade data, Figure 4-3 presents comparable data on noncontinuation rates based on responses of 8th and 10th graders. The drugs have been left in the same order as the rank-ordered drugs in 12th grade to facilitate comparison across grades.
- The noncontinuation rates for *inhalants* are very high, at 57%, 72%, and 65% in grades 8, 10, and 12, respectively.

PREVALENCE COMPARISONS FOR IMPORTANT SUBGROUPS

MTF examines differences in prevalence of drug use associated with gender, college plans, region of the country, population density, parents' education level, and racial/ethnic identification. Tables 4-5 through 4-8 provide statistics on levels of use for these various subgroups for all three grades in 2021. Additional information on demographic differences in drug prevalence and in trends in prevalence by demographic subgroup are presented in [Occasional Paper 97](#).

Gender Differences

In general, higher proportions of males than females are involved in drug use, especially heavy use. Below we note important examples of and qualifications to this generalization.

- Use of *marijuana* trended slightly higher for females than for males in 2021 in all three grade levels for lifetime, past 12-month, and past 30-day use. This gender ordering is unusual because in past years the trend was reversed. The coming years will tell if males return to higher marijuana prevalence as the pandemic recedes, or if a new gender ordering has taken place.
- Males have considerably higher prevalence than females on most illicit drugs other than marijuana—at least by 12th grade. The annual prevalence for 12th grade males, compared to 12th grade females, is more than twice as high for *hallucinogens*, *hallucinogens other than LSD*, *Ritalin*, *crystal methamphetamine (ice)*, *ketamine*, *snus*, *dissolvable cigarette products*, and *steroids*. Further, males account for an even greater share of the frequent or heavy users of many of these drugs.
- For many drugs, however, there is less gender difference in use in the lower grades, especially in 8th grade; this includes *marijuana*. For some drugs, females actually have higher levels of annual use in 8th grade (though in most cases, not statistically significantly higher), including *any illicit drug*, *inhalants*, *cocaine*, and *tranquilizers*. Thus, the gender differences observed in 12th grade, with males more likely to use most drugs, emerge over the course of middle to late adolescence. The gender differences in the early grades may result, in part, from females tending to mature earlier and associating with older males (this gender difference may then dissipate as same-age males catch up in physical maturity and substance use opportunities).
- Annual prevalence for *amphetamine* use is higher among females than among males in grade 8, but this gap reduces to near zero by 12th grade. Indeed, it is due in part to their higher use of amphetamines in 8th grade—some of which may be for the purpose of weight loss—that females show higher levels of using some *illicit drug other than marijuana* in 8th grade. (Eighth grade females also tend to be higher than males in annual *tranquilizer* use.)
- Frequent alcohol use is higher among males in 12th grade. Among 12th graders, *daily alcohol* use is reported by 1.1% of males versus 0.6% of females. Gender differences in these behaviors are smaller in 8th and 10th grades, with females sometimes slightly higher than males.

- Past 30-day *cigarette* smoking prevalence differs by one percentage point or less for males and females in all three grades in 2021. As is often the case, differences by demographic groups are small when overall prevalence is very low (30-day prevalence in 2021 was 4% in 12th grade and less than 2% in 10th and 8th grade).
- Prevalence of *vaping nicotine* and *vaping marijuana* in the past year were slightly higher for females than for males in all three grades.
- Use of *smokeless tobacco* is almost exclusively a male behavior. Compared to 3.6% of 12th grade males in 2021 who reported some use in the prior month, only 0.7% of females did. Prevalence of daily use by males is 2.1%, 2.4%, and 3.6% among 8th, 10th, and 12th graders, respectively. The comparable statistics for females are only 1.3%, 0.8%, and 0.7%, respectively.
- The use of other tobacco products like *hookah*, *large cigars*, *regular and flavored little cigars*, *dissolvable tobacco*, and *snus* also is about twice as high among males as compared to females in 12th grade (Tables 4-6 and 4-7).
- Past 12-month use of *anabolic steroids* in 12th grade is 10 times higher for males than females, at 1.0% and 0.1%, respectively. In 10th and 8th grade gender differences are negligible.
- Past-year use of over-the-counter *diet pills* is higher among females, with a prevalence level of 3.4% for females as compared to 1.6% for males in 12th grade (the only grade for which this outcome is reported).

Differences Related to College Plans

Overall, students who say they probably or definitely will graduate from a four-year college program (referred to here as the “college-bound”) have lower levels of illicit drug use in secondary school than those who say they probably or definitely will not (the “noncollege-bound”). (See Tables 4-5 through 4-8 and Figures 5-8 and 5-9 in Chapter 5.)

Today the great majority of students at all three grade levels expect to attend and graduate from a four-year college: 85% in 8th grade, 82% in 10th grade, and 76% in 12th grade (calculated from first three columns of Table 4-6). The proportions indicating college plans are higher at the lower grade levels, even though future high school dropouts (typically about 6% of today’s high school classes) are still contained in these samples. Cohort shifts in college attendance that have taken place since MTF began may partially explain this apparent anomaly, but there is probably a considerable age effect as well, wherein early aspirations become reality-tested (and adjusted) as secondary school experience cumulates and academic performance levels become more clearly established.

For any given drug, the differences between these two self-identified groups of college- or noncollege-bound students tend to be greatest in 8th grade, perhaps due to the inclusion of future high school dropouts, or the tendency of noncollege-bound students to have an earlier age of initiation of use, or both.

- Annual *marijuana* use, for example, was reported in 2021 by 29% of college-bound 12th graders versus 34% of the noncollege-bound; but among 8th graders it is reported by only 6% of the college-bound versus 12% of the noncollege-bound.
- Among 12th graders in 2021 use of *any illicit drug other than marijuana* in the prior year was higher among the noncollege-bound youth (9%) compared to college-bound youth (7%) (Table 4-6).
- Frequent use of many illicit drugs shows larger contrasts related to college plans (Table 4-8). *Daily marijuana* use, for example, is about four times as likely among the noncollege-bound as it is among the college-bound in 8th grade, about three times as likely in 10th grade, and about twice as likely in 12th grade. *Lifetime prevalence of daily marijuana use for a month or more* shows the same concentration among the noncollege-bound, for whom prevalence is 8.9% as compared to 4.2% among the college-bound in 12th grade (this outcome not measured in the lower grades).
- An examination of Table 4-6 shows that quite large ratio differences are found between the college-bound and the noncollege-bound for annual prevalence of use on virtually all illicit drugs other than marijuana; ratios tend to be highest in the earlier grades with the noncollege-bound having higher annual prevalence.
- Levels of frequent *alcohol* use are also higher among the noncollege-bound. For example, *daily drinking* is reported by 1.2% of the noncollege-bound 12th graders versus 0.7% of the college-bound. *Binge drinking* (five or more drinks in a row at least once during the preceding two weeks) has less of a relative difference; it is reported by 11% of the noncollege-bound 12th graders versus 12% of the college-bound. There are fewer differences between the noncollege-bound and college-bound 12th graders in lifetime (54% in both groups), annual (44% v. 47%), and 30-day (22% vs. 27%) prevalence of alcohol use. In the lower grades, the differences are larger in the various drinking measures between those who expect to go to college and those who do not (Tables 4-5 through 4-8). As shown in earlier editions of [Volume II](#)⁸ in this monograph series, the college-bound eventually increase their binge drinking to a level exceeding that of the noncollege-bound—an important reversal with age and the changes it brings in social context.
- Noncollege bound students are more likely to receive *any medication* for ADHD, either *stimulant* or *nonstimulant* drugs in 8th and 10th grade. This has held generally for lifetime and current prevalence in each grade. Of course, ADHD may be one reason why a student does not anticipate going to college.
- Noncollege-bound students are much more likely to use *energy drinks*, in all grades. The differences in daily use levels for noncollege-bound compared to college-bound are striking, at 21% v. 12% in 8th grade, 23% v. 11% in 10th grade, and 19% v. 11% in 12th grade.

⁸ Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A. & Patrick, M. E. (2019). [Monitoring the Future national survey results on drug use, 1975-2018: Volume II, college students and adults ages 19-60](#). Ann Arbor: Institute for Social Research, The University of Michigan.

- At all three grade levels, noncollege-bound students are much more likely to use *steroids* compared to college-bound students; past 12-month prevalence was 1% for the noncollege-bound as compared to 0.3% for the college-bound
- One of the largest differences in substance use between the college- and noncollege-bound involves *cigarette* smoking—2.9% of college-bound 12th graders report smoking in the past 30 days compared to 6.3% of the noncollege-bound. Proportional differences are even larger in the lower grades: 0.7% of college-bound versus 3.2% of noncollege-bound students in 8th grade and 1.0% versus 4.4% in 10th grade. (The absence of dropouts undoubtedly reduces the ratio at 12th grade, because dropouts have very high levels of smoking as shown in Table A-1 in Appendix A.)
- In part because of the concentration of cigarette smoking among the noncollege-bound, both *any nicotine use* and *any nicotine use other than vaping* in the past 30 days are higher for the noncollege-bound. In 12th grade the levels of any nicotine use for the college- as compared to the noncollege-bound are 22% versus 27%, in 10th grade they are 13% versus 26%, and in 8th grade they are 8% versus 17%. “Any nicotine use” indicates any use of cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.
- Vaping of all substances is higher for the noncollege-bound youth. Differences in past 30-day use are particularly pronounced in 8th grade, with noncollege-bound youth more than twice as likely to vape nicotine, marijuana, and ‘just flavoring’ in comparison to the college-bound. In 10th and 12th grades the noncollege-bound still have higher levels of vaping than the college bound, although the differences are smaller.
- As with cigarettes, use of *dissolvable tobacco*, *large cigars*, *flavored cigars*, and *smokeless tobacco* use, including the use of *snus*, is substantially higher among the noncollege-bound than among the college-bound in all three grades (Table 4-7).

Regional Differences

Figure 4-4 provides a map showing the states included in the four regions of the country as defined by the United States Census Bureau—the Northeast, Midwest, South, and West (see Appendix B for detailed descriptions). The MTF study design is intended to permit such regional comparisons, but is not designed to permit state-level estimates, which would require far larger samples. Regional differences in drug use levels for the current year are provided in Tables 4-5 through 4-8 for grades 8, 10, and 12; Figures 5-10a through 5-10c provide graphical displays over time for selected drugs for 12th graders. Additional information on differences in drug prevalence by region are presented in [Occasional Paper 97](#).

- In 2021, the overall prevalence levels of *any illicit drug* use in the last 12 months differ some among the regions, but the differences are not strong or consistent across grades (Table 4-6). As one example, prevalence in the Northeast was lowest in 8th grade but highest in 12th grade. No region had the highest or lowest levels of prevalence across all three grades.

- **Marijuana** use and **marijuana vaping** show a regional pattern similar to that for any illicit drug, not surprising given that marijuana (the most prevalent illicit drug) tends to drive the index.
- Regional variation in use in the past 12 months of **any illicit drug other than marijuana** is relatively small, with prevalence ranging from 2.5% to 5.2% among 8th graders, 4.6% to 5.6% among 10th graders, and 5.9% to 9.7% among 12th graders.
- Past 12 month use of **sedatives (barbiturates)**, reported only for 12th grade, does not vary greatly by region, with a narrow range of prevalence from 0.8% to 3.1%.
- **Rohypnol**—which, like tranquilizers and sedatives (barbiturates), is a central nervous system depressant—does not show consistent regional differences across grades.
- Use of **MDMA** (ecstasy, Molly) in the last 12 months was higher in the West in 2021 among 12th graders. Annual prevalence among 12th grade students was at 2.4% in the West, which compares with 0.5% in the Northeast, 1.1% in the Midwest, and 0.6% in the South. Regional differences are smaller in the lower grades.
- For many years, the 30-day prevalence of **alcohol** use among 12th graders has been somewhat lower in the South and West than in the Northeast and Midwest regions, though there has been less regional difference in the lower grades. In 2021 this regional difference held and among 12th grade students past 30-day prevalence was 22% in the South and 24% in the West, as compared to 36% in the Northeast and 27% in the Midwest.
- **Daily smoking** is lowest or tied for the lowest in the Northeast in all three grades (Table 4-8).
- In 2021 use of **smokeless tobacco** in the past 30 days had higher levels in the South. In 10th and 12th grades prevalence was highest in the South, while in 8th grade it was second highest in the South.

Differences Related to Population Density

Three levels of population density (or urbanicity) have been distinguished for analytical purposes: (a) large Metropolitan Statistical Areas (large MSAs), (b) other metropolitan statistical areas (other MSAs), and (c) non-MSAs. (See Appendix B for exact definitions.)

Differences in drug use across these various-sized communities are generally small, reflecting how widely drug use has diffused through the population (Tables 4-5 through 4-8). There are a few minor exceptions:

- **Nicotine vaping** is distinctly higher in rural areas (Table 4-6). Past 12-month prevalence levels in non-MSAs compared to large MSAs were 36% versus 24% in 12th grade, 28% versus 13% in 10th grade, and 18% and 6% in 8th grade. The prevalence levels in other MSAs fell between these two groups in all grades.

- **Cigarette** use in the past 30 days also is inversely related to community size at all three grade levels (see Table 4-7 showing 30-day prevalence). Prevalence in non-MSAs as compared to large MSAs is more than double in grades 8 and 10 and more than 50% higher in 12th grade. The differences illustrate the extent to which cigarette smoking is a rural phenomenon as well as one concentrated among the less educated.
- **Smokeless tobacco** use is similar to cigarette use in that it is highest in non-MSAs at all three grade levels.
- Consistent with differences in cigarette smoking, nicotine vaping, and smokeless tobacco use, **any nicotine use** is concentrated in more rural areas in all three grades.

Differences Related to Parental Education

The best indicator of family socioeconomic status (SES) available in the MTF study is an index of parental education, which is based on the average of the educational levels reported for both parents by the respondent (or on the data for one parent, if data for both are not available). The respondent is instructed to indicate on the following scale the highest level of education each parent attained: (1) completed grade school or less, (2) some high school, (3) completed high school, (4) some college, (5) completed college, and (6) graduate or professional school after college. (It should be noted that the average educational level obtained by students' parents has risen over the years, as discussed in Chapter 5.) Tables 4-5 through 4-8 give the distributions for the prevalence of use of the various drugs at each grade level.

By 12th grade there is little association between family SES and most illicit drug use. This again speaks to the extent to which illicit drug use has permeated all social strata in American society.

However, an examination of Table 4-6 shows that in 8th grade, there tends to be a negative, largely monotonic relationship between socioeconomic level and annual prevalence of use of a number of drugs. The relationships are not always entirely monotonic because of racial and ethnic differences in SES, which will be discussed in the final section of this chapter.

- A number of the SES differences seen in 8th grade have diminished substantially or disappeared completely by 10th or 12th grade. This is true for **marijuana**, **hallucinogens**, **hallucinogens other than LSD**, and **amphetamines**. The diminished SES differences by 12th grade could be explained by the higher SES teenagers "catching up" with their more experienced peers from lower SES backgrounds, or by differential rates of dropping out of school out among the strata, or both.
- In 2021 the annual prevalence of **marijuana** use, for example, is about twice as high in the lowest SES stratum as in the highest one among 8th graders (11% versus 4%, respectively) and 10th graders (24% versus 13%) but practically the same among 12th graders (at 24% and 30%).
- Past 12-month **nicotine vaping** and **marijuana vaping** are concentrated among lower SES families in 8th grade and 10th grade and then are concentrated among those from higher SES families in 12th grade.

- Current use of either *non-stimulant-type* or *stimulant-type ADHD medication* is higher in the upper SES groups in 10th and 12th grades. To the extent that children from high-SES families tend to be treated more for ADHD than others, it probably reflects that those families are more likely to receive professional assessment and treatment and perhaps are more able to afford it.
- *Daily cigarette smoking* bears a strong inverse relationship with parental education in all three grades (Table 4-8), indicating that cigarette smoking has become particularly concentrated among the children of families with lower socioeconomic status.
- *Daily use of energy drinks* is concentrated in the lower social strata in all grades.

Racial/Ethnic Differences

Racial/ethnic comparisons are made here for students who identify exclusively as African American, Hispanic, or White.⁹ Although the MTF design did not include an oversampling of any racial/ethnic minority groups, the large overall sample sizes at each grade level do produce fair numbers of African American and Hispanic respondents, and the size of these populations has increased in recent decades. Additionally, in the findings presented in this volume, we routinely present combined data from two adjacent years to augment the sample sizes on which estimates for these two minority groups (as well as Whites) are based and, thus, increase the reliability of the estimates. Otherwise, misleading findings about the size of racial/ethnic differences may emerge, as well as (and perhaps more importantly) misleading findings about their trends. We caution the reader that the sampling error of differences among groups is likely to be larger than would be true for other demographic and background variables such as gender or college plans because African Americans and Hispanics are more likely to be clustered by neighborhood, and therefore by school.

Tables 4-5 to 4-8 give the two-year *combined* (i.e., 2020–2021) prevalence estimates for lifetime, annual, 30-day, and selected daily use for the three racial/ethnic groups at all three grade levels, along with the numbers of cases upon which the estimates are based on the first page of each table.

⁹ We recognize that these categories are broad. The Hispanic category encompasses people with various Latin American, Caribbean, and European origins, but for the purposes of this monograph the sample sizes are unfortunately too small to differentiate among them in any one year. In addition, small numbers of cases present challenges in detailed analysis of students who indicate membership in the other racial/ethnic groups, as well as those who indicate membership in multiple racial/ethnic groups and the many specific combinations these students comprise. For more complete treatments of racial/ethnic differences, as well as interactions with other demographic characteristics, see Miech, R. A., Terry-McElrath, Y. M., O'Malley, P. M., & Johnston, L. D. (2019). [Increasing marijuana use for black adolescents in the United States: A test of competing explanations](#). *Addictive Behaviors*, *93*, 59-64; Terry-McElrath, Y. M., & Patrick, M. E. (2018). [U.S. adolescent alcohol use by race/ethnicity: Consumption and perceived need to reduce/stop use](#). *Journal of Ethnicity in Substance Abuse*, 1-25; Bachman, J. G., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Wallace, J. M., Jr. (2011). [Racial/ethnic differences in the relationship between parental education and substance use among U.S. 8th-, 10th-, and 12th-grade students: Findings from the Monitoring the Future Project](#). *Journal of Studies on Alcohol and Drugs*, *72*(2), 279-285; Bachman, J. G., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2010). [Impacts of parental education on substance use: Differences among White, African-American, and Hispanic students in 8th, 10th, and 12th grades \(1999-2008\)](#) (Monitoring the Future Occasional Paper No. 70). Ann Arbor, MI: Institute for Social Research; Wallace, J. M., Jr., Vaughn, M. G., Bachman, J. G., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2009). [Race/ethnicity, socioeconomic factors, and smoking among early adolescent girls in the United States](#). *Drug and Alcohol Dependence*, *104*(Suppl. 1), S42-S49; Delva, J., Wallace, J. M., Jr., O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). [The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American 8th grade students in the United States: 1991–2002](#). *American Journal of Public Health*, *95*, 696–702; Wallace, J. M., Jr., Bachman J. G., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Cooper, S. M. (2002). [Tobacco, alcohol, and illicit drug use: Racial and ethnic differences among U.S. high school seniors, 1976–2000](#). *Public Health Reports*, *117* (Supplement 1), S67–S75; Bachman, J. G., Wallace, J. M., Jr., O'Malley, P. M., Johnston, L. D., Kurth, C. L., & Neighbors, H. W. (1991). [Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors, 1976–1989](#). *American Journal of Public Health*, *81*, 372–377.

For a number of years, 12th grade African American students reported lifetime, annual, 30-day, and daily prevalence levels for nearly all drugs that were lower—sometimes dramatically so—than those for White or Hispanic 12th graders. That is less true today, with levels of drug use among African Americans more similar to the other groups. This narrowing of the gap between African Americans and other two racial/ethnic groups is also seen in 8th and 10th grades, indicating that this narrowing in 12th grade is almost certainly *not* due primarily to differential dropout rates.

- Annual *marijuana* use differs little by race/ethnicity and across the three groups varies between 8% and 11% in 8th grade, 24% and 25% in 10th grade, and 30% and 34% in 12th grade.
- A number of drugs are much less popular among African American teens than among White teens, particularly at the higher grades. These include *inhalants, amphetamines, alcohol, been drunk, flavored alcoholic beverages, alcoholic beverages containing caffeine, cigarettes, vaping nicotine, vaping marijuana, vaping just flavoring, snus, and creatine*.
- By 12th grade, White students have the highest annual prevalence levels among the three major racial/ethnic groups for a number of substances, including *amphetamines, alcohol use, been drunk, flavored alcoholic beverages, alcoholic beverages containing caffeine, vaping nicotine, vaping marijuana, small cigars*, and *snus*. Not all of these findings are replicated at lower grade levels, however. See Tables 4-5 and 4-6 for specifics.
- Hispanics in 2021 had the highest annual prevalence in 12th grade for the “club drugs” of *GHB* and *ketamine*. Their use of tobacco products such as *nicotine vaping, small cigars, hookah, snus, and cigarettes* was substantially lower than the levels for Whites, and typically close to the levels for African Americans. It bears repeating that Hispanics have a considerably higher dropout rate than Whites or African Americans, based on Census Bureau statistics, which should tend to diminish any such differences by 12th grade, yet there remain sizeable differences even in the upper grades.
- Recent *binge drinking* (having five or more drinks in a row during the prior two weeks) is lowest among African Americans in 10th and 12th grades, when prevalence is highest; in 12th grade, their level of use is 5.8% versus 17% for Whites and 10% for Hispanics. The corresponding prevalence levels for 10th grade are 4.8% for African Americans vs. 9% for Whites and 7.6% for Hispanics.
- Hispanic students have markedly lower levels of use for *drugs used to treat ADHD* than do White and African American students. In 2021 lifetime prevalence in 12th grade for use for either stimulant or non-stimulant prescription ADHD drugs was 3.9% among Hispanic students as compared to 9% for White students and 6% for African American students. Use of either of these drugs in the past 30 days is also much lower for Hispanic students, who in 12th grade have a prevalence level of 0.7% as compared to 4.6% for White students and 2.4% for African American students. As to why Hispanic students are less likely to be treated with ADHD drugs than White and African American students, possible contributing

factors include Hispanic families being less likely to get access to, or be able to afford, professional assessment and treatment.

TABLE 4-1a
Lifetime Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug ^{a,o}	13.9	15.9	18.0	22.6	25.0	27.4	38.5	41.3	44.1
Any Illicit Drug other than Marijuana ^{a,o}	7.6	8.8	9.9	8.2	9.1	10.0	11.2	12.8	14.5
Any Illicit Drug including									
Inhalants ^{a,b,o}	20.2	22.4	24.6	26.0	28.5	31.0	40.2	43.3	46.4
Marijuana/Hashish ^o	8.6	10.2	11.9	19.7	22.0	24.3	35.8	38.6	41.4
Inhalants ^{b,c}	10.0	11.3	12.5	6.4	7.2	8.0	4.0	5.0	5.9
Hallucinogens ^l	1.4	1.8	2.2	2.9	3.5	4.2	5.6	7.1	8.5
LSD ^l	0.8	1.2	1.6	1.9	2.5	3.0	3.4	4.9	6.4
Hallucinogens other than LSD ^l	1.0	1.3	1.6	2.0	2.5	3.0	4.1	5.3	6.5
Ecstasy (MDMA) ^{e,f}	0.6	1.0	1.3	1.1	1.4	1.7	1.1	2.8	4.5
Cocaine	0.4	0.6	0.9	0.8	1.2	1.5	1.4	2.5	3.5
Crack	0.2	0.4	0.6	0.5	0.7	0.9	0.6	1.5	2.4
Cocaine other than Crack ^g	0.3	0.5	0.7	0.7	1.0	1.3	0.8	2.2	3.5
Heroin ^c	0.3	0.5	0.7	0.2	0.3	0.4	0.2	0.4	0.7
With a Needle ^{b,c}	0.2	0.4	0.5	0.1	0.3	0.4	0.1	0.2	0.4
Without a Needle ^{b,c}	0.1	0.2	0.3	0.0	0.1	0.2	0.0	0.2	0.4
Narcotics other than Heroin ^h	—	—	—	—	—	—	1.8	2.3	2.8
Amphetamines ^h	4.9	5.8	6.7	4.6	5.2	5.7	4.0	4.9	5.8
Methamphetamine ^{fi}	0.1	0.3	0.4	0.2	0.4	0.6	0.1	0.6	1.0
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.4	0.7	1.1
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	2.5	3.5	4.5
Tranquilizers ^h	2.0	2.5	3.0	2.2	2.6	3.0	2.5	3.3	4.1
Rohypnol ^{dj}	0.0	0.3	0.5	0.2	0.6	1.0	—	—	—
Alcohol	19.5	21.7	23.8	32.0	34.7	37.5	50.7	54.1	57.6
Been Drunk ^f	7.0	8.3	9.5	15.7	17.8	19.9	33.4	38.9	44.3
Flavored Alcoholic Beverages ^{dj}	11.6	13.8	16.1	21.8	24.9	27.9	37.4	43.7	50.0
Cigarettes	5.7	7.0	8.3	8.6	10.0	11.4	15.0	17.8	20.6
Smokeless Tobacco ^{d,e}	3.4	4.6	5.8	4.0	4.9	5.9	4.9	8.6	12.2
Any Vaping	15.2	17.5	19.8	26.8	29.7	32.6	37.6	40.5	43.4
Vaping Nicotine	14.4	16.6	18.8	25.4	28.4	31.4	35.7	38.7	41.7
Vaping Marijuana	5.5	6.5	7.6	14.5	16.5	18.4	23.4	25.7	27.9
Vaping Just Flavoring	10.4	12.0	13.7	17.5	19.6	21.8	23.1	25.2	27.3
Vaping Flavoring with no Nicotine Vaping	0.5	0.8	1.0	0.6	0.9	1.2	0.8	1.1	1.4

Table continued on next page.

TABLE 4-1a (cont.)
Lifetime Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower <u>limit</u>	Observed <u>estimate</u>	Upper <u>limit</u>	Lower <u>limit</u>	Observed <u>estimate</u>	Upper <u>limit</u>	Lower <u>limit</u>	Observed <u>estimate</u>	Upper <u>limit</u>
JUUL	8.3	10.3	12.3	17.1	19.8	22.5	24.6	28.5	32.4
Steroids ^{b,h}	0.9	1.2	1.4	0.5	0.7	0.9	0.4	0.8	1.3
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	2.9	4.6	6.2
Stay-Awake Pills ^d	—	—	—	—	—	—	1.8	3.4	5.0
Legal Use of Prescription ADHD Drugs									
Stimulant-Type ^f	7.2	9.0	10.7	5.9	7.0	8.1	6.3	8.0	9.8
Non-Stimulant-Type ^f	2.0	2.8	3.5	2.3	3.0	3.6	3.1	4.5	5.9
Either Type ^f	9.5	11.5	13.6	7.8	9.0	10.3	8.8	10.9	13.0

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 4-1d.

TABLE 4-1b
Annual Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug ^{a,o}	8.5	10.2	11.8	16.6	18.7	20.8	29.5	32.0	34.6
Any Illicit Drug other than Marijuana ^{a,o}	3.9	4.6	5.3	4.5	5.1	5.8	6.1	7.2	8.3
Any Illicit Drug including Inhalants ^{a,b,o}	10.9	12.6	14.3	17.5	19.6	21.7	29.8	33.2	36.7
Marijuana/Hashish ^o	5.8	7.1	8.4	15.3	17.3	19.3	28.1	30.5	33.0
Synthetic Marijuana ^{e,f}	0.7	1.3	1.9	1.1	1.6	2.2	1.3	1.8	2.3
Inhalants ^c	3.8	4.8	5.9	1.6	2.0	2.4	1.1	1.8	2.4
Hallucinogens ^l	0.8	1.0	1.3	1.7	2.2	2.6	3.3	4.1	4.8
LSD ^l	0.5	0.7	0.9	1.1	1.5	1.9	1.9	2.5	3.2
Hallucinogens other than LSD ^l	0.6	0.8	1.0	1.2	1.5	1.9	2.3	2.9	3.4
PCP ^d	—	—	—	—	—	—	0.3	0.7	1.2
Ecstasy (MDMA) ^{e,f}	0.4	0.6	0.8	0.5	0.7	0.9	0.5	1.1	1.7
Salvia ^{f,j}	0.2	0.5	0.9	0.2	0.4	0.7	0.1	0.6	1.1
Cocaine	0.1	0.2	0.3	0.4	0.6	0.8	0.6	1.2	1.8
Crack	0.1	0.2	0.3	0.2	0.3	0.5	0.4	0.7	1.1
Cocaine other than Crack ^g	0.1	0.2	0.2	0.4	0.5	0.7	0.1	0.9	1.8
Heroin ^c	0.1	0.2	0.3	0.1	0.1	0.2	0.0	0.1	0.2
With a Needle ^{b,c}	0.0	0.1	0.2	0.0	0.1	0.2	0.0	0.1	0.2
Without a Needle ^{b,c}	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2
Narcotics other than Heroin ^h	—	—	—	—	—	—	0.7	1.0	1.3
OxyContin ^{b,h,i}	0.3	0.8	1.4	0.5	0.9	1.3	0.5	0.9	1.4
Vicodin ^{b,h,i}	0.2	0.6	1.0	0.2	0.5	0.7	0.4	0.9	1.3
Amphetamines ^h	2.4	3.0	3.6	2.3	2.7	3.1	1.8	2.3	2.8
Ritalin ^{f,h,j}	0.2	0.6	1.0	0.1	0.3	0.6	0.2	0.5	0.9
Adderall ^{f,h,j}	1.1	1.8	2.5	1.1	1.6	2.1	1.1	1.8	2.4
Methamphetamine ^{f,i}	0.0	0.2	0.3	0.0	0.2	0.3	0.0	0.2	0.3
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.1	0.4	0.6
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	1.2	1.8	2.4

Table continued on next page.

TABLE 4-1b (cont.)
Annual Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Tranquilizers ^h	0.9	1.1	1.4	1.0	1.3	1.5	0.8	1.2	1.7
OTC Cough/Cold Medicines ^{f,i}	2.6	3.5	4.5	2.1	2.7	3.3	0.8	1.7	2.7
Rohypnol ^{d,j}	0.0	0.2	0.3	0.0	0.2	0.4	0.0	0.4	0.7
GHB ^d	—	—	—	—	—	—	0.0	0.4	0.7
Ketamine ^f	—	—	—	—	—	—	0.5	0.9	1.3
Alcohol	15.2	17.2	19.2	26.0	28.5	31.0	42.9	46.5	50.1
Been Drunk ^f	4.6	5.7	6.7	11.6	13.4	15.2	24.2	28.8	33.3
Flavored Alcoholic Beverages ^{d,i}	8.4	10.2	12.0	16.0	18.8	21.5	26.8	32.1	37.5
Alcoholic Beverages containing Caffeine ^{f,i}	4.8	6.2	7.5	6.0	7.5	9.0	7.5	9.9	12.3
Tobacco using a Hookah ^b	—	—	—	—	—	—	1.2	2.1	3.1
Small cigars ^d	—	—	—	—	—	—	2.0	3.4	4.8
Snus ^{d,i}	0.6	1.2	1.9	0.6	1.0	1.5	1.6	2.6	3.5
Dissolvable Tobacco Products ^{d,i}	0.4	0.8	1.2	0.1	0.3	0.6	0.5	1.1	1.7
Any Vaping	11.5	13.4	15.3	19.6	22.2	24.7	28.9	31.5	34.1
Vaping Nicotine	10.4	12.1	13.9	17.0	19.5	22.1	24.0	26.6	29.2
Vaping Marijuana	3.9	4.7	5.5	10.9	12.4	13.9	16.4	18.3	20.2
Vaping Just Flavoring	6.4	7.7	9.0	9.1	10.6	12.0	10.2	11.7	13.2
Vaping Flavoring with no Nicotine Vaping	0.6	1.0	1.3	0.7	1.0	1.2	0.8	1.2	1.5
JUUL	10.0	11.6	13.3	19.5	21.9	24.3	26.2	29.0	31.7
Steroids ^{b,h}	0.3	0.5	0.6	0.2	0.3	0.4	0.2	0.5	0.8
Androstenedione ^{f,i}	—	—	—	—	—	—	0.0	0.6	1.2
Creatine ^{f,i}	2.0	3.2	4.4	4.8	6.0	7.1	5.4	7.4	9.3
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	1.7	2.5	3.3
Stay-Awake Pills ^d	—	—	—	—	—	—	0.6	1.5	2.4

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 4-1d.

TABLE 4-1c
30-Day Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug ^{a,o}	4.7	5.9	7.1	9.6	10.9	12.3	18.5	20.6	22.7
Any Illicit Drug other than Marijuana ^{a,o}	1.8	2.4	2.9	2.0	2.5	3.0	2.4	2.9	3.4
Any Illicit Drug including Inhalants ^{a,b,o}	5.6	6.9	8.2	10.1	11.4	12.8	18.6	21.0	23.4
Marijuana/Hashish ^o	3.2	4.1	5.0	8.7	10.1	11.4	17.4	19.5	21.6
Inhalants ^c	1.3	1.8	2.3	0.7	0.9	1.1	0.3	0.7	1.0
Hallucinogens ^l	0.2	0.4	0.5	0.5	0.8	1.0	0.7	1.0	1.2
LSD ^l	0.1	0.2	0.3	0.2	0.4	0.5	0.3	0.5	0.7
Hallucinogens other than LSD ^l	0.1	0.2	0.4	0.4	0.6	0.8	0.6	0.8	1.0
Ecstasy (MDMA) ^{e,f}	0.1	0.2	0.4	0.0	0.1	0.2	0.1	0.2	0.3
Cocaine	0.0	0.1	0.2	0.2	0.3	0.5	0.2	0.3	0.5
Crack	0.0	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.5
Cocaine other than Crack ^g	0.0	0.1	0.2	0.1	0.3	0.4	0.0	0.1	0.2
Heroin ^c	0.0	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.2
With a Needle ^{b,c}	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.2
Without a Needle ^{b,c}	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.2
Narcotics other than Heroin ^h	—	—	—	—	—	—	0.2	0.3	0.5
Amphetamines ^{e,f,h}	1.3	1.7	2.1	1.0	1.4	1.7	0.8	1.0	1.3
Methamphetamine ^{f,i}	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.3
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.0	0.2	0.3
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	0.5	0.9	1.2
Tranquilizers ^h	0.3	0.4	0.6	0.4	0.5	0.7	0.3	0.4	0.5
Rohypnol ^{d,j}	- 0.1	0.1	0.2	0.0	0.1	0.2	—	—	—
Alcohol	6.3	7.3	8.4	11.5	13.1	14.6	22.7	25.8	29.0
Been Drunk ^f	1.5	2.0	2.5	4.5	5.4	6.3	11.9	15.5	19.1
Flavored Alcoholic Beverages ^{d,i}	3.6	4.6	5.6	5.9	7.8	9.7	12.0	15.3	18.6
Cigarettes	0.7	1.1	1.5	1.5	1.8	2.1	2.4	4.1	5.8
Smokeless Tobacco ^{d,e}	1.1	1.6	2.2	1.2	1.7	2.1	1.3	2.2	3.1
Any Vaping	7.5	8.9	10.3	13.5	15.6	17.6	21.5	24.0	26.5
Vaping Nicotine	6.3	7.6	8.9	11.1	13.1	15.1	17.1	19.6	22.1
Vaping Marijuana	2.3	2.9	3.5	7.3	8.4	9.5	10.8	12.4	14.0
Vaping Just Flavoring	3.8	4.6	5.5	5.3	6.3	7.3	6.2	7.4	8.6
Vaping Flavoring with no Nicotine Vaping	0.6	0.9	1.1	0.5	0.7	1.0	0.5	0.7	1.0
JUUL	2.5	3.3	4.2	3.7	4.6	5.4	5.1	6.8	8.6
Large Cigars ^{f,m}	0.6	1.1	1.6	0.7	1.3	2.0	1.4	2.3	3.2
Flavored Little Cigar ^{f,m}	0.6	1.0	1.4	0.9	1.5	2.2	1.1	1.9	2.8
Regular Little Cigar ^{f,m}	0.5	0.8	1.2	0.8	1.2	1.6	1.0	1.8	2.6
Tobacco Using a Hookah ^{f,m}	0.6	1.1	1.6	0.4	0.7	1.0	0.4	1.0	1.6

Table continued on next page.

TABLE 4-1c (cont.)
30-Day Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
Any Nicotine Use ^d	7.5	9.4	11.3	13.4	15.7	17.9	20.6	24.6	28.5
Any Nicotine Use other than Vaping ^d	2.3	3.2	4.1	3.2	4.2	5.2	5.1	7.7	10.3
Steroids ^{b,h}	0.0	0.2	0.3	0.1	0.1	0.2	0.2	0.5	0.7
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	0.5	1.1	1.7
Stay-Awake Pills ^d	—	—	—	—	—	—	0.1	0.5	0.9
Current, Legal Use of Prescription ADHD Drugs ⁿ									
Stimulant-Type ^f	3.4	4.2	5.1	2.8	3.6	4.3	2.1	3.4	4.8
Non-Stimulant-Type ^f	0.5	0.9	1.3	1.0	1.5	2.1	1.1	2.3	3.5
Either Type ^f	4.5	5.5	6.6	3.9	4.8	5.7	3.6	5.2	6.8

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 4-1d.

TABLE 4-1d
Daily Prevalence of Use for 8th, 10th, and 12th Graders, 2021,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 10,700, 10th grade = 11,000, 12th grade = 8,300)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Marijuana/Hashish ^o									
Used Daily in Past 30 Days ^k	0.4	0.6	0.9	2.4	3.2	3.9	4.8	5.8	6.8
Ever Used Daily for Month or More in Lifetime ^d	—	—	—	—	—	—	9.6	12.4	15.2
Alcohol									
Daily ^k	0.1	0.3	0.4	0.3	0.4	0.6	0.6	0.9	1.3
Been Drunk ^f	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.7
5+ Drinks in a Row in Last 2 Weeks	2.2	2.8	3.3	5.0	5.9	6.7	10.0	11.8	13.6
Cigarettes									
Daily	0.1	0.4	0.6	0.6	0.8	0.9	0.9	2.0	3.1
1/2 Pack+/Day	0.1	0.2	0.2	0.2	0.3	0.5	0.4	0.8	1.2
Vaping Nicotine	0.7	1.1	1.4	2.0	2.5	3.0	4.3	5.4	6.6
Vaping Marijuana	0.2	0.4	0.5	0.8	1.2	1.6	1.1	1.7	2.3
Vaping Just Flavoring	0.3	0.5	0.6	0.6	0.9	1.1	0.6	0.8	1.1
Smokeless Tobacco ^{d,e}	0.2	0.4	0.7	0.2	0.4	0.5	0.2	0.7	1.1

Source. The Monitoring the Future study, the University of Michigan.

See footnotes on the following page.

Footnotes for Tables 4-1a through 4-1d

Notes. '—' indicates data not available.

^aFor 12th graders only: Use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

^bFor 12th graders only: Data based on three of six forms; N is three sixths of N indicated.

^cFor 8th and 10th graders only: Data based on three of four forms; N is four sixths of N indicated.

^dFor 12th graders only: Data based on one of six forms; N is one sixth of N indicated.

^eFor 8th and 10th graders only: Data based on two of four forms; N is one half of N indicated. For MDMA data based on three of four forms N is five sixths of N indicated.

^fFor 12th graders only: Data based on two of six forms; N is two sixths of N indicated. For MDMA data based on three of six forms N is one half of N indicated.

For androstenedione data based on one of six forms beginning in 2016 N is one sixth of N indicated.

^gFor 12th graders only: Data based on four of six forms; N is four sixths of N indicated.

^hOnly drug use not under a doctor's orders is included here.

ⁱFor 8th and 10th graders only: Data based on one of four forms; N is one third of N indicated. Androstenedione was dropped from the 8th and 10th grade survey in 2016.

^jFor 8th and 10th graders only: Data based on one of four forms; N is one sixth of N indicated.

^kDaily use of marijuana and alcohol is defined as use on 20 or more occasions in the past 30 days.

^lFor 12th graders only: Data based on five of six forms; N is five sixths of N indicated.

^mFor 8th and 10th graders only: Data based on two of four forms; N is one third of N indicated.

ⁿFor the use of prescription ADHD drugs, the question is asked differently than that for other drugs presented here. Therefore, the estimates indicate youth who reported "Yes, I take them now."

^oFor 8th and 10th graders only N is one half of N indicated.

TABLE 4-2
Prevalence of Use of Various Drugs
for 8th, 10th, and 12th Graders, 2021

	Lifetime			Annual			30-Day			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	10,700	11,000	8,300	10,700	11,000	8,300	10,700	11,000	8,300	10,700	11,000	8,300
Any Illicit Drug ^{a,p}	15.9	25.0	41.3	10.2	18.7	32.0	5.9	10.9	20.6	—	—	—
Any Illicit Drug other than Marijuana ^{a,p}	8.8	9.1	12.8	4.6	5.1	7.2	2.4	2.5	2.9	—	—	—
Any Illicit Drug including Inhalants ^{a,b,p}	22.4	28.5	43.3	12.6	19.6	33.2	6.9	11.4	21.0	—	—	—
Marijuana/Hashish ^p	10.2	22.0	38.6	7.1	17.3	30.5	4.1	10.1	19.5	0.6	3.2	5.8
Ever Used Daily for Month or More in Lifetime ^f	—	—	—	—	—	—	—	—	—	—	—	12.4
Synthetic Marijuana ^{c,d}	—	—	—	1.3	1.6	1.8	—	—	—	—	—	—
Inhalants ^b	11.3	7.2	5.0	4.8	2.0	1.8	1.8	0.9	0.7	—	—	*
Hallucinogens ^{e,m}	1.8	3.5	7.1	1.0	2.2	4.1	0.4	0.8	1.0	—	—	0.1
LSD ^m	1.2	2.5	4.9	0.7	1.5	2.5	0.2	0.4	0.5	—	—	0.1
Hallucinogens other than LSD ^m	1.3	2.5	5.3	0.8	1.5	2.9	0.2	0.6	0.8	—	—	0.1
PCP ^f	—	—	—	—	—	0.7	—	—	—	—	—	—
Ecstasy (MDMA) ^{b,n}	1.0	1.4	2.8	0.6	0.7	1.1	0.2	0.1	0.2	—	—	0.1
Salvia ^{c,d}	—	—	—	0.5	0.4	0.6	—	—	—	—	—	—
Cocaine	0.6	1.2	2.5	0.2	0.6	1.2	0.1	0.3	0.3	—	—	0.1
Crack	0.4	0.7	1.5	0.2	0.3	0.7	0.1	0.2	0.3	—	—	0.1
Cocaine other than Crack ^h	0.5	1.0	2.2	0.2	0.5	0.9	0.1	0.3	0.1	—	—	0.1
Heroin ^o												
Any Use ^o	0.5	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	—	—	*
With a Needle ^{b,o}	0.4	0.3	0.2	0.1	0.1	0.1	*	0.1	0.1	—	—	*
Without a Needle ^{b,o}	0.2	0.1	0.2	0.1	0.1	0.1	*	*	0.1	—	—	*
Narcotics other than Heroin ⁱ	—	—	2.3	—	—	1.0	—	—	0.3	—	—	*
OxyContin ^{b,d,i}	—	—	—	0.8	0.9	0.9	—	—	—	—	—	—
Vicodin ^{b,d,i}	—	—	—	0.6	0.5	0.9	—	—	—	—	—	—
Amphetamines ⁱ	5.8	5.2	4.9	3.0	2.7	2.3	1.7	1.4	1.0	—	—	0.1
Ritalin ^{c,d,i}	—	—	—	0.6	0.3	0.5	—	—	—	—	—	—
Adderall ^{c,d,i}	—	—	—	1.8	1.6	1.8	—	—	—	—	—	—
Methamphetamine ^{c,d}	0.3	0.4	0.6	0.2	0.2	0.2	*	0.1	0.1	—	—	0.1
Crystal Methamphetamine (Ice) ^c	—	—	0.7	—	—	0.4	—	—	0.2	—	—	.
Sedatives (Barbiturates) ⁱ	—	—	3.5	—	—	1.8	—	—	0.9	—	—	0.1
Tranquilizers ⁱ	2.5	2.6	3.3	1.1	1.3	1.2	0.4	0.5	0.4	—	—	*
Any Prescription Drug ^j	—	—	8.8	—	—	4.4	—	—	2.1	—	—	—
Over-the-Counter Cough/Cold Medication ^{c,d}	—	—	—	3.5	2.7	1.7	—	—	—	—	—	—
Rohypnol ^{f,k}	0.3	0.6	—	0.2	0.2	0.4	0.1	0.1	—	—	—	—
GHB ^f	—	—	—	—	—	0.4	—	—	—	—	—	—
Ketamine ^c	—	—	—	—	—	0.9	—	—	—	—	—	—
Alcohol												
Any Use	21.7	34.7	54.1	17.2	28.5	46.5	7.3	13.1	25.8	0.3	0.4	0.9
Been Drunk ^c	8.3	17.8	38.9	5.7	13.4	28.8	2.0	5.4	15.5	0.1	0.1	0.4
Flavored Alcoholic Beverages ^{d,f}	13.8	24.9	43.7	10.2	18.8	32.1	4.6	7.8	15.3	—	—	1.4
Alcoholic Beverages containing Caffeine ^{c,d}	—	—	—	6.2	7.5	9.9	—	—	—	—	—	—
5+ Drinks in a Row in Last 2 Weeks	—	—	—	—	—	—	—	—	—	2.8	5.9	11.8

(Table continued on next page.)

TABLE 4-2 (cont.)
Prevalence of Use of Various Drugs
for 8th, 10th, and 12th Graders, 2021

	Lifetime			Annual			30-Day			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	10,700	11,000	8,300	10,700	11,000	8,300	10,700	11,000	8,300	10,700	11,000	8,300
Cigarettes												
Any Use	7.0	10.0	17.8	—	—	—	1.1	1.8	4.1	0.4	0.8	2.0
1/2 Pack+/Day	—	—	—	—	—	—	—	—	—	0.2	0.3	0.8
Tobacco using a Hookah ^b	—	—	—	—	—	2.1	1.1	0.7	1.0	—	—	—
Small cigars ^f	—	—	—	—	—	3.4	—	—	—	—	—	—
Dissolvable Tobacco Products ^{d,f}	—	—	—	0.8	0.3	1.1	—	—	—	—	—	—
Snus ^{d,f}	—	—	—	1.2	1.0	2.6	—	—	—	—	—	—
Smokeless Tobacco ^{f,g}	4.6	4.9	8.6	—	—	—	1.6	1.7	2.2	0.4	0.4	0.7
Any Vaping	17.5	29.7	40.5	13.4	22.2	31.5	8.9	15.6	24.0	—	—	—
Vaping Nicotine	16.6	28.4	38.7	12.1	19.5	26.6	7.6	13.1	19.6	1.1	2.5	5.4
Vaping Marijuana	6.5	16.5	25.7	4.7	12.4	18.3	2.9	8.4	12.4	0.4	1.2	1.7
Vaping Just Flavoring	12.0	19.6	25.2	7.7	10.6	11.7	4.6	6.3	7.4	0.5	0.9	0.8
Flavoring Vaping with no Nicotine Vaping	0.8	0.9	1.1	1.0	1.0	1.2	0.9	0.7	0.7	—	—	—
JUUL	10.3	19.8	28.5	6.2	9.2	12.2	3.3	4.6	6.8	—	—	—
Large Cigars ^{c,i}	—	—	—	—	—	—	1.1	1.3	2.3	—	—	—
Flavored Little Cigars ^{c,i}	—	—	—	—	—	—	1.0	1.5	1.9	—	—	—
Regular Little Cigars ^{c,i}	—	—	—	—	—	—	0.8	1.2	1.8	—	—	—
Any Nicotine Use ^{d,f}	—	—	—	—	—	—	9.4	15.7	24.6	—	—	—
Any Nicotine Use other than Vaping ^{d,f}	—	—	—	—	—	—	3.2	4.2	7.7	—	—	—
Steroids ^b	1.2	0.7	0.8	0.5	0.3	0.5	0.2	0.1	0.5	—	—	*
Androstenedione ^c	—	—	—	—	—	0.6	—	—	—	—	—	—
Creatine ^{c,d}	—	—	—	3.2	6.0	7.4	—	—	—	—	—	—
Legal Use of Over-the-Counter Stimulants												
Diet Pills ^f	—	—	4.6	—	—	2.5	—	—	1.1	—	—	—
Stay-Awake Pills ^f	—	—	3.4	—	—	1.5	—	—	0.5	—	—	—
Legal Use of Prescription ADHD Drugs												
Stimulant-Type ^{c,p}	9.0	7.0	8.0	—	—	—	4.2	3.6	3.4	—	—	—
Non-Stimulant-Type ^{c,p}	2.8	3.0	4.5	—	—	—	0.9	1.5	2.3	—	—	—
Either Type ^{c,p}	11.5	9.0	10.9	—	—	—	5.5	4.8	5.2	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. * — * indicates data not available. ** * indicates less than 0.05% but greater than 0%.

^aFor 12th graders only: Use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded, because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

^bFor 12th graders only: Data based on three of six forms; N is three sixths of N indicated.

^cFor 12th graders only: Data based on two of six forms; N is two sixths of N indicated.

^dFor 8th and 10th graders only: Data based on one of four forms; N is one third of N indicated.

^eUnadjusted for underreporting of PCP. See text for details.

^fFor 12th graders only: Data based on one of six forms; N is one sixth of N indicated.

^gFor 8th and 10th graders only: Data based on two of four forms; N is one half of N indicated.

^hFor 12th graders only: Data based on four of six forms; N is four sixths of N indicated.

ⁱOnly drug use not under a doctor's orders is included here.

^jThe use of any prescription drug includes use of any of the following: amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers ... without a doctor telling you to use them.

^kFor 8th and 10th graders only: Data based on one of four forms; N is one sixth of N indicated due to changes in the questionnaire forms.

^lFor 8th and 10th graders only: Data based on two of four forms; N is one third of N indicated.

^mFor 12th graders only: Data based on five of six forms; N is five sixths of N indicated.

ⁿFor 8th and 10th graders only: Data based on three of four forms; N is five sixths of N indicated.

^oFor 8th and 10th graders only: Data based on three of four forms; N is two thirds of N indicated.

^pFor the use of prescription ADHD drugs, the question is asked differently than that for other drugs presented here. Therefore, the estimates for 30-day use indicate youth who reported "Yes, I take them now."

^qFor 8th and 10th graders only: Data based on two of four forms; N is two thirds of N indicated.

^rFor 8th and 10th graders only: In 2021, the question on marijuana use was changed in half of the questionnaire forms to include smoking, vaping, and edibles in the list of examples. Data presented here for 2021 based on the forms that included the original question wording. N is one half of N indicated.

Any illicit drug use and any illicit drug use including inhalants were also impacted by this change.

TABLE 4-3
Prevalence of Use of Heroin *with* and *without* a Needle
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages of all respondents.)

	<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>
8th Graders			
Used heroin only <i>with</i> a needle	0.3	0.1	*
Used heroin only <i>without</i> a needle	0.2	0.1	*
Used heroin both ways	0.1	*	*
Used heroin at all	0.5	0.2	0.1
<i>Approximate weighted N =</i>	7,000	7,000	7,000
10th Graders			
Used heroin only <i>with</i> a needle	0.2	0.1	0.1
Used heroin only <i>without</i> a needle	*	*	0.0
Used heroin both ways	0.1	0.1	0.1
Used heroin at all	0.3	0.1	0.1
<i>Approximate weighted N =</i>	7,300	7,300	7,300
12th Graders			
Used heroin only <i>with</i> a needle	0.1	*	*
Used heroin only <i>without</i> a needle	0.2	*	0.0
Used heroin both ways	0.1	0.1	0.1
Used heroin at all	0.4	0.1	0.1
<i>Approximate weighted N =</i>	4,200	4,200	4,200

Source. The Monitoring the Future study, the University of Michigan.

Notes. ' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding. For 8th and 10th graders only: Data based on three of four forms. For 12th graders only: Data based on three of six forms. Used heroin at all is also based on three of six forms and is not comparable to the six-form heroin use prevalences used elsewhere in the volume.

TABLE 4-4a
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

Approximate weighted N =	Marijuana ^l			Synthetic Marijuana ^{a,b}			Inhalants ^{c,k}			Hallucinogens ^{d,j}			LSD ^j			Hallucinogens other than LSD ^j			PCP ^e		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
	10,700	11,000	8,300	3,600	3,700	2,800	7,100	7,300	4,200	10,700	11,000	6,900	10,700	11,000	6,900	10,700	11,000	6,900	—	—	1,400
Lifetime Frequency																					
No occasions	89.8	78.0	61.4	—	—	—	88.7	92.8	95.0	98.2	96.5	92.9	98.8	97.5	95.1	98.7	97.5	94.7	—	—	—
1–2 occasions	4.8	6.7	8.4	—	—	—	6.9	5.0	3.0	0.8	1.6	3.1	0.9	1.7	2.5	0.9	1.6	3.5	—	—	—
3–5 occasions	1.5	2.9	5.7	—	—	—	1.7	0.9	0.9	0.6	1.2	1.8	0.2	0.5	0.9	0.2	0.5	0.7	—	—	—
6–9 occasions	0.8	2.2	3.9	—	—	—	1.0	0.5	0.4	0.1	0.3	0.6	0.1	0.1	0.4	0.1	0.1	0.3	—	—	—
10–19 occasions	0.8	1.8	4.8	—	—	—	0.7	0.3	0.3	0.1	0.2	0.5	*	0.1	0.2	*	0.2	0.4	—	—	—
20–39 occasions	0.5	2.4	3.5	—	—	—	0.2	0.3	0.2	0.1	0.1	0.3	*	0.1	0.5	*	0.1	0.3	—	—	—
40 or more	1.7	6.0	12.3	—	—	—	0.7	0.3	0.3	0.1	0.2	0.8	*	*	0.5	0.1	0.1	0.2	—	—	—
Annual Frequency																					
No occasions	92.9	82.7	69.5	98.7	98.4	98.2	95.2	98.0	98.2	99.0	97.8	95.9	99.3	98.5	97.5	99.2	98.5	97.1	—	—	99.3
1–2 occasions	3.1	5.7	8.4	0.5	1.0	0.7	3.0	1.1	1.1	0.4	1.1	2.1	0.5	1.0	1.4	0.5	1.1	2.2	—	—	0.1
3–5 occasions	0.9	2.3	5.4	0.5	0.2	0.5	0.8	0.4	0.2	0.4	0.7	1.1	0.1	0.2	0.6	0.2	0.3	0.3	—	—	0.3
6–9 occasions	0.9	1.7	3.0	0.1	0.3	0.3	0.5	0.1	0.1	*	0.1	0.4	*	0.1	0.3	*	0.1	0.2	—	—	0.2
10–19 occasions	0.7	1.8	3.3	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.2	*	0.1	0.1	*	0.1	0.1	—	—	0.2
20–39 occasions	0.6	1.8	2.9	*	0.0	0.2	0.1	*	*	*	*	0.1	*	*	0.1	*	*	0.1	—	—	0.0
40 or more	1.0	4.0	7.5	0.1	0.0	0.0	0.2	0.1	*	*	0.1	0.1	*	*	0.1	*	*	0.1	—	—	0.0
30-Day Frequency																					
No occasions	95.9	89.9	80.5	—	—	—	98.2	99.1	99.3	99.6	99.2	99.0	99.8	99.6	99.5	99.8	99.4	99.2	—	—	—
1–2 occasions	1.6	3.2	6.0	—	—	—	1.2	0.6	0.5	0.2	0.4	0.5	0.2	0.3	0.3	0.2	0.4	0.6	—	—	—
3–5 occasions	0.8	1.7	3.4	—	—	—	0.3	0.1	*	0.1	0.3	0.2	*	0.1	0.1	*	0.1	0.1	—	—	—
6–9 occasions	0.6	1.1	1.9	—	—	—	0.1	0.1	0.1	*	*	*	*	*	*	*	*	*	—	—	—
10–19 occasions	0.4	1.0	2.3	—	—	—	*	0.1	*	*	*	0.1	*	*	*	*	*	0.1	—	—	—
20–39 occasions	0.3	1.2	2.1	—	—	—	*	0.1	*	*	*	*	0.0	*	*	*	*	*	—	—	—
40 or more	0.4	2.0	3.7	—	—	—	0.1	0.0	*	*	*	0.1	0.0	0.0	0.1	*	*	0.1	—	—	—

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Ecstasy (MDMA) ^{c,k}			Salvia ^{a,b}			Cocaine			Crack			Cocaine other than Crack ^g			Heroin ^k			Heroin with a Needle ^{c,k}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	8,900	9,200	4,200	3,600	3,700	2,800	10,700	11,000	8,300	10,700	11,000	8,300	10,700	11,000	5,500	7,100	7,300	8,300	7,100	7,300	4,200
Lifetime Frequency																					
No occasions	99.0	98.6	97.2	—	—	—	99.4	98.8	97.5	99.6	99.3	98.5	99.5	99.0	97.8	99.5	99.7	99.6	99.6	99.7	99.8
1–2 occasions	0.6	1.0	1.4	—	—	—	0.3	0.6	1.2	0.3	0.4	1.0	0.4	0.7	1.2	0.3	0.1	0.2	0.2	0.1	0.1
3–5 occasions	0.2	0.2	0.7	—	—	—	0.2	0.3	0.5	*	0.1	0.2	*	0.1	0.3	0.1	*	0.1	*	*	*
6–9 occasions	*	*	0.6	—	—	—	*	*	0.2	*	0.1	0.1	*	0.1	0.1	*	*	*	*	*	*
10–19 occasions	*	0.1	*	—	—	—	*	0.1	0.1	*	*	*	*	0.1	0.2	*	*	*	*	*	*
20–39 occasions	0.1	0.1	*	—	—	—	*	*	0.1	*	*	0.2	*	0.1	0.1	0.1	*	0.1	*	0.1	0.0
40 or more	0.0	*	0.1	—	—	—	*	0.1	0.5	*	0.1	0.1	0.0	*	0.3	0.0	0.1	0.0	0.0	0.0	0.0
Annual Frequency																					
No occasions	99.4	99.3	98.9	99.5	99.6	99.4	99.8	99.4	98.8	99.8	99.7	99.3	99.8	99.5	99.1	99.8	99.9	99.9	99.9	99.9	99.9
1–2 occasions	0.5	0.5	0.6	0.3	0.2	0.5	0.1	0.3	0.4	0.1	0.2	0.3	0.1	0.3	0.2	0.1	*	*	*	*	*
3–5 occasions	*	0.1	0.5	0.1	*	0.1	0.1	0.2	0.2	*	*	0.1	0.1	0.2	0.2	*	*	*	*	*	*
6–9 occasions	*	0.1	*	0.1	0.1	0.0	*	*	*	*	*	0.1	*	*	*	*	*	*	*	*	*
10–19 occasions	*	*	*	*	0.1	0.0	*	*	0.2	*	*	0.2	*	*	0.4	0.1	*	*	*	*	*
20–39 occasions	0.1	*	0.1	0.1	0.1	0.0	*	*	0.2	*	0.0	*	0.0	*	0.1	0.0	*	*	0.0	0.0	*
40 or more	0.0	*	0.0	0.0	*	0.0	0.0	*	0.1	0.0	0.0	0.1	0.0	*	0.0	0.0	*	*	0.0	0.0	*
30-Day Frequency																					
No occasions	99.8	99.9	99.8	—	—	—	99.9	99.7	99.7	99.9	99.8	99.7	99.9	99.7	99.9	99.9	99.9	99.9	100.0	99.9	99.9
1–2 occasions	0.1	0.1	0.1	—	—	—	*	0.2	0.1	*	0.2	0.1	0.1	0.2	*	*	*	*	*	0.1	*
3–5 occasions	*	*	*	—	—	—	*	0.1	*	*	*	0.1	*	*	*	*	0.1	*	*	*	*
6–9 occasions	*	*	0.1	—	—	—	*	*	*	*	0.0	*	*	*	0.1	0.1	*	*	*	*	*
10–19 occasions	0.1	0.0	0.0	—	—	—	*	*	*	*	0.0	*	0.0	*	0.0	0.0	*	*	0.0	*	*
20–39 occasions	0.0	0.0	0.0	—	—	—	0.0	*	*	0.0	0.0	0.1	0.0	*	0.0	0.0	0.0	*	0.0	0.0	0.0
40 or more	0.0	0.0	0.0	—	—	—	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*	0.0	0.0	0.0

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Heroin without a Needle ^{c,k}			Narcotics other than Heroin ^h			OxyContin ^{a,c,h}			Vicodin ^{a,c,h}			Amphetamines ^{h,i}			Ritalin ^{a,b,h}			Adderall ^{a,b,h}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	7,100	7,300	4,200	—	—	8,300	3,600	3,700	4,200	3,600	3,700	4,200	10,700	11,000	8,300	3,600	3,700	2,800	3,600	3,700	2,800
Lifetime Frequency																					
No occasions	99.8	99.9	99.8	—	—	97.7	—	—	—	—	—	—	94.2	94.8	95.1	—	—	—	—	—	—
1–2 occasions	0.2	0.1	0.1	—	—	1.1	—	—	—	—	—	—	3.2	2.8	2.0	—	—	—	—	—	—
3–5 occasions	*	*	*	—	—	0.5	—	—	—	—	—	—	1.0	0.9	0.9	—	—	—	—	—	—
6–9 occasions	0.0	*	*	—	—	0.2	—	—	—	—	—	—	0.5	0.4	0.7	—	—	—	—	—	—
10–19 occasions	0.0	*	0.1	—	—	0.2	—	—	—	—	—	—	0.4	0.4	0.3	—	—	—	—	—	—
20–39 occasions	0.0	0.0	0.0	—	—	0.1	—	—	—	—	—	—	0.1	0.2	0.4	—	—	—	—	—	—
40 or more	0.0	0.0	0.0	—	—	0.3	—	—	—	—	—	—	0.5	0.5	0.7	—	—	—	—	—	—
Annual Frequency																					
No occasions	99.9	99.9	99.9	—	—	99.0	99.2	99.1	99.1	99.4	99.5	99.1	97.0	97.3	97.7	99.4	99.7	99.5	98.2	98.4	98.2
1–2 occasions	*	*	*	—	—	0.4	0.2	0.6	0.4	0.1	0.2	0.4	1.5	1.3	0.9	0.3	0.1	0.2	1.0	0.8	1.0
3–5 occasions	*	*	*	—	—	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.6	0.4	0.8	0.1	0.1	0.2	0.4	0.4	0.3
6–9 occasions	*	*	*	—	—	0.1	0.1	0.1	0.1	*	*	0.1	0.3	0.4	0.2	*	0.1	*	0.1	0.1	*
10–19 occasions	0.0	0.0	*	—	—	0.1	*	*	0.2	0.1	0.1	0.2	0.2	0.2	0.2	*	0.1	*	0.1	0.1	0.1
20–39 occasions	0.0	0.0	0.0	—	—	0.1	0.1	0.1	*	*	*	*	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.1
40 or more	0.0	0.0	0.0	—	—	0.1	0.0	*	0.2	0.1	0.0	0.1	0.3	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.2
30-Day Frequency																					
No occasions	100.0	100.0	99.9	—	—	99.7	—	—	—	—	—	—	98.3	98.6	99.0	—	—	—	—	—	—
1–2 occasions	*	*	*	—	—	0.1	—	—	—	—	—	—	1.0	0.8	0.5	—	—	—	—	—	—
3–5 occasions	*	*	*	—	—	0.1	—	—	—	—	—	—	0.2	0.2	0.2	—	—	—	—	—	—
6–9 occasions	*	0.0	*	—	—	0.1	—	—	—	—	—	—	0.1	0.2	0.1	—	—	—	—	—	—
10–19 occasions	0.0	0.0	0.0	—	—	*	—	—	—	—	—	—	0.1	*	0.1	—	—	—	—	—	—
20–39 occasions	0.0	0.0	0.0	—	—	*	—	—	—	—	—	—	0.1	0.1	0.1	—	—	—	—	—	—
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	—	0.1	*	*	—	—	—	—	—	—

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

Approximate weighted N =	<u>Methamphetamine</u> ^{a,b}			<u>Crystal Methamphetamine (Ice)</u> ^b			<u>Bath Salts (Synthetic Stimulants)</u> ^{a,b}			<u>Sedatives (Barbiturates)</u> ^h			<u>Tranquilizers</u> ^h			<u>Over-the-Counter Cough/Cold Medicine</u> ^{a,b}			<u>Rohypnol</u> ^{a,e}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
	3,600	3,700	2,800	—	—	2,800	3,600	3,700	2,800	—	—	8,300	10,700	11,000	8,300	3,600	3,700	2,800	1,800	1,800	1,400
Lifetime Frequency																					
No occasions	99.7	99.6	99.4	—	—	99.3	—	—	—	—	—	96.5	97.5	97.4	96.7	—	—	—	0.2	99.4	—
1–2 occasions	0.1	0.2	0.2	—	—	0.3	—	—	—	—	—	1.9	1.7	1.7	1.9	—	—	—	0.1	0.5	—
3–5 occasions	0.1	0.1	0.2	—	—	0.3	—	—	—	—	—	0.5	0.5	0.4	0.3	—	—	—	0.1	*	—
6–9 occasions	*	*	*	—	—	0.1	—	—	—	—	—	0.2	0.1	0.2	0.4	—	—	—	0.0	*	—
10–19 occasions	*	*	0.1	—	—	0.1	—	—	—	—	—	0.4	0.1	0.1	0.3	—	—	—	0.0	0.0	—
20–39 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.2	*	0.1	0.2	—	—	—	0.0	0.0	—
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.2	0.1	0.1	0.1	—	—	—	0.0	0.0	—
Annual Frequency																					
No occasions	99.8	99.8	99.8	—	—	99.6	—	—	—	—	—	98.2	98.9	98.7	98.8	96.5	97.3	98.3	0.1	99.8	99.6
1–2 occasions	0.1	0.1	0.1	—	—	0.2	—	—	—	—	—	0.8	0.8	0.8	0.6	1.9	1.8	0.7	0.1	0.2	0.1
3–5 occasions	*	0.1	*	—	—	0.1	—	—	—	—	—	0.3	0.2	0.2	0.3	0.6	0.4	0.4	0.0	*	0.1
6–9 occasions	*	*	0.1	—	—	0.1	—	—	—	—	—	0.2	0.1	0.2	0.2	0.4	0.2	0.3	0.0	0.0	0.1
10–19 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.4	*	*	0.1	0.4	0.2	0.1	0.0	0.0	0.0
20–39 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.1	*	*	0.1	0.2	0.1	0.1	0.0	0.0	0.0
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	*	*	0.1	*	*	0.1	0.1	0.0	0.0	0.0
30-Day Frequency																					
No occasions	100.0	99.9	99.9	—	—	99.8	—	—	—	—	—	99.1	99.6	99.5	99.6	—	—	—	0.1	99.9	—
1–2 occasions	*	*	*	—	—	*	—	—	—	—	—	0.4	0.3	0.4	0.3	—	—	—	0.0	0.1	—
3–5 occasions	0.0	0.1	0.1	—	—	0.1	—	—	—	—	—	0.2	0.1	0.1	0.1	—	—	—	0.0	0.0	—
6–9 occasions	0.0	0.0	0.0	—	—	0.1	—	—	—	—	—	*	*	*	*	—	—	—	0.0	0.0	—
10–19 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.1	*	*	*	—	—	—	0.0	0.0	—
20–39 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.1	0.0	*	*	—	—	—	0.0	0.0	—
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	*	0.0	*	0.0	—	—	—	0.0	0.0	—

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	GHB ^e			Ketamine ^b			Alcohol			Been Drunk ^b			Flavored Alcoholic Beverages ^{a,e}			Alcoholic Beverages containing Caffeine ^{a,b}			Tobacco using a Hookah ^e		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	—	—	1,400	—	—	2,800	10,700	11,000	8,300	10,700	11,000	2,800	3,600	3,700	1,400	3,600	3,700	2,800	—	—	2,800
Lifetime Frequency																					
No occasions	—	—	—	—	—	—	78.3	65.3	45.9	91.7	82.2	61.1	86.2	75.1	56.3	—	—	—	—	—	—
1–2 occasions	—	—	—	—	—	—	7.9	10.3	11.2	5.0	9.0	14.3	6.0	9.8	13.8	—	—	—	—	—	—
3–5 occasions	—	—	—	—	—	—	5.5	8.4	11.3	1.7	3.4	7.6	3.6	5.9	8.7	—	—	—	—	—	—
6–9 occasions	—	—	—	—	—	—	2.8	5.0	7.7	0.6	2.0	4.7	1.6	3.3	5.6	—	—	—	—	—	—
10–19 occasions	—	—	—	—	—	—	2.7	5.0	8.6	0.4	1.6	3.7	1.2	2.8	5.9	—	—	—	—	—	—
20–39 occasions	—	—	—	—	—	—	1.3	2.8	5.8	0.2	0.8	3.3	0.8	1.3	3.8	—	—	—	—	—	—
40 or more	—	—	—	—	—	—	1.4	3.1	9.5	0.2	1.0	5.2	0.7	1.8	5.9	—	—	—	—	—	—
Annual Frequency																					
No occasions	—	—	99.6	—	—	99.1	82.8	71.5	53.5	82.8	86.6	71.2	89.8	81.2	67.9	93.8	92.5	90.1	—	—	97.9
1–2 occasions	—	—	0.1	—	—	0.4	9.2	13.1	17.0	9.2	7.7	12.6	5.5	8.6	12.7	3.8	4.4	4.8	—	—	1.1
3–5 occasions	—	—	*	—	—	0.2	4.0	6.8	10.7	4.0	2.6	5.7	2.3	5.3	8.4	1.6	1.4	2.5	—	—	0.2
6–9 occasions	—	—	0.1	—	—	0.1	1.8	3.3	6.2	1.8	1.2	3.2	1.5	2.2	3.4	0.4	1.1	1.0	—	—	0.4
10–19 occasions	—	—	0.1	—	—	*	1.5	2.9	6.4	1.5	1.1	3.5	0.4	1.0	3.4	0.2	0.2	1.0	—	—	*
20–39 occasions	—	—	0.0	—	—	0.1	0.4	1.2	3.1	0.4	0.4	2.1	0.4	0.9	2.0	0.1	0.2	0.3	—	—	0.1
40 or more	—	—	0.0	—	—	0.0	0.3	1.1	3.1	0.3	0.4	1.7	0.2	0.8	2.4	0.1	0.2	0.3	—	—	0.3
30-Day Frequency																					
No occasions	—	—	—	—	—	—	92.7	86.9	74.2	98.0	94.6	84.5	95.4	92.2	84.7	—	—	—	—	—	—
1–2 occasions	—	—	—	—	—	—	5.1	9.0	15.4	1.6	4.0	9.4	3.1	4.8	8.6	—	—	—	—	—	—
3–5 occasions	—	—	—	—	—	—	1.1	2.1	5.7	0.2	0.8	3.3	0.8	1.6	2.8	—	—	—	—	—	—
6–9 occasions	—	—	—	—	—	—	0.6	1.0	2.6	0.1	0.3	1.6	0.4	0.6	1.7	—	—	—	—	—	—
10–19 occasions	—	—	—	—	—	—	0.2	0.6	1.2	*	0.2	0.7	0.1	0.5	0.8	—	—	—	—	—	—
20–39 occasions	—	—	—	—	—	—	0.2	0.1	0.3	*	*	0.3	*	*	0.4	—	—	—	—	—	—
40 or more	—	—	—	—	—	—	0.1	0.3	0.6	*	0.1	0.1	0.1	0.3	1.0	—	—	—	—	—	—

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Small Cigars^e</u>			<u>Dissolvable Tobacco Products^{a,e}</u>			<u>Snus^{a,e}</u>			<u>Steroids^c</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted. N =	—	—	1,400	3,600	3,700	1,400	3,600	3,700	1,400	10,700	11,000	2,800
Lifetime Frequency												
No occasions	—	—	—	—	—	—	—	—	—	98.8	99.3	99.2
1–2 occasions	—	—	—	—	—	—	—	—	—	0.8	0.5	0.5
3–5 occasions	—	—	—	—	—	—	—	—	—	0.2	0.1	*
6–9 occasions	—	—	—	—	—	—	—	—	—	*	*	0.2
10–19 occasions	—	—	—	—	—	—	—	—	—	*	*	*
20–39 occasions	—	—	—	—	—	—	—	—	—	*	*	0.1
40 or more	—	—	—	—	—	—	—	—	—	*	*	0.0
Annual Frequency												
No occasions	—	—	96.6	99.2	99.7	98.9	98.8	99.0	97.4	99.5	99.7	99.5
1–2 occasions	—	—	1.4	0.3	*	0.6	0.7	0.4	1.2	0.3	0.2	0.2
3–5 occasions	—	—	1.0	0.3	0.1	0.1	0.2	0.3	0.7	*	0.1	0.1
6–9 occasions	—	—	0.5	0.1	*	0.2	0.2	0.1	0.2	*	*	0.1
10–19 occasions	—	—	0.1	*	0.1	*	*	0.1	0.3	*	*	0.1
20–39 occasions	—	—	0.2	0.1	*	*	*	0.1	0.1	*	*	0.0
40 or more	—	—	0.2	0.0	0.1	0.0	0.1	0.1	0.1	*	0.0	0.0
30-Day Frequency												
No occasions	—	—	—	—	—	—	—	—	—	99.8	99.9	99.5
1–2 occasions	—	—	—	—	—	—	—	—	—	0.1	0.1	0.2
3–5 occasions	—	—	—	—	—	—	—	—	—	*	*	0.1
6–9 occasions	—	—	—	—	—	—	—	—	—	*	*	0.1
10–19 occasions	—	—	—	—	—	—	—	—	—	*	*	*
20–39 occasions	—	—	—	—	—	—	—	—	—	*	*	*
40 or more	—	—	—	—	—	—	—	—	—	0.0	0.0	0.0

(Table continued on next page.)

TABLE 4-4a (cont.)
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day
8th, 10th, and 12th Graders, 2021

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '*' indicates less than 0.05% but greater than 0%.

^a8th and 10th grades only: Data based on one of four forms.

^b12th grade only: Data based on two of six forms.

^c12th grade only: Data based on three of six forms.

^dUnadjusted for known underreporting of PCP. See text for details.

^e12th grade only: Data based on one of six forms.

^f8th and 10th grades only: Data based on two of four forms.

^g12th grade only: Data based on four of six forms.

^hOnly drug use not under a doctor's orders is included here.

ⁱBased on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription stimulants.

^j12th grade only: Data based on five of six forms.

^k8th and 10th grades only: Data based on three of four forms.

^lFor 8th and 10th graders only: In 2021, the question on marijuana use was changed in half of the questionnaire forms to include smoking, vaping, and edibles in the list of examples. Data presented here for 2021 based on the forms that included the original question wording. N is one half of N indicated.

TABLE 4-4b
Frequency of Occasions of Heavy Drinking,
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row?</i>			
None	97.2	94.1	88.2
Once	1.2	2.9	5.9
Twice	0.9	1.5	3.6
3 to 5 times	0.4	0.9	1.8
6 to 9 times	0.2	0.1	0.3
10 or more times	*	0.3	0.1
<i>Approximate weighted N =</i>	10,700	11,000	8,300
<i>During the last two weeks, how many times (if any) have you had 10 or more drinks in a row?</i>			
None	99.0	97.9	96.8
Once	0.6	1.3	1.4
Twice	0.3	0.5	0.7
3 to 5 times	0.1	0.3	0.8
6 to 9 times	*	0.1	0.2
10 or more times	*	*	0.2
<i>Approximate weighted N =</i>	3,600	3,700	1,400
<i>During the last two weeks, how many times (if any) have you had 15 or more drinks in a row?</i>			
None	—	—	98.7
Once	—	—	0.2
Twice	—	—	0.7
3 to 5 times	—	—	0.2
6 to 9 times	—	—	*
10 or more times	—	—	0.2
<i>Approximate weighted N =</i>	—	—	1,400

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '*' indicates less than 0.05% but greater than 0%.

TABLE 4-4c
Frequency of Use for Selected
Tobacco and Vaping Outcomes
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>Have you ever smoked cigarettes?</i>			
Never	5.5	90.0	82.2
Once or twice	0.8	6.9	11.3
Occasionally but not regularly	0.4	1.7	3.6
Regularly in the past	0.2	1.1	1.7
Regularly now	0.0	0.4	1.3
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>How frequently have you smoked cigarettes during the past 30 days?</i>			
Not at all (includes “never” category from question above)	0.8	98.2	95.9
Less than one cigarette per day	0.2	1.1	2.1
One to five cigarettes per day	*	0.4	1.2
About one-half pack per day	*	0.1	0.3
About one pack per day	*	0.1	0.3
About one and one-half packs per day	0.1	0.1	0.1
Two packs or more per day	0.0	0.1	0.1
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>Have you ever taken or used smokeless tobacco (snuff, plug, dipping tobacco, chewing tobacco)?</i>			
Never	2.9	98.3	91.4
Once or twice	1.0	0.7	5.5
Occasionally but not regularly	0.4	0.3	2.0
Regularly in the past	0.4	0.3	0.5
Regularly now	0.0	0.1	0.5
<i>Approximate weighted N =</i>	<i>5,400</i>	<i>5,500</i>	<i>1,400</i>
<i>How frequently have you taken smokeless tobacco during the past 30 days?</i>			
Not at all (includes “never” category from question above)	0.6	98.3	97.8
Once or twice	0.3	0.7	1.3
Once or twice per week	0.3	0.3	0.2
Three to five times per week	0.1	0.3	0.1
About once a day	0.3	0.1	0.2
More than once a day	0.0	0.3	0.4
<i>Approximate weighted N =</i>	<i>5,400</i>	<i>5,500</i>	<i>1,400</i>

(Table continued on next page.)

TABLE 4-4c (cont.)
Frequency of Use for Selected
Tobacco and Vaping Outcomes
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>In your LIFETIME, how often have you vaped nicotine?</i>			
Never	83.4	71.6	61.3
Once or twice	7.6	11.6	13.8
Occasionally but not regularly	5.0	8.1	11.0
Regularly in the past	2.0	4.4	6.2
Regularly now	2.0	4.4	7.7
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>On how many DAYS (if any) during the LAST 30 DAYS have you vaped nicotine?</i>			
No days	92.4	86.9	80.4
1–2 days	2.9	3.6	5.0
3–5 days	1.2	2.1	2.7
6–9 days	0.7	1.6	1.9
10–19 days	1.1	1.9	2.4
20–29 days	0.7	1.5	2.2
30 days	1.1	2.5	5.4
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>In your LIFETIME, how often have you vaped marijuana?</i>			
Never	93.5	83.5	74.3
Once or twice	3.4	6.2	8.8
Occasionally but not regularly	1.9	5.4	9.2
Regularly in the past	0.5	2.5	4.1
Regularly now	0.7	2.4	3.7
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>On how many DAYS (if any) during the LAST 30 DAYS have you vaped marijuana?</i>			
No days	97.1	91.6	87.6
1–2 days	1.0	3.2	4.0
3–5 days	0.5	1.3	2.7
6–9 days	0.4	1.1	1.4
10–19 days	0.4	1.1	1.9
20–29 days	0.2	0.6	0.8
30 days	0.4	1.2	1.7
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>

(Table continued on next page.)

TABLE 4-4c (cont.)
Frequency of Use for Selected
Tobacco and Vaping Outcomes
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>In your LIFETIME, how often have you vaped just flavoring?</i>			
Never	88.0	80.4	74.8
Once or twice	7.1	11.4	14.0
Occasionally but not regularly	2.9	4.8	6.6
Regularly in the past	1.2	2.1	2.9
Regularly now	0.8	1.3	1.7
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>
<i>On how many DAYS (if any) during the LAST 30 DAYS</i> <i>have you vaped just flavoring?</i>			
No days	95.4	93.7	92.6
1–2 days	2.1	2.6	2.8
3–5 days	0.8	1.2	1.6
6–9 days	0.6	0.8	0.9
10–19 days	0.4	0.5	0.8
20–29 days	0.3	0.4	0.6
30 days	0.5	0.9	0.8
<i>Approximate weighted N =</i>	<i>10,700</i>	<i>11,000</i>	<i>8,300</i>

Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available. ' * ' indicates less than 0.05% but greater than 0%.

TABLE 4-4d
Frequency of Days Used in the Past 30 Days for Various Tobacco and Other
Substances for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Large Cigars</u>			<u>Flavored Little Cigars</u>			<u>Regular Little Cigars</u>			<u>Tobacco Using a Hookah</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Number of days used in past 30 days												
No days	0.7	98.7	97.7	0.4	98.5	98.1	0.4	98.8	98.2	0.6	99.3	99.0
1–2 days	*	1.0	1.9	0.2	0.9	1.1	0.2	0.7	0.9	0.2	0.4	0.6
3–5 days	*	*	0.2	0.1	0.2	0.5	*	0.1	0.4	*	0.1	0.2
6–9 days	*	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	*	*	0.1
10–19 days	0.3	*	0.1	0.3	0.1	0.3	0.0	0.1	*	0.2	*	0.1
20–30 days	0.0	0.2	0.1	0.0	0.2	0.0	0.0	0.2	0.4	0.0	0.2	0.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '*' indicates less than 0.05% but greater than 0%.

TABLE 4-4e
Frequency of Use Per Day for Energy Drinks and Energy Shots
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Energy Drinks</u>			<u>Energy Shots</u>		
	<u>8th</u>	<u>10th</u>	<u>12th</u>	<u>8th</u>	<u>10th</u>	<u>12th</u>
Number of drinks/shots						
per day						
None	71.9	73.7	68.4	92.3	94.5	95.0
Less than 1	14.2	13.7	18.5	4.0	2.9	2.0
One	8.0	7.9	8.5	1.4	0.9	1.2
Two	3.4	2.9	2.3	0.8	0.8	0.6
Three	1.2	0.8	0.5	0.7	0.4	0.7
Four	0.5	0.5	0.4	0.2	0.2	0.2
Five or six	0.4	0.2	0.5	0.1	0.1	0.1
7 or more	0.4	0.4	0.8	0.5	0.2	0.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '*' indicates less than 0.05% but greater than 0%.

TABLE 4-5
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<i>Approximate Weighted N</i> ^a			<i>Any Illicit Drug</i> ^{b,v}			<i>Any Illicit Drug other than Marijuana</i> ^b			<i>Marijuana</i> ^v			<i>Inhalants</i> ^c			<i>Hallucinogens</i> ^{d,p}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	10,700	11,000	8,300	15.9	25.0	41.3	8.8	9.1	12.8	10.2	22.0	38.6	11.3	7.2	5.0	1.8	3.5	7.1
Gender																		
Male	5,100	5,300	3,600	12.7	22.9	39.1	6.7	7.3	13.2	8.0	20.5	36.4	9.4	6.4	3.9	1.5	3.2	8.3
Female	4,800	5,000	4,100	17.4	24.9	42.1	9.8	9.8	11.5	11.1	21.7	40.0	12.0	7.6	5.3	1.6	3.6	5.2
College Plans																		
None or under 4 years	1,500	1,900	1,900	24.3	37.3	44.6	12.5	13.5	15.5	18.4	34.8	43.0	14.9	9.5	5.0	3.3	6.9	10.7
Complete 4 years	8,800	8,700	5,900	14.5	21.7	39.8	8.0	7.8	11.8	8.7	18.8	37.0	10.7	6.7	4.9	1.5	2.7	6.0
Region																		
Northeast	1,800	1,900	1,500	13.0	25.6	47.8	6.0	8.0	11.5	9.1	23.1	45.1	8.4	7.6	4.5	0.9	3.1	6.0
Midwest	2,300	2,400	1,700	19.4	24.8	40.0	9.5	8.6	9.2	12.5	23.4	38.4	11.5	6.6	4.8	1.4	3.5	4.7
South	4,100	4,100	3,100	15.2	26.4	34.6	9.0	10.0	11.3	9.0	22.4	31.8	11.7	7.7	4.7	1.9	3.6	5.3
West	2,500	2,600	2,000	15.8	22.5	48.0	9.6	8.8	19.4	10.7	19.4	44.4	12.5	6.7	6.0	2.6	3.9	12.8
Population Density																		
Large MSA	3,600	3,800	2,800	14.0	19.5	46.5	8.0	8.1	12.9	8.2	17.1	43.8	9.8	6.9	5.3	1.1	3.1	6.8
Other MSA	5,000	5,000	3,800	17.2	27.2	39.9	9.0	8.8	13.9	11.6	23.8	36.9	12.7	6.8	4.9	2.2	3.4	8.0
Non-MSA	2,100	2,200	1,700	16.3	29.3	35.7	9.5	11.2	10.4	10.5	26.2	33.8	10.3	8.7	4.4	2.0	4.6	5.4
Parental Education ^e																		
1.0–2.0 (Low)	600	800	900	22.0	34.4	35.9	12.0	15.5	10.6	16.0	31.4	33.3	12.3	7.7	3.7	3.6	7.0	4.5
2.5–3.0	1,300	1,600	1,600	22.8	29.7	45.0	10.7	10.8	13.5	16.7	27.2	43.0	13.2	8.2	4.9	2.6	5.6	7.6
3.5–4.0	1,900	2,300	1,900	20.3	29.6	44.1	9.8	9.9	13.3	15.3	26.4	41.9	14.6	7.2	5.9	2.0	3.9	8.1
4.5–5.0	2,900	3,100	2,100	14.1	22.0	40.0	8.2	7.6	12.2	8.0	19.3	37.2	11.3	6.8	5.0	1.2	2.5	6.7
5.5–6.0 (High)	2,300	1,900	1,200	11.7	17.3	39.9	7.1	6.9	13.4	5.5	15.0	36.3	9.5	7.2	4.2	1.2	2.1	6.5
Race/Ethnicity (2-year average) ^f																		
White	11,600	10,900	8,400	18.6	31.2	42.1	11.1	10.4	13.9	11.3	27.7	39.5	12.7	7.5	4.6	2.0	3.8	6.7
African American	2,200	2,600	1,700	18.6	36.5	44.8	6.7	8.4	13.6	15.1	32.6	41.7	8.9	6.2	2.8	1.5	3.3	3.9
Hispanic	2,700	4,000	3,500	15.7	35.3	43.1	8.9	12.3	16.0	9.7	31.4	40.4	9.2	6.6	2.7	2.7	4.1	7.1

(Table continued on next page.)

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	LSD ^p			Hallucinogens other than LSD ^p			Ecstasy (MDMA) ^{c,f}			Cocaine			Crack			Cocaine other than Crack ⁱ		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	1.2	2.5	4.9	1.3	2.5	5.3	1.0	1.4	2.8	0.6	1.2	2.5	0.4	0.7	1.5	0.5	1.0	2.2
Gender																		
Male	1.1	2.3	5.9	1.1	2.4	6.4	1.0	1.3	2.6	0.4	0.9	2.5	0.2	0.6	1.5	0.3	0.7	2.2
Female	1.0	2.4	3.9	1.1	2.4	3.4	0.7	1.2	3.0	0.6	1.1	2.3	0.5	0.6	1.4	0.4	1.1	2.2
College Plans																		
None or under 4 years	2.6	4.4	8.3	2.3	5.3	8.2	2.1	2.5	5.8	1.5	2.2	4.3	0.9	1.2	3.3	1.1	1.9	4.0
Complete 4 years	0.9	1.9	3.9	1.1	1.8	4.4	0.8	1.1	2.0	0.5	0.7	1.8	0.4	0.4	1.0	0.4	0.6	1.6
Region																		
Northeast	0.3	2.0	4.2	0.7	2.4	4.1	0.3	1.1	1.3	0.1	1.2	1.6	0.1	0.4	0.4	*	1.0	1.7
Midwest	0.9	2.6	3.8	1.0	2.2	3.5	1.0	1.6	1.5	0.5	0.9	1.5	0.4	0.7	0.6	0.3	0.8	1.0
South	1.3	2.4	3.4	1.3	2.6	4.0	0.8	1.8	1.7	0.7	1.3	1.8	0.6	1.0	1.4	0.6	1.1	0.9
West	1.9	2.7	9.1	2.0	2.7	9.8	1.8	1.0	6.6	1.0	1.1	5.0	0.5	0.5	3.4	0.8	1.0	5.4
Population Density																		
Large MSA	0.8	2.1	4.9	0.8	2.0	4.9	0.7	1.3	2.6	0.3	0.8	1.9	0.2	0.4	0.9	0.3	0.7	1.4
Other MSA	1.6	2.5	5.3	1.5	2.5	6.1	1.3	1.4	3.6	1.0	1.2	2.8	0.7	0.7	2.0	0.7	1.0	2.8
Non-MSA	1.1	3.1	4.2	1.6	3.4	3.9	0.7	1.8	1.3	0.5	1.9	2.6	0.3	1.3	1.5	0.4	1.5	2.1
Parental Education^e																		
1.0–2.0 (Low)	2.2	4.6	4.1	2.7	5.5	3.0	1.9	3.1	2.8	1.7	2.0	2.0	1.5	1.3	2.0	1.1	2.0	1.5
2.5–3.0	1.8	3.9	6.2	1.7	4.2	4.6	1.3	1.6	5.5	0.8	1.6	4.4	0.4	0.7	3.0	0.6	1.6	4.7
3.5–4.0	1.3	2.7	5.9	1.5	2.8	6.3	1.2	1.7	2.9	0.9	1.1	2.3	0.4	0.7	1.6	0.9	1.0	2.3
4.5–5.0	0.9	1.6	3.1	1.0	1.6	5.7	0.7	1.3	1.3	0.5	0.6	1.9	0.5	0.2	0.8	0.3	0.5	1.5
5.5–6.0 (High)	0.9	1.7	4.3	0.9	1.4	4.9	1.1	0.9	2.3	0.3	0.8	1.4	0.3	0.6	0.3	0.2	0.8	1.0
Race/Ethnicity (2-year average)^f																		
White	1.3	2.7	4.8	1.6	2.8	5.0	1.3	1.7	3.5	1.1	1.0	2.8	0.7	0.4	1.2	0.7	0.9	2.6
African American	1.2	2.8	2.9	0.8	2.0	2.9	0.4	2.3	2.0	0.2	0.4	1.4	0.1	0.3	1.1	0.2	0.3	1.4
Hispanic	1.9	2.9	6.2	1.5	2.7	3.4	1.6	1.8	2.1	1.7	2.1	3.5	0.7	0.6	1.8	1.6	2.1	3.5

(Table continued on next page.)

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Heroin, Any Use ^s			Heroin with a Needle ^{c,s}			Heroin without a Needle ^{c,s}			Narcotics other than Heroin ^j			Amphetamines ^j			Methamphetamine ^{h,k}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.5	0.3	0.4	0.4	0.3	0.2	0.2	0.1	0.2	—	—	2.3	5.8	5.2	4.9	0.3	0.4	0.6
Gender																		
Male	0.4	0.2	0.5	0.3	0.1	0.2	0.1	0.1	0.4	—	—	2.4	4.3	3.9	5.1	0.1	0.2	0.7
Female	0.6	0.4	0.3	0.3	0.3	0.1	0.3	0.1	*	—	—	2.1	6.7	5.8	4.5	0.3	0.4	0.2
College Plans																		
None or under 4 years	0.8	0.5	1.0	0.5	0.4	0.5	0.3	0.3	0.5	—	—	2.5	8.2	7.7	6.5	0.2	0.8	0.7
Complete 4 years	0.4	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.1	—	—	2.2	5.4	4.5	4.4	0.3	0.2	0.5
Region																		
Northeast	0.1	*	0.1	0.1	*	0.1	0.0	*	0.0	—	—	1.5	3.8	4.8	4.3	0.1	0.3	0.2
Midwest	0.3	0.4	0.2	0.1	0.2	0.2	0.2	0.1	0.0	—	—	1.9	7.0	5.1	4.2	0.5	0.6	0.3
South	0.5	0.3	0.3	0.4	0.3	0.1	0.3	0.1	0.2	—	—	2.0	5.6	5.3	4.2	0.3	0.3	0.4
West	1.0	0.4	1.2	0.7	0.4	0.5	0.3	0.2	0.6	—	—	3.7	6.5	5.2	7.1	0.0	0.3	1.4
Population Density																		
Large MSA	0.3	0.4	0.4	0.3	0.3	0.5	*	0.2	0.5	—	—	2.7	5.4	4.6	4.8	0.1	0.3	0.4
Other MSA	0.6	0.3	0.4	0.4	0.2	0.1	0.3	*	0.1	—	—	2.3	6.0	5.1	5.7	0.4	0.4	0.7
Non-MSA	0.7	0.3	0.5	0.5	0.3	0.1	0.4	0.2	0.2	—	—	1.6	6.0	6.3	3.2	0.3	0.6	0.5
Parental Education^e																		
1.0–2.0 (Low)	1.4	0.7	0.8	0.6	0.7	0.1	1.1	0.1	0.1	—	—	1.1	7.4	7.7	3.3	1.7	0.5	0.1
2.5–3.0	0.4	0.3	0.5	0.3	0.2	*	0.1	*	*	—	—	2.6	7.0	6.0	5.1	0.3	0.3	1.3
3.5–4.0	0.4	0.1	0.5	0.2	*	0.3	0.2	*	0.4	—	—	2.4	7.0	5.7	6.3	0.3	0.4	0.5
4.5–5.0	0.4	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.1	—	—	1.9	5.5	4.6	4.1	0.2	0.3	0.2
5.5–6.0 (High)	0.4	0.5	0.3	0.3	0.4	0.5	0.1	0.2	0.2	—	—	2.6	4.6	4.4	5.6	0.0	0.2	0.8
Race/Ethnicity (2-year average)^f																		
White	0.5	0.2	0.2	0.2	0.1	0.3	0.4	0.2	0.0	—	—	3.2	7.8	6.0	6.3	0.9	0.7	0.4
African American	0.9	0.2	0.7	0.9	0.2	0.1	0.6	0.1	0.1	—	—	3.9	3.9	4.3	5.8	1.2	0.4	0.9
Hispanic	0.3	0.6	0.5	0.1	0.4	0.1	0.2	0.2	0.3	—	—	3.6	5.7	5.4	4.1	0.1	0.2	2.4

(Table continued on next page.)

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Crystal Methamphetamine (Ice) ^h			Sedatives (Barbiturates) ^j			Tranquilizers ⁱ			Any Prescription Drug ^l			Rohypnol ^m			Alcohol		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	—	—	0.7	—	—	3.5	2.5	2.6	3.3	—	—	8.8	0.3	0.6	—	21.7	34.7	54.1
Gender																		
Male	—	—	1.0	—	—	3.9	1.6	1.9	2.6	—	—	8.5	0.1	0.3	—	19.4	31.7	51.1
Female	—	—	0.5	—	—	3.3	3.1	3.1	3.6	—	—	8.7	0.0	0.9	—	22.8	36.9	57.7
College Plans																		
None or under 4 years	—	—	1.6	—	—	4.7	3.7	3.3	4.2	—	—	10.1	0.4	1.4	—	28.9	40.7	54.3
Complete 4 years	—	—	0.5	—	—	3.3	2.2	2.4	3.0	—	—	8.4	0.2	0.4	—	20.3	33.3	53.9
Region																		
Northeast	—	—	0.1	—	—	3.0	1.7	2.4	2.3	—	—	8.0	0.0	0.0	—	15.6	35.8	64.9
Midwest	—	—	0.4	—	—	1.5	2.3	2.3	1.3	—	—	6.4	0.3	0.4	—	24.3	38.4	53.9
South	—	—	1.1	—	—	3.1	2.9	3.1	3.1	—	—	8.1	0.3	0.9	—	23.4	35.8	50.9
West	—	—	1.0	—	—	6.2	2.6	2.2	6.0	—	—	12.8	0.3	0.7	—	20.8	28.9	51.3
Population Density																		
Large MSA	—	—	1.1	—	—	3.5	2.2	2.6	3.4	—	—	9.3	0.2	0.5	—	16.0	28.8	58.4
Other MSA	—	—	0.6	—	—	4.0	2.8	2.5	3.4	—	—	9.4	0.3	0.3	—	23.7	37.3	50.0
Non-MSA	—	—	0.6	—	—	2.4	2.3	2.9	2.8	—	—	6.9	0.3	1.3	—	26.7	39.0	56.6
Parental Education ^e																		
1.0–2.0 (Low)	—	—	0.8	—	—	2.7	3.1	4.6	3.4	—	—	7.7	0.0	1.2	—	24.2	38.9	45.0
2.5–3.0	—	—	0.2	—	—	3.8	2.4	2.5	3.6	—	—	8.9	0.0	0.3	—	25.9	38.0	55.0
3.5–4.0	—	—	1.1	—	—	3.7	3.0	3.0	2.8	—	—	9.5	0.0	0.4	—	29.9	38.4	54.1
4.5–5.0	—	—	0.6	—	—	3.1	2.6	2.1	3.3	—	—	7.9	0.4	0.0	—	19.9	33.6	58.4
5.5–6.0 (High)	—	—	0.4	—	—	4.7	2.4	2.5	3.7	—	—	10.5	0.2	1.2	—	18.1	32.2	57.9
Race/Ethnicity (2-year average) ^f																		
White	—	—	0.2	—	—	3.7	3.5	3.5	4.7	—	—	10.9	0.8	0.4	—	25.1	44.7	63.1
African American	—	—	0.6	—	—	5.0	1.0	2.3	3.6	—	—	11.3	0.0	0.0	—	17.8	27.0	46.4
Hispanic	—	—	0.5	—	—	3.6	3.5	4.2	5.7	—	—	11.4	0.2	0.4	—	19.1	42.2	51.8

(Table continued on next page.)

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Been Drunk</u> ^h			<u>Flavored Alcoholic Beverages</u> ^{k,n}			<u>Cigarettes</u>			<u>Any Vaping</u>			<u>Vaping Nicotine</u>			<u>Vaping Marijuana</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	8.3	17.8	38.9	13.8	24.9	43.7	7.0	10.0	17.8	17.5	29.7	40.5	16.6	28.4	38.7	6.5	16.5	25.7
Gender																		
Male	6.7	15.5	38.0	12.0	20.9	37.3	6.4	9.7	18.4	15.2	25.8	38.2	14.2	24.5	36.6	5.7	14.0	23.5
Female	9.1	20.0	40.7	15.4	29.0	51.6	6.3	8.6	16.6	18.4	31.7	42.0	17.7	30.8	40.2	6.7	17.7	27.1
College Plans																		
None or under 4 years	12.3	22.9	40.6	18.5	31.0	38.5	13.9	20.6	26.2	28.8	39.6	44.1	27.2	38.5	42.6	11.6	24.1	27.0
Complete 4 years	7.5	16.8	38.5	12.9	23.6	45.3	5.6	7.1	14.4	15.3	27.0	38.8	14.6	25.7	37.0	5.5	14.6	24.8
Region																		
Northeast	4.9	21.0	48.8	9.0	29.5	59.7	3.5	8.2	16.3	9.7	28.7	46.5	8.8	27.6	44.6	4.3	17.8	33.3
Midwest	9.4	20.3	38.5	17.5	27.0	43.6	8.7	11.5	15.7	19.6	31.1	40.9	18.5	30.0	38.6	7.1	16.6	25.6
South	9.2	18.5	32.3	12.3	24.5	36.7	8.0	11.7	16.9	20.5	32.4	37.8	19.4	31.2	36.4	6.2	16.7	19.7
West	8.2	12.4	41.0	16.4	20.2	43.5	6.4	7.4	22.1	16.2	24.8	39.9	15.7	23.1	38.1	8.1	14.9	29.3
Population Density																		
Large MSA	4.9	12.8	44.9	8.2	19.3	50.8	4.0	7.2	15.7	10.1	23.4	41.0	9.4	21.8	38.5	4.3	13.4	29.0
Other MSA	9.5	19.8	34.8	15.7	27.6	38.9	7.9	9.7	15.8	19.7	30.8	36.8	18.6	29.5	35.3	7.5	18.1	24.5
Non-MSA	11.0	22.0	38.3	19.1	28.6	43.1	10.1	15.6	26.0	24.6	38.0	48.2	23.9	37.2	47.0	8.1	17.9	22.8
Parental Education ^e																		
1.0–2.0 (Low)	10.3	20.5	24.2	13.1	25.5	28.3	13.3	15.1	17.0	25.8	36.8	35.0	24.1	35.1	32.2	11.7	24.6	21.8
2.5–3.0	10.1	20.0	41.6	19.9	28.1	37.1	10.4	14.4	22.4	27.1	35.3	43.1	25.9	33.8	40.8	10.7	20.6	26.8
3.5–4.0	12.4	19.4	36.3	18.1	29.6	41.8	9.6	11.6	18.5	24.0	35.1	42.8	22.9	32.8	41.3	9.6	19.2	26.9
4.5–5.0	7.4	17.9	44.6	14.7	23.8	55.0	5.2	6.7	14.6	14.4	26.8	40.7	14.0	25.9	39.2	4.5	14.2	25.7
5.5–6.0 (High)	6.2	17.2	45.5	9.5	23.7	51.2	4.2	5.8	16.2	10.3	23.0	39.8	9.8	22.1	38.8	3.3	12.1	26.4
Race/Ethnicity (2-year average) ^f																		
White	9.3	27.9	47.5	16.9	34.4	53.2	9.3	13.3	22.4	21.3	38.2	49.8	20.4	37.3	48.2	7.3	19.2	28.0
African American	6.2	12.7	28.3	12.6	14.3	29.1	6.4	7.3	10.4	16.2	23.1	28.9	14.8	20.6	24.6	5.1	14.5	19.2
Hispanic	7.9	21.1	29.3	13.2	35.3	27.8	5.3	9.6	19.3	14.9	36.6	36.7	13.9	33.2	33.4	7.7	23.0	25.1

(Table continued on next page.)

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Vaping Just Flavoring</u>			<u>Smokeless Tobacco</u> ^{g,n}			<u>Steroids</u> ^c			<u>Legal Use of Over-the-Counter Stimulants</u>					
	<u>8th</u>	<u>10th</u>	<u>12th</u>	<u>8th</u>	<u>10th</u>	<u>12th</u>	<u>8th</u>	<u>10th</u>	<u>12th</u>	<u>Diet Pills</u> ⁿ			<u>Stay-Awake Pills</u> ⁿ		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	12.0	19.6	25.2	4.6	4.9	8.6	1.2	0.7	0.8	—	—	4.6	—	—	3.4
Gender															
Male	9.4	15.6	22.1	5.3	6.5	13.6	1.0	0.7	1.5	—	—	3.8	—	—	3.3
Female	13.7	22.3	27.5	3.7	3.2	4.6	1.2	0.7	0.2	—	—	5.4	—	—	3.3
College Plans															
None or under 4 years	19.7	24.5	26.9	10.3	10.9	16.7	1.5	1.0	2.0	—	—	7.0	—	—	8.1
Complete 4 years	10.6	18.3	24.2	3.4	3.7	5.4	1.1	0.6	0.5	—	—	3.8	—	—	1.6
Region															
Northeast	6.3	18.1	27.5	1.6	4.9	7.3	0.7	0.9	0.1	—	—	4.3	—	—	1.9
Midwest	13.9	19.6	26.5	5.8	5.2	10.5	1.5	0.7	1.8	—	—	4.3	—	—	3.1
South	14.1	21.6	23.2	5.9	6.5	6.6	1.3	0.9	0.6	—	—	3.4	—	—	1.6
West	11.1	17.8	25.5	3.6	2.5	10.7	0.9	0.4	1.0	—	—	6.6	—	—	7.4
Population Density															
Large MSA	6.5	15.5	25.0	2.3	2.7	7.3	0.8	0.4	0.5	—	—	5.2	—	—	2.6
Other MSA	13.7	20.1	23.1	4.6	4.9	7.8	1.4	0.7	0.5	—	—	4.7	—	—	4.3
Non-MSA	17.6	25.7	30.5	8.3	9.0	12.8	1.2	1.4	2.2	—	—	3.0	—	—	2.3
Parental Education ^e															
1.0–2.0 (Low)	17.7	25.5	22.4	9.1	6.6	1.5	2.7	1.1	0.0	—	—	2.0	—	—	3.0
2.5–3.0	19.9	24.5	29.0	7.3	7.5	11.8	1.0	0.9	0.4	—	—	7.7	—	—	6.7
3.5–4.0	17.7	23.9	28.1	7.2	5.5	9.7	1.6	0.5	1.6	—	—	4.3	—	—	0.9
4.5–5.0	9.1	15.9	24.1	3.2	3.8	8.0	1.0	0.6	1.0	—	—	3.8	—	—	2.8
5.5–6.0 (High)	6.8	15.7	21.0	2.8	4.0	11.7	1.1	0.7	0.3	—	—	5.2	—	—	2.8
Race/Ethnicity (2-year average) ^f															
White	15.0	25.0	29.9	7.6	8.5	16.8	1.5	1.0	1.5	—	—	4.2	—	—	2.7
African American	12.4	15.6	19.1	4.4	6.4	6.1	1.1	0.6	1.9	—	—	1.8	—	—	1.8
Hispanic	11.5	25.9	25.6	2.7	4.6	13.9	1.7	1.2	0.6	—	—	2.3	—	—	2.2

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following table 4-8.

TABLE 4-5 (cont.)
Lifetime Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Legal Use of Prescription ADHD Drugs								
	<u>Stimulant-Type</u> ^h			<u>Non-Stimulant-Type</u> ^h			<u>Either Type</u> ^h		
	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	9.0	7.0	8.0	2.8	3.0	4.5	11.5	9.0	10.9
Gender									
Male	11.1	6.5	8.4	3.3	2.8	3.6	14.3	8.3	11.4
Female	6.2	7.1	7.4	2.1	2.9	4.6	8.2	9.2	9.8
College Plans									
None or under 4 years	11.7	11.0	7.6	3.5	5.4	4.4	14.3	14.1	9.9
Complete 4 years	8.6	6.2	8.0	2.6	2.5	4.6	11.1	8.0	11.1
Region									
Northeast	8.0	7.1	8.0	2.8	5.4	4.7	11.0	12.2	11.2
Midwest	9.6	8.5	7.1	2.6	2.7	3.3	11.9	10.2	9.7
South	9.0	7.5	8.6	3.8	2.3	4.7	11.9	9.0	11.9
West	9.0	4.8	8.1	1.4	2.3	5.2	11.0	5.7	10.2
Population Density									
Large MSA	8.3	6.5	7.3	2.1	2.6	4.5	11.0	8.6	10.5
Other MSA	10.0	7.7	7.9	3.4	3.6	4.4	12.8	9.9	10.6
Non-MSA	7.7	5.9	9.5	2.4	2.1	4.6	9.7	7.7	12.3
Parental Education ^e									
1.0–2.0 (Low)	7.1	4.0	3.5	3.4	1.9	1.6	9.5	5.5	4.0
2.5–3.0	9.4	8.7	7.1	1.7	3.2	2.2	11.5	10.1	9.0
3.5–4.0	11.1	6.4	7.0	3.7	2.9	4.2	13.5	8.8	10.1
4.5–5.0	8.4	7.0	12.5	3.1	3.6	8.2	11.0	9.8	17.1
5.5–6.0 (High)	9.0	7.8	7.6	2.8	3.2	4.3	12.3	9.5	10.1
Race/Ethnicity (2-year average) ^f									
White	7.4	8.6	9.3	4.5	3.6	6.7	11.8	11.0	13.3
African American	4.4	4.7	6.2	2.2	5.9	2.2	4.0	8.7	7.7
Hispanic	2.7	4.6	3.9	1.6	4.0	1.2	4.8	5.0	5.0

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following table 4-8.

TABLE 4-6
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Approximate Weighted N^a</u>			<u>Any Illicit Drug^{b,v}</u>			<u>Any Illicit Drug other than Marijuana^b</u>			<u>Marijuana^v</u>			<u>Synthetic Marijuana^{h,k}</u>			<u>Inhalants^c</u>			<u>Hallucinogens^{d,p}</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	10,700	11,000	8,300	10.2	18.7	32.0	4.6	5.1	7.2	7.1	17.3	30.5	1.3	1.6	1.8	4.8	2.0	1.8	1.0	2.2	4.1
Gender																					
Male	5,100	5,300	3,600	7.4	16.9	29.5	3.3	4.0	8.0	5.2	16.2	27.8	1.1	1.1	1.7	3.5	1.5	1.2	0.9	2.1	5.0
Female	4,800	5,000	4,100	11.4	18.9	33.4	5.3	5.4	6.0	8.0	17.0	32.3	1.5	2.1	1.5	5.5	2.2	1.9	0.9	2.1	2.7
College Plans																					
None or under 4 years	1,500	1,900	1,900	15.9	30.3	34.9	7.2	8.3	9.0	12.4	28.7	33.9	4.0	1.8	2.2	6.6	3.6	2.5	2.1	4.4	5.9
Complete 4 years	8,800	8,700	5,900	9.1	15.6	30.6	4.2	4.2	6.5	6.1	14.4	29.1	0.9	1.6	1.7	4.6	1.7	1.4	0.8	1.6	3.4
Region																					
Northeast	1,800	1,900	1,500	8.2	21.4	38.1	2.5	4.9	6.7	6.9	19.7	36.8	0.2	3.4	1.3	3.8	2.9	1.3	0.5	2.1	4.1
Midwest	2,300	2,400	1,700	11.7	20.1	31.9	4.9	5.1	5.9	7.8	19.4	30.4	1.2	2.0	1.9	4.2	2.3	1.3	0.8	2.4	3.4
South	4,100	4,100	3,100	9.6	19.3	25.7	5.0	5.6	6.7	6.3	17.6	24.0	1.9	1.3	2.4	4.9	2.0	1.8	1.0	2.1	3.4
West	2,500	2,600	2,000	11.0	14.3	37.4	5.2	4.6	9.7	7.9	13.1	36.1	1.2	0.5	1.3	6.0	1.2	2.5	1.6	2.3	5.6
Population Density																					
Large MSA	3,600	3,800	2,800	8.6	14.4	35.2	3.9	4.8	7.3	5.8	13.0	33.6	0.7	0.6	1.9	3.8	1.9	1.0	0.7	2.0	4.5
Other MSA	5,000	5,000	3,800	11.2	19.8	32.0	4.9	4.8	7.7	8.0	18.6	30.4	1.7	2.2	1.7	5.6	1.9	2.0	1.1	2.1	4.0
Non-MSA	2,100	2,200	1,700	10.3	23.3	26.8	5.3	6.4	6.0	7.1	21.6	25.7	1.4	2.2	1.8	4.9	2.4	2.5	1.4	2.7	3.5
Parental Education^e																					
1.0–2.0 (Low)	600	800	900	14.6	25.6	25.4	6.4	8.6	5.7	10.9	24.3	23.7	1.2	5.0	2.6	4.6	1.7	1.2	2.1	3.6	3.1
2.5–3.0	1,300	1,600	1,600	15.4	22.7	32.9	5.1	6.3	7.0	12.3	21.1	32.5	1.6	2.3	1.3	6.1	2.7	1.9	1.3	3.0	4.5
3.5–4.0	1,900	2,300	1,900	13.2	21.8	35.8	5.7	5.9	7.5	10.5	20.4	34.5	2.8	0.8	1.8	5.9	2.4	2.7	1.3	2.6	3.7
4.5–5.0	2,900	3,100	2,100	8.7	16.4	31.5	4.5	4.0	7.2	5.0	15.5	30.0	0.6	0.9	1.0	5.3	1.7	1.2	0.8	1.8	4.4
5.5–6.0 (High)	2,300	1,900	1,200	7.1	13.7	32.3	3.8	3.8	7.8	4.1	12.8	29.7	1.2	2.1	3.5	4.3	1.7	1.3	0.7	1.3	3.4
Race/Ethnicity (2-year average)^f																					
White	11,600	10,900	8,400	12.6	25.6	33.5	6.5	6.3	8.6	8.4	23.8	31.8	1.3	2.5	1.3	6.0	2.5	1.5	1.3	2.6	4.1
African American	2,200	2,600	1,700	11.9	27.7	36.6	3.0	5.7	8.0	10.7	24.7	34.4	1.0	1.7	2.6	3.3	1.9	0.6	0.8	2.6	3.0
Hispanic	2,700	4,000	3,500	11.9	26.6	30.2	5.2	7.0	8.7	8.2	24.2	29.4	0.9	1.0	3.7	4.1	1.7	0.7	1.8	2.4	5.2

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	LSD ^p			Hallucinogens other than LSD ^p			Ecstasy (MDMA) ^{c,r}			Salvia ^{h,k}			Cocaine			Crack			Cocaine other than Crack ⁱ		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.7	1.5	2.5	0.8	1.5	2.9	0.6	0.7	1.1	0.5	0.4	0.6	0.2	0.6	1.2	0.2	0.3	0.7	0.2	0.5	0.9
Gender																					
Male	0.7	1.4	2.9	0.7	1.5	3.8	0.7	0.8	1.3	0.4	0.5	0.7	0.2	0.6	0.9	0.1	0.3	0.6	0.1	0.5	0.6
Female	0.5	1.4	1.9	0.6	1.4	1.6	0.4	0.5	1.1	0.7	0.3	0.4	0.2	0.4	1.3	0.2	0.3	0.8	0.1	0.3	1.3
College Plans																					
None or under 4 years	1.6	3.0	3.6	1.5	3.2	4.3	1.3	1.5	2.5	1.9	1.1	0.8	0.6	1.1	2.1	0.4	0.6	1.7	0.4	1.0	1.9
Complete 4 years	0.5	1.1	2.1	0.6	1.1	2.3	0.5	0.5	0.7	0.3	0.3	0.4	0.2	0.3	0.8	0.1	0.2	0.4	0.1	0.3	0.6
Region																					
Northeast	0.2	1.3	2.5	0.4	1.6	2.9	0.1	0.4	0.5	0.0	0.4	0.6	0.0	0.8	0.8	0.0	0.3	0.2	0.0	0.8	0.8
Midwest	0.6	1.6	2.3	0.6	1.6	2.5	0.6	0.7	1.1	0.6	0.1	1.4	0.2	0.5	0.8	0.2	0.2	0.5	0.1	0.4	0.4
South	0.7	1.5	1.8	0.7	1.4	2.6	0.5	1.0	0.6	0.9	0.6	0.5	0.3	0.7	1.0	0.3	0.5	1.0	0.2	0.6	0.2
West	1.1	1.6	3.9	1.3	1.6	3.5	1.1	0.5	2.4	0.3	0.5	0.3	0.3	0.5	2.1	0.2	0.3	0.9	0.2	0.4	2.6
Population Density																					
Large MSA	0.5	1.5	3.0	0.5	1.3	3.3	0.5	0.7	1.2	0.6	0.3	0.4	0.1	0.5	0.8	0.1	0.2	0.4	0.1	0.5	0.4
Other MSA	0.8	1.4	2.4	0.8	1.6	2.8	0.8	0.7	1.3	0.6	0.6	0.9	0.4	0.6	1.4	0.3	0.3	0.8	0.3	0.6	1.4
Non-MSA	0.7	1.7	2.2	1.1	1.9	2.2	0.5	0.9	0.5	0.4	0.4	0.4	0.2	0.9	1.3	0.2	0.6	1.1	0.1	0.6	0.6
Parental Education ^e																					
1.0–2.0 (Low)	0.8	2.4	2.7	1.8	2.8	1.8	1.0	2.1	0.2	0.4	0.3	0.0	0.6	1.3	1.0	0.4	0.8	0.7	0.4	1.3	0.9
2.5–3.0	0.9	2.2	3.3	0.7	2.2	2.2	0.6	0.5	1.3	0.2	0.5	0.4	0.2	0.9	1.8	0.2	0.3	0.7	0.2	0.9	1.5
3.5–4.0	0.9	1.8	2.5	0.9	1.7	2.7	0.8	1.2	2.3	1.6	0.8	0.0	0.4	0.6	1.3	0.2	0.4	1.2	0.3	0.5	1.4
4.5–5.0	0.6	1.0	1.8	0.7	1.1	3.6	0.4	0.5	0.7	0.2	0.0	0.8	0.2	0.1	0.9	0.2	*	0.6	0.1	0.1	0.5
5.5–6.0 (High)	0.6	0.9	1.9	0.5	1.0	2.7	0.8	0.4	0.9	0.4	0.3	1.9	0.1	0.4	0.7	0.1	0.3	0.1	0.1	0.4	0.3
Race/Ethnicity (2-year average) ^f																					
White	0.8	1.8	2.3	1.0	1.7	3.1	0.8	0.9	1.7	0.6	0.7	0.5	0.3	0.5	1.6	0.1	0.2	0.5	0.3	0.5	1.6
African American	0.6	2.1	2.5	0.3	1.8	2.0	0.2	0.8	1.1	0.7	1.7	1.1	*	0.6	1.0	*	0.6	0.8	0.0	0.5	0.9
Hispanic	1.5	1.6	4.3	0.8	1.3	1.9	0.7	0.7	1.1	0.1	0.8	0.9	0.2	1.4	1.5	0.1	0.5	1.2	0.2	1.4	1.6

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Heroin, Any Use ^s			Heroin with a Needle ^{c,s}			Heroin without a Needle ^{c,s}			Narcotics other than Heroin ^j			OxyContin ^{c,j,k}			Vicodin ^{c,j,k}			Amphetamines ^j			
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	
Total	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	—	—	1.0	0.8	0.9	0.9	0.6	0.5	0.9	3.0	2.7	2.3	
Gender																						
Male	0.2	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1	—	—	0.9	0.4	0.9	1.0	0.4	0.3	1.1	2.1	1.9	2.2	
Female	0.1	0.2	*	*	0.1	0.1	0.1	0.1	0.0	—	—	1.0	1.4	0.8	0.6	0.8	0.5	0.4	3.5	2.8	2.1	
College Plans																						
None or under 4 years	0.6	0.4	0.2	0.4	0.3	0.3	0.2	0.3	0.3	—	—	1.0	1.8	1.0	0.8	1.4	0.6	1.1	4.8	4.2	2.9	
Complete 4 years	0.1	0.1	*	*	0.1	0.1	*	*	0.0	—	—	1.0	0.7	0.8	0.9	0.4	0.4	0.7	2.7	2.2	2.0	
Region																						
Northeast	0.0	*	0.1	0.0	*	*	0.0	*	0.0	—	—	1.1	0.0	1.7	0.5	0.0	0.7	0.2	1.6	3.0	2.3	
Midwest	0.1	0.1	*	*	0.1	0.1	0.1	*	0.0	—	—	0.9	1.6	0.9	0.8	0.5	0.6	0.5	3.5	2.4	2.6	
South	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	—	—	1.1	1.1	0.8	1.4	1.0	0.3	1.3	3.1	2.7	2.3	
West	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	—	—	0.7	0.3	0.3	0.7	0.4	0.3	0.9	3.3	2.6	2.2	
Population Density																						
Large MSA	*	0.2	0.1	*	0.2	0.2	0.0	0.1	0.2	—	—	1.1	0.8	1.0	0.7	0.5	0.6	0.4	2.6	2.6	2.3	
Other MSA	0.2	0.1	0.1	0.2	0.1	0.1	0.1	*	0.1	—	—	1.0	1.1	0.7	1.3	0.8	0.4	1.2	3.2	2.4	2.8	
Non-MSA	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	—	—	0.8	0.3	1.0	0.6	0.4	0.2	0.9	3.2	3.5	1.4	
Parental Education^e																						
1.0–2.0 (Low)	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	—	—	0.6	0.4	0.3	1.1	0.8	0.3	1.2	3.8	3.9	0.8	
2.5–3.0	*	*	0.0	0.0	*	*	*	0.0	0.0	—	—	0.8	0.4	1.2	0.5	0.0	0.7	0.5	3.4	3.3	1.6	
3.5–4.0	0.1	0.1	0.1	0.1	*	*	0.0	*	0.2	—	—	0.8	2.5	1.3	0.8	1.7	1.1	1.0	4.1	3.2	3.7	
4.5–5.0	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	—	—	1.0	0.3	0.7	1.0	0.3	0.2	0.9	2.7	2.2	2.3	
5.5–6.0 (High)	0.1	0.3	0.2	0.1	0.3	0.3	0.0	0.1	0.2	—	—	1.5	0.5	0.8	1.6	0.6	0.1	0.6	2.6	2.1	2.0	
Race/Ethnicity (2-year average)^f																						
White	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	0.0	—	—	1.3	0.9	1.1	0.9	0.6	0.7	0.7	4.2	3.4	3.7	
African American	0.7	0.1	0.6	0.7	0.1	0.1	0.6	0.1	0.1	—	—	1.7	1.3	2.0	2.5	0.8	1.9	1.5	2.0	2.5	2.5	
Hispanic	0.1	0.2	0.2	0.1	0.2	0.2	0.0	*	0.1	—	—	1.3	0.2	0.1	2.1	0.3	0.1	1.5	3.2	2.9	1.5	

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Ritalin ^{h,j,k}			Adderall ^{h,j,k}			Methamphetamine ^{h,k}			Crystal Methamphetamine (Ice) ^h			Sedatives (Barbiturates) ^j			Tranquilizers ^j		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.6	0.3	0.5	1.8	1.6	1.8	0.2	0.2	0.2	—	—	0.4	—	—	1.8	1.1	1.3	1.2
Gender																		
Male	0.5	0.3	0.5	1.3	1.6	1.8	0.1	0.1	0.1	—	—	0.4	—	—	2.0	0.6	0.8	1.0
Female	0.7	0.2	0.2	2.0	1.5	1.3	0.2	0.1	0.1	—	—	0.2	—	—	1.7	1.5	1.5	1.4
College Plans																		
None or under 4 years	1.9	0.6	1.0	3.5	3.2	2.4	0.1	0.5	0.2	—	—	0.8	—	—	2.3	2.1	1.5	2.2
Complete 4 years	0.3	0.3	0.3	1.5	1.2	1.5	0.2	*	0.1	—	—	0.2	—	—	1.7	0.9	1.2	1.0
Region																		
Northeast	0.0	0.1	0.3	0.3	1.4	2.5	0.1	0.0	0.1	—	—	0.1	—	—	1.7	0.6	0.8	1.1
Midwest	0.2	0.8	0.0	2.4	2.5	1.1	0.3	0.3	0.0	—	—	0.1	—	—	0.8	1.1	1.2	0.5
South	1.1	0.4	1.0	2.3	1.5	1.9	0.2	0.1	0.3	—	—	0.7	—	—	1.6	1.2	1.7	1.5
West	0.5	0.1	0.6	1.5	1.1	1.7	0.0	0.3	0.2	—	—	0.2	—	—	3.1	1.4	1.0	1.6
Population Density																		
Large MSA	0.5	0.2	0.4	0.9	1.5	2.2	0.0	0.3	0.1	—	—	0.3	—	—	1.7	0.9	1.3	1.4
Other MSA	0.8	0.4	0.7	2.7	1.8	1.7	0.3	0.1	0.3	—	—	0.5	—	—	2.1	1.4	1.2	1.3
Non-MSA	0.4	0.4	0.4	1.3	1.4	1.0	0.1	0.1	0.1	—	—	0.2	—	—	1.2	0.9	1.3	0.7
Parental Education ^e																		
1.0–2.0 (Low)	0.4	0.3	1.5	0.6	2.2	1.7	1.0	0.0	0.0	—	—	0.4	—	—	1.2	1.1	2.0	1.8
2.5–3.0	0.0	0.7	0.0	0.6	2.0	1.4	0.3	0.3	0.1	—	—	0.1	—	—	1.6	1.0	1.7	0.7
3.5–4.0	1.5	0.4	0.3	3.4	2.2	1.6	0.3	0.1	0.5	—	—	0.7	—	—	1.8	1.4	1.4	1.7
4.5–5.0	0.2	0.3	0.6	1.8	0.9	1.6	0.0	0.1	0.0	—	—	0.3	—	—	1.6	1.5	0.8	1.2
5.5–6.0 (High)	0.9	0.2	0.9	1.9	1.6	3.0	0.0	0.0	0.4	—	—	0.1	—	—	3.4	0.8	1.2	1.0
Race/Ethnicity (2-year average) ^f																		
White	0.7	0.5	0.7	2.7	2.7	3.0	0.2	0.1	0.3	—	—	0.1	—	—	2.0	2.1	1.8	1.8
African American	0.9	2.2	1.5	3.7	2.4	2.2	1.2	0.4	0.9	—	—	0.5	—	—	2.7	0.1	1.1	2.5
Hispanic	0.2	0.1	2.2	0.5	0.7	3.6	0.1	0.0	2.0	—	—	*	—	—	1.4	1.2	2.2	2.1

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Any Prescription Drug ⁱ			Over-the-Counter Cough/Cold Medicines ^{h,k}			Rohypnol ^{m,n}			GHB ⁿ			Ketamine ^h			Alcohol			Been Drunk ^h		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	—	—	4.4	3.5	2.7	1.7	0.2	0.2	0.4	—	—	0.4	—	—	0.9	17.2	28.5	46.5	5.7	13.4	28.8
Gender																					
Male	—	—	4.4	3.0	2.8	1.7	0.0	0.2	0.4	—	—	0.4	—	—	1.4	14.4	25.8	42.9	4.4	11.6	27.9
Female	—	—	4.1	4.2	2.4	1.3	0.0	0.3	0.2	—	—	*	—	—	0.3	19.0	30.7	50.0	6.4	15.3	30.6
College Plans																					
None or under 4 years	—	—	5.2	4.2	4.3	3.3	0.4	1.2	0.6	—	—	0.7	—	—	1.6	22.3	32.9	44.2	8.3	16.8	28.3
Complete 4 years	—	—	4.0	3.3	2.3	1.2	0.1	*	0.3	—	—	0.1	—	—	0.6	16.2	27.4	46.8	5.2	12.7	28.8
Region																					
Northeast	—	—	4.3	0.7	3.2	1.0	0.0	0.0	0.9	—	—	0.6	—	—	1.3	12.5	32.1	57.7	2.6	17.1	40.4
Midwest	—	—	3.6	4.3	2.1	0.4	0.2	0.2	0.3	—	—	0.0	—	—	0.5	19.5	32.1	47.8	6.1	15.6	31.9
South	—	—	4.2	4.4	3.3	2.8	0.3	0.4	0.4	—	—	0.4	—	—	1.1	18.2	29.4	41.6	6.6	13.2	21.0
West	—	—	5.5	3.3	1.9	1.8	0.0	0.2	0.0	—	—	0.5	—	—	0.4	16.9	21.2	44.5	6.1	9.1	28.6
Population Density																					
Large MSA	—	—	4.6	2.7	1.8	1.0	0.1	0.4	0.3	—	—	0.5	—	—	0.9	12.4	22.5	51.4	3.4	9.4	35.4
Other MSA	—	—	4.9	4.0	2.8	2.7	0.1	0.2	0.6	—	—	0.4	—	—	1.0	19.2	31.3	42.1	6.4	15.1	24.6
Non-MSA	—	—	3.0	3.8	3.9	0.6	0.3	0.1	0.0	—	—	0.0	—	—	0.7	20.9	32.3	48.2	7.9	16.6	27.3
Parental Education^e																					
1.0–2.0 (Low)	—	—	3.6	0.8	3.1	1.9	0.0	0.7	0.0	—	—	0.0	—	—	0.3	17.2	31.3	35.5	6.1	15.5	15.8
2.5–3.0	—	—	3.3	4.0	2.8	1.1	0.0	0.0	0.5	—	—	0.1	—	—	0.1	20.0	31.3	45.5	7.3	14.3	29.7
3.5–4.0	—	—	5.1	5.1	4.0	2.2	0.0	0.4	0.3	—	—	0.0	—	—	0.5	25.0	30.4	46.9	8.6	14.2	25.4
4.5–5.0	—	—	4.1	3.5	2.0	1.1	0.0	0.0	0.1	—	—	0.2	—	—	1.3	16.1	28.6	51.6	5.6	13.8	32.9
5.5–6.0 (High)	—	—	5.9	3.1	2.2	3.0	0.2	0.2	1.2	—	—	1.9	—	—	2.1	14.7	27.6	51.2	4.5	13.9	38.5
Race/Ethnicity (2-year average)^f																					
White	—	—	6.1	5.0	3.5	2.1	0.5	0.3	0.5	—	—	0.2	—	—	0.3	20.6	39.9	57.4	7.0	22.6	40.4
African American	—	—	6.1	3.5	1.7	2.9	0.0	0.0	1.3	—	—	0.5	—	—	1.4	12.9	20.3	37.9	3.8	8.7	21.7
Hispanic	—	—	4.2	3.4	3.7	3.6	0.2	0.3	3.8	—	—	3.9	—	—	2.5	14.7	34.2	43.1	5.5	15.5	22.4

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Flavored Alcoholic Beverages ^{k,n}			Alcoholic Beverages containing Caffeine ^{h,k}			Tobacco using a Hookah ⁿ			Small Cigars ⁿ			Any Vaping			Vaping Nicotine			Vaping Marijuana		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	10.2	18.8	32.1	6.2	7.5	9.9	—	—	2.1	—	—	3.4	13.4	22.2	31.5	12.1	19.5	26.6	4.7	12.4	18.3
Gender																					
Male	8.6	15.5	26.3	4.4	5.4	10.3	—	—	2.3	—	—	5.6	11.0	18.1	29.5	9.8	15.6	25.1	3.8	10.4	17.3
Female	11.7	22.3	39.1	8.2	9.4	9.8	—	—	1.4	—	—	1.2	14.9	24.9	33.0	13.6	22.1	28.1	5.0	13.5	19.1
College Plans																					
None or under 4 years	12.9	22.0	23.7	10.0	10.4	9.7	—	—	3.1	—	—	5.6	22.2	31.2	34.9	19.5	28.0	30.6	9.3	19.6	18.6
Complete 4 years	9.6	18.0	34.9	5.5	7.0	10.1	—	—	1.9	—	—	2.8	11.7	19.7	29.9	10.7	17.3	25.0	3.7	10.7	17.9
Region																					
Northeast	7.7	23.8	45.1	3.5	11.4	8.8	—	—	1.2	—	—	3.1	7.3	22.7	35.5	6.4	20.0	29.1	3.2	14.8	23.9
Midwest	13.3	22.1	31.4	6.9	8.9	12.0	—	—	1.5	—	—	3.2	15.3	24.1	33.0	13.6	22.3	29.5	5.5	12.9	18.0
South	8.4	17.3	25.5	7.1	6.4	7.9	—	—	2.9	—	—	3.6	16.0	24.6	28.4	14.5	22.0	24.7	4.5	12.6	13.3
West	12.2	14.3	34.4	5.9	5.0	12.1	—	—	2.1	—	—	3.3	12.0	16.1	32.0	11.1	12.7	25.1	5.3	10.0	22.1
Population Density																					
Large MSA	5.9	13.8	39.5	4.7	4.8	11.4	—	—	1.9	—	—	3.9	7.2	15.8	30.4	6.4	12.9	24.1	3.0	9.8	19.3
Other MSA	11.2	21.2	29.5	6.3	9.1	8.3	—	—	2.2	—	—	2.9	15.4	23.7	29.5	13.8	21.0	24.6	5.5	13.7	18.8
Non-MSA	15.3	22.0	26.1	8.3	8.6	10.9	—	—	2.3	—	—	3.5	19.3	29.6	38.2	18.0	27.5	35.5	5.6	13.7	15.4
Parental Education^e																					
1.0–2.0 (Low)	7.8	18.6	25.0	4.4	10.9	4.4	—	—	2.8	—	—	2.8	19.4	26.8	25.7	16.3	22.9	17.7	8.0	17.0	15.3
2.5–3.0	12.9	19.9	22.6	10.4	7.4	7.7	—	—	2.7	—	—	4.0	21.0	26.3	33.7	19.1	23.4	28.9	7.6	15.7	19.4
3.5–4.0	13.8	20.4	28.8	11.0	8.7	9.6	—	—	2.5	—	—	3.0	19.1	26.1	33.5	17.4	22.7	29.6	7.1	14.4	18.9
4.5–5.0	11.6	19.5	44.9	4.3	8.0	12.5	—	—	1.5	—	—	4.2	10.8	19.9	31.8	10.3	17.9	26.9	3.0	11.3	17.9
5.5–6.0 (High)	6.8	19.5	38.7	4.8	6.2	14.2	—	—	2.0	—	—	2.9	8.6	17.9	31.7	8.1	15.3	27.0	2.6	8.7	20.0
Race/Ethnicity (2-year average)^f																					
White	13.3	28.2	43.3	6.7	9.4	14.2	—	—	2.6	—	—	6.6	17.0	31.5	40.9	15.5	29.3	37.1	5.9	15.8	21.5
African American	11.0	9.4	20.0	2.9	3.3	4.5	—	—	4.4	—	—	2.9	10.2	18.0	23.4	7.9	14.2	17.8	3.0	11.0	14.4
Hispanic	8.2	26.0	18.1	2.4	8.1	7.6	—	—	1.7	—	—	2.3	11.7	26.9	26.8	10.2	21.9	21.2	5.5	17.1	18.0

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	<u>Vaping Just Flavoring</u>			<u>Dissolvable Tobacco Products</u> ^{k,n}			<u>Snus</u> ^{k,n}			<u>Steroids</u> ^c			<u>Androstenedione</u> ^h			<u>Creatine</u> ^{h,k}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	7.7	10.6	11.7	0.8	0.3	1.1	1.2	1.0	2.6	0.5	0.3	0.5	—	—	0.6	3.2	6.0	7.4
Gender																		
Male	5.4	7.5	8.8	0.6	0.2	2.3	1.6	1.4	4.6	0.5	0.3	1.0	—	—	0.8	4.7	10.7	13.8
Female	9.6	13.2	14.4	1.1	0.4	0.0	0.9	0.5	0.9	0.4	0.2	0.1	—	—	0.0	1.8	1.5	2.2
College Plans																		
None or under 4 years	12.7	13.9	11.9	2.9	0.7	2.3	3.4	2.3	3.1	0.6	0.5	1.2	—	—	0.7	4.3	6.6	7.3
Complete 4 years	6.8	9.5	11.3	0.5	0.3	0.7	0.9	0.7	2.4	0.4	0.2	0.3	—	—	0.6	2.9	5.9	7.4
Region																		
Northeast	4.3	10.2	10.6	0.1	0.3	0.0	0.1	0.3	3.6	0.1	0.6	0.0	—	—	0.0	1.3	7.8	7.8
Midwest	8.6	10.9	14.9	1.0	0.2	1.6	1.0	1.1	3.6	0.7	0.1	1.3	—	—	0.4	2.2	7.6	8.9
South	9.6	12.3	11.4	1.3	0.5	1.5	2.2	1.7	2.5	0.6	0.4	0.4	—	—	1.1	5.0	5.2	6.1
West	6.4	7.7	10.2	0.3	0.2	0.5	0.9	0.5	0.8	0.3	0.1	0.5	—	—	0.4	2.8	4.3	7.5
Population Density																		
Large MSA	3.7	6.8	10.3	0.5	0.1	0.8	0.5	0.3	3.0	0.3	0.1	0.5	—	—	0.3	2.2	4.4	6.9
Other MSA	9.1	11.2	10.8	1.0	0.4	1.0	1.5	0.8	2.2	0.5	0.2	0.2	—	—	0.9	4.0	5.8	7.3
Non-MSA	11.2	15.7	16.2	0.7	0.5	1.6	1.9	2.9	2.5	0.5	0.6	1.2	—	—	0.4	2.9	9.3	8.5
Parental Education ^e																		
1.0–2.0 (Low)	12.1	14.1	9.9	0.8	0.2	1.2	0.2	0.2	0.7	0.9	0.4	0.0	—	—	2.8	2.3	1.8	3.2
2.5–3.0	12.8	12.6	13.3	1.8	0.7	0.0	0.9	1.7	1.1	0.4	0.1	0.0	—	—	0.0	2.8	4.4	6.1
3.5–4.0	11.6	12.8	14.9	1.7	0.6	1.6	3.6	1.2	2.0	0.7	0.2	1.1	—	—	0.7	4.6	6.7	10.2
4.5–5.0	5.5	8.7	10.5	0.2	*	1.2	0.5	0.9	4.1	0.4	0.3	0.8	—	—	0.3	3.3	8.5	7.4
5.5–6.0 (High)	5.0	8.5	8.6	0.5	0.1	0.6	1.0	0.6	3.9	0.4	0.2	0.3	—	—	0.2	3.2	5.6	9.5
Race/Ethnicity (2-year average) ^f																		
White	10.4	15.8	15.2	0.8	0.4	0.6	1.8	1.6	5.6	0.6	0.5	0.5	—	—	0.2	3.8	6.9	8.6
African American	7.6	9.8	10.9	0.6	2.5	2.4	0.6	2.4	2.2	0.6	0.8	1.9	—	—	1.1	2.3	2.9	3.1
Hispanic	7.7	14.7	13.6	0.0	0.6	1.0	0.9	0.6	0.0	1.1	0.2	0.5	—	—	0.1	0.3	2.3	5.5

(Table continued on next page.)

TABLE 4-6 (cont.)
Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	Legal Use of Over-the-Counter Stimulants					
	Diet Pills ⁿ			Stay-Awake Pills ⁿ		
	8th	10th	12th	8th	10th	12th
Total	—	—	2.5	—	—	1.5
Gender						
Male	—	—	1.6	—	—	0.4
Female	—	—	3.4	—	—	2.0
College Plans						
None or under 4 years	—	—	2.0	—	—	2.6
Complete 4 years	—	—	2.7	—	—	0.8
Region						
Northeast	—	—	3.6	—	—	1.6
Midwest	—	—	3.3	—	—	2.5
South	—	—	1.5	—	—	0.7
West	—	—	2.6	—	—	1.8
Population Density						
Large MSA	—	—	4.0	—	—	1.5
Other MSA	—	—	2.0	—	—	1.8
Non-MSA	—	—	1.1	—	—	0.9
Parental Education ^e						
1.0–2.0 (Low)	—	—	1.8	—	—	2.0
2.5–3.0	—	—	0.5	—	—	0.5
3.5–4.0	—	—	2.6	—	—	0.3
4.5–5.0	—	—	3.1	—	—	1.7
5.5–6.0 (High)	—	—	4.7	—	—	1.8
Race/Ethnicity (2-year average) ^f						
White	—	—	1.7	—	—	1.0
African American	—	—	1.4	—	—	1.6
Hispanic	—	—	1.3	—	—	0.9

Source. The Monitoring the Future study, the University of Michigan.
See footnotes following Table 4-8.

TABLE 4-7
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<i>Approximate Weighted N</i> ^a			<i>Any Illicit Drug</i> ^{b,v}			<i>Any Illicit Drug other than Marijuana</i> ^b			<i>Marijuana</i> ^v			<i>Inhalants</i> ^c			<i>Hallucinogens</i> ^{d,p}			<i>LSD</i> ^p		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	10,700	11,000	8,300	5.9	10.9	20.6	2.4	2.5	2.9	4.1	10.1	19.5	1.8	0.9	0.7	0.4	0.8	1.0	0.2	0.4	0.5
Gender																					
Male	5,100	5,300	3,600	4.2	10.1	18.6	1.6	1.7	2.9	2.7	9.7	17.5	1.4	0.5	0.6	0.3	0.9	1.2	0.2	0.4	0.6
Female	4,800	5,000	4,100	6.7	10.6	21.4	2.8	2.5	2.4	4.9	9.4	20.6	1.9	1.0	0.6	0.3	0.6	0.6	0.2	0.2	0.2
College Plans																					
None or under 4 years	1,500	1,900	1,900	9.9	19.8	23.1	4.2	4.1	3.4	7.2	18.4	22.1	2.2	1.9	0.8	0.6	1.5	1.7	0.4	0.8	1.0
Complete 4 years	8,800	8,700	5,900	5.1	8.6	19.1	2.0	2.0	2.3	3.4	7.9	18.0	1.7	0.6	0.5	0.3	0.6	0.6	0.2	0.2	0.3
Region																					
Northeast	1,800	1,900	1,500	5.2	14.3	23.1	1.4	2.5	2.7	4.3	12.8	22.0	1.8	1.1	0.6	0.1	0.7	1.0	0.0	0.2	0.4
Midwest	2,300	2,400	1,700	7.2	10.3	21.4	2.5	2.0	2.8	5.4	9.9	20.1	1.3	0.9	0.5	0.3	0.7	1.3	0.3	0.3	0.8
South	4,100	4,100	3,100	5.3	11.2	15.8	2.8	2.7	3.2	3.2	10.2	14.4	2.0	1.1	0.9	0.4	0.7	0.9	0.3	0.4	0.4
West	2,500	2,600	2,000	6.2	8.7	25.4	2.2	2.5	2.6	4.1	8.1	24.8	2.0	0.4	0.5	0.5	0.9	0.8	0.2	0.5	0.6
Population Density																					
Large MSA	3,600	3,800	2,800	5.0	8.6	22.3	1.9	2.4	2.9	3.4	7.6	21.2	1.1	0.9	0.5	0.2	0.7	1.2	0.2	0.3	0.7
Other MSA	5,000	5,000	3,800	6.5	11.2	20.5	2.7	2.4	2.9	4.6	10.6	19.4	2.3	0.9	0.6	0.5	0.8	0.7	0.3	0.4	0.4
Non-MSA	2,100	2,200	1,700	6.0	14.4	17.8	2.4	2.9	2.7	4.0	13.0	16.8	1.9	0.9	1.2	0.4	0.9	1.1	0.1	0.4	0.6
Parental Education ^e																					
1.0–2.0 (Low)	600	800	900	10.9	16.8	17.3	4.3	3.6	3.1	7.3	16.3	15.8	1.0	1.1	1.1	1.0	1.7	1.2	0.4	0.7	1.0
2.5–3.0	1,300	1,600	1,600	7.9	12.5	22.9	2.3	3.0	1.5	6.9	12.0	22.6	2.7	1.3	0.4	0.6	0.8	0.7	0.4	0.4	0.3
3.5–4.0	1,900	2,300	1,900	6.7	12.2	22.5	3.1	3.2	3.4	5.0	11.1	21.4	2.0	1.0	0.7	0.3	0.9	0.9	0.1	0.3	0.4
4.5–5.0	2,900	3,100	2,100	4.9	10.4	17.9	1.9	2.0	2.4	2.9	9.6	16.9	1.4	0.6	0.6	0.2	0.5	0.7	0.2	0.1	0.4
5.5–6.0 (High)	2,300	1,900	1,200	4.5	7.3	21.1	2.0	1.4	3.4	2.4	6.9	19.4	1.7	1.0	0.7	0.1	0.5	1.1	0.1	0.3	0.4
Race/Ethnicity (2-year average) ^f																					
White	11,600	10,900	8,400	6.5	14.1	19.7	2.9	2.7	3.1	4.3	12.9	18.7	2.6	0.9	0.7	0.4	0.9	0.8	0.3	0.7	0.5
African American	2,200	2,600	1,700	7.1	19.5	25.7	2.3	3.0	3.9	5.5	16.9	23.7	1.8	1.4	0.5	0.4	1.0	1.8	0.2	0.4	1.2
Hispanic	2,700	4,000	3,500	6.6	16.5	18.8	2.4	3.4	3.6	4.2	15.2	18.1	1.4	0.3	0.2	1.0	1.0	2.0	0.9	0.7	1.7

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Hallucinogens other than LSD ^p			Ecstasy (MDMA) ^{c,r}			Cocaine			Crack			Cocaine other than Crack ⁱ			Heroin, Any Use ^s			Heroin with a Needle ^{c,s}		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.2	0.6	0.8	0.2	0.1	0.2	0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.3	0.1	0.1	0.1	0.1	*	0.1	0.1
Gender																					
Male	0.2	0.7	1.1	0.3	0.1	0.3	0.1	0.3	0.3	0.1	0.2	0.4	*	0.2	0.1	*	*	0.1	*	*	0.1
Female	0.2	0.4	0.4	*	0.1	0.0	*	0.1	0.2	*	0.1	0.1	*	0.1	*	0.1	0.1	*	*	0.1	0.0
College Plans																					
None or under 4 years	0.2	1.0	1.4	0.5	0.1	0.2	0.1	0.5	0.6	0.1	0.1	0.8	0.1	0.5	0.1	0.2	0.2	0.1	0.2	0.2	0.2
Complete 4 years	0.2	0.4	0.5	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	*	*	0.1	*	*	0.1	*
Region																					
Northeast	0.1	0.6	0.8	0.0	0.1	0.4	0.0	0.6	0.1	0.0	0.2	0.1	0.0	0.6	0.1	0.0	*	0.1	0.0	*	0.1
Midwest	0.2	0.5	1.0	0.4	*	0.1	0.1	*	0.4	*	0.0	0.3	0.1	*	0.2	*	0.1	*	0.0	0.1	*
South	0.3	0.6	0.8	0.2	0.1	0.2	0.2	0.5	0.5	0.1	0.4	0.6	0.1	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1
West	0.4	0.7	0.7	0.4	0.2	0.0	0.1	0.2	0.3	*	0.1	0.2	0.1	0.1	0.2	*	0.2	0.1	0.0	0.2	0.1
Population Density																					
Large MSA	0.1	0.5	1.0	0.2	0.1	0.2	0.1	0.3	0.2	0.1	0.1	0.2	0.1	0.2	*	*	0.2	0.1	*	0.2	0.1
Other MSA	0.4	0.6	0.7	0.3	0.1	0.1	0.1	0.3	0.4	0.1	0.2	0.4	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Non-MSA	0.3	0.7	0.7	0.1	0.1	0.1	0.1	0.4	0.5	0.1	0.3	0.4	0.1	0.2	0.2	*	0.1	0.1	0.0	0.1	0.1
Parental Education ^e																					
1.0–2.0 (Low)	0.7	1.5	0.9	0.5	0.3	0.2	0.3	0.4	0.2	0.1	0.4	0.7	0.3	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2.5–3.0	0.1	0.6	0.5	0.1	*	0.0	0.1	0.5	0.2	0.1	0.1	0.1	0.1	0.4	*	0.0	*	0.0	0.0	*	0.0
3.5–4.0	0.2	0.6	0.9	0.1	*	0.1	*	0.3	0.4	0.0	0.2	0.5	*	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.2
4.5–5.0	0.2	0.5	0.6	0.2	0.1	0.1	0.1	*	0.4	*	0.0	0.3	0.1	*	0.1	*	0.1	*	0.0	0.1	*
5.5–6.0 (High)	0.1	0.3	0.9	0.3	0.3	0.5	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.3	*	0.1	0.3	0.2	0.1	0.3	0.3
Race/Ethnicity (2-year average) ^f																					
White	0.4	0.5	0.6	0.2	0.1	0.4	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	*	0.1	0.1	*
African American	0.3	0.8	1.2	0.2	0.7	0.3	*	0.2	0.8	*	0.2	0.8	0.0	0.1	0.7	0.7	0.1	0.6	0.6	0.1	0.1
Hispanic	0.3	0.5	0.6	0.5	0.1	0.4	0.1	0.5	0.5	0.1	0.2	0.3	0.1	0.5	0.4	0.1	0.2	0.2	0.1	0.2	0.1

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Heroin without a Needle ^{c,s}			Narcotics other than Heroin ^j			Amphetamines ^j			Methamphetamine ^{h,k}			Crystal Methamphetamine (Ice) ^h			Sedatives (Barbiturates) ^j			Tranquilizers ^j		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	*	*	0.1	—	—	0.3	1.7	1.4	1.0	*	0.1	0.1	—	—	0.2	—	—	0.9	0.4	0.5	0.4
Gender																					
Male	*	*	0.1	—	—	0.2	1.2	0.8	1.1	*	0.0	0.1	—	—	0.3	—	—	0.7	0.2	0.2	0.4
Female	*	0.1	0.0	—	—	0.4	2.0	1.4	0.6	0.0	0.1	0.1	—	—	0.0	—	—	1.0	0.6	0.7	0.4
College Plans																					
None or under 4 years	0.1	0.2	0.2	—	—	0.5	3.1	2.3	1.5	0.0	0.2	0.2	—	—	0.4	—	—	0.9	0.9	0.6	0.6
Complete 4 years	*	*	0.0	—	—	0.2	1.5	1.1	0.8	*	*	0.1	—	—	0.1	—	—	0.8	0.3	0.5	0.3
Region																					
Northeast	0.0	*	0.0	—	—	0.4	0.9	1.8	0.8	0.0	0.0	0.1	—	—	0.0	—	—	0.6	0.5	0.4	0.3
Midwest	*	0.0	0.0	—	—	0.3	1.8	1.1	1.3	0.0	0.1	0.0	—	—	0.0	—	—	0.4	0.5	0.2	0.1
South	0.1	*	0.1	—	—	0.5	2.0	1.3	1.3	*	*	0.1	—	—	0.4	—	—	1.0	0.4	0.7	0.6
West	*	0.1	0.1	—	—	0.1	1.7	1.3	0.4	0.0	0.2	0.3	—	—	0.0	—	—	1.3	0.4	0.6	0.4
Population Density																					
Large MSA	0.0	0.1	0.1	—	—	0.3	1.5	1.5	1.0	0.0	0.2	0.1	—	—	0.1	—	—	0.8	0.2	0.4	0.6
Other MSA	0.1	0.0	0.1	—	—	0.5	1.8	1.3	1.2	*	*	0.1	—	—	0.3	—	—	1.0	0.6	0.6	0.3
Non-MSA	*	0.1	0.0	—	—	*	1.7	1.4	0.7	0.0	0.1	0.2	—	—	0.0	—	—	0.6	0.2	0.5	0.2
Parental Education ^e																					
1.0–2.0 (Low)	0.3	0.0	0.0	—	—	0.5	2.6	1.7	0.5	0.3	0.0	0.0	—	—	0.0	—	—	0.9	0.8	0.3	0.5
2.5–3.0	0.0	0.0	0.0	—	—	0.2	1.7	1.7	0.5	0.0	0.1	0.1	—	—	0.0	—	—	0.3	0.2	0.9	0.1
3.5–4.0	0.0	0.0	0.2	—	—	0.2	2.3	1.8	1.5	0.0	0.1	0.2	—	—	0.4	—	—	1.3	0.7	0.6	0.5
4.5–5.0	*	0.1	0.0	—	—	0.3	1.3	1.1	1.1	0.0	*	0.0	—	—	0.1	—	—	0.8	0.4	0.5	0.3
5.5–6.0 (High)	0.0	0.1	0.2	—	—	0.5	1.6	0.7	0.8	0.0	0.0	0.3	—	—	0.0	—	—	1.0	0.3	0.3	0.5
Race/Ethnicity (2-year average) ^f																					
White	0.1	*	0.0	—	—	0.4	2.0	1.5	1.5	0.1	*	0.2	—	—	*	—	—	0.8	0.9	0.5	*
African American	0.6	0.1	0.1	—	—	0.6	1.4	1.6	1.3	0.0	0.4	0.9	—	—	0.5	—	—	1.8	0.0	0.7	0.5
Hispanic	0.0	*	0.1	—	—	0.4	1.1	1.4	0.9	0.1	0.0	0.5	—	—	*	—	—	0.7	0.3	0.6	0.6

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Any Prescription Drug</u> ^l			<u>Rohypnol</u> ^m			<u>Alcohol</u>			<u>Been Drunk</u> ^h			<u>Flavored Alcoholic Beverages</u> ^{k,n}			<u>Cigarettes</u>			<u>Any Vaping</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	—	—	2.1	0.1	0.1	—	7.3	13.1	25.8	2.0	5.4	15.5	4.6	7.8	15.3	1.1	1.8	4.1	8.9	15.6	24.0
Gender																					
Male	—	—	1.9	0.0	0.1	—	5.9	11.2	23.1	1.3	4.5	15.6	3.7	5.7	12.1	0.9	1.7	3.3	6.9	12.9	22.2
Female	—	—	1.9	0.0	0.1	—	8.5	14.4	28.6	2.4	6.0	15.8	5.4	9.9	19.5	1.1	1.2	4.5	10.1	17.3	25.3
College Plans																					
None or under 4 years	—	—	2.2	0.4	0.4	—	9.6	16.0	21.8	3.0	6.9	13.9	5.9	8.1	9.3	3.2	4.4	6.3	15.6	24.3	27.2
Complete 4 years	—	—	1.8	0.0	*	—	6.7	12.2	27.0	1.8	5.0	15.5	4.2	7.7	17.2	0.7	1.0	2.9	7.6	13.4	22.4
Region																					
Northeast	—	—	1.8	0.0	0.0	—	4.8	16.4	35.8	1.1	6.2	26.1	3.7	10.1	25.9	0.6	1.3	3.3	4.9	15.5	27.2
Midwest	—	—	1.8	0.0	0.0	—	8.3	14.0	26.5	2.6	6.4	17.3	6.3	8.2	13.3	1.5	2.3	2.9	9.6	16.6	24.0
South	—	—	2.5	0.1	0.3	—	7.7	13.5	21.6	1.9	5.7	9.7	4.2	7.5	11.7	1.0	1.9	3.3	10.8	17.7	21.5
West	—	—	1.8	0.0	0.0	—	7.7	9.1	24.3	2.3	3.5	14.3	4.3	6.1	15.1	1.3	1.6	6.9	8.0	11.3	25.5
Population Density																					
Large MSA	—	—	2.0	0.0	0.0	—	5.0	9.7	31.7	1.1	3.8	22.3	2.4	5.2	20.0	0.5	1.2	3.5	4.5	10.8	23.1
Other MSA	—	—	2.4	0.1	0.2	—	8.2	14.6	21.2	2.2	5.9	10.8	5.2	9.5	12.1	1.4	1.9	3.9	10.1	16.4	22.2
Non-MSA	—	—	1.4	0.0	0.1	—	9.2	15.4	26.7	3.1	7.1	14.9	6.8	8.6	14.8	1.6	2.6	5.8	13.4	21.8	29.8
Parental Education ^e																					
1.0–2.0 (Low)	—	—	1.8	0.0	0.0	—	4.7	14.8	18.3	2.2	7.2	7.5	2.0	11.2	13.0	2.6	2.4	3.0	15.6	19.7	20.3
2.5–3.0	—	—	0.9	0.0	0.0	—	9.2	13.4	21.0	2.8	5.4	11.6	6.0	7.0	10.6	1.6	2.2	6.0	13.6	18.8	26.4
3.5–4.0	—	—	2.8	0.0	0.4	—	10.9	12.3	25.1	2.4	4.7	11.2	6.3	6.4	11.7	2.1	1.8	5.4	12.2	17.7	25.6
4.5–5.0	—	—	1.9	0.0	0.0	—	7.0	13.2	31.3	2.0	5.7	18.8	4.9	7.1	20.3	0.7	1.4	2.2	7.0	13.7	22.9
5.5–6.0 (High)	—	—	2.5	0.2	0.0	—	5.8	14.7	32.0	1.7	6.2	27.9	3.1	11.8	21.7	0.6	0.9	3.0	5.7	12.5	24.3
Race/Ethnicity (2-year average) ^f																					
White	—	—	2.6	0.5	*	—	9.2	19.8	35.3	3.0	9.1	23.4	5.7	11.2	19.7	1.8	2.9	5.9	11.2	21.3	30.4
African American	—	—	2.8	0.0	0.0	—	6.9	9.1	18.2	1.7	3.9	7.0	4.8	7.6	9.6	0.9	1.4	3.0	6.6	12.5	16.3
Hispanic	—	—	1.9	0.2	0.2	—	6.2	15.1	21.8	2.3	5.4	9.1	3.3	8.8	10.8	0.3	1.1	3.8	9.0	18.1	20.2

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<u>Vaping Nicotine</u>			<u>Vaping Marijuana</u>			<u>Vaping Just Flavoring</u>			<u>Large Cigars^{h,q}</u>			<u>Flavored Little Cigars^{h,q}</u>			<u>Regular Little Cigars^{h,q}</u>			<u>Tobacco Using a Hookah^{h,k}</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	7.6	13.1	19.6	2.9	8.4	12.4	4.6	6.3	7.4	1.1	1.3	2.3	1.0	1.5	1.9	0.8	1.2	1.8	1.1	0.7	1.0
Gender																					
Male	5.9	10.5	18.6	2.0	7.1	10.8	2.9	4.4	5.5	1.3	1.9	3.7	1.2	1.9	2.7	1.2	1.3	2.4	0.7	0.6	1.0
Female	8.6	14.8	20.4	3.5	9.0	13.7	5.9	8.0	9.2	0.4	0.7	1.0	0.5	0.9	1.2	0.3	0.7	1.1	1.0	0.7	0.8
College Plans																					
None or under 4 years	13.4	21.0	23.7	5.3	13.6	13.4	8.2	10.0	7.7	2.4	3.3	3.1	2.1	3.7	2.5	1.6	4.1	1.9	1.9	2.1	0.9
Complete 4 years	6.4	11.2	17.9	2.3	7.2	11.7	4.0	5.3	7.0	0.9	0.9	2.2	0.8	1.1	1.9	0.7	0.6	1.9	0.9	0.4	1.1
Region																					
Northeast	4.1	13.0	21.5	2.2	9.8	15.3	2.1	6.1	6.3	0.6	2.8	3.4	0.7	2.6	2.3	0.3	0.6	2.9	0.5	0.1	0.6
Midwest	8.0	14.7	21.2	3.6	7.9	11.5	5.2	5.7	8.3	1.4	1.8	0.5	1.5	1.6	1.5	1.5	1.8	1.2	1.6	0.8	1.0
South	9.2	15.2	18.5	2.8	9.0	9.1	6.0	7.8	7.9	0.7	0.9	3.4	0.8	1.5	3.0	0.6	1.6	2.2	1.1	1.1	1.5
West	7.1	8.6	18.5	3.1	6.9	16.2	3.6	4.7	6.6	1.7	0.6	0.9	1.0	0.7	0.1	0.9	0.3	0.8	1.1	0.5	0.5
Population Density																					
Large MSA	3.5	8.2	17.6	1.7	6.8	12.8	2.1	3.9	6.3	0.4	1.0	2.9	0.7	0.6	3.0	0.6	0.9	2.9	0.4	0.5	1.4
Other MSA	8.7	14.1	17.6	3.5	9.2	12.9	5.3	6.6	6.3	1.4	1.5	1.1	1.0	1.7	1.3	1.0	1.0	1.0	1.4	0.9	0.4
Non-MSA	11.9	19.4	27.7	3.6	9.4	10.5	7.4	9.8	11.9	1.5	1.6	3.9	1.4	2.6	1.8	0.8	2.2	1.8	1.4	0.8	1.7
Parental Education^e																					
1.0–2.0 (Low)	12.6	16.6	12.5	6.2	12.2	12.2	9.7	11.0	7.9	1.9	2.3	7.0	0.4	1.9	3.3	0.6	1.3	2.4	1.2	1.0	1.6
2.5–3.0	11.6	16.2	22.6	4.8	11.1	14.5	7.6	7.8	8.4	2.7	0.8	0.4	2.9	1.0	1.2	1.7	0.6	1.2	2.5	0.8	1.0
3.5–4.0	10.7	14.7	22.2	3.9	9.7	12.9	6.1	7.3	9.4	1.5	0.7	1.1	0.8	1.1	2.1	1.1	1.3	1.6	1.4	0.4	0.6
4.5–5.0	6.2	11.6	18.9	1.9	7.2	10.6	3.5	4.6	6.2	0.4	2.3	2.8	0.8	2.5	1.3	0.8	1.4	1.9	0.7	0.9	1.3
5.5–6.0 (High)	4.9	10.2	19.1	1.8	5.8	13.1	3.0	4.8	5.2	1.1	0.6	4.3	0.8	0.3	3.2	0.5	0.4	3.0	0.7	0.4	1.0
Race/Ethnicity (2-year average)^f																					
White	9.78	18.76	27.09	2.9	9.7	12.7	5.9	8.6	7.9	0.8	1.5	2.9	1.3	2.6	2.1	0.7	1.9	1.8	0.4	0.4	1.4
African American	4.69	9.47	12.78	1.7	6.5	7.7	3.1	6.2	5.9	1.9	1.4	1.1	1.4	3.0	3.1	1.8	2.0	3.1	0.4	0.6	1.5
Hispanic	6.86	12.9	15.09	3.7	10.5	12.3	5.3	8.5	8.9	0.3	0.3	0.6	2.5	1.2	1.8	0.7	1.5	1.1	1.9	1.3	1.2

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	Any Nicotine Use ^{k,n}			Any Nicotine Use other than Vaping ^{k,n}			Smokeless Tobacco ^{g,n}			Steroids ^c			Legal Use of Over-the-Counter Stimulants					
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	Diet Pills ⁿ			Stay-Awake Pills ⁿ		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	9.4	15.7	24.6	3.2	4.2	7.7	1.6	1.7	2.2	0.2	0.1	0.5	—	—	1.1	—	—	0.5
Gender																		
Male	8.4	14.1	22.6	3.5	4.8	7.8	2.1	2.4	3.6	0.2	0.2	0.8	—	—	0.8	—	—	0.2
Female	8.6	15.7	25.5	2.1	3.0	6.5	1.3	0.8	0.7	0.1	0.1	0.1	—	—	1.2	—	—	0.2
College Plans																		
None or under 4 years	17.1	26.2	26.5	7.0	8.9	9.6	5.1	4.7	2.9	0.2	0.3	1.0	—	—	0.8	—	—	0.6
Complete 4 years	7.8	12.6	21.8	2.3	2.9	6.6	0.9	1.0	2.0	0.1	0.1	0.3	—	—	1.1	—	—	0.1
Region																		
Northeast	5.6	15.7	29.5	1.8	4.9	6.6	0.3	0.9	2.1	0.0	0.2	0.0	—	—	1.7	—	—	0.3
Midwest	10.5	18.7	28.5	4.3	4.8	7.5	2.4	1.3	1.7	0.1	0.1	1.0	—	—	1.1	—	—	1.1
South	11.0	17.4	24.9	2.8	4.3	7.9	2.3	2.8	3.1	0.3	0.2	0.4	—	—	1.0	—	—	0.5
West	8.6	9.9	15.8	3.9	2.9	8.5	0.9	0.9	1.4	0.1	0.1	0.5	—	—	0.9	—	—	0.1
Population Density																		
Large MSA	4.9	9.6	20.5	2.1	2.2	7.8	1.1	1.0	2.2	0.1	0.1	0.5	—	—	1.8	—	—	0.8
Other MSA	10.6	16.5	22.7	3.8	4.5	5.9	1.5	1.6	1.8	0.2	0.1	0.2	—	—	1.0	—	—	0.4
Non-MSA	14.3	24.1	34.9	3.6	6.9	11.4	2.7	3.1	3.1	0.1	0.3	0.9	—	—	0.2	—	—	0.2
Parental Education^e																		
1.0–2.0 (Low)	14.6	21.5	24.9	6.2	5.7	14.6	3.2	3.6	0.4	0.0	0.2	0.0	—	—	1.8	—	—	0.5
2.5–3.0	14.3	18.1	20.4	5.9	4.3	4.5	1.4	2.3	2.4	0.1	0.1	0.0	—	—	0.4	—	—	0.5
3.5–4.0	11.8	15.7	27.7	3.8	3.4	7.7	2.7	1.4	2.9	0.3	0.2	1.1	—	—	0.0	—	—	0.1
4.5–5.0	8.7	15.9	25.0	2.6	5.4	5.6	1.4	1.1	2.9	0.2	0.1	0.5	—	—	1.4	—	—	0.1
5.5–6.0 (High)	5.7	9.9	23.1	2.1	1.9	9.4	1.4	1.7	1.2	0.1	0.1	0.3	—	—	2.4	—	—	0.0
Race/Ethnicity (2-year average)^f																		
White	11.1	20.4	31.1	4.6	6.6	10.1	2.6	3.0	6.3	0.4	0.3	0.3	—	—	0.4	—	—	0.2
African American	10.6	11.0	20.6	7.1	3.8	11.3	1.3	3.0	1.3	0.2	0.2	1.9	—	—	0.6	—	—	0.8
Hispanic	11.1	16.0	12.1	5.4	3.6	3.5	0.4	0.6	6.2	*	0.1	0.6	—	—	0.8	—	—	0.6

(Table continued on next page.)

TABLE 4-7 (cont.)
Thirty-Day Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021
(Entries are percentages.)

	Current, Legal Use of Prescription ADHD Drugs ¹								
	Stimulant-Type ^h			Non-Stimulant-Type ^h			Either Type ^h		
	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	4.2	3.6	3.4	0.9	1.5	2.3	5.5	4.8	5.2
Gender									
Male	5.3	3.2	3.0	0.9	1.4	1.3	6.8	4.3	4.2
Female	2.5	3.8	3.5	0.7	1.5	2.9	3.4	5.0	5.5
College Plans									
None or under 4 years	6.1	5.1	2.2	1.0	2.9	1.7	7.8	7.1	3.8
Complete 4 years	4.0	3.3	3.7	0.8	1.3	2.5	5.1	4.4	5.5
Region									
Northeast	4.0	4.5	3.4	0.5	2.7	2.8	5.0	7.0	5.9
Midwest	5.4	4.0	3.2	0.4	1.2	1.4	6.3	5.3	4.8
South	3.5	3.3	3.0	1.6	1.1	1.6	5.1	4.3	4.6
West	4.5	2.9	4.6	0.6	1.5	4.0	5.7	3.6	6.0
Population Density									
Large MSA	3.9	3.6	2.7	0.2	1.1	2.3	4.7	4.6	4.9
Other MSA	5.0	3.8	3.6	1.4	2.1	2.4	6.6	5.3	5.0
Non-MSA	3.2	2.9	4.2	0.9	1.0	2.2	4.3	4.1	6.0
Parental Education ^e									
1.0–2.0 (Low)	3.2	2.0	2.2	0.4	0.6	0.3	3.5	2.1	2.6
2.5–3.0	4.6	3.5	2.7	0.2	2.0	0.6	5.3	5.0	3.5
3.5–4.0	5.2	3.4	1.8	1.3	1.0	1.5	7.0	4.2	2.9
4.5–5.0	3.8	3.5	6.6	0.9	1.7	4.9	5.1	5.2	9.6
5.5–6.0 (High)	4.6	4.7	3.7	1.0	2.3	3.3	5.8	6.0	6.8
Race/Ethnicity (2-year average) ^f									
White	3.8	4.1	4.6	2.2	1.5	3.7	5.1	5.9	7.2
African American	1.3	0.9	2.4	0.9	1.0	0.7	0.8	2.3	3.1
Hispanic	1.8	1.3	0.7	0.8	1.4	0.5	2.1	0.7	1.3

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 4-8.

TABLE 4-8
Thirty-Day Prevalence of Daily Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	<i>Approximate Weighted N</i> ^a			Marijuana						Alcohol								
				Used Daily in Past 30 Days ^v			Ever Used Daily for Month or More in Lifetime ⁿ			Daily			5+ Drinks ^o			Been Drunk ^h		
				8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	10,700	11,000	8,300	0.6	3.2	5.8	—	—	5.4	0.3	0.4	0.9	2.8	5.9	11.8	0.1	0.1	0.4
Gender																		
Male	5,100	5,300	3,600	0.6	3.2	6.0	—	—	4.9	0.3	0.5	1.1	2.0	5.4	11.1	0.1	0.1	0.5
Female	4,800	5,000	4,100	0.7	2.7	5.3	—	—	5.8	0.1	0.3	0.6	3.2	5.9	12.6	*	0.1	0.3
College Plans																		
None or under 4 years	1,500	1,900	1,900	1.8	8.0	8.8	—	—	8.9	0.4	0.9	1.2	4.7	9.2	11.3	0.3	0.4	0.7
Complete 4 years	8,800	8,700	5,900	0.4	2.0	4.4	—	—	4.2	0.2	0.3	0.7	2.3	4.9	11.8	*	0.1	0.1
Region																		
Northeast	1,800	1,900	1,500	1.0	4.0	5.5	—	—	4.9	0.0	0.6	0.9	1.2	6.5	16.4	0.0	0.2	0.5
Midwest	2,300	2,400	1,700	0.9	2.1	6.2	—	—	5.4	0.3	0.3	1.1	3.6	6.7	12.7	0.1	0.0	0.2
South	4,100	4,100	3,100	0.4	3.1	4.3	—	—	5.5	0.2	0.5	1.1	2.7	6.5	9.6	0.1	0.2	0.3
West	2,500	2,600	2,000	0.6	3.6	7.9	—	—	5.7	0.6	0.4	0.6	3.1	3.8	10.9	0.1	0.1	0.7
Population Density																		
Large MSA	3,600	3,800	2,800	0.3	2.3	5.9	—	—	3.9	0.2	0.2	1.3	1.6	4.3	14.3	0.1	0.1	0.7
Other MSA	5,000	5,000	3,800	0.9	3.5	6.1	—	—	4.8	0.2	0.5	0.6	2.9	6.2	9.7	0.1	0.1	*
Non-MSA	2,100	2,200	1,700	0.7	3.8	4.9	—	—	9.5	0.5	0.8	1.1	4.4	7.9	12.4	0.1	0.2	0.7
Parental Education ^e																		
1.0–2.0 (Low)	600	800	900	2.3	5.6	6.4	—	—	3.4	0.7	1.3	0.9	2.8	9.8	8.4	0.1	0.4	0.2
2.5–3.0	1,300	1,600	1,600	0.8	5.3	7.7	—	—	7.5	0.4	0.4	0.6	3.2	6.4	10.2	0.1	0.0	0.4
3.5–4.0	1,900	2,300	1,900	0.9	3.1	6.6	—	—	7.3	0.1	0.3	0.9	4.2	5.2	12.0	0.1	*	0.6
4.5–5.0	2,900	3,100	2,100	0.5	2.8	4.1	—	—	3.3	0.1	0.3	1.1	2.3	5.5	13.9	*	0.2	0.4
5.5–6.0 (High)	2,300	1,900	1,200	0.1	1.2	3.8	—	—	4.5	0.4	0.3	0.9	2.3	5.6	14.5	0.0	0.1	0.0
Race/Ethnicity (2-year average) ^f																		
White	11,600	10,900	8,400	1.0	3.4	5.7	—	—	7.3	0.4	0.5	1.3	3.6	9.0	17.2	0.2	0.2	0.3
African American	2,200	2,600	1,700	0.8	6.3	7.1	—	—	1.5	0.1	0.3	0.3	3.4	4.8	5.8	0.1	0.2	1.0
Hispanic	2,700	4,000	3,500	0.3	2.9	5.4	—	—	2.2	0.2	1.3	2.7	2.4	7.6	9.8	0.1	0.2	1.5

(Table continued on next page.)

TABLE 4-8 (cont.)
Thirty-Day Prevalence of Daily Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2021

(Entries are percentages.)

	Cigarettes						Smokeless Tobacco ^{g,n}		
	One or More Daily			Half Pack or More Daily			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.4	0.8	2.0	0.2	0.3	0.8	0.4	0.4	0.7
Gender									
Male	0.3	0.7	1.2	0.2	0.2	0.5	0.5	0.5	1.2
Female	0.3	0.4	2.4	*	0.1	0.8	0.4	0.1	0.3
College Plans									
None or under 4 years	1.3	1.8	3.6	0.4	0.8	1.9	1.4	1.6	1.2
Complete 4 years	0.1	0.4	1.0	*	0.1	0.3	0.2	0.1	0.4
Region									
Northeast	0.2	0.7	1.3	0.2	0.5	0.2	0.0	0.1	0.6
Midwest	0.4	1.1	1.3	0.1	0.4	0.9	0.5	0.4	1.0
South	0.3	0.7	1.4	0.2	0.4	0.9	0.6	0.5	0.5
West	0.5	0.6	4.1	0.1	0.1	1.0	0.4	0.2	0.7
Population Density									
Large MSA	0.1	0.5	1.2	0.1	0.4	0.6	0.6	0.2	0.8
Other MSA	0.5	0.6	2.4	0.1	0.2	0.7	0.4	0.3	0.4
Non-MSA	0.5	1.5	2.3	0.2	0.6	1.4	0.2	0.8	0.9
Parental Education ^e									
1.0–2.0 (Low)	1.4	0.7	2.2	0.7	0.3	1.4	1.0	0.3	0.4
2.5–3.0	0.5	0.8	2.8	0.3	0.1	0.6	0.1	0.8	1.3
3.5–4.0	0.6	0.9	3.1	0.1	0.3	1.2	0.9	0.2	0.2
4.5–5.0	0.1	0.5	0.8	*	0.2	0.3	0.3	0.2	0.6
5.5–6.0 (High)	0.1	0.3	0.5	0.0	0.1	0.1	0.5	0.2	0.8
Race/Ethnicity (2-year average) ^f									
White	0.6	0.9	2.5	0.1	0.4	0.8	0.6	0.9	3.0
African American	0.5	1.0	1.6	0.2	0.5	0.7	0.5	0.3	0.0
Hispanic	0.1	0.3	1.6	*	0.1	1.0	0.0	0.1	0.2

Source. The Monitoring the Future study, the University of Michigan.

See footnotes on the following page.

Footnotes for Tables 4-5 through 4-8

Notes. ' — ' indicates data not available. ' * ' indicates less than 0.05% but greater than 0%.

^aSubgroup *N*s may vary depending on the number of forms in which the use of each drug was asked about.

^bUse of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders, the use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

^c12th grade only: Data based on three of six forms; *N* is three sixths of *N* indicated.

^dUnadjusted for known underreporting of certain drugs. See text for details.

^eParental education is an average score of mother's education and father's education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

^fTo derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. See appendix B for details on how race/ethnicity is defined.

^g8th and 10th grades only: Data based on two of four forms; *N* is one half of *N* indicated.

^h12th grade only: Data based on two of six forms; *N* is two sixths of *N* indicated.

ⁱ12th grade only: Data based on four of six forms; *N* is four sixths of *N* indicated.

^jOnly drug use not under a doctor's orders is included here.

^k8th and 10th grades only: Data based on one of four forms; *N* is one third of *N* indicated.

^lThe use of any prescription drug includes use of any of the following: amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers ...without a doctor telling you to use them.

^m8th and 10th grades only: Data based on one of four forms; *N* is one sixth of *N* indicated.

ⁿ12th grade only: Data based on one of six forms; *N* is one sixth of *N* indicated.

^oThis measure refers to having five or more drinks in a row in the last two weeks.

^p12th grade only: Data based on five of six forms; *N* is five sixths of *N* indicated.

^q8th and 10th grades only: Data based on two of four forms; *N* is one third of *N* indicated.

^r8th and 10th grades only: Data based on three of four forms; *N* is five sixths of *N* indicated.

^s8th and 10th grades only: Data based on three of four forms; *N* is four sixths of *N* indicated.

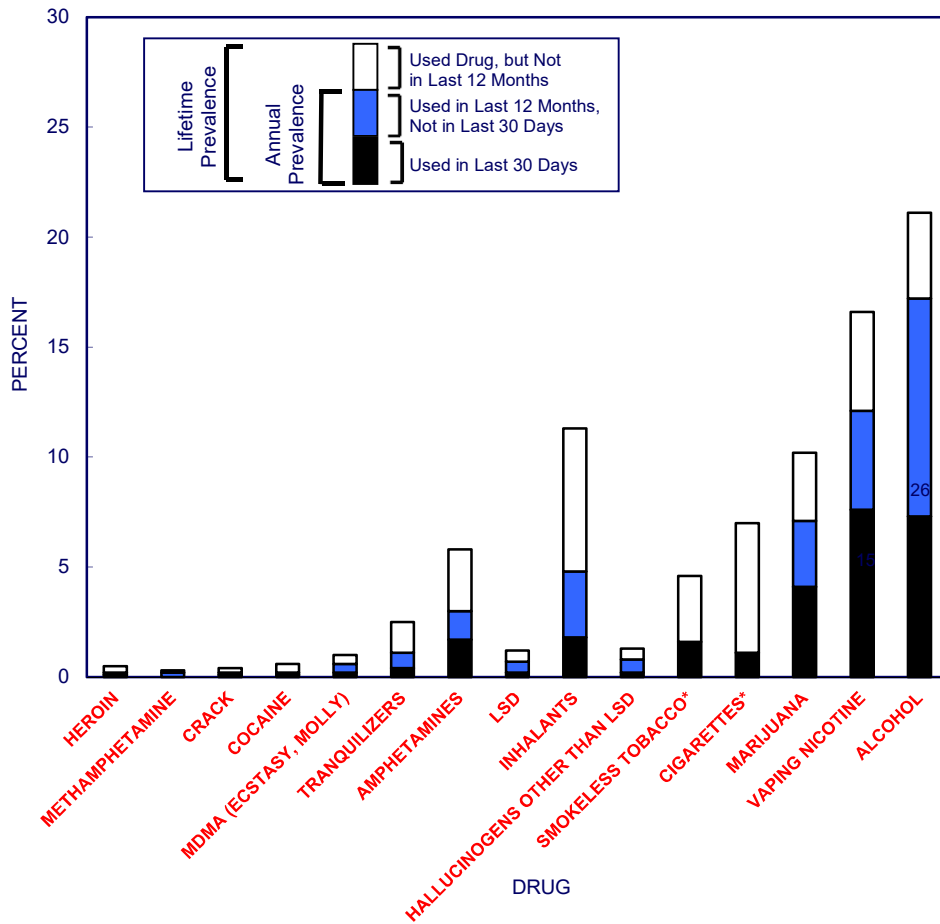
^tFor the use of prescription ADHD drugs, the question is asked differently than that for other drugs presented here. Therefore, the estimates indicate youth who reported "Yes, I take them now."

^u8th and 10th grades only: Data based on two of four forms; *N* is two thirds of *N* indicated.

^vFor 8th and 10th graders only: In 2021, the question on marijuana use was changed in half of the questionnaire forms to include smoking, vaping, and edibles in the list of examples. Data presented here for 2021 based on the forms that included the original question wording. *N* is one half of *N* indicated. Any illicit drug use and any illicit drug use including inhalants were also impacted by this change.

FIGURE 4-1
Prevalence and Recency of Use of
Various Types of Drugs in Grades 8, 10, and 12
2021

8th Graders



Source. The Monitoring the Future study, the University of Michigan.

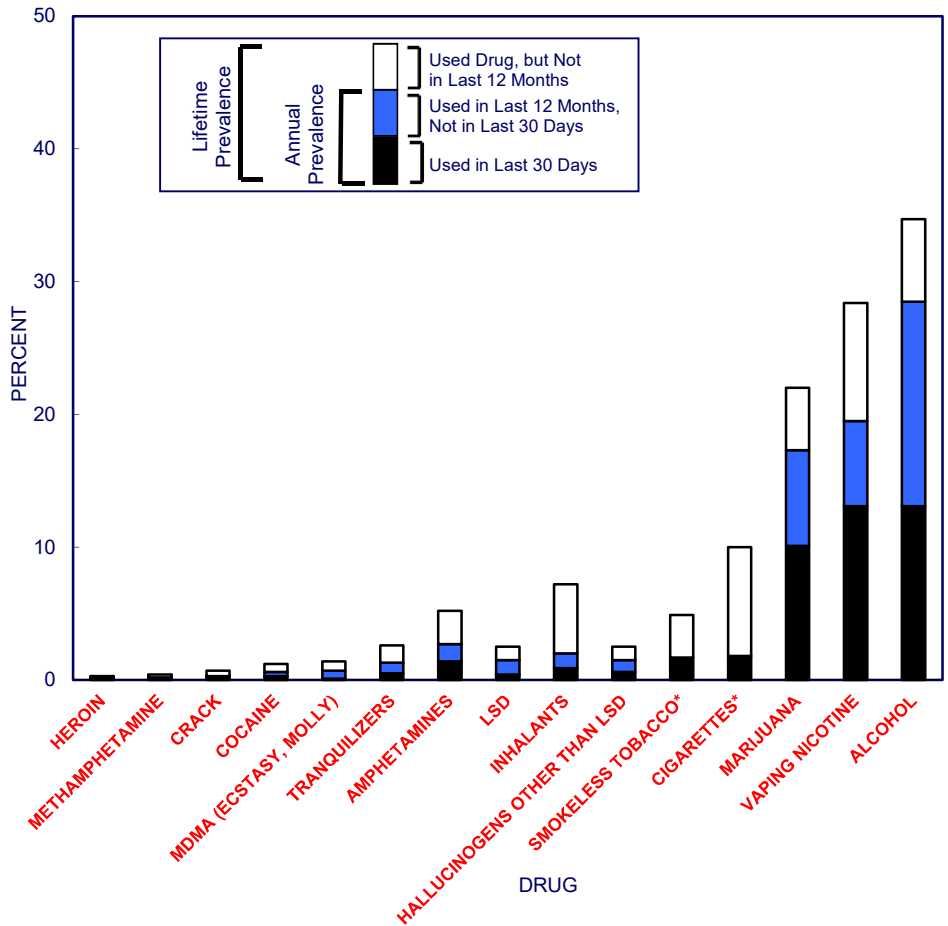
Note. Drugs are rank ordered according to their lifetime prevalence in 12th grade.

*Annual use not measured for cigarettes and smokeless tobacco.

(Figure continued on next page.)

FIGURE 4-1 (cont.)
Prevalence and Recency of Use of
Various Types of Drugs in Grades 8, 10, and 12
2021

10th Graders



Source. The Monitoring the Future study, the University of Michigan.

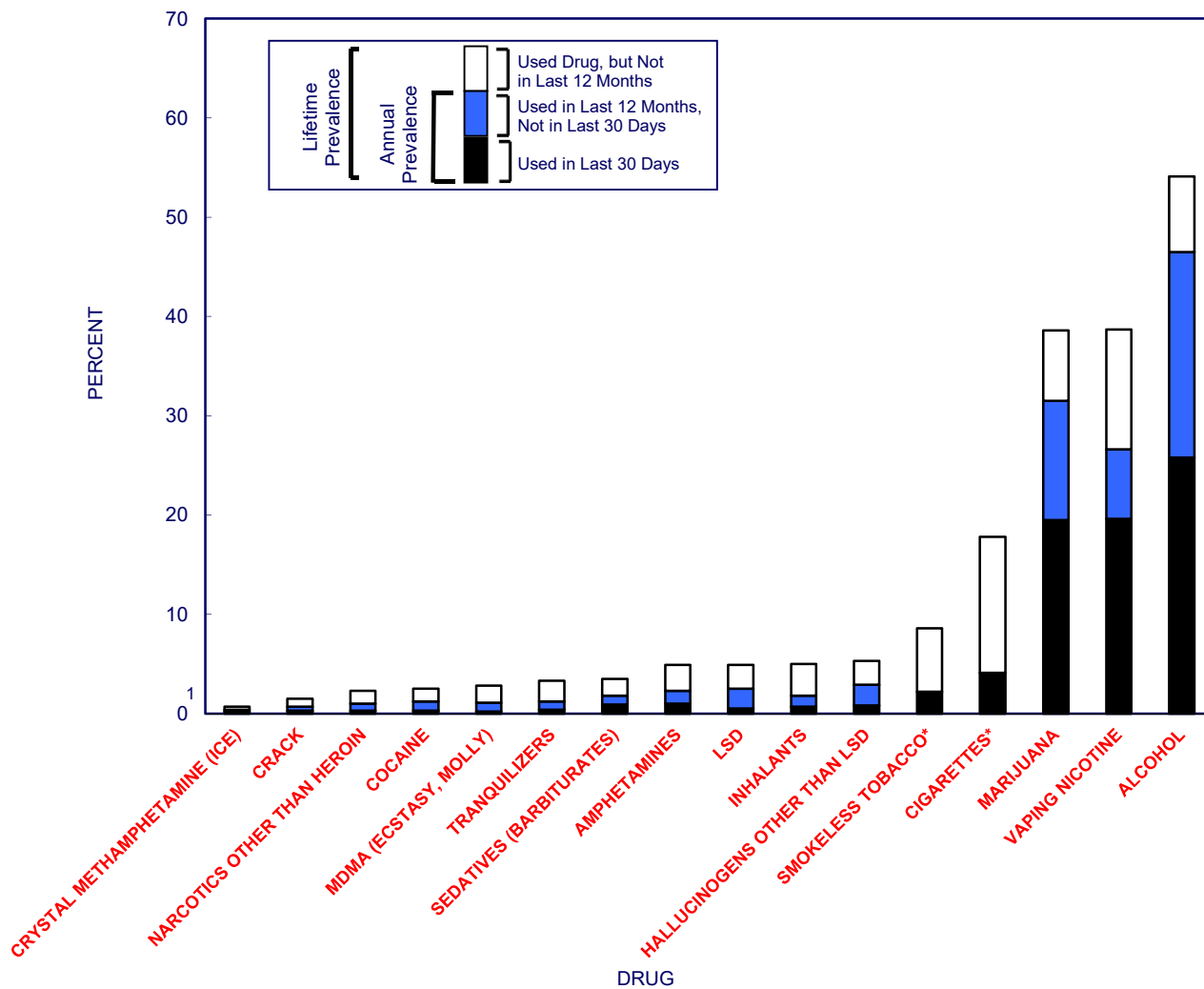
Note. Drugs are rank ordered according to their lifetime prevalence in 12th grade.

*Annual use not measured for cigarettes and smokeless tobacco.

(Figure continued on next page.)

FIGURE 4-1 (cont.)
Prevalence and Recency of Use of
Various Types of Drugs in Grades 8, 10, and 12
2021

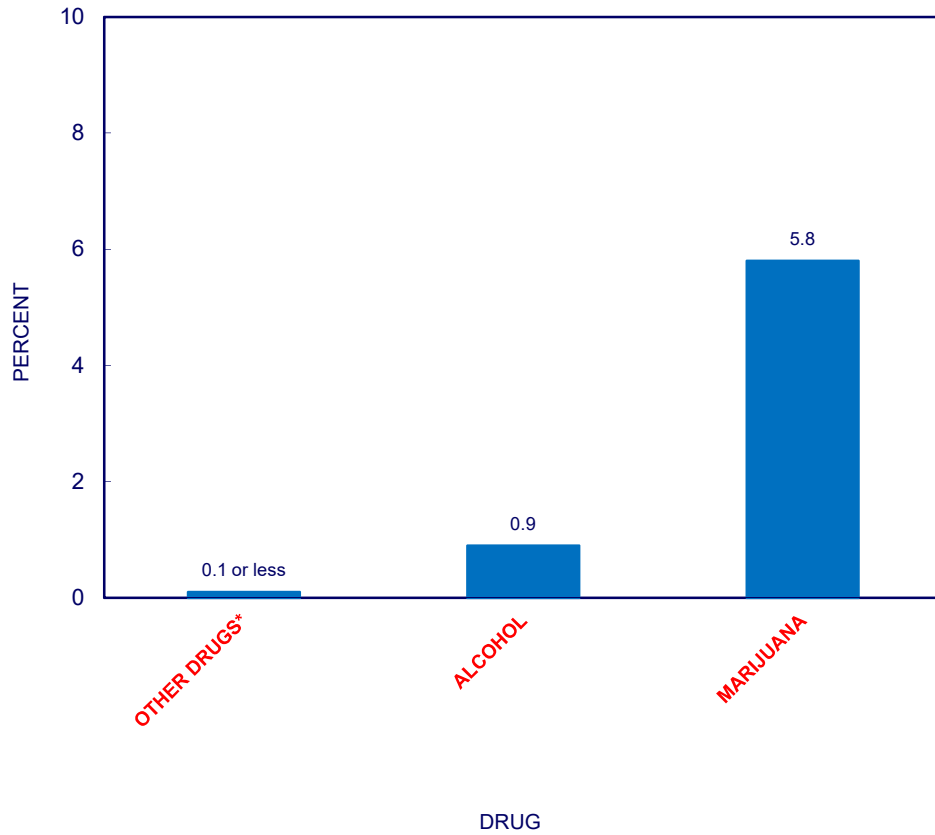
12th Graders



Source. The Monitoring the Future study, the University of Michigan.

*Annual use not measured for cigarettes and smokeless tobacco. For smokeless tobacco only:

FIGURE 4-2a
Thirty-Day Prevalence of Daily Use of
Marijuana, Alcohol, and Other Drugs ^a in Grade 12
2021

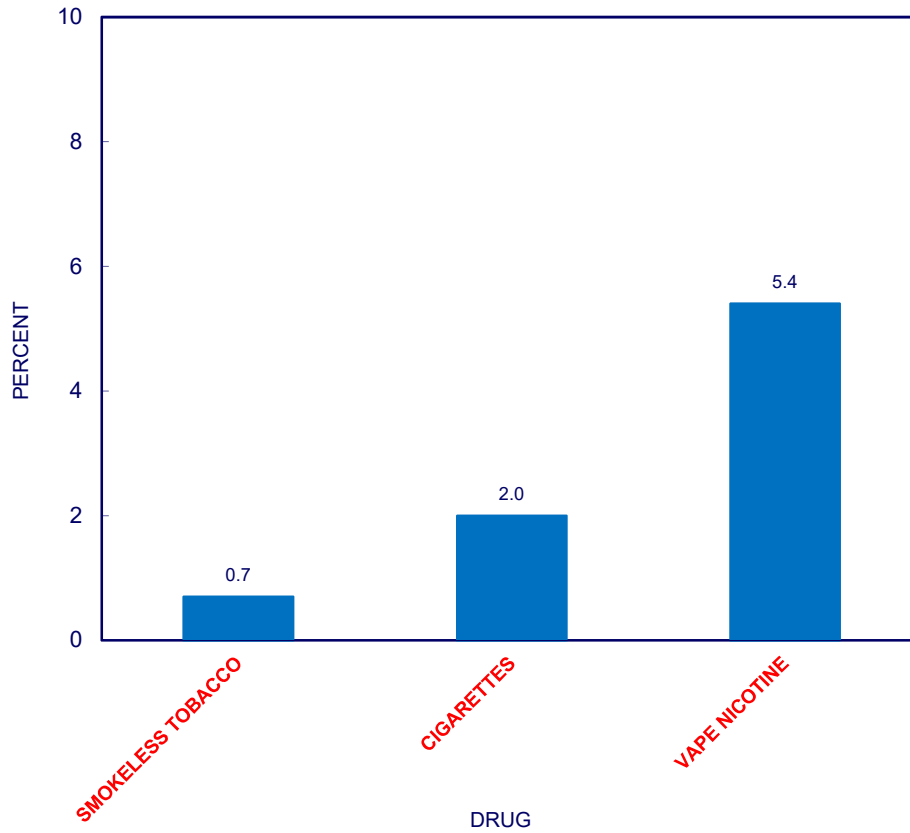


Source. *The Monitoring the Future study, the University of Michigan.*

*Each of the following drugs was 0.1% or less in 2021: inhalants, LSD, hallucinogens other than LSD, Ecstasy (MDMA, Molly), cocaine, crack, heroin, narcotics other than heroin, amphetamines, methamphetamine, crystal methamphetamine (ice), sedatives (barbiturates), tranquilizers, and steroids.

^aDaily use defined as use on 20 or more occasions in the past 30 days.

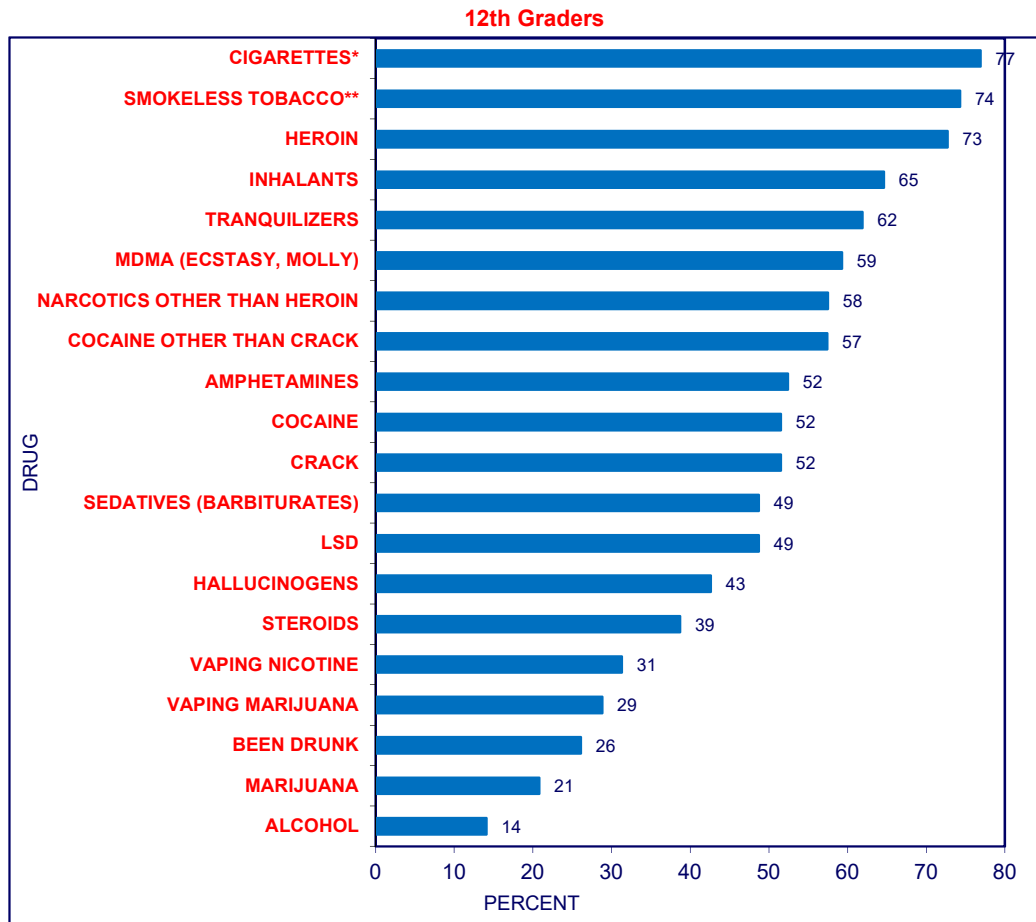
FIGURE 4-2b
Thirty-Day Prevalence of Daily Use of
Cigarettes, Smokeless Tobacco, and Nicotine Vaping ^a in Grade 12
2021



Source. *The Monitoring the Future study, the University of Michigan.*

^aDaily use defined as use one or more times a day over the past 30 days.

FIGURE 4-3
Noncontinuation Rates: Percentage of Lifetime Users
Who Did Not Use in Last 12 Months
in Grades 8, 10, and 12
2021



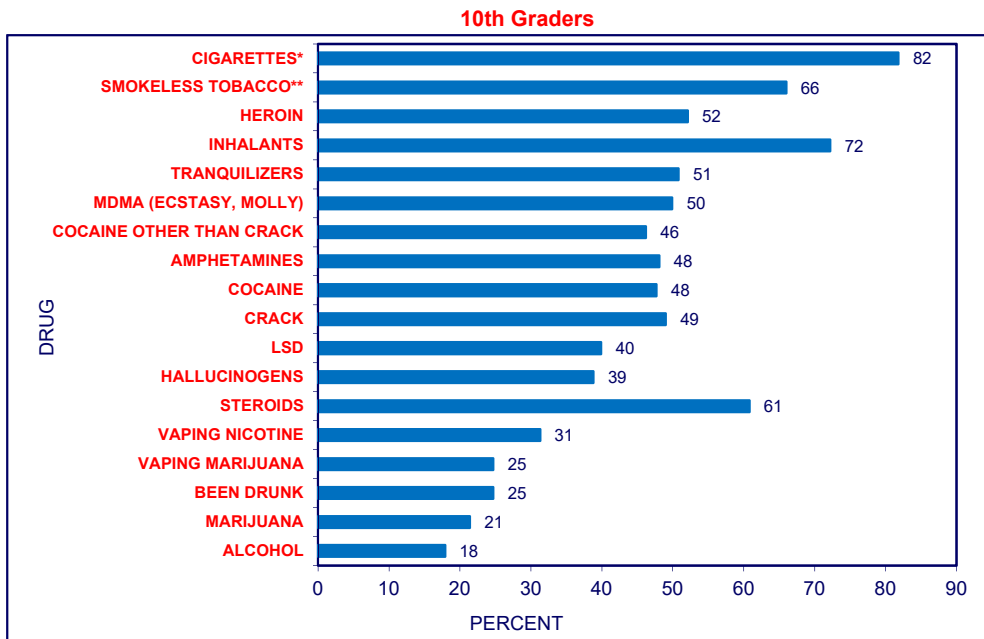
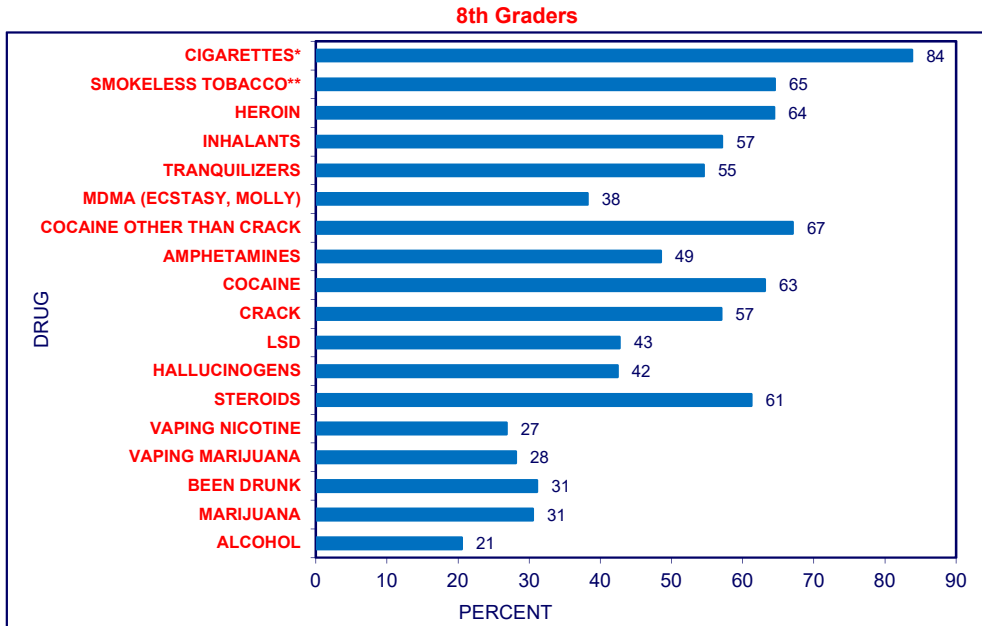
Source. The Monitoring the Future study, the University of Michigan.

*Percent of lifetime smokers (ever) who did not smoke at all in the last 30 days.

**Percent of lifetime smokeless tobacco users (ever) who did not use smokeless tobacco in the last 30 days.

(Figure continued on next page.)

FIGURE 4-3 (cont.)
Noncontinuation Rates: Percentage of Lifetime Users
Who Did Not Use in Last 12 Months
in Grades 8, 10, and 12
2021

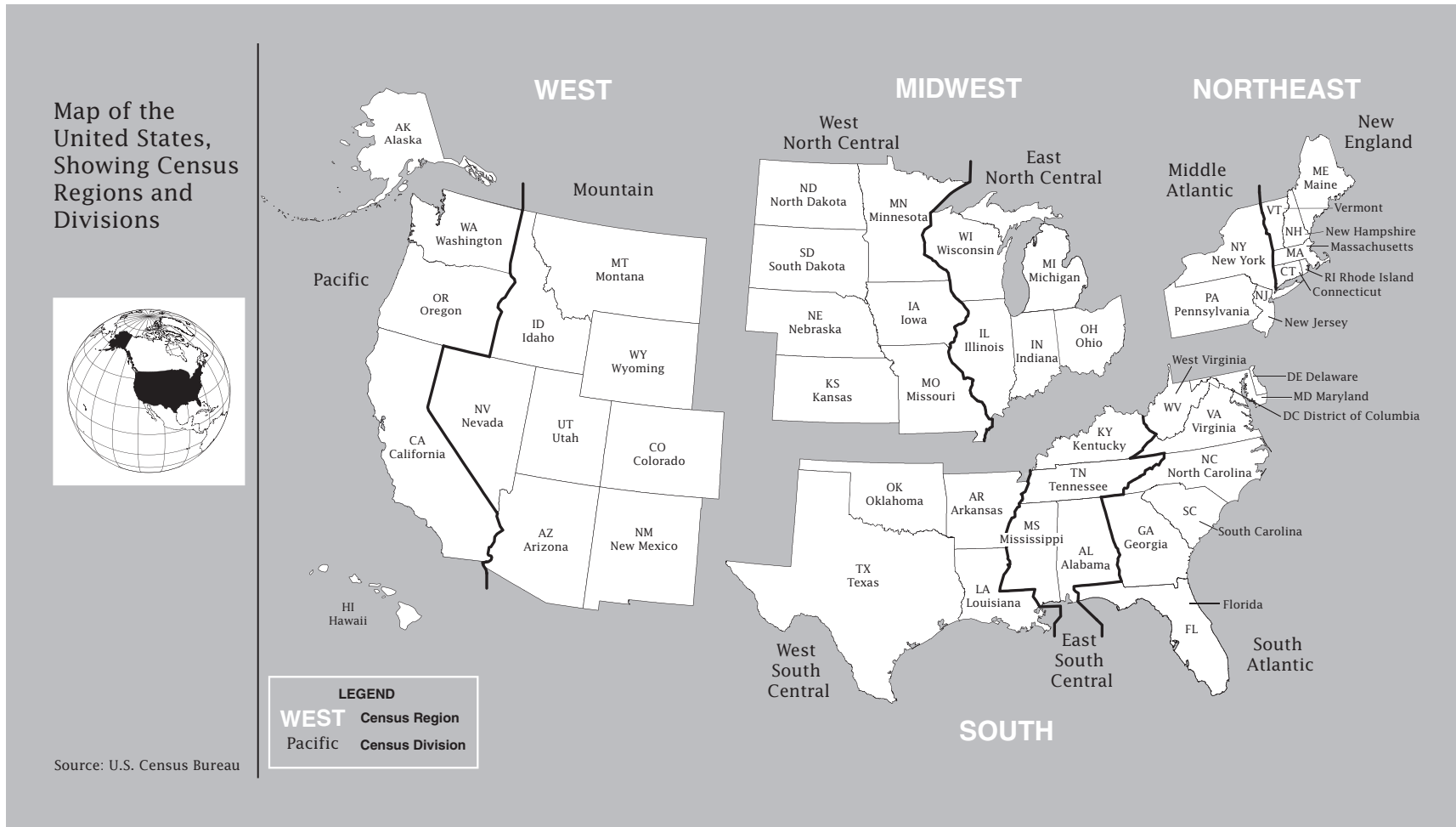


Source. The Monitoring the Future study, the University of Michigan.

*Percent of lifetime smokers (ever) who did not smoke at all in the last 30 days.

**Percent of lifetime smokeless tobacco users (ever) who did not use smokeless tobacco in the last 30 days.

FIGURE 4-4
States included in the 4 Regions of the Country



Chapter 5

TRENDS IN DRUG USE

The measurement of historical and developmental change over the past four and a half decades has been one of the most important contributions of Monitoring the Future to the fields of substance use research, policy, and prevention. This includes measurements of change in the levels of drug use, in the types of drugs being used, in the methods of using them, in the ages and characteristics of people using them, in related attitudes and beliefs about drug use, and in conditions surrounding use. Such information has significant implications for public policy—for needs assessment, agenda setting, policy formulation, and policy evaluation. More generally, it has implications for the current and future health of the nation. In this chapter, we review the many changes that have taken place over the past 47 years in the use of drugs, both licit and illicit, and we distinguish trends for various sectors of the population.

Historical trend data are presented and discussed in this chapter for students in 8th, 10th, and 12th grades. Data for 12th graders come from 47 national surveys conducted between 1975 and 2021, while data for the 8th and 10th graders come from 31 national surveys conducted between 1991 and 2021. For a variety of substances, the use measures discussed include lifetime use, use during the past 12 months, use during the past 30 days, and use on 20 or more occasions during the past 30 days (which we refer to as daily to near-daily use).

TWO THEMES IN DRUG TRENDS FROM 1975–2021

Two general themes are apparent in trends over nearly a half century in use of a majority of drugs, and we elaborate on these themes in what follows. The first theme is what we term the “1990s drug relapse,” which is a rapid increase in prevalence for many drugs that started in the early 1990s. Previous to this period, prevalence levels of many drugs had reached a historical low after years of decline. The prevalence levels for many drugs today lie between the nadirs observed at the start of the 1990s and the peak of 1990s drug relapse. Drugs that do not follow this overall pattern, such as some forms of alcohol use and tobacco use, are important exceptions that we note and discuss below.

The second theme is cohort effects. We use the term cohort here to refer to youth born at roughly the same time who are grouped by grade level and experience history together as they age. A cohort effect is a drug trend that follows a cohort as it grows older. For example, if an upsurge in cigarette smoking occurs in a cohort that is in 8th grade, it is likely to be observed two years later when that cohort is in 10th grade and then again two years later when that cohort is in 12th grade.

A cohort-specific pattern of drug use can stem from factors such as cohort-specific attitudes towards perceived risk of drug use, changing peer norms about the acceptability of drug use, changes in legal status of a drug, and the addictiveness of the drugs that youth use. We have found that cohort effects are often present, and trends among the lower grades can foretell future changes in the higher grades. This has been the case especially during the onset of the drug relapse in the early 1990s.

TRENDS IN PREVALENCE OF USE, 1975–2021

For 12th grade students *long-term* trends in lifetime, 12-month, 30-day, and current daily prevalence of use for all drugs are shown in Tables 5-1 through 5-4 from 1975 to 2021. Surveys of 8th and 10th grade students commenced in 1991, and long-term trends for these grades appear in Tables 5-5a through 5-5d. To facilitate comparison, trends in 12th grade are repeated for this shorter interval in the tables and figures for 8th and 10th grade students. Figures 5-1a through 5-4v provide graphic depictions of selected trends for 8th, 10th, and 12th grade students.

Trends in Indices of Overall Illicit Drug Use

Any Illicit Drug

Any illicit drug use is a measure of the percentage of youth who have engaged in use of at least one type of illicit drug. In 2021 the percentages of youth who had ever used any illicit drugs in their lifetime were 16% for 8th graders, 25% for 10th graders, and 41% for 12th graders.

The one-year declines in 2021 are the largest ever recorded by the survey for lifetime and past 12-month use for all grades. For past 30-day use the declines are the largest ever recorded by the survey in 8th and 10th grades, and in 12th grade the 1.6% absolute decline is the largest recorded since 1990. These large declines took place during the pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to drugs, as well as their opportunities to use them free from adult supervision.

There have been gradual albeit inconsistent declines for all grades since the peaks in the mid-to late-1990s drug use relapse, beginning in 1996 for 8th graders, 1997 for 10th graders, and 1999 for 12th graders. These declines also ended in a staggered fashion in 2007, 2008, and 2009, respectively. The declines were followed by increases between 2007 and 2010 among 8th graders, between 2008 and 2011 among 10th graders, and between 2009 and 2011 for 12th graders. This overall pattern suggests some cohort effects were in play. In 2013 the trend lines shifted up slightly as new examples of drugs in the amphetamine class were added to the questionnaires.

This pattern of younger teens being the first to exhibit many of the turnarounds in use suggests that they may be particularly sensitive to new social forces. Because they are considerably less likely to have established usage patterns or related attitudes, their behavior and attitudes may simply be more malleable. They then carry those changes in their behaviors and attitudes into later grades as they age; in this volume we discuss a number of such cohort effects.

Prior to the 1990s, a period when Monitoring the Future surveys were limited to 12th grade students, their prevalence of lifetime use of any illicit drug peaked at 66% in 1981, the highest level ever recorded by the survey. From that year on, lifetime use declined steadily to a prevalence of 41% by 1992, which ties with 2021 for the lowest level these surveys have ever recorded.

Any Illicit Drug including Inhalants

When inhalants are included in the index of illicit drug use, the percentages categorized as having ever used an illicit drug rise, especially for 8th graders.

As with the findings for any illicit drug use, in 2021 the declines in any illicit drug use including inhalants are the largest ever recorded by the survey in all three grades for lifetime, past 12-month, and past 30-day use.

Any Illicit Drug other than Marijuana

The percentage of youth who had used any illicit drug other than marijuana during the past 12 months was 5% in both 8th and 10th grade and 7% in 12th grade in 2021.

Twelve-month prevalence declined dramatically in 2021 in all three grades. In 8th grade the 2021 decline reversed a gradual increase that had started in 2017 and more than offset the increases established during this run. In 10th and 12th grade prevalence had already been at a historic low in 2020, and the 2021 decline dropped prevalence further still.

For lifetime and past 12-month use the one-year declines were the largest ever recorded by the survey. For past 30-day use the decline was the largest recorded for 8th grade, the second largest ever recorded in 10th grade (the largest was in 2009), and the second largest recorded in 12th grade (the largest was in 1982).

These large declines took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to drugs, as well as their opportunities to use them free from adult supervision.

In 2001 these levels were at or near peak levels and stood at 11%, 18%, and 22% in 8th, 10th, and 12th grade, respectively, so the proportion of these age groups using illicit drugs other than marijuana has declined by more than half since then.

In the 1970s most of the sudden rise in 12th graders' reported use resulted from the increasing popularity of cocaine between 1976 and 1979 and, then, to the increasing use of amphetamines between 1979 and 1981.

Trends in Use of Specific Drugs

Marijuana

The percentage of youth who have used marijuana in the past 12 months in 2021 was 7% in 8th grade, 17% in 10th grade, and 31% in 12th grade.

Large declines took place in 2021 in all three grades for lifetime, past 12-month, and past 30-day use. Previous to 2021 marijuana prevalence had changed little during the past decade in 8th and 12th grade and had increased slightly in 10th grade.

For all three grades the 2021 declines are the largest declines ever recorded by the survey for lifetime, past 12-month, and past 30-day use. The one exception is that the decline in 12th grade for past 30-day use was the largest since 1992.

These large declines took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to marijuana, as well as their opportunities to use it free from adult supervision.

The large declines in 2021 occurred across all three grades in the same year and evidence a “historical period” effect. Previous to 2021 8th grade students were the first to show the two major shifts in marijuana prevalence—an increase at the start of the 1990s and a decrease by the end of the 1990s. This suggests that 8th graders may be the most immediately responsive to changing influences in the larger social environment. The lag in the decline in the later grades likely reflects some cohort effects (i.e., lingering effects of changes in use that occurred when the students were in lower grades).

Levels of annual marijuana use today are considerably lower than the historic highs observed in the late 1970s, when more than half of U.S. 12th graders had used marijuana in the past 12 months. This high point marked the pinnacle of a rise in marijuana use from relatively negligible levels before the 1960s.

Daily marijuana use, defined as use on 20 or more occasions in the past 30 days, also declined in 2021. In all grades the 2021 declines offset increases that had begun in 2018 and returned levels to about where they had been in 2014.

The prevalence of using marijuana daily for a month or more during one's lifetime is also shown in the figures and tables in this section, but for 12th graders only. That prevalence was at 21% when first measured in 1982, declined sharply to just 8% by 1992, and rose back to 19% by 1997, followed by a long gradual decline to 12% by 2018, before leveling. It remained at 12% in 2021.

[Synthetic Marijuana](#)

Declines in past 12-month use of synthetic marijuana continued in 2021. Prevalence has declined dramatically since it was first tracked by Monitoring the Future in 2011 for 12th graders and 2012 for 8th and 10th graders. For 12th graders, annual prevalence declined from 11.4% in 2011 to 1.8% in 2021. For 10th graders, annual prevalence declined from 8.8% in 2012 to 1.6% in 2021. For 8th graders the decline was from 4.4% in 2012 to 1.3% in 2021, which leaves little room to fall further.

The three grades have converged at very low levels during the period of steep decline.

Inhalants

Prevalence of inhalant use declined in 2021 for 8th and 10th grade students for lifetime, 12-month, and 30-day use. The decline in past 12-month use for 10th grade students was statistically significant.

In contrast to almost all other drugs, inhalant prevalence actually trended upward in 12th grade for lifetime and past 12-month use. This slight increase (which was not statistically significant) may represent 12th graders using drugs not typically used by older adolescents because their preferred drugs were not available.

Inhalants are unusual because their prevalence is higher in the lower grades, a pattern not observed for any other drug. The use of inhalants at an early age may reflect the fact that many inhalants are cheap, readily available (often in the home), and legal to buy and possess. The decline in use with age likely reflects their coming to be seen as “kids’ drugs,” in addition to the fact that a number of other, more desirable drugs become more accessible to older adolescents, who also are more able to afford them.

The increase in prevalence of inhalants at the start of the 1990s was a continuation of a trend that was observable far earlier among 12th grade students, when only they were being surveyed. The same was likely true among 8th and 10th graders, although our data on them cover only 1991 forward. The anti-inhalant campaign launched by the Partnership for a Drug-Free America in 1995 (partly in response to MTF results showing increasing use) may have played an important role in reversing this troublesome, long-term trend. The declines in inhalant use continued into 2002 in all grades. However, in 2002, 8th graders’ perceived risk of trying inhalants decreased significantly, which was followed by a significant increase in their use the next year; 10th graders’ perceived risk of regular use also decreased significantly. Since then, perceived risk of inhalants has declined overall, raising the fear of generational forgetting of the dangers of inhalant use.

Prior to 2000, trends in inhalants were confounded by the use of amyl and butyl nitrites, and past MTF reports presented an additional 12th grade inhalant trend for measures without nitrites (e.g., see [the 2014 MTF report](#) for a detailed description). Since that time youth’s use of nitrites has fallen to very low levels and is no longer tracked by Monitoring the Future.

Hallucinogens

The percentage of youth using hallucinogens declined in 2021 in all three grades for lifetime, past 12-month, and past 30-day use. With these declines, past 12-month and past 30-day use are at the lowest levels ever recorded by the survey, and past 30-day use is less than 1% in all grades.

Hallucinogen use followed the typical pattern of an increase during the 1990s relapse, followed by a gradual but inconsistent decline in the following years. Annual hallucinogen use peaked in 1996, which is a few years earlier than the peak for most other drugs. Current levels of annual hallucinogen use are less than half their peak in the 1990s. The two components of the hallucinogens class, LSD and hallucinogens other than LSD, generally followed the same pattern until a sharp decline in LSD use emerged after 1999.

LSD

LSD prevalence declined in 2021 in all three grades for lifetime, past 12-month, and past 30-day use. For all grades and all three reporting intervals, these are the largest declines in a decade. In grades 10 and 12, these declines ended a period of gradually increasing use over the prior seven years.

These large declines took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to drugs such as LSD, as well as their opportunities to use them free from adult supervision.

In broader context, the 2021 level of past 12-month use of 2.5% in 12th grade is less than a third of the 8.8% level recorded in 1996, in the middle of the 1990s drug relapse. In 8th and 10th grade, prevalence had been hovering at low levels for about a decade previous to 2021. Consistent with most other drugs, LSD use increased during the 1990s relapse and peaked in the mid-1990s. It then subsequently declined to its lowest levels ever in the early 2000s; the 2021 declines have returned past 12-month prevalence near or below these earlier nadirs.

LSD was one of the first drugs to decline at the start of the 1980s, almost surely due to increased information about its potential dangers. The subsequent increase in its use during the mid-1980s may reflect the effects of “generational forgetting”—that is, replacement cohorts knowing less than their predecessors about the potential dangers of LSD because they have had less exposure to the negative consequences of using the drug.

We believe that the decline in use prior to 2002 might have resulted in part from a displacement of LSD by sharply rising use of MDMA (ecstasy and more recently Molly). After 2001, when MDMA use itself began to decline, the sharp further decline in LSD use likely resulted from a sudden drop in the availability of LSD (discussed in Chapter 9), because attitudes generally have not moved in a way that could explain the fall in use, while perceived availability has.

Hallucinogens other than LSD

Hallucinogens other than LSD include psilocybin, or “shrooms,” which comprise a major component of this category. The percentage of youth using hallucinogens other than LSD declined in 8th and 10th grade in 2021 for lifetime, past 12-month, and past 30-day use. In these grades past 12-month and past 30-day use was very low at 1.5% or less.

In 12th grade use continued an increase that started a year or two earlier, although none of these increases were statistically significant.

[PCP](#)

The prevalence of past-year PCP use is reported only for 12th grade students and in 2021 it was 0.7%. Prevalence has not risen above 2% for the past 20 years.

PCP was first included in the survey in 1979, and its prevalence dropped rapidly thereafter, suggesting that it achieved a deserved reputation as a dangerous drug very quickly. Its use increased during the 1990s drug relapse, but its annual prevalence increased to a high of only 2.6%. Since 2002, its use has remained low.

[Ecstasy \(MDMA\)](#)

The percentage of youth who used MDMA was at historic lows for all three grades in 2021, for lifetime, past 12-month, and past 30-day use. Past 30-day use was almost negligible at 0.2% or less for all three grades.

The historical trend for MDMA follows a pattern somewhat different from most of the other drugs in that the increase did not occur until the late 1990s, and it peaked later than many drugs—in 2001. Obviously there were some special forces at work on the use of this drug, including its popularity at raves followed by public concern about the dangers of its use. Since that time its prevalence has gradually declined, although a short-lived upsurge took place in all grades around 2009–2010.

In 2014 some questionnaire forms in the survey included “Molly” as an example of MDMA, along with ecstasy, and the inclusion of this example appeared to make relatively little difference in the overall prevalence of MDMA. In 2015 the remaining forms were changed to also include “Molly” as an example in the questions about MDMA.

Twelfth graders’ perceived risk for MDMA jumped substantially in 2001 (from 38% in 2000 to 46% in 2001), likely helping to explain the decelerating rise in use that year. However, we know from other analyses that MDMA was still diffusing to more communities in 2001, partially explaining the continued rise in use despite the increase in perceived risk. (This dramatic increase in use through 2001 was not confined to teenagers and is apparent in [MTF results](#) for young adults.) The 2001 increases in perceived risk led us to predict the downturn in use that did in fact begin to occur in 2002—once again demonstrating the importance of these beliefs, both in restraining drug use and in allowing us to predict forthcoming changes in drug use. Perceived risk increased sharply again in 2002 and 2003 as use plummeted, but after 2003 the increase in risk was more gradual, reaching 60% by 2005 among 12th graders, compared to 34% when it was first measured in 1997. Perceived risk has declined since then (to 48% by 2019 among 12th grade students). The reported availability of MDMA, which had risen substantially in the 1990s, probably played a role in its sudden resurgence. Perceived availability dropped modestly from 2001 to 2003, then took a large drop of almost 10 percentage points in 2004, another large eight percentage point drop in 2005, and a seven percentage point drop in 2009. In 2016 it dropped again by 4.7 percentage points (a significant drop), so that only 33% of 12th grade students reported that it would be “fairly easy” or “very easy” to get MDMA (ecstasy, Molly). Part of this decline in availability is probably due to there being fewer users from whom to get the drug. Availability did not begin to drop until use did, and it dropped more gradually than use. Because MDMA was particularly

popular at raves and dance clubs during its ascent in popularity, it is considered one of the “club drugs.” Based on media reports, it appears that the rave phenomenon diminished and/or changed considerably after 2001.

Trends in MDMA use are unique because the upswing in use in 1999 occurred first in the older grades. The 8th graders did not show this resurgence until a year later, in 2000. A different dynamic seemed to be at work for MDMA than for most other drugs during this historical period, because it appears that the increase in use rippled down the age scale rather than the reverse; this may be because raves (which older teens would be more likely to attend) played an important role in its dispersion.

Salvia

Salvia is an herb with hallucinogenic properties, common to southern Mexico and Central and South Americas. Although it currently is not a drug regulated by the Controlled Substances Act, several states have passed legislation to regulate its use, as have several countries. The Drug Enforcement Agency lists salvia as a drug of concern and has considered classifying it as a Schedule I drug, like LSD or marijuana.

Salvia use in the last 12 months currently stands at 0.6% or less in all grades. Use of this drug has declined considerably since it was first measured in 2009, when prevalence among 12th grade students was 5.7%.

Cocaine

The percentage of youth who used cocaine declined in 2021 in all three grades for lifetime, past 12-month, and past 30-day use. In 2021, for all grades and all reporting intervals, it reached the lowest level ever recorded by the survey.

Cocaine grew in popularity among 12th graders in the late 1970s, then plateaued at a high level of around 12% annual prevalence in the first half of the 1980s, when most drugs were falling, before plunging by about three quarters by 1991. This drug then followed the common pattern of an increase in use during the 1990s relapse before showing a period of decline since 2006. The increase had leveled out about three years earlier for 8th graders (in 1996) than for 12th graders (in 1999), evidence of a cohort effect.

The reduction of adolescent cocaine use to today’s low levels is a success story given its considerable popularity in the 1980s, when past-year prevalence among 12th graders reached 13% (in 1985). Reasons for this steep decline in cocaine use—in particular the role of perceived risk—are discussed in Chapter 8 in [this MTF report](#).

Crack Cocaine

In 2021 past-year use of crack cocaine was at or near historic lows. Annual use levels among 8th, 10th, and 12th grade students were all less than 1%. Like cocaine, crack use dropped sharply from 1986—when its use was first measured—through 1991. Consistent with other illicit drugs, its prevalence then increased during the 1990s drug relapse, peaked in the late 1990s, and has since declined to today’s low levels of use.

Questions on crack cocaine were first introduced into the survey in 1986, when information gathered routinely in MTF showed some indirect evidence of the rapid spread of crack cocaine. For example, we found that the proportion of all 12th graders reporting that they had ever smoked cocaine (as well as used it in the past year) more than doubled between 1983 and 1986, from 2.4% to 5.7%. In the same period, the proportion of those who said that they had both used cocaine during the prior year and at some time had been unable to stop using it when they tried doubled (from 0.4% to 0.8%). In addition, between 1984 and 1986, the proportion of 12th graders reporting *daily* use of cocaine also doubled (from 0.2% to 0.4%). We think it likely that the rapid advent of crack use during this period was reflected in all of these changes, though we did not yet have a direct measure of its use.

Cocaine other than Crack

Trends in prevalence of cocaine other than crack follow closely the trends for cocaine use overall. In 2021 prevalence continued a long overall decline and was at the lowest levels ever recorded for lifetime, past 12-month, and past 30-day use in all three grades. Annual and past 30-day use are below 1% in all three grades. These low levels contrast with annual prevalence of highs of 2.5% in 8th grade in 1996, 4.4% in 10th grade in 1999, and 10% in 12th grade in 1987, when this outcome was first measured.

In the late 1980s only 12th graders were asked this question, starting in 1987; they showed a precipitous decline in use through 1992. Perceived risk rose sharply during that period as the population became more concerned regarding the possibilities of addiction and overdose death from using cocaine.

Heroin

Past 12-month use of heroin has always been relatively low, with annual prevalence never higher than 2% at any time in the survey for any grade. In 2021 the level of annual use was 0.2% or less in each grade. Prevalence levels of heroin are now at or near all-time lows, after a long decline from a peak established at the end of the 1990s drug relapse period. One unusual pattern specific to heroin is that the late 1990s mark the highest levels of use ever recorded in the study, whereas for most other drugs the all-time highs were set near the beginning of the 1980s. This trend was due in part to the advent of heroin use without a needle.

The increase in heroin use that occurred around 1995 was recognized fairly quickly and gave rise to some ameliorative actions, including an anti-heroin campaign by the Partnership for a Drug-Free America. An increasing number of deaths due to heroin use, including in the entertainment and fashion communities, also received widespread publicity. These factors may well explain the subsequent leveling in use after the near doubling of heroin prevalence that took place in 1995.

Heroin Use without a needle

The percentage of youth using heroin without a needle did not decline in 2021, in large part because there was little room for it to fall further. Prevalence in 2021 was less than 0.2% for lifetime, past 12-month, and past 30-day use in all three grades.

The advent of new, very pure, heroin that could be used without a needle played a significant role in raising heroin prevalence to its all-time peak in the mid-1990s. Since then its use has declined to record lows.

Heroin Use with a needle

Heroin use with a needle among adolescents is exceedingly rare, and in 2021 its lifetime, past 12-month, and past 30-day prevalence levels were all below 0.5%. Since the last half of the 1990s heroin use with a needle has declined considerably in all three grades.

Narcotics other than Heroin

Past 12-month nonmedical use of narcotics other than heroin is reported only for 12th grade students; in 2021 it continued a decline that began in 2010. In 2021 past-year prevalence declined to 1.0%, down almost 90% from a high of 9.5% in 2004. Consistent with the story for most drugs, the decline in use was slightly sharper in 2021 than in preceding years. Two patterns make trends in use of these drugs unique. First, peak use came during the 1990s relapse—and not during the 1980s as it did for so many other drugs—suggesting that its rise during the 1990s was more than just a return to drug use patterns of the past and instead represented the emergence of new, unique patterns of use for adolescents. Second, the peak established after the 1990s drug relapse stayed at a stubbornly high level for much longer than most illicit drugs. High levels of use during the 2000s raised concern that use of these types of prescription drugs had become endemic. The recent decline in prevalence since 2010 shows that efforts to reduce use among adolescents have been successful.

Because the question text on half of the questionnaire forms was updated in 2002 with the inclusion of additional examples of narcotics other than heroin (i.e., OxyContin, Vicodin, and Percocet), we obtained a higher reported level of use with the new version of the question that year (9.4%) than with the previous version of the question (7.0%). (When we make a significant change in the wording of a question, we often use this type of spliced design in which a random half of the respondents to the forms containing the drug get the new version and others get the old version in the same year so that we can assess the impact of the wording change.) All questionnaire forms contained the new version of the question in 2003 and thereafter.

Oxycontin

In 2021 the percentage of youth who used the specific narcotic drug OxyContin® non medically in the past 12 months declined to the lowest level recorded by the survey. For 12th grade students the decline was quite substantial, falling by more than half in one year from 2.4% in 2020 to 0.9% in 2021. For all grades past 12-month prevalence was less than 1% in 2021.

[Vicodin](#)

Past 12-month, nonmedical use of the specific narcotic drug Vicodin® declined to prevalence below 1% in all grades in 2021. These low levels are the result of a marked decline from peaks before 2010 of 3% in 8th grade, 8% in 10th grade, and 11% in 12th grade.

While there was a large age difference in prevalence in earlier years, there remained practically none in 2021.

[Amphetamines](#)

The percentage of youth who use amphetamines nonmedically declined in all three grades in 2021 for lifetime, past 12-month, and past 30-day use. Prevalence was similar across all three grades, with lifetime use at 5% to 6%, past 12-month use at 2% to 3%, and past 30-day use at 1% to 2%.

In 8th grade the 2021 decline reversed an increase that began in 2017 and returned prevalence to 2017 levels or lower. In 10th and 12th grade the 2021 decline continued a decline that started in 2015 and 2016, and prevalence is now down to the lowest levels recorded by the survey for lifetime, past 12-month, and past 30-day use.

We believe past prevalence reports among 12th grade students in the early 1980s were somewhat exaggerated because some respondents included non-amphetamine over-the-counter diet and stay-awake pills, as well as “look-alike” and “sound-alike” stimulants, in their answers. In 1982, we added new versions of the amphetamine use questions that were more explicit in instructing respondents not to include such nonprescription pills. Between 1981 and 1982, prevalence level reports dropped as a result of this methodological change. In all tables and figures, data for 1975 through 1981 are based on the unchanged questions; data since 1982 are based on the revised questions, providing our best assessments of current prevalence and more recent trends in true amphetamine use.

In 1982 and 1983, the two years for which both adjusted and unadjusted statistics are available, the unadjusted data showed a modest amount of over-reporting. Both statistics suggest that a downturn in 12th graders’ use of amphetamines began in 1982 and continued for a decade. For example, between 1982 and 1992 their annual prevalence for amphetamines fell by nearly two thirds, from 20% to 7%, while 30-day use and current daily use both fell by more than two thirds. As with a number of other drugs, the trend lines veered upwards after 1992.

[Ritalin](#)

Nonmedical use of the stimulant Ritalin®, which like Adderall® is used to treat attention deficit hyperactivity disorder (ADHD), has declined substantially since first tracked in 2001. Past 12-month prevalence was less than 1% in all grades in 2021. From 2001 to 2021 it declined from 2.9% to 0.6% in 8th grade, from 4.8% to 0.3% in 10th grade, and from 5.1% to 0.5% in 12th grade.

Adderall

Nonmedical use of the amphetamine Adderall® in the past 12 months declined significantly in 10th and 12th grades to the lowest levels recorded by the survey. Prevalence in 2021 was 1.6% and 1.8%, respectively.

Past 12-month prevalence also declined in 8th grade, although not significantly so, from 2.7% in 2020 to 1.8% in 2021. This decline reversed an increase that had begun in 2018 and returned prevalence to the 2018 level.

Methamphetamines

Use of methamphetamine has declined to near-zero prevalence over the past two decades, with past 12-month use at 0.2% in all three grades in 2021. This marks a steep decline from 1999 levels (when it was first tracked) at 3.2% in 8th grade, 4.6% in 10th grade, and 4.7% in 12th grade.

Crystal Methamphetamines

The percentage of 12th grade students who used crystal methamphetamine during the past 12 months increased slightly in 2021 for lifetime, past 12-month, and past 30-day use. However, prevalence is less than 1% for all three reporting intervals in 2021, and because none of the increases were statistically significant the slight increases in 2021 may have resulted from random sampling variation.

Annual prevalence among 12th graders fell from a high of 3.0% in 1998 to 0.4% in 2021. Its similarity to crack cocaine (both are in chunks and are burned) may have played a role in this decline, because crack came to be seen as very dangerous to use, and the concern may have generalized to crystal meth.

Sedatives (Barbiturates)

Levels of past-year nonmedical sedative (barbiturate) use declined after the highs of the 1990s drug relapse but for some years remained substantially higher than they were before the relapse began. Sedative (barbiturate) use trends are reported only for 12th grade students. By 2021 annual prevalence was at a historic low of 1.8%. As with many other substances, prevalence increased during the 1990s drug relapse, but a long-term decline did not start until 2005, which is nearly a decade later than the decline seen for most other drugs. This pattern of sustained, high levels past the 1990s is found for misuse of many of the prescription drugs, and was seen for the class “narcotics other than heroin.” Trends over the past fifteen years, however, indicate that a long-term decline has been taking place.

Prior to the increase in use in the 1990s, past 12-month use had declined very appreciably from its highest reading of 16% in 1976 to 3% in 1992.

Tranquilizers

The percentage of youth who used tranquilizers non-medically declined rather sharply in 2021 for all grades for lifetime, past 12-month, and past 30-day use.

In 10th and 12th grades the 2021 declines for lifetime and past 12-month use were statistically significant and brought prevalence down to the lowest levels ever recorded by the survey. These declines were a continuation of the decreases that started in the early 2000s, and in 2021 prevalence levels were at the lowest levels recorded by the survey in all three grades—at 3.3% or less.

In 8th grade the 2021 declines reversed a slight increase in prevalence that began around 2015 for lifetime, past 12-month, and past 30-day use.

In 2001 the survey question on tranquilizers was modified to include Xanax as an example of a tranquilizer, and the discontinuity in the graph for this year marks the slightly higher prevalence estimate that resulted from this question change.

Among 12th grade students, tranquilizer use increased during the 1990s; the increase was sustained well into the 2000s, which is a trend typical for the general category of prescription medication misuse.

Rohypnol

Rohypnol, a “club drug,” was added to MTF in 1996. As a questionnaire space economy measure, in 2002 the standard triplet question (asking about lifetime, past 12-month, and past 30-day use of Rohypnol) was replaced with a tripwire question asking only about use in the past 12 months. (This change was made at 12th grade only.) As a result of this change in the structure and location of the question, trend data since 2002 are not directly comparable to data prior to 2002, as noted by the discontinuity in the graph.

In 2021 prevalence is less than 1% in all grades for lifetime, past 12-month, and past 30-day use.

Ketamine

Prevalence of past-year ketamine use among 12th grade students has been below 2% for the past decade and in 2021 stood at 0.9%. This “club drug” was added to the survey in 2000. It showed little change in its usage levels through 2002. Since then use has declined in all grades. Because of the very low levels of use of this drug by 2011, questions about its use were dropped from the questionnaires administered to 8th and 10th graders.

GHB

Prevalence of past-year GHB use among 12th grade students has been below 1.5% for the past decade and in 2021 stood at 0.4%. This “club drug” was added to the survey in 2000. Its use has declined overall in all grades. Because of the very low levels of use of this drug by 2011, questions about its use were dropped from the questionnaires administered to 8th and 10th graders. Since then 12th grade prevalence has continued to decline to very low levels.

Alcohol

In 2021 alcohol use declined in all grades for lifetime, past 12-month, past 30-day, and daily use (defined as use on 20 or more occasions in the past 30 days), as well as for binge drinking (defined as having 5 or more drinks in a row at least once during the prior two weeks). For all of these reporting intervals, prevalence levels are at or near the lowest levels ever recorded by the survey.

The 2021 declines continue long-term, substantial decreases that started in the early 2000s. From 2001 to 2021 past 12-month prevalence has decreased from 73% to 47% in 12th grade, from 64% to 29% in 10th grade, and from 42% to 17% in 8th grade.

The one-year declines in 2021 are the largest recorded by the survey for lifetime, past 12-month, past 30-day use, and binge drinking in all three grades. They are also the largest ever recorded for daily drinking in 10th and 12th grade.

These large recent declines took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to alcohol, as well as their opportunities to drink free from adult supervision.

Unlike most other drugs, alcohol use showed only a modest increase during the 1990s relapse, exhibiting more of a pause in its long-term decline.

Been Drunk

In 2021, declines in past 12-month and past 30-day being drunk are the largest or near-largest declines ever recorded by the survey.

These large declines took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to alcohol, as well as their opportunities to drink free from adult supervision.

There was a long-term decline in the annual prevalence of being drunk, which began first among 8th graders after 1996, then among 10th graders after 2000, and in 12th grade after 2000, suggesting a cohort effect. These very substantial long-term declines had ended around 2016 in the two lower grades and by 2019 in grade 12.

Alcoholic Beverages Containing Caffeine

Annual use of alcoholic beverages containing caffeine has been in steady decline since 2011, when first added to the study. Annual prevalence among 12th and 10th grade students has decreased more than 50% overall since then. In 2021 annual prevalence levels in 12th and 10th grade were 10% and 8%, respectively. In 8th grade use declined until 2018 and has since hovered between 6% and 7%.

Flavored Alcoholic Beverages

In 2021, use of flavored alcoholic beverages declined in all three grades for lifetime, past 12-month, and past 30-day use. These declines continued a decrease in prevalence that has been ongoing ever since these measures were first added to the survey in 2004. Levels of lifetime and past 12-month use are at the lowest levels ever recorded by the survey in all three grades in 2021.

These beverages are also known as “alcopops” or “malternatives” (because their alcohol content often derives from malt).

A single tripwire question, asking about the frequency of flavored alcoholic beverage use in the past 12 months, was introduced in 2003 to determine how widespread the use of these beverages was. In 2003, the annual prevalence was 55% among 12th graders. Because of this high level of use, we introduced more extensive measurement of use (i.e., the standard questions about use in lifetime, past 12 months and past 30 days) of these beverages into the 2004 questionnaires. The annual prevalence was about the same in 2004 (56%), and it rose slightly in 2005 (58%), after which it declined to 53% by 2009 and eventually declined to 32% by 2021. Thirty-day prevalence among 12th grade students fell to 15% by 2021, while lifetime prevalence fell to 44%.

Beer

In 2021, prevalence of beer drinking decreased in 8th and 10th grade for lifetime, past 12-month, and past 30-day use, as well as for binge drinking of beer. The one-year declines are the largest recorded by the survey.

One-year declines in 2021 are not calculated for 12th grade students because the 2020 data had sample sizes too small to calculate prevalence estimates for that year. That being said, the 2021 estimates are substantially lower than they were in 2019 for all reporting intervals (i.e., lifetime, past 12-month, and past 30-day use, as well as binge drinking).

These 2021 declines continue decreases in beer drinking prevalence that began in the early 2000s. Since then, past 12-month prevalence is down by about half. There were earlier declines going back to the mid-1990s in the lower grades and the 1980s in 12th grade, so there has been a very substantial decline in beer consumption among adolescents in recent decades.

Hard Liquor

Use of hard liquor is asked only of 12th grade students. In 2021 prevalence declined for lifetime, past 12-month, past 30-day use, as well as for binge drinking. These declines continued decreases that began around 2010, and for all measures of liquor use prevalence in 2021 is at

the lowest level ever recorded by the survey. Nevertheless, prevalence remains substantial, with almost one out of every five 12th graders reporting use of liquor in the past 30 days.

While high school seniors in the 1970s and 1980s were much more likely to report binge drinking beer than binge drinking liquor, seniors in the class of 2021 reported slightly higher levels of binge drinking liquor (11%) than binge drinking beer (9%).

A decline in liquor consumption among 12th graders actually began after about 1980 but was interrupted in the late 1990s by the relapse phase in the use of most drugs, including alcohol. After about 2002 the long-term decline in alcohol use resumed.

Wine

Wine consumption is asked only of 12th grade students. In 2021 prevalence declined for lifetime, past 12-month, and past 30-day use, as well as for binge drinking. These declines continued a decrease that began around 2000, and for all measures of wine use, prevalence in 2021 is at the lowest level ever recorded by the survey.

In 1988 MTF added a question on wine coolers, which had the effect of sharply reducing self-reported wine use. (Up to that point many users of wine coolers likely reported such use under wine.) Prevalence of wine use rose somewhat during the 1990s drug relapse but continued a long-standing decline in 2001.

As with liquor, the longer term decline in wine consumption that began in the late 1980s was interrupted in the 1990s during the relapse phase in drug and alcohol use.

Wine Coolers

Beginning in 2004, questions on wine coolers were asked only of 12th grade students. They have lost much of their appeal among the adolescent population since the survey began tracking their use in the 1980s. Prevalence in 2021 was at a record low for all measures (lifetime, past 12-month, past 30-day, and binge use). In 2021 about one in ten 12th graders had consumed a wine cooler in the past 30 days.

Cigarettes

The percentage of adolescents who smoked a cigarette declined in 2021 in all three grades for lifetime, past 30-day, and daily use. With these declines, cigarette prevalence in 2021 is at the lowest ever recorded by the survey for all these reporting intervals.

There was little change in the percentage of students who used half-pack+ /day in 2021, in large part because prevalence has been less than 1% in all three grades since 2018 and has little room to fall further.

The intense public debate in the late 1990s over cigarette policies likely played an important role in bringing about the very significant downturn in adolescent smoking over the past two decades. MTF helped to give rise to that debate, as it publicly reported in the first half of the 1990s that the level of smoking among U.S. adolescents was rising sharply—results that were widely covered in the national media. Other subsequent developments likely have contributed,

including (a) increases in cigarette prices, brought about in part by the tobacco industry settlement with the states and by state-level taxing decisions; (b) substantially increased prevention activities, including antismoking ad campaigns in a number of states; (c) the removal of certain types of advertising (including billboards) as well as the Joe Camel campaign nationwide; (d) the initiation of a national antismoking ad campaign by the American Legacy Foundation, which was created under the conditions of the tobacco Master Settlement Agreement of 1998; and (e) efforts by the Food and Drug Administration (FDA) and states to reduce youth access to cigarettes.

An important milestone occurred in 2009 with passage of the Family Smoking Prevention and Tobacco Control Act, which gave the U.S. Food and Drug Administration the authority to regulate the manufacturing, marketing, and sale of tobacco products. New efforts by the FDA have undoubtedly contributed to the continuing decline in use of cigarettes and their reported availability by 8th, 10th, and 12th graders.

In earlier years, efforts to reduce adolescent smoking did not meet with as much success. Between 1984 and 1992 smoking prevalence was little changed among 12th grade students despite increasingly restrictive legislation with regard to smoking debated and enacted at state and local levels, as well as prevention efforts made in many school systems. These results suggest that the successful reduction of adolescent smoking, as we have seen in recent decades, requires a concerted, national, multi-pronged effort.

During the 1990s trends in cigarette smoking generally moved in concert across 8th, 10th, and 12th grades—and not in the usual, staggered pattern indicative of a cohort effect. The prevalence of current smoking began to rise among 8th and 10th graders after 1991 and among 12th graders after 1992, and until 1996 moved steadily upward in all three grades. In 1996, current smoking peaked in grades 8 and 10 and then peaked a year later among 12th graders. It is interesting that cigarettes, which normally reflect cohort differences, began to exhibit a secular trend in the same historical period that illicit drugs, which normally exhibit secular trends, began to show cohort effects.

Of particular importance is the fact that in all three grades in 2021 the prevalence of smoking half-a-pack or more per day is down from peak levels by more than 90%.

[Nicotine Vaping](#)

The percentage of students who vaped nicotine decreased substantially in 2021 in all three grades for lifetime, past 12-month, and past 30-day use. These are the first major declines to take place since the project started tracking nicotine vaping in 2017. These declines follow a leveling that took place the previous year from 2019–2020. This leveling occurred after two of the largest increases in prevalence ever recorded by the project for any substance, from 2018–2019 and from 2017–2018.

The 2021 declines likely stemmed from both the constraints imposed on social interactions during the COVID-19 epidemic, as well as national policy specifically designed to reduce adolescent nicotine vaping. In 2020 the U.S. Food and Drug Administration (FDA) prohibited nicotine vaping flavors that have been especially attractive to adolescents, such as mint and

fruit flavors, and allowed only the flavors of tobacco and menthol. Restricting flavors to those not desired by adolescents is expected to reduce their appeal and, ultimately, their prevalence among adolescents.

The prevalence of adolescent nicotine vaping may decrease much further next year, following the closing of a legal loophole. Some companies continued to market nicotine vaping devices with flavors banned by the FDA and claimed they were able to do so because they used synthetic nicotine, which has uncertain regulatory status. In March of 2022 the U.S. Congress gave the FDA authority to regulate synthetic nicotine, and this went into effect on April 15, 2022. Presumably this new authority will lead to a substantial reduction of attractive flavors available to adolescents and thereby reduce their nicotine vaping.

[JUUL](#)

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[Marijuana Vaping](#)

Lifetime and past 12-month prevalence of marijuana vaping declined in all three grades in 2021. In 8th and 12th grade these are the first declines in marijuana vaping observed by the project since these measures were first added to the survey in 2017.

The large increases in marijuana vaping in previous years were not accompanied by increases in overall marijuana use. These results suggest that marijuana vaping is increasing the pool of adolescent marijuana users. It could substitute for combustible marijuana use, it could serve as a way for marijuana users to avoid detection by adults (because vaped marijuana does not have

the distinctive smell of combustible marijuana), and/or it could be a way for users to supplement their combustible marijuana use.

The declines in 2021 parallel those for overall marijuana use, and took place during the COVID-19 pandemic, when social distancing policies were implemented specifically to reduce social interactions outside of the home. These policies included school building closures, reductions and/or cancellations of after school group activities, and physical distancing policies requiring people to stay six feet from others. For many, these policies likely reduced adolescents' access to drugs, as well as their opportunities to use them free from adult supervision.

Just Flavoring Vaping

The percentage of youth who report that they vaped “just flavoring” in their lifetime and in the past 12 months declined substantially and significantly in all three grades in 2021. The declines in 2021 were preceded by two years of declines, particularly in grades 10 and 12. Nevertheless, this behavior remains somewhat common, with one in four 12th graders reporting that they vaped ‘just flavor’ in their lifetime and more than one in ten reporting having done so in the last 12 months.

Practically all youth who report vaping ‘just flavoring’ also report vaping nicotine (see graphs and tables for “Flavoring vaping with no nicotine vaping”). Most adolescents who vape “just flavoring” are doing so as a supplement to their nicotine vaping and not as a substitute for it.

Flavoring with no Nicotine Vaping

In 2017 MTF started asking students if they vaped “just flavoring.” A substantial prevalence of this outcome could raise at least two potential scenarios. First, it could be possible that a portion of youth believed they were not vaping nicotine when in fact they were. Second, if students truly were vaping only flavoring, then the recent large increases in adolescent vaping may be less alarming than it at first appears—to the extent that adolescents are not being exposed to the addictive chemical nicotine.

These two potential scenarios are not supported by the results. The finding that in 2021 less than 1% of students in all grades report vaping flavoring exclusively without nicotine use in the past 30 days indicates that practically all students who report vaping “just flavoring” are also nicotine vapers.

Smokeless Tobacco

The percentage of youth who used smokeless tobacco in 2021 decreased for lifetime and past 30-day use. These decreases continued a long-standing decline that began in the late 1990s. Both lifetime and past 30-day smokeless tobacco use are currently at the lowest levels ever recorded by the survey.

Daily use of smokeless tobacco is at near-negligible levels, with a prevalence less than 1% for all grades.

Trends in smokeless tobacco stand out as very different from trends for adolescent use of other drugs. Unlike almost all other substances, use of smokeless tobacco did not increase during the 1990s relapse but actually declined for nearly 10 years, beginning around 1994. Further, smokeless tobacco is one of few substances for which prevalence increased after 2007, although this increase among 10th and 12th grade students was not lasting. Finally, the trends show little in the way of cohort effects, given that trends have moved in parallel and not in staggered fashion for all three grades. These results suggest that the factors leading to use of smokeless tobacco are much different from the drivers of use of other drugs.

Questions about the use of smokeless tobacco were first introduced in 1986, omitted in 1990 and 1991, and then reintroduced in 1992. Through 2010, the examples of smokeless tobacco provided were snuff, plug, dipping tobacco, and chewing tobacco; because of new forms of smokeless tobacco entering the market, snus and dissolvable tobacco were added to the examples in 2011. The introduction and promotion of new smokeless products, including snus, may well have contributed to the increase in use seen in all grades that peaked around that time.

Snus

Annual prevalence for using snus stood at 1.2%, 1.0%, and 2.6% for 8th, 10th, and 12th graders, respectively in 2021.

Snus is a variation on smokeless tobacco, as are some other dissolvable tobacco products, that literally dissolve in the mouth. Questions on snus were added to the 12th grade survey in 2011 and to the 8th and 10th grade surveys in 2012. Past year prevalence had been falling quite sharply in the upper grades since the introduction of those questions. The upper grades have tended to have considerably higher levels of use—at least until 2020. In 2021 there was some further decline in 8th and 10th grades, and their prevalence levels merged.

Clearly snus has lost most of its appeal to teenagers, possibly in part due to the sharp increases in the popularity of vaping.

Dissolvable Tobacco

Questions on the use of dissolvable tobacco were added to the 12th grade in 2011 and to 8th and 10th grades in 2012. The annual prevalence levels since then have been variable but below 2% in all grades and all years since. In 2021 10th graders showed a steep drop in use while 8th graders showed a small increase, and 12th graders showed no change since 2019. (There were too few 12th grade respondents available in 2020 to make a reliable estimate.) Despite the low prevalence levels, it is clear that use is trending further down still.

Large Cigars

Use of large cigars has declined overall since 2014 in all three grades. Since 2019 a steep decline in prevalence of 30-day use has taken place among 12th grade students, falling by more than half from 5.3% in 2019 to 2.3% in 2021. The trend has also been down in 8th and 10th grades, which in 2021 have a 30-day prevalence of 1.1% in 8th grade and 1.3% in 10th.

Flavored Small Cigars

Use of flavored cigars has declined overall since 2014 in all three grades. Since 2019 a steep decline in prevalence has taken place among 12th grade students, falling by more than 50% from 7.7% in 2019 to 1.9% in 2021. The two lower grades showed about a 50% decrease in 30-day prevalence from 2020 to 2021.

Regular Small Cigars

Use of regular small cigars has declined overall since 2014 in all three grades. Since 2019 a steep decline in prevalence has taken place among 12th grade students, falling by more than half from 4.9% in 2019 to 1.8% in 2021. Prevalence levels in 2021 for all three grades are the lowest ever recorded by the survey.

Small Cigars

The percentage of 12th grade students who used a small cigar in the past 12 months has declined overall since first measured in 2010, and this decline continued in 2021. Prevalence dropped steeply from 7.8% in 2019 to 3.4% in 2021, which is the lowest level ever recorded by the survey.

Tobacco Using a Hookah

A hookah is a device to inhale combustible tobacco and consists of a long, flexible tube through which users inhale tobacco smoke that has passed through water and is thereby cooled. In 2021 the percentage of 12th grade students who used a hookah in the past 12 months was at the lowest level recorded by the survey. The 2021 level of 2.1% is more than ten times lower than the high of 23% recorded in 2014.

Any Nicotine Use

Any nicotine use in the past 30 days decreased in 2021, continuing a decline that started in 2019.

Any nicotine use was indicated by any use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.

Any Nicotine Use other than Vaping

Any nicotine use other than vaping in the past 30 days has declined substantially since first measured in 2017 in 12th grade and in 2019 for 10th and 8th grade. The decrease is quite dramatic in 12th grade, falling by well over half from 21% in 2017 to 8% in 2021; it fell by roughly half in all three grades in the two-year interval from 2019 to 2021.

In contrast, the outcome of “any nicotine use” shows relatively less decline, underscoring the role of nicotine vaping on overall nicotine prevalence.

Steroids

Prevalence of steroid use declined for lifetime and past 12-month use in all three grades, significantly so for 8th and 10th grades. These declines more than countered a slight increase that had taken place the year before. With these declines, lifetime and past 12-month prevalence are at the lowest levels ever recorded by the survey and near the lowest for 8th grade.

Prevalence of past 30-day steroid use was less than 1% in all three grades.

Between 1998 and 1999 annual prevalence increased from 1.2% to 1.7% in both 8th and 10th grades. The fact that the rise came the year following Mark McGuire setting a new home run record in baseball and exposing the fact that he had been using androstenedione (a steroid precursor) raised the distinct possibility that that this one historical event may have driven a sizeable increase in the number of young adolescent boys using steroids.

Creatine

Creatine is not a hormone or a drug but a nutrient found in the skeletal muscle of most animals. It is used to reduce the recovery time of muscles, to increase muscle mass, and to thereby enhance performance for high-intensity, short-duration exercises. It is readily available over the counter and not prohibited by the NCAA, which undoubtedly helps to explain the high levels of use we have found among teens. Annual prevalence has not fluctuated systematically since the survey first started tracking this substance in 2011; it has varied between 1% and 3% in 8th grade, 5% and 8% in 10th grade, and 7% and 12% in 12th grade.

Creatine is one of few drugs for which use actually increased in 2021 in all three grades, although these increases were not statistically significant. It is possible that some adolescents focused on fitness and building up their physique during the pandemic.

Androstenedione

Androstenedione, a precursor to testosterone, is a performance-enhancing substance that was scheduled by the Drug Enforcement Administration early in 2005, making its sale and possession no longer legal. Since that time, as well as prior to that time, use declined markedly. In 2021 prevalence in the past 12 months among 12th grade students was only 0.6%. The survey stopped tracking this drug among 8th and 10th graders after 2014, when prevalence levels were less than 1% in these grades.

Legal Stimulants

Diet Pills

Use of diet pills, which are over-the-counter stimulants, were at the lowest level ever recorded by the survey in 2021 for lifetime, past 12-month, and past 30-day use.

Today's levels of past 12-month use are more than five times lower than their peak of 21% in 1982, when diet pills were first included on the survey. After 1982, prevalence fell quickly over the next ten years to 8% in 1993; this was a particularly positive development because nearly all of these diet pills contained phenylpropanolamine, which the Food and Drug

Administration has since determined have health risks for the user and in 2005 removed them from over-the-counter sale. Use stabilized through the mid-1990s at around 9.4%, rose after 1998 to reach 15.1% in 2002, and then declined to today's low of 2.5%.

Stay-Awake Pills

Use of stay-awake pills, which are over-the-counter stimulants, were at the lowest level ever recorded by the survey in 2021 for lifetime, past 12-month, and past 30-day use.

Levels of past 12-month use in 2021 are more than seventeen times lower than the peak level of 26% in 1988. Since then prevalence of stay-awake pills has gradually declined somewhat irregularly with no periods of sustained increases.

OTC Cough/Cold Medicine

There are a number of over-the-counter drugs that can be used to relieve symptoms from coughing or having a cold. Several of them, like Robotussin[®] and Tylenol[®] contain dextromethorphan (DXM). When taken in large doses, its side effects can mimic those of some illegal drugs, like hallucinations and sensory changes. Teens can buy them to use for these purposes and risk a number of dangerous side effects.

Not all cough and cold medications contain DXM, of course, but because a number of them do, we track the more general class to get an indication of changes in DXM abuse.

Questions on non-medical use of cough and cold medicines in the past 12 months were introduced in 2006 and were at the highest level that we have measured that year in grade 12 (6.9%), while at 10th grade the highest level was in 2009 (6%). Both of these grades exhibited a fairly steady decline and reached their low points in 2019 among 10th graders (at 2.6%) and in 2021 among 12th graders (at 1.7%). However, 8th graders followed a different path, declining steadily through 2014 but then rising sharply through 2020.

The long term declines may be driven in part by quite a number of states banning the sale of products containing dextromethorphan to minors without a prescription.

All three grades showed declines in 2021, none being significant.

Legal Use of Drugs for the Treatment of ADHD Taken Under Medical Supervision

ADHD

In 2021 both lifetime and 30-day prevalence of taking either a stimulant or non-stimulant drug for the medical treatment of ADHD significantly increased in 8th grade. In 10th grade and 12th grade it generally increased about one percentage point, although this increase was not statistically significant.

In all three grades these increases reversed a long-standing decline that had led both lifetime and 30-day prevalence to be at or near the lowest level recorded by the survey in 2020.

While the use of either type of ADHD drug declined among 8th and 10th graders from 2006 through 2014, such use actually increased over the same interval among 12th graders. After that, all three grades showed declines in use until 2021, when 8th and 12th graders showed the increase in use noted above.

ADHD Stimulant

Unlike use of almost all other drugs, the lifetime and 30-day use of stimulant type drugs for the medical treatment of ADHD actually increased in 2021 in all three grades. The increases were statistically significant in 8th grade but not in 10th and 12th grades.

It is conceivable that there was an increase in the need for treatment during the pandemic due to adolescents being under more stress during the pandemic. Another possibility is that sheltering at home during the pandemic may have made any attention issues of adolescents more salient to their parents.

ADHD Non-Stimulant

Non-stimulant type drugs for the treatment of ADHD are sometimes prescribed when stimulants have proven ineffective or not well tolerated.

The percentage of youth who have ever taken them for the treatment of ADHD decreased substantially in 2021 in 8th and 10th grade, but not in 12th grade.

In all three grades, levels of lifetime use in 2021 were at the lowest levels ever recorded by the survey.

DRUGS NO LONGER TRACKED ANNUALLY

The drugs listed below did not appear on the 2021 MTF surveys. In most cases prevalence levels fell so low that survey questions on the drug were removed to make room for questions on other drugs, as well as to reduce respondent burden. In some cases, as with “electronic vaporizers,” questions were removed to make place for updated terminology and measures.

Bath Salts

Questions on "bath salts" (synthetic cathinones) were added to the survey in 2012 out of concern that these particularly toxic drugs would gain popularity among adolescents. As it turns out, annual prevalence has been low and never higher than 1.3% in any grade. In 2018, prevalence was 0.9% or less in all grades, and the survey questions were removed to make room for questions on other drugs. These questions will be added back to the survey in future years if a concern arises that adolescent use of bath salts is making a comeback.

Amyl and Butyl Nitrites

Amyl and butyl nitrites, one class of inhalants, became somewhat popular in the late 1970s, but their use has been almost eliminated in the years since. The annual prevalence level among 12th grade students was 6.5% in 1979 but only 0.9% in 2009. Because of this decrease in use, and to allow for the addition of other questions, the questions on nitrite use have not been included in the study since 2010. These questions will be added back to the survey in future years if a concern arises that adolescent use of these nitrites is making a comeback.

When nitrites were included in the definition of inhalants, they masked the increase that was occurring in the use of other inhalants, because their use was declining at the same time that the use of the other inhalants was increasing.

Methaqualone

Methaqualone use (brand name Quaalude®) had an annual prevalence among 12th graders of 0.4% in 2012, after which it was no longer included on the survey in order to make room for questions on other drugs. Previously, use of this drug rose sharply from 1978 until 1981. Starting in 1982 use began to decline, helping to account for the overall adjusted sedative index resuming its decline that year. Annual prevalence for methaqualone plummeted from 7.6% in 1981 to 0.2% by 1993; it then inched up a bit during a relapse phase in the 1990s to 1.1% in 1996, where it remained in 1999. By 2012 it was down to 0.4%, a tiny fraction of its peak level.

Provigil

Questions on use of Provigil® (a prescription stay-awake drug used for narcolepsy, shift work, etc.) were added to the 12th grade questionnaires in 2009. In 2011 past-year prevalence was 1.5%, suggesting that this drug had not made serious inroads among youth in terms of non-medically-supervised use. Given the low use, questions on Provigil were no longer included on the survey starting in 2012. These questions will be added back to the survey in future years if a concern arises that adolescent use of Provigil is making a comeback.

Bidis

A question about bidis, a type of flavored cigarette imported from India, was included in the MTF questionnaires for the first time in 2000, with a single tripwire question asking about the frequency of use in the past year. Some observers had been concerned that bidis might become popular among U.S. youth, but that does not seem to have been the case. The 2010 proportion of 12th graders using bidis during the past year was only 1.4%. Thirty-day and daily use would be appreciably lower. Given the low prevalence levels, the question on bidis was dropped from 8th and 10th grade questionnaires in 2006 and from 12th grade questionnaires in 2011. These questions will be added back to the survey in future years if a concern arises that adolescent use of bidis is making a comeback.

Kreteks

A question about kreteks, a type of clove cigarette that was usually imported from Indonesia, was added in 2001 to the list of tripwire questions that ask only about past-year use. Because the prevalence levels turned out to be low, this question also was dropped in 2006 from the 8th and 10th grade questionnaires to make room for other questions. In 2014, only 1.6% of 12th graders reported any use of kreteks in the prior 12 months, and the question has not been included on the survey since then. These questions will be added back to the survey in future years if a concern arises that adolescent use of kreteks is making a comeback.

SUMMARY OF TRENDS

As these varied patterns of use show, the overall proportion of U.S. adolescents using any substance in their lifetime has changed over the years, and the mix of drugs they use has changed even more. A number of drug classes showed dramatic declines (particularly in the 1980s), some showed substantial increases (particularly in the late 1970s and again in the 1990s), and some remained fairly stable. Further, the periods in which they either increased or decreased varied considerably, although between 1992 and 1996—the “relapse phase” of the epidemic—the use of many drugs increased and by 1997 the use of most had stabilized. Afterwards most have declined in use to some degree, sometimes very sharply, as was seen with LSD and MDMA; however, this was not true of all illicitly used drugs—in particular the prescription type drugs such as narcotics other than heroin, sedatives, and tranquilizers continued to increase well into the 2000s before they began their current declines, making them an important part of the nation’s drug problems. In recent years vaping of nicotine and marijuana has made a sudden and dramatic entrance on to the scene, demonstrating once again the ever changing nature of adolescent substance use and, consequently, the need to continually monitor and address emerging trends.

TRENDS IN NONCONTINUATION RATES: 12th GRADERS

Table 5-7a shows how the noncontinuation rates observed for the various classes of drugs have changed over time among 12th graders. “Noncontinuation” refers to not using a drug in the prior 12 months after having used it at some earlier time in one’s life. In other words, the noncontinuation rate is the percent of lifetime users who did not report using the drug in the past 12 months (or in the case of cigarettes, in the past 30 days). These rates and the changes in them over the years are shown in Table 5-7a for lifetime users; in Table 5-7b the noncontinuation rates are based on 12th graders who are “experienced users” (i.e., used the drug 10 or more times in their lifetime). An important caution is that these estimates are based on students who have ever used specific drugs, and the estimates can vary substantially from year to year for drugs with lower prevalence and thus small numbers of cases.

- The noncontinuation rate for [nicotine vaping](#) more than doubled between 2019 and 2021, a time period when nicotine vaping plateaued and then began to decline. In contrast, nicotine vaping noncontinuation rates were exceedingly low, at 13% and 14% in 2018 and 2019, when prevalence increased dramatically. These results suggest that in recent years the decline in adolescent nicotine vaping partly stems from an increasing percentage of adolescents who discontinue use after initiating use.
- Noncontinuation had to be defined differently for [cigarettes](#) because respondents are not asked to report on their cigarette use in the past year. The noncontinuation rate is thus defined as the percentage of those who say they ever smoked in their lifetime who also reported not smoking at all during the *past 30 days* rather than the past year. In 2021 noncontinuation of cigarettes continued its long-term increase and was at the highest level ever recorded by MTF at 77%.
- Noncontinuation of [smokeless tobacco](#) was at its highest recorded level in 2021 at 74%. One possibility is that nicotine vaping is displacing teen use of cigarettes and smokeless tobacco, a hypothesis that warrants close consideration.
- The noncontinuation rate for [marijuana vaping](#) has more than doubled in the past three years, from 12% in 2019 to 29% in 2021. Part of the reason for these increased rates may be the outbreak of vaping-related lung injury in 2020, which was [linked](#) to marijuana vaping.
- Overall [marijuana](#) use by any method has one of the lowest rates of noncontinuation of any of the illicit drugs (Table 5-7a). In 2021, the noncontinuation rate was only 21%, and has hovered in a narrow window between 18% and 26% over the last two decades.

During the 1990s marijuana noncontinuation rates fell by half, from a high of 35% in 1991 to a low of 17% in 1995, indicating that the substantial increase in prevalence during this period represented not only an increase in youth adopting marijuana use, but also sharply lower levels of users desisting from it. Previous to 1992, noncontinuation had gradually increased since the early 1980s, and with these higher rates of noncontinuation came a decrease in marijuana prevalence during those same years.

- In 2021 among the 2.5% of 12th graders who had ever used [cocaine](#), about half of them (52%) did not use (i.e., were noncontinuers) in the past 12 months. The increased level of noncontinuation in 2021 is a reversal of an uneven decline of 46% in 2010 to 31% in 2020. Overall cocaine prevalence declined during this time, consistent with the substantial reduction in the number of youth ever initiating cocaine use.

Noncontinuation has played a substantial role in the changing prevalence of cocaine use over the life of the survey. The noncontinuation rate decreased from 38% in 1976 to 22% in 1979, corresponding to, as well as contributing to, a period of increase in the annual prevalence of its use. It then remained fairly stable through 1986, corresponding to a period of stability in prevalence of use. After 1986, the noncontinuation rate rose very substantially—from 25% in 1986 to 55% in 1991—as the annual prevalence of use fell dramatically. This pattern strongly suggests that the sharp increase in perceived risk, which began in 1986, influenced both the initiation rate and the noncontinuation rate. After 1991, during the relapse phase in the epidemic, the noncontinuation rate began declining fairly rapidly once again, reaching 31% by 1996. (The prevalence of cocaine use overall was increasing during that period.) After 1996, the noncontinuation rate rose again—corresponding to a period of leveling in overall use—reaching 42% by 2000. In sum, the prevalence of cocaine use over three decades demonstrates that both noncontinuation and initiation play an important role in driving prevalence trends in drug use.

- The noncontinuation rate for [crack cocaine](#) was 52% in 2021, the highest level recorded since 1991. It has previously fluctuated between 37% and 45% for the past decade.

Noncontinuation played a substantial role for crack cocaine use both before and during the 1990s relapse. Noncontinuation rose dramatically from 28% in 1987 to 52% in 1991, before the relapse began and as prevalence of use declined among 12th graders. The noncontinuation rate fell back to 30% by 1995 as usage rates rose. Noncontinuation then began to increase once again, reaching 43% by 1998, when overall use leveled.

- Noncontinuation of past-year [amphetamine](#) use outside of medical supervision was 52% in 2021, the highest level ever recorded by the survey since measurement began in 1975. It has been steadily increasing since 2015, when it was 29%. Prevalence of amphetamines has declined while fewer 12th grade students have continued use since 2015.

This increase in recent years marks the end of a two-decade period from 1995 to 2015 when both noncontinuation and amphetamine prevalence showed little systematic variation. Previous to 1995, amphetamine noncontinuation showed considerably more variation and had greater influence on amphetamine prevalence. It rose between 1982 (27%) and 1992 (49%) as use declined. Between 1992 and 1996, when overall use was rising, noncontinuation fell from 49% to 38% then remained fairly level, corresponding to a period of leveling in use.

- Noncontinuation of [sedative \(barbiturate\)](#) use outside of medical supervision was 49% in 2021, the highest level recorded since 1992. Levels have increased monotonically since 2017, during which time prevalence has declined.

Prior to 2017 sedative noncontinuation hovered in the low to mid 30% range since 1995. Prior to 1995 noncontinuation showed more variation and exerted a substantial influence on sedative prevalence. Much of the decline in sedative use during the 1980s was accounted for by increasing rates of noncontinuation for the specific substances in this class. For example, in the case of [barbiturates](#), the noncontinuation rate rose from 36% in 1979 to 52% in 1988. It then declined in the 1990s—as use rose—to 37% by 1995, after which it leveled for several years and then declined further to 30% in 2002. The noncontinuation rate for *methaqualone* was 29% in 1979, rising dramatically to 70% by 1990. Since 1990, use levels have been very low among 12th graders. Because of the very low numbers of cases upon which to base such estimates, methaqualone has been omitted from the tables and figures showing noncontinuation rates, and in 2013 that drug was dropped from the questionnaire.

- Noncontinuation of [tranquilizer](#) use outside of medical supervision was at all-time high of 62% in 2021, when its 12-month and 30-day prevalence was also at an all-time low among 12th grade students. Previously, noncontinuation of tranquilizer use had fluctuated between 29% and 45% since 1995. Prior to 1995 it showed more variation and exerted a substantial influence on tranquilizer prevalence. As overall use of tranquilizers declined during the 1970s and through the 1980s, 12th grade lifetime users also showed a steady, gradual increase in their noncontinuation rates between 1975 and 1982, from 38% to 50%. This rate changed little for a decade until, in the period of the 1990s drug relapse, noncontinuation of tranquilizers declined from 53% in 1992 to 36% in 1996 and prevalence increased. The rate has remained fairly level since then, reflecting a period of relatively high, but gradually declining use.
- Noncontinuation rates for [steroid](#) users are quite volatile due to a combination of low prevalence and being assessed on only two (and later three) questionnaire forms. For the past decade these rates had varied between 24% and 37%; in 2021 it was 39%.
- [Alcohol](#) has had the lowest rate of noncontinuation in every year of the survey and in 2021 it was 14%. In previous years it increased gradually from about 1988 (when it was 7%) to 1993 (when it was 12%), perhaps reflecting the changed norms regarding its use (see Chapter 8). These norms, in turn, may have reflected both the influence of a number of states changing the legal drinking age and a greater emphasis being placed on the dangers of drunk driving.

Table 5-7b provides noncontinuation rates for 12th graders who were “experienced users” of the various drugs, here defined as those who reported having used a drug on 10 or more occasions during their lifetime. It shows that noncontinuation is far less likely among more experienced users than among less experienced users of a given drug, often three times lower or more. Further, while the direction of the trends in noncontinuation rates among all users have been similar to trends observed in the same drugs for experienced users, the degree of fluctuation in noncontinuation has tended to be considerably smaller among more experienced users.

The numbers of cases upon which each percentage in Table 5-7b is based are considerably smaller than in most other tables, particularly when overall use is low to start with; therefore, the trend

data are somewhat uneven. The following are some important trends we have seen for noncontinuation rates of experienced users:

- The noncontinuation rate for experienced [marijuana](#) users has been very low throughout the past 45 years, ranging from a low of 4% in 1975 to a high of only 12% in 1990. In 2021 it was at a near historic low level at 5%.
- Noncontinuation had to be defined differently for [cigarettes](#) because respondents are not asked to report on their cigarette use in the past year. The noncontinuation rate is thus defined as the percentage of those who say they ever smoked “regularly” who also reported not smoking at all during the *past 30 days* rather than the past year.

In 2021 the noncontinuation rate was 36%, the second highest level recorded by the survey since 2015. The previous high was in 2019, at 43%. These high levels of noncontinuation in recent years contribute to the lowest prevalence levels of 12th grade cigarette use ever recorded by the study.

The noncontinuation level in 2021 is almost triple [$36/13=2.8$] the nadir of 13% that was reached in 1997, at the height of the drug relapse. Increases in noncontinuation rates suggest that it is possible for many youth who have smoked regularly to stop before they develop a lifelong dependence on cigarettes and the associated health consequences. Nevertheless, even today the vast majority of youth who develop a smoking habit early do not stop by 12th grade, highlighting cigarette use as a particularly addictive behavior.

IMPLICATIONS OF NONCONTINUATION FOR PREVENTION

Wherever prevention programs are designed—whether for schools, families, communities, or the media—questions arise as to what *should* be prevented and what *can* be prevented. While it is axiomatic that the initiation of use should and can be prevented, there has been considerably less consensus as to whether the discontinuation of use is a realistic goal for prevention efforts. We believe the results just presented here help to inform that debate.

The findings show that whatever social forces brought about the large declines in drug use during the 1980s and the substantial increases during the 1990s operated through effects on *both* initiation and noncontinuation rates. Put another way, the decreases and subsequent increases in annual and 30-day prevalence-of-use were considerably larger than could be explained by fluctuations in initiation rates alone. These findings show that noncontinuation *can* and *does* change appreciably and, therefore, that any comprehensive prevention strategy should include increasing cessation—that is, preventing continuation and escalation among users—as one of its objectives, particularly cessation from early-stage use.

The findings show the importance of distinguishing among users at different levels of involvement. A comparison of the noncontinuation rates in Table 5-7a, based on all previous users, and Table 5-7b, based on only experienced users (those who reported having used a given drug 10 or more times) is highly instructive. Clearly, 12th graders in the early stages of use were appreciably more likely to discontinue their use than their counterparts who had greater involvement with the drug.

This makes early intervention in terms of turning initial experimental use into non-use not only a viable goal for prevention, but also a particularly important one.

TREND COMPARISONS AMONG SUBGROUPS

We present trends across demographic subgroups in [Occasional Paper 97](#) on the following six dimensions: gender, college plans, region of the country, population density, socioeconomic status as indicated by parental education, and race/ethnicity. The tables are organized by drug and, within drug, separately by the three grade levels. Of particular importance, a matching set of figures is also provided showing each drug's usage trends by subgroup for all three grade levels. We recommend use of the graphic versions to those examining subgroup differences. The table of contents in that document contains live links to each of the figures to facilitate look-up.

It is not possible to concisely summarize here all the information contained in Occasional Paper 97. It lists 193 tables, most with dozens of years of data and each with at least 15 comparisons (e.g. male v. female, Northeast v. Midwest, Northeast v. South, etc.), which amounts to thousands of comparisons. Each one of these comparisons could potentially warrant a separate paper in itself.

Below we note some general observations about trends among the major subgroups up to 2021, and we encourage readers who would like more detail to consult Occasional Paper 97 and perhaps even consider analyzing the data themselves at MTF's [remote portal](#) for researchers.

One overarching trend for almost all drugs is that subgroup differences typically become smaller as the prevalence of a drug declines and, conversely, become larger when prevalence increases. Annual prevalence of tranquilizers among 12th grade students provides a good demonstration of this trend. In the early 1990s prevalence was relatively low and so were differences by gender, college plans, and race/ethnicity. As prevalence increased through the early 2000s so too did these differences. In more recent years prevalence has dropped to the lowest levels recorded by the survey, and these differences either disappeared or were minimal. The trend of decreasing differences with decreasing prevalence suggests that in many cases efforts to reduce overall adolescent drug use also inherently reduce demographic differences.

A recent trend for *gender differences* that continued in 2021 was higher levels of use among 12th grade females v. males for a number of high prevalence drugs. In 2021 12th grade females had slightly higher levels of past 12-month marijuana use, past 30-day alcohol use, binge drinking, and nicotine vaping. This marks a contrast from higher relative levels for males, which until recently had persisted for most of the life of the study.

MTF compares differences in drug prevalence for *college-bound* and what we term non-college bound students, defined, respectively, as those who say they “definitely will” or “probably will” graduate from a *four-year college* and those who say they “probably won’t” or “definitely won’t.” It is important to note that the proportions of young people expecting to graduate from a four-year college have risen dramatically over the more than four decades covered by MTF.¹⁰ In the mid-

¹⁰ For a description of earlier changes in the demographic makeup of the MTF samples and a discussion of their implications for substance use, see Johnston, L. D. (2001). [Changing demographic patterns of adolescent smoking over the past 23 years: National trends from the Monitoring the Future study](#). In *Changing adolescent smoking prevalence: Where it is and why* (Smoking and Tobacco Control Monograph No. 14, NIH Pub. No. 02-5086, pp. 9–33). Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

1970s, only about half of 12th graders expected to complete college, compared to 80% in more recent years. This means that the two comparison groups are changing proportions of the total population and, therefore, do not represent equally-sized segments of the population across time.

In general, students who do not expect to complete four years of college have higher prevalence—sometimes substantially so—for nearly all of the illicit drugs, alcohol, tobacco, vaping of all substances, and even steroids.

Adolescent drug use differs little by *region of the country*, defined by the U.S. Census Bureau as the four groupings of Northeast, Midwest, South, and West. Occasionally one of these regions may stand out from the others for its high or low prevalence of a specific drug, but typically such differences do not last for long periods of time. Some notable exceptions are cigarette and tobacco use, which has long been lower in the West (although this difference has reduced to near-zero with declining prevalence in recent years), and cocaine use, which was much higher in the West and Northeast from the late 1970s to the early 1990s (but differs little across regions today).

MTF also presents in [Occasional Paper 97](#) trend comparisons by *population density*, defined by the three groups of (a) large MSAs, which contain most of the largest Metropolitan Statistical Areas from the most recent Census data; (b) other MSAs, which are the remaining Metropolitan Statistical Areas; and (c) non-MSAs (see Appendix B for more detailed definitions). Differences are strongest and most consistent for cigarette and tobacco use, with levels highest in the non-MSAs. These have long been present for 12th grade use of cigarettes, smokeless tobacco, dissolvable tobacco, large cigars, as well as the more recent, composite measure of “any nicotine use.” In contrast, the large MSAs have had relatively higher prevalence of marijuana than the non-MSAs throughout most of the study. Both the large and other MSAs have higher levels of marijuana vaping than the non-MSAs, a difference that has grown in recent years as prevalence has increased.

In general, there has been little change over time in the relationship between family *socioeconomic status* (SES), as measured by parents’ education, and prevalence of use for most of the drugs. Among 8th graders, drugs that have an association with SES show an inverse association. That is, the highest prevalence of drug use is found among 8th graders with the lowest family SES. This is true even among drugs that in the same time period have a positive association with SES at older ages. This pattern suggests that among younger adolescents at high SES levels a norm against all illegal drug use is stronger and/or more effective compared to those at lower family SES levels. Another possible explanation is that the lower-SES 8th graders are more likely both to use drugs and to later drop out of school. Among 12th graders most drugs do not show strong differences by SES. Exceptions include past 30-day and daily use of marijuana, both of which over the last five years increased among students with low SES and decreased among those with high SES, widening this disparity. Nicotine vaping is substantially lower among 12th grade students with low family SES, a disparity that was small when first assessed in 2017 and has since grown to a twofold difference. Use of cigarettes had been higher among students with low SES throughout the life of the study, but this disparity has diminished considerably in recent years as overall prevalence has decreased.

In general, prevalence of drugs across the three largest *racial/ethnic* groups¹¹ of Whites, African Americans, and Hispanics have exhibited parallel trends. Results are presented for these three groups using two-year moving averages of prevalence to provide smoother and more reliable trend lines. Even with the two-year averages, the trend lines tend to be a bit irregular for Hispanics, who are the most clustered by school, and, therefore, for whom we have the most variability in estimates.

African American students have the lowest levels of use of many of the licit and illicit drugs at all three grade levels being examined here, and they have consistently shown exceptionally low levels of use for any illicit drug use other than marijuana, hallucinogens, MDMA (ecstasy), cocaine, cocaine other than crack, and amphetamines. Further, for the past decade, their cigarette smoking and use of most tobacco products, alcohol, and binge drinking also have been lower than the use levels among Whites and Hispanics, although these racial/ethnic differences have become smaller with declining overall prevalence of these substances. African Americans also have the lowest levels of use of the vaping devices in all years since first measured in 2017, and rank lowest for nicotine vaping, marijuana vaping, and “just flavoring” vaping. While for some years they also had the lowest levels of marijuana use in the three grades, they lost that relative position in 1998 among 8th graders, in 2010 among 10th graders, and in 2007 among 12th graders.

In 8th grade, Hispanic students in past years tended to have higher levels of use than African American or White students of a number of drugs, including any illicit drug, cocaine, crack cocaine other than crack, methamphetamine, and binge drinking. However, the elevated use for Hispanics has diminished in recent years as overall use of all these substances has declined and by 2021 many of these differences are negligible. By 12th grade, the differences between Hispanic and White students narrow considerably or are reversed. It is possible that Hispanics students’ considerably higher level of school dropout may partly explain why White high school students assume the highest levels of use for some drugs, listed immediately below.

By 12th grade, White students have consistently had the highest level of use of hallucinogens other than LSD, amphetamines, 30-day alcohol use, drunkenness, binge drinking, 30-day liquor use, flavored alcoholic beverages, alcoholic beverages containing caffeine, cigarette smoking, small cigars, large cigars, snus, and nicotine vaping.

¹¹ We have published articles examining a wider array of ethnic groups, using groupings of respondents from adjacent five year intervals in order to obtain more reliable estimates of trends. See Bachman, J. G., Wallace, J. M., Jr., O’Malley, P. M., Johnston, L. D., Kurth, C. L., & Neighbors, H. W. (1991). [Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors, 1976–1989](#). *American Journal of Public Health*, 81, 372–377. See also Wallace, J. M., Jr., Bachman, J. G., O’Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Cooper, S. M. (2002). [Tobacco, alcohol and illicit drug use: Racial and ethnic differences among U.S. high school seniors, 1976–2000](#). *Public Health Reports*, 117(Supplement 1), S67–S75; Delva, J., Wallace, J. M., Jr., O’Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). [The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American eighth-grade students in the United States: 1991–2002](#). *American Journal of Public Health*, 95, 696–702; and Bachman, J. G., O’Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2010). [Impacts of parental education on substance use: Differences among White, African-American, and Hispanic students in 8th, 10th, and 12th grades \(1999–2008\)](#) (Monitoring the Future Occasional Paper No. 70). Ann Arbor, MI: Institute for Social Research; Miech, R. A., Terry-McElrath, Y. M., O’Malley, P., and Johnston, L. (2019). [Increasing marijuana use for black adolescents in the United States: A test of competing explanations](#) *Addictive Behaviors* 93, 59-64

TABLE 5-1
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Any Illicit Drug ^{a,b}	55.2	58.3	61.6	64.1	65.1	65.4	65.6	64.4	62.9	61.6	60.6	57.6	56.6	53.9	50.9	47.9
Any Illicit Drug other than Marijuana ^{a,b,c}	36.2	35.4	35.8	36.5	37.4	38.7	42.8	41.1	40.4	40.3	39.7	37.7	35.8	32.5	31.4	29.4
Marijuana/Hashish	47.3	52.8	56.4	59.2	60.4	60.3	59.5	58.7	57.0	54.9	54.2	50.9	50.2	47.2	43.7	40.7
Inhalants ^d	—	10.3	11.1	12.0	12.7	11.9	12.3	12.8	13.6	14.4	15.4	15.9	17.0	16.7	17.6	18.0
Inhalants, Adjusted ^{d,e}	—	—	—	—	18.2	17.3	17.2	17.7	18.2	18.0	18.1	20.1	18.6	17.5	18.6	18.5
Amyl/Butyl Nitrites ^{f,g}	—	—	—	—	11.1	11.1	10.1	9.8	8.4	8.1	7.9	8.6	4.7	3.2	3.3	2.1
Hallucinogens ^c	16.3	15.1	13.9	14.3	14.1	13.3	13.3	12.5	11.9	10.7	10.3	9.7	10.3	8.9	9.4	9.4
Hallucinogens, Adjusted ^{c,h}	—	—	—	—	17.7	15.6	15.3	14.3	13.6	12.3	12.1	11.9	10.6	9.2	9.9	9.7
LSD ^c	11.3	11.0	9.8	9.7	9.5	9.3	9.8	9.6	8.9	8.0	7.5	7.2	8.4	7.7	8.3	8.7
Hallucinogens other than LSD ^c	14.1	12.1	11.2	11.6	10.7	9.8	9.1	8.0	7.3	6.6	6.5	5.7	5.4	4.1	4.3	4.1
PCP ^{f,g}	—	—	—	—	12.8	9.6	7.8	6.0	5.6	5.0	4.9	4.8	3.0	2.9	3.9	2.8
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	9.0	9.7	10.8	12.9	15.4	15.7	16.5	16.0	16.2	16.1	17.3	16.9	15.2	12.1	10.3	9.4
Crack ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	5.4	4.8	4.7	3.5
Cocaine other than Crack ^j	—	—	—	—	—	—	—	—	—	—	—	—	14.0	12.1	8.5	8.6
Heroin ^k	2.2	1.8	1.8	1.6	1.1	1.1	1.1	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.3	1.3
With a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin ^{m,n}	9.0	9.6	10.3	9.9	10.1	9.8	10.1	9.6	9.4	9.7	10.2	9.0	9.2	8.6	8.3	8.3
Amphetamines ^{b,m}	22.3	22.6	23.0	22.9	24.2	26.4	32.2	27.9	26.9	27.9	26.2	23.4	21.6	19.8	19.1	17.5
Methamphetamine ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.7

Table continued on next page.

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Sedatives (Barbiturates) ^{m,p}	16.9	16.2	15.6	13.7	11.8	11.0	11.3	10.3	9.9	9.9	9.2	8.4	7.4	6.7	6.5	6.8
Sedatives, Adjusted ^{m,q}	18.2	17.7	17.4	16.0	14.6	14.9	16.0	15.2	14.4	13.3	11.8	10.4	8.7	7.8	7.4	7.5
Methaqualone ^{m,r}	8.1	7.8	8.5	7.9	8.3	9.5	10.6	10.7	10.1	8.3	6.7	5.2	4.0	3.3	2.7	2.3
Tranquilizers ^{c,m}	17.0	16.8	18.0	17.0	16.3	15.2	14.7	14.0	13.3	12.4	11.9	10.9	10.9	9.4	7.6	7.2
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s	90.4	91.9	92.5	93.1	93.0	93.2	92.6	92.8	92.6	92.6	92.2	91.3	92.2	92.0	90.7	89.5
Been Drunk ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	73.6	75.4	75.7	75.3	74.0	71.0	71.0	70.1	70.6	69.7	68.8	67.6	67.2	66.4	65.7	64.4
Smokeless Tobacco ^{ft}	—	—	—	—	—	—	—	—	—	—	—	31.4	32.2	30.4	29.2	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{ll}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	2.9
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	—	—	—	—	—	—	—	29.6	31.4	29.7	28.7	26.6	25.5	21.5	19.9	17.7
Stay-Awake Pills ^f	—	—	—	—	—	—	—	19.1	20.4	22.7	26.3	31.5	37.4	37.4	36.3	37.0
Look-Alikes ^f	—	—	—	—	—	—	—	15.1	14.8	15.3	14.2	12.7	11.9	11.7	10.5	10.7
Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non-Stimulant-Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Either Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Any Illicit Drug ^{a,b}	44.1	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2
Any Illicit Drug other than Marijuana ^{a,b,c}	26.9	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0†	30.7	29.5	27.7	28.7	27.4	26.9
Marijuana/Hashish	36.7	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3
Inhalants ^d	17.6	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1
Inhalants, Adjusted ^{d,e}	18.0	17.0	17.7	18.3	17.8	17.5	16.9	16.5	16.0	14.6	13.8	12.4	12.2	11.4	11.9	11.5
Amyl/Butyl Nitrites ^{f,g}	1.6	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2
Hallucinogens ^c	9.6	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0‡	14.7	12.0	10.6	9.7	8.8	8.3
Hallucinogens, Adjusted ^{c,h}	10.0	9.4	11.3	11.7	13.1	14.5	15.4	14.4	14.2	13.6‡	15.3	12.8	10.9	9.9	9.3	8.8
LSD ^c	8.8	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3
Hallucinogens other than LSD ^c	3.7	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9‡	10.4	9.2	9.0	8.7	8.1	7.8
PCP ^{f,g}	2.9	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5
Cocaine	7.8	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5
Crack ⁱ	3.1	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5
Cocaine other than Crack ^j	7.0	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9
Heroin ^k	0.9	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4
With a needle ^l	—	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.9	0.8
Without a needle ^l	—	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1
Narcotics other than Heroin ^{m,n}	6.6	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9‡	13.5	13.2	13.5	12.8	13.4
Amphetamines ^{b,m}	15.4	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4
Methamphetamine ^o	—	—	—	—	—	—	—	—	8.2	7.9	6.9	6.7	6.2	6.2	4.5	4.4
Crystal Methamphetamine (Ice) ^o	3.3	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4

Table continued on next page.

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Sedatives (Barbiturates) ^{m,p}	6.2	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8	9.9	10.5	10.2
Sedatives, Adjusted ^{m,q}	6.7	6.1	6.4	7.3	7.6	8.2	8.7	9.2	9.5	9.3	8.9	10.2	9.1	10.1	11.0	10.6
Methaqualone ^{m,r}	1.3	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2
Tranquilizers ^{c,m}	7.2	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9†	10.3	11.4	10.2	10.6	9.9	10.3
Rohypnol ^f	—	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—
Alcohol ^s	88.0	87.5‡	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7
Been Drunk ^o	65.4	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4
Cigarettes	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1
Smokeless Tobacco ^{ft}	—	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{ll}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	2.1	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	17.2	15.0	14.8	14.9	15.6	16.0	16.6	15.7	17.1	16.6	17.1	21.0	17.9	15.6	13.7	13.0
Stay-Awake Pills ^f	37.0	35.6	30.5	31.3	31.2	30.5	31.0	29.6	25.5	23.0	25.6	22.5	19.8	18.4	15.8	14.8
Look-Alikes ^f	8.9	10.1	10.5	10.3	11.6	10.7	10.8	9.4	9.2	10.0	9.8	9.6	8.6	8.1	7.4	5.7
Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.5	7.8
Non-Stimulant-Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.2	6.1
Either Type ^{aa}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	11.7

Table continued on next page.

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020–2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Any Illicit Drug ^{a,b}	46.8	47.4	46.7	48.2	49.9	49.1	49.8	49.1	48.9	48.3	48.9	47.8	47.4	46.6	41.3	-5.3 s
Any Illicit Drug other than Marijuana ^{a,b,c}	25.5	24.9	24.0	24.7	24.9	24.1	24.8	22.6	21.1	20.7	19.5	18.9	18.4	17.5	12.8	-4.6 sss
Marijuana/Hashish	41.8	42.6	42.0	43.8	45.5	45.2	45.5	44.4	44.7	44.5	45.0	43.6	43.7	43.7	38.6	-5.1 s
Inhalants ^d	10.5	9.9	9.5	9.0	8.1	7.9	6.9	6.5	5.7	5.0	4.9	4.4	5.3	3.8	5.0	+1.2
Inhalants, Adjusted ^{d,e}	11.0	10.1	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Amyl/Butyl Nitrites ^{f,g}	1.2	0.6	1.1	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens ^c	8.4	8.7	7.4	8.6	8.3	7.5	7.6	6.3	6.4	6.7	6.7	6.6	6.9	7.5	7.1	-0.4
Hallucinogens, Adjusted ^{c,h}	8.9	9.0	8.0	9.1	8.8	7.9	8.1	—	—	—	—	—	—	—	—	—
LSD ^c	3.4	4.0	3.1	4.0	4.0	3.8	3.9	3.7	4.3	4.9	5.0	5.1	5.6	5.9	4.9	-0.9
Hallucinogens other than LSD ^c	7.7	7.8	6.8	7.7	7.3	6.6	6.4	5.1	4.8	4.7	4.8	4.5	4.3	4.7	5.3	+0.5
PCP ^{f,g}	2.1	1.8	1.7	1.8	2.3	1.6	1.3	—	—	—	—	—	—	—	—	—
MDMA (Ecstasy, Molly) ^f	6.5	6.2	6.5	7.3	8.0	7.2	7.1‡	7.9	5.9	4.9	4.9	4.1	3.3	3.6	2.8	-0.8
Cocaine	7.8	7.2	6.0	5.5	5.2	4.9	4.5	4.6	4.0	3.7	4.2	3.9	3.8	4.1	2.5	-1.7 s
Crack ⁱ	3.2	2.8	2.4	2.4	1.9	2.1	1.8	1.8	1.7	1.4	1.7	1.5	1.7	1.6	1.5	-0.1
Cocaine other than Crack ^j	6.8	6.5	5.3	5.1	4.9	4.4	4.2	4.1	3.4	3.3	3.5	3.3	3.2	4.0	2.2	-1.8 s
Heroin ^k	1.5	1.3	1.2	1.6	1.4	1.1	1.0	1.0	0.8	0.7	0.7	0.8	0.6	0.4	0.4	+0.1
With a needle ^l	0.7	0.7	0.6	1.1	0.9	0.7	0.7	0.8	0.6	0.5	0.4	0.5	0.4	0.2	0.2	0.0
Without a needle ^l	1.4	1.1	0.9	1.4	1.3	0.8	0.9	0.7	0.7	0.6	0.4	0.6	0.4	0.1	0.2	+0.1
Narcotics other than Heroin ^{m,n}	13.1	13.2	13.2	13.0	13.0	12.2	11.1	9.5	8.4	7.8	6.8	6.0	5.3	5.3	2.3	-3.0 sss
Amphetamines ^{b,m}	11.4	10.5	9.9	11.1	12.2	12.0	13.8	12.1	10.8	10.0	9.2	8.6	7.7	7.3	4.9	-2.5 sss
Methamphetamine ^o	3.0	2.8	2.4	2.3	2.1	1.7	1.5	1.9	1.0	1.2	1.1	0.7	0.8	1.7	0.6	-1.1
Crystal Methamphetamine (Ice) ^o	3.4	2.8	2.1	1.8	2.1	1.7	2.0	1.3	1.2	1.4	1.5	1.1	1.3	0.2	0.7	+0.6 s

Table continued on
next page.

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12

Percentage who ever used

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020–2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Sedatives (Barbiturates) ^{m,p}	9.3	8.5	8.2	7.5	7.0	6.9	7.5	6.8	5.9	5.2	4.5	4.2	4.2	4.4	3.5	-0.9
Sedatives, Adjusted ^{m,q}	9.6	8.9	8.4	7.6	7.2	7.2	—	—	—	—	—	—	—	—	—	—
Methaqualone ^{m,r}	1.0	0.8	0.7	0.4	0.6	0.8	—	—	—	—	—	—	—	—	—	—
Tranquilizers ^{c,m}	9.5	8.9	9.3	8.5	8.7	8.5	7.7	7.4	6.9	7.6	7.5	6.6	6.1	7.0	3.3	-3.8 sss
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s	72.2	71.9	72.3	71.0	70.0	69.4	68.2	66.0	64.0	61.2	61.5	58.5	58.5	61.5	54.1	-7.4 s
Been Drunk ^o	55.1	54.7	56.5	54.1	51.0	54.2	52.3	49.8	46.7	46.3	45.3	42.9	40.8	41.7	38.9	-2.8
Cigarettes	46.2	44.7	43.6	42.2	40.0	39.5	38.1	34.4	31.1	28.3	26.6	23.8	22.3	24.0	17.8	-6.1
Smokeless Tobacco ^{ft}	15.1	15.6	16.3	17.6	16.9	17.4	17.2	15.1	13.2	14.2	11.0	10.1	9.8	§	8.6	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	35.5	33.8‡	35.8	42.5	45.6	47.2	40.5	-6.7 s
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	25.0	34.0	40.8	44.3	38.7	-5.6
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	11.9	15.6	23.7	27.9	25.7	-2.3
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	30.7	34.1	29.0	29.8	25.2	-4.6 s
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	10.1	7.6	3.7	1.3	0.8	-0.6 s
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	33.0	36.2	28.5	-7.8 s
Steroids ^{m,u}	2.2	2.2	2.2	2.0	1.8	1.8	2.1	1.9	2.3	1.6	1.6	1.6	1.6	2.0	0.8	-1.2
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	10.4	10.5	9.5	7.2	7.7	7.7	8.1	9.1	7.9	6.4	6.7	6.2	5.1	§	4.6	—
Stay-Awake Pills ^f	12.3	9.6	7.6	6.4	6.3	5.9	5.2	4.5	3.8	3.6	3.8	3.6	3.4	§	3.4	—
Look-Alikes ^f	4.6	5.2	4.3	2.6	3.5	2.9	2.7	2.2	3.3	2.3	2.6	—	—	—	—	—
Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa}	7.6	8.6	8.2	8.3	8.4	9.0	9.6	9.1	9.9	8.4	8.6	8.6	7.9	7.5	8.0	+0.5
Non-Stimulant-Type ^{aa}	7.0	6.4	5.4	6.7	5.8	5.9	5.4	5.6	5.6	5.8	6.4	6.1	5.7	4.8	4.5	-0.3
Either Type ^{aa}	12.1	13.1	11.0	12.7	12.2	12.7	13.2	12.6	13.7	12.7	13.0	12.7	11.1	9.9	10.9	+1.0

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 5-4.

TABLE 5-2
Trends in Annual Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Any Illicit Drug ^{a,b}	45.0	48.1	51.1	53.8	54.2	53.1	52.1	49.4	47.4	45.8	46.3	44.3	41.7	38.5	35.4	32.5
Any Illicit Drug other than Marijuana ^{a,b,c}	26.2	25.4	26.0	27.1	28.2	30.4	34.0	30.1	28.4	28.0	27.4	25.9	24.1	21.1	20.0	17.9
Marijuana/Hashish	40.0	44.5	47.6	50.2	50.8	48.8	46.1	44.3	42.3	40.0	40.6	38.8	36.3	33.1	29.6	27.0
Inhalants ^d	—	3.0	3.7	4.1	5.4	4.6	4.1	4.5	4.3	5.1	5.7	6.1	6.9	6.5	5.9	6.9
Inhalants, Adjusted ^{d,e}	—	—	—	—	8.9	7.9	6.1	6.6	6.2	7.2	7.5	8.9	8.1	7.1	6.9	7.5
Amyl/Butyl Nitrites ^{f,g}	—	—	—	—	6.5	5.7	3.7	3.6	3.6	4.0	4.0	4.7	2.6	1.7	1.7	1.4
Hallucinogens ^c	11.2	9.4	8.8	9.6	9.9	9.3	9.0	8.1	7.3	6.5	6.3	6.0	6.4	5.5	5.6	5.9
Hallucinogens, Adjusted ^{c,h}	—	—	—	—	11.8	10.4	10.1	9.0	8.3	7.3	7.6	7.6	6.7	5.8	6.2	6.0
LSD ^c	7.2	6.4	5.5	6.3	6.6	6.5	6.5	6.1	5.4	4.7	4.4	4.5	5.2	4.8	4.9	5.4
Hallucinogens other than LSD ^c	9.4	7.0	6.9	7.3	6.8	6.2	5.6	4.7	4.1	3.8	3.6	3.0	3.2	2.1	2.2	2.1
PCP ^{f,g}	—	—	—	—	7.0	4.4	3.2	2.2	2.6	2.3	2.9	2.4	1.3	1.2	2.4	1.2
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Salvia ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	5.6	6.0	7.2	9.0	12.0	12.3	12.4	11.5	11.4	11.6	13.1	12.7	10.3	7.9	6.5	5.3
Crack ⁱ	—	—	—	—	—	—	—	—	—	—	—	4.1	3.9	3.1	3.1	1.9
Cocaine other than Crack ^j	—	—	—	—	—	—	—	—	—	—	—	—	9.8	7.4	5.2	4.6
Heroin ^k	1.0	0.8	0.8	0.8	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5
With a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin ^{m,n}	5.7	5.7	6.4	6.0	6.2	6.3	5.9	5.3	5.1	5.2	5.9	5.2	5.3	4.6	4.4	4.5
OxyContin ^{m,v}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vicodin ^{m,v}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines ^{b,m}	16.2	15.8	16.3	17.1	18.3	20.8	26.0†	20.3	17.9	17.7	15.8	13.4	12.2	10.9	10.8	9.1
Ritalin ^{m,o}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adderall ^{m,o}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Provigil ^{m,o}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3
Sedatives (Barbiturates) ^{m,p}	10.7	9.6	9.3	8.1	7.5	6.8	6.6	5.5	5.2	4.9	4.6	4.2	3.6	3.2	3.3	3.4
Sedatives, Adjusted ^{m,q}	11.7	10.7	10.8	9.9	9.9	10.3	10.5	9.1	7.9	6.6	5.8	5.2	4.1	3.7	3.7	3.6
Methaqualone ^{m,r}	5.1	4.7	5.2	4.9	5.9	7.2	7.6	6.8	5.4	3.8	2.8	2.1	1.5	1.3	1.3	0.7
Tranquilizers ^{c,m}	10.6	10.3	10.8	9.9	9.6	8.7	8.0	7.0	6.9	6.1	6.1	5.8	5.5	4.8	3.8	3.5
OTC Cough/Cold Medicines ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

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(List of drugs continued.)

TABLE 5-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for Grade 12

Percentage who used in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
GHB ^w	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketamine ^x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s	84.8	85.7	87.0	87.7	88.1	87.9	87.0	86.8	87.3	86.0	85.6	84.5	85.7	85.3	82.7	80.6
Been Drunk ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bidis ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kreteks ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco ^{ft}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	1.7
Androstenedione ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Creatine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	—	—	—	—	—	—	—	20.5	20.5	18.8	16.9	15.3	13.9	12.2	10.9	10.4
Stay-Awake Pills ^f	—	—	—	—	—	—	—	11.8	12.3	13.9	18.2	22.2	25.2	26.4	23.0	23.4
Look-Alikes ^f	—	—	—	—	—	—	—	10.8	9.4	9.7	8.2	6.9	6.3	5.7	5.6	5.6

Table continued on next page.

TABLE 5-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 12 months

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Any Illicit Drug ^{a,b}	29.4	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5
Any Illicit Drug other than Marijuana ^{a,b,c}	16.2	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4‡	21.6	20.9	19.8	20.5	19.7	19.2
Marijuana/Hashish	23.9	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5
Inhalants ^d	6.6	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5
Inhalants, Adjusted ^{d,e}	6.9	6.4	7.4	8.2	8.4	8.5	7.3	7.1	6.0	6.2	4.9	4.9	4.5	4.6	5.4	4.7
Amyl/Butyl Nitrites ^{f,g}	0.9	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5
Hallucinogens ^c	5.8	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1‡	9.1	6.6	5.9	6.2	5.5	4.9
Hallucinogens, Adjusted ^{c,h}	6.1	6.2	7.8	7.8	9.7	10.7	10.0	9.2	9.8	8.7‡	9.7	7.2	6.5	6.4	5.9	5.3
LSD ^c	5.2	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7
Hallucinogens other than LSD ^c	2.0	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4‡	5.9	5.4	5.4	5.6	5.0	4.6
PCP ^{f,g}	1.4	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1
Salvia ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	3.5	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7
Crack ⁱ	1.5	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1
Cocaine other than Crack ^j	3.2	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2
Heroin ^k	0.4	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8
With a needle ^l	—	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5
Without a needle ^l	—	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6
Narcotics other than Heroin ^{m,n}	3.5	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7‡	9.4	9.3	9.5	9.0	9.0
OxyContin ^{m,v}	—	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3
Vicodin ^{m,v}	—	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7
Amphetamines ^{b,m}	8.2	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1
Ritalin ^{m,o}	—	—	—	—	—	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4
Adderall ^{m,o}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Provigil ^{m,o}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine ^o	—	—	—	—	—	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5
Crystal Methamphetamine (Ice) ^o	1.4	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9
Sedatives (Barbiturates) ^{m,p}	3.4	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6
Sedatives, Adjusted ^{m,q}	3.6	2.9	3.4	4.2	4.9	5.3	5.4	6.0	6.3	6.3	5.9	7.0	6.2	6.6	7.6	6.8
Methaqualone ^{m,r}	0.5	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8
Tranquilizers ^{c,m}	3.6	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7‡	6.9	7.7	6.7	7.3	6.8	6.6
OTC Cough/Cold Medicines ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9
Rohypnol ^f	—	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9‡	1.6	1.3	1.6	1.2	1.1

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(List of drugs continued.)

TABLE 5-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for Grade 12

Percentage who used in last 12 months

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
GHB ^w	—	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1
Ketamine ^x	—	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4
Alcohol ^s	77.7	76.8†	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5
Been Drunk ^o	52.7	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bidis ^o	—	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3
Kreteks ^o	—	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2
Smokeless Tobacco ^{ft}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8
Androstenedione ^y	—	—	—	—	—	—	—	—	—	—	3.0	2.5	2.5	2.1	1.7	1.1
Creatine ^y	—	—	—	—	—	—	—	—	—	—	11.7	8.5	8.3	8.1	8.1	7.8
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	8.8	8.4	8.0	9.3	9.8	9.3	9.8	9.6	10.2	11.1	11.8	15.1	13.0	10.7	10.0	9.4
Stay-Awake Pills ^f	22.2	20.4	19.1	20.7	20.3	19.0	19.7	19.0	15.7	15.0	17.3	14.9	12.5	11.8	10.4	10.0
Look-Alikes ^f	5.2	5.4	6.2	6.0	6.8	6.5	6.4	5.7	5.0	5.8	7.1	6.6	5.4	5.0	4.2	3.7

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TABLE 5-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 12 months

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020-2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Any Illicit Drug ^{a,b}	35.9	36.6	36.5	38.3	40.0	39.7	40.1	38.7	38.6	38.3	39.9	38.8	38.0	36.8	32.0	-4.8 s
Any Illicit Drug other than Marijuana ^{a,b,c}	18.5	18.3	17.0	17.3	17.6	17.0	17.8	15.9	15.2	14.3	13.3	12.4	11.5	11.4	7.2	-4.2 sss
Marijuana/Hashish	31.7	32.4	32.8	34.8	36.4	36.4	36.4	35.1	34.9	35.6	37.1	35.9	35.7	35.2	30.5	-4.7 s
Inhalants ^d	3.7	3.8	3.4	3.6	3.2	2.9	2.5	1.9	1.9	1.7	1.5	1.6	1.9	1.1	1.8	+0.6
Inhalants, Adjusted ^{d,e}	4.1	4.0	4.1	—	—	—	—	—	—	—	—	—	—	—	—	—
Amyl/Butyl Nitrites ^{f,g}	0.8	0.6	0.9	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens ^c	5.4	5.9	4.7	5.5	5.2	4.8	4.5	4.0	4.2	4.3	4.4	4.3	4.6	5.3	4.1	-1.3
Hallucinogens, Adjusted ^{c,h}	5.8	6.1	5.2	6.0	5.8	5.0	4.9	—	—	—	—	—	—	—	—	—
LSD ^c	2.1	2.7	1.9	2.6	2.7	2.4	2.2	2.5	2.9	3.0	3.3	3.2	3.6	3.9	2.5	-1.4
Hallucinogens other than LSD ^c	4.8	5.0	4.2	4.8	4.3	4.0	3.7	3.0	2.9	2.7	2.9	2.7	2.7	2.8	2.9	+0.1
PCP ^{f,g}	0.9	1.1	1.0	1.0	1.3	0.9	0.7	0.8	1.4	1.3	1.0	1.1	1.1	§	0.7	—
MDMA (Ecstasy, Molly) ^f	4.5	4.3	4.3	4.5	5.3	3.8	4.0†	5.0	3.6	2.7	2.6	2.2	2.2	1.8	1.1	-0.7
Salvia ^o	—	—	5.7	5.5	5.9	4.4	3.4	1.8	1.9	1.8	1.5	0.9	0.7	0.7	0.6	-0.1
Cocaine	5.2	4.4	3.4	2.9	2.9	2.7	2.6	2.6	2.5	2.3	2.7	2.3	2.2	2.9	1.2	-1.7 s
Crack ⁱ	1.9	1.6	1.3	1.4	1.0	1.2	1.1	1.1	1.1	0.8	1.0	0.9	1.0	1.2	0.7	-0.5
Cocaine other than Crack ^j	4.5	4.0	3.0	2.6	2.6	2.4	2.4	2.4	2.1	2.0	2.3	2.0	1.9	2.9	0.9	-2.0 s
Heroin ^k	0.9	0.7	0.7	0.9	0.8	0.6	0.6	0.6	0.5	0.3	0.4	0.4	0.4	0.3	0.1	-0.2
With a needle ^l	0.4	0.4	0.3	0.7	0.6	0.4	0.4	0.5	0.3	0.3	0.2	0.3	0.3	0.1	0.1	0.0
Without a needle ^l	1.0	0.5	0.6	0.8	0.7	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0
Narcotics other than Heroin ^{m,n}	9.2	9.1	9.2	8.7	8.7	7.9	7.1	6.1	5.4	4.8	4.2	3.4	2.7	2.1	1.0	-1.1 ss
OxyContin ^{m,v}	5.2	4.7	4.9	5.1	4.9	4.3	3.6	3.3	3.7	3.4	2.7	2.3	1.7	2.4	0.9	-1.5
Vicodin ^{m,v}	9.6	9.7	9.7	8.0	8.1	7.5	5.3	4.8	4.4	2.9	2.0	1.7	1.1	1.2	0.9	-0.4
Amphetamines ^{b,m}	7.5	6.8	6.6	7.4	8.2	7.9	9.2	8.1	7.7	6.7	5.9	5.5	4.5	4.3	2.3	-1.9 sss
Ritalin ^{m,o}	3.8	3.4	2.1	2.7	2.6	2.6	2.3	1.8	2.0	1.2	1.3	0.9	1.1	1.7	0.5	-1.2
Adderall ^{m,o}	—	—	5.4	6.5	6.5	7.6	7.4	6.8	7.5	6.2	5.5	4.6	3.9	4.4	1.8	-2.6 s
Provigil ^{m,o}	—	—	1.8	1.3	1.5	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine ^o	1.7	1.2	1.2	1.0	1.4	1.1	0.9	1.0	0.6	0.6	0.6	0.5	0.5	1.4	0.2	-1.2
Crystal Methamphetamine (Ice) ^o	1.6	1.1	0.9	0.9	1.2	0.8	1.1	0.8	0.5	0.8	0.8	0.6	0.6	0.0	0.4	+0.3 s
Sedatives (Barbiturates) ^{m,p}	6.2	5.8	5.2	4.8	4.3	4.5	4.8	4.3	3.6	3.0	2.9	2.7	2.5	2.4	1.8	-0.6
Sedatives, Adjusted ^{m,q}	6.4	6.1	5.4	5.0	4.4	4.5	—	—	—	—	—	—	—	—	—	—
Methaqualone ^{m,r}	0.5	0.5	0.6	0.3	0.3	0.4	—	—	—	—	—	—	—	—	—	—
Tranquilizers ^{c,m}	6.2	6.2	6.3	5.6	5.6	5.3	4.6	4.7	4.7	4.9	4.7	3.9	3.4	3.2	1.2	-1.9 sss
OTC Cough/Cold Medicines ^o	5.8	5.5	5.9	6.6	5.3	5.6	5.0	4.1	4.6	4.0	3.2	3.4	2.5	3.2	1.7	-1.5
Rohypnol ^f	1.0	1.3	1.0	1.5	1.3	1.5	0.9	0.7	1.0	1.1	0.8	0.7	0.5	§	0.4	—

Table continued on next page.

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(List of drugs continued.)

TABLE 5-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 12 months

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020–2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
GHB ^w	0.9	1.2	1.1	1.4	1.4	1.4	1.0	1.0	0.7	0.9	0.4	0.3	0.4	§	0.4	—
Ketamine ^x	1.3	1.5	1.7	1.6	1.7	1.5	1.4	1.5	1.4	1.2	1.2	0.7	0.7	1.3	0.9	-0.4
Alcohol ^s	66.4	65.5	66.2	65.2	63.5	63.5	62.0	60.2	58.2	55.6	55.7	53.3	52.1	55.3	46.5	-8.8 ss
Been Drunk ^o	46.1	45.6	47.0	44.0	42.2	45.0	43.5	41.4	37.7	37.3	35.6	33.9	32.8	36.9	28.8	-8.2 s
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bidis ^o	1.7	1.9	1.5	1.4	—	—	—	—	—	—	—	—	—	—	—	—
Kreteks ^o	6.8	6.8	5.5	4.6	2.9	3.0	1.6	1.6	—	—	—	—	—	—	—	—
Smokeless Tobacco ^{ft}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping ^y	—	—	—	—	—	—	—	—	—	—	27.8	37.3	40.6	39.0	31.5	-7.5 s
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	18.8	29.7	35.3	34.5	26.6	-7.9 s
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	9.5	13.1	20.8	22.1	18.3	-3.8
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	20.6	25.7	20.3	16.6	11.7	-4.9 ss
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	7.5	6.0	3.1	1.9	1.2	-0.7
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	28.4	26.1	12.2	-13.8 sss
Steroids ^{m,u}	1.4	1.5	1.5	1.5	1.2	1.3	1.5	1.5	1.7	1.0	1.1	1.1	1.0	1.2	0.5	-0.7
Androstenedione ^y	0.9	1.3	1.1	1.5	0.7	1.0	0.7	1.1	0.9	0.9	0.6	0.5	0.5	§	0.6	—
Creatine ^y	8.0	8.3	9.1	9.2	8.6	9.5	9.3	10.0	8.8	9.0	8.1	9.3	7.6	7.2	7.4	+0.2
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	6.7	7.2	6.1	4.3	4.9	5.5	5.3	6.4	5.1	4.5	4.0	3.5	3.1	§	2.5	—
Stay-Awake Pills ^f	7.6	6.3	4.8	3.2	3.9	3.8	3.2	3.5	2.7	2.5	2.5	2.4	1.8	§	1.5	—
Look-Alikes ^f	2.8	3.1	2.6	1.7	2.2	2.1	1.7	1.4	2.3	1.6	1.5	—	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 5-4.

TABLE 5-3
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 30 days

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Any Illicit Drug ^{a,b}	30.7	34.2	37.6	38.9	38.9	37.2	36.9	32.5	30.5	29.2	29.7	27.1	24.7	21.3	19.7	17.2
Any Illicit Drug other than Marijuana ^{a,b,c}	15.4	13.9	15.2	15.1	16.8	18.4	21.7	17.0	15.4	15.1	14.9	13.2	11.6	10.0	9.1	8.0
Marijuana/Hashish	27.1	32.2	35.4	37.1	36.5	33.7	31.6	28.5	27.0	25.2	25.7	23.4	21.0	18.0	16.7	14.0
Inhalants ^d	—	0.9	1.3	1.5	1.7	1.4	1.5	1.5	1.7	1.9	2.2	2.5	2.8	2.6	2.3	2.7
Inhalants, Adjusted ^{d,e}	—	—	—	—	3.2	2.7	2.5	2.5	2.5	2.6	3.0	3.2	3.5	3.0	2.7	2.9
Amyl/Butyl Nitrites ^{f,g}	—	—	—	—	2.4	1.8	1.4	1.1	1.4	1.4	1.6	1.3	1.3	0.6	0.6	0.6
Hallucinogens ^c	4.7	3.4	4.1	3.9	4.0	3.7	3.7	3.4	2.8	2.6	2.5	2.5	2.5	2.2	2.2	2.2
Hallucinogens, Adjusted ^{c,h}	—	—	—	—	5.3	4.4	4.5	4.1	3.5	3.2	3.8	3.5	2.8	2.3	2.9	2.3
LSD ^c	2.3	1.9	2.1	2.1	2.4	2.3	2.5	2.4	1.9	1.5	1.6	1.7	1.8	1.8	1.8	1.9
Hallucinogens other than LSD ^c	3.7	2.3	3.0	2.7	2.4	2.3	2.1	1.7	1.5	1.6	1.3	1.3	1.1	0.7	0.8	0.8
PCP ^{f,g}	—	—	—	—	2.4	1.4	1.4	1.0	1.3	1.0	1.6	1.3	0.6	0.3	1.4	0.4
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	1.9	2.0	2.9	3.9	5.7	5.2	5.8	5.0	4.9	5.8	6.7	6.2	4.3	3.4	2.8	1.9
Crack ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	1.3	1.6	1.4	0.7
Cocaine other than Crack ^j	—	—	—	—	—	—	—	—	—	—	—	—	4.1	3.2	1.9	1.7
Heroin ^k	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2
With a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin ^{m,n}	2.1	2.0	2.8	2.1	2.4	2.4	2.1	1.8	1.8	1.8	2.3	2.0	1.8	1.6	1.6	1.5
Amphetamines ^{b,m}	8.5	7.7	8.8	8.7	9.9	12.1	15.8†	10.7	8.9	8.3	6.8	5.5	5.2	4.6	4.2	3.7
Methamphetamine ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.6

Table continued on next page.

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 30 days

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<i>Approximate weighted N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Sedatives (Barbiturates) ^{m,p}	4.7	3.9	4.3	3.2	3.2	2.9	2.6	2.0	2.1	1.7	2.0	1.8	1.4	1.2	1.4	1.3
Sedatives, Adjusted ^{m,q}	5.4	4.5	5.1	4.2	4.4	4.8	4.6	3.4	3.0	2.3	2.4	2.2	1.7	1.4	1.6	1.4
Methaqualone ^{m,r}	2.1	1.6	2.3	1.9	2.3	3.3	3.1	2.4	1.8	1.1	1.0	0.8	0.6	0.5	0.6	0.2
Tranquilizers ^{c,m}	4.1	4.0	4.6	3.4	3.7	3.1	2.7	2.4	2.5	2.1	2.1	2.1	2.0	1.5	1.3	1.2
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s	68.2	68.3	71.2	72.1	71.8	72.0	70.7	69.7	69.4	67.2	65.9	65.3	66.4	63.9	60.0	57.1
Been Drunk ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	36.7	38.8	38.4	36.7	34.4	30.5	29.4	30.0	30.3	29.3	30.1	29.6	29.4	28.7	28.6	29.4
Smokeless Tobacco ^{ft}	—	—	—	—	—	—	—	—	—	—	—	11.5	11.3	10.3	8.4	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{ee}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Nicotine Use ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Nicotine Use other than Vaping ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	1.0
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	—	—	—	—	—	—	—	9.8	9.5	9.9	7.3	6.5	5.8	5.1	4.8	4.3
Stay-Awake Pills ^f	—	—	—	—	—	—	—	5.5	5.3	5.8	7.2	9.6	9.2	9.8	8.5	7.3
Look-Alikes ^f	—	—	—	—	—	—	—	5.6	5.2	4.4	3.6	3.4	2.7	2.7	2.4	2.3
Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non-Stimulant-Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Either Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

	Percentage who used in last 30 days															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Any Illicit Drug ^{a,b}	16.4	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5
Any Illicit Drug other than Marijuana ^{a,b,c}	7.1	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4†	11.0	11.3	10.4	10.8	10.3	9.8
Marijuana/Hashish	13.8	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3
Inhalants ^d	2.4	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5
Inhalants, Adjusted ^{d,e}	2.6	2.5	2.8	2.9	3.5	2.9	2.9	3.1	2.4	2.4	2.1	1.8	2.3	1.9	2.3	1.7
Amyl/Butyl Nitrites ^{f,g}	0.4	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3
Hallucinogens ^c	2.2	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6‡	3.3	2.3	1.8	1.9	1.9	1.5
Hallucinogens, Adjusted ^{c,h}	2.4	2.3	3.3	3.2	4.6	3.8	4.1	4.1	3.9	3.0‡	3.5	2.7	2.7	2.2	2.5	1.8
LSD ^c	1.9	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6
Hallucinogens other than LSD ^c	0.7	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7‡	1.9	2.0	1.5	1.7	1.6	1.3
PCP ^{f,g}	0.5	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3
Cocaine	1.4	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5
Crack ⁱ	0.7	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9
Cocaine other than Crack ^j	1.2	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4
Heroin ^k	0.2	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4
With a needle ^l	—	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3
Without a needle ^l	—	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3
Narcotics other than Heroin ^{m,n}	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0‡	4.0	4.1	4.3	3.9	3.8
Amphetamines ^{b,m}	3.2	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7
Methamphetamine ^o	—	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9
Crystal Methamphetamine (Ice) ^o	0.6	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7

Table continued on next page.

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

	Percentage who used in last 30 days															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Approximate weighted N =</i>	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Sedatives (Barbiturates) ^{m,p}	1.4	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9	2.9	3.3	3.0
Sedatives, Adjusted ^{m,q}	1.5	1.2	1.3	1.8	2.3	2.3	2.1	2.8	2.8	3.1	3.0	3.4	3.0	2.9	3.5	3.1
Methaqualone ^{m,r}	0.2	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4
Tranquilizers ^{c,m}	1.4	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6†	2.9	3.3	2.8	3.1	2.9	2.7
Rohypnol ^f	—	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—
Alcohol ^s	54.0	51.3‡	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3
Been Drunk ^o	31.6	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0
Cigarettes	28.3	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6
Smokeless Tobacco ^{f,t}	—	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL ^{ee}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Nicotine Use ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Nicotine Use other than Vaping ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids ^{m,u}	0.8	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	3.7	4.0	3.8	4.2	3.8	4.3	4.6	4.8	5.4	5.8	6.3	9.2	6.5	5.6	4.4	5.3
Stay-Awake Pills ^f	6.8	7.2	7.0	6.3	7.3	7.5	7.8	7.4	6.8	7.3	7.2	5.8	5.0	4.5	4.2	4.2
Look-Alikes ^f	2.1	2.4	2.7	2.4	3.0	3.1	2.7	2.7	2.4	2.6	3.3	2.8	2.4	2.5	1.9	2.3
Current, Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.3
Non-Stimulant-Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	1.6
Either Type ^{aa,bb}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.5	3.7

Table continued on next page.

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

Percentage who used in last 30 days

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020–2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Any Illicit Drug ^{a,b}	21.9	22.3	23.3	23.8	25.2	25.2	25.2	23.7	23.6	24.4	24.9	24.0	23.7	22.2	20.6	-1.6
Any Illicit Drug other than Marijuana ^{a,b,c}	9.5	9.3	8.6	8.6	8.9	8.4	8.2	7.7	7.6	6.9	6.3	6.0	5.2	4.8	2.9	-1.9 sss
Marijuana/Hashish	18.8	19.4	20.6	21.4	22.6	22.9	22.7	21.2	21.3	22.5	22.9	22.2	22.3	21.1	19.5	-1.7
Inhalants ^d	1.2	1.4	1.2	1.4	1.0	0.9	1.0	0.7	0.7	0.8	0.8	0.7	0.9	0.7	0.7	0.0
Inhalants, Adjusted ^{d,e}	1.6	1.5	1.8	—	—	—	—	—	—	—	—	—	—	—	—	—
Amyl/Butyl Nitrites ^{f,g}	0.5	0.3	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens ^c	1.7	2.2	1.6	1.9	1.6	1.6	1.4	1.5	1.6	1.4	1.6	1.4	1.8	1.8	1.0	-0.8 s
Hallucinogens, Adjusted ^{c,h}	2.1	2.6	1.9	2.2	2.3	1.8	1.9	—	—	—	—	—	—	—	—	—
LSD ^c	0.6	1.1	0.5	0.8	0.8	0.8	0.8	1.0	1.1	1.0	0.3	0.4	0.4	0.6	0.2	-0.4
Hallucinogens other than LSD ^c	1.4	1.6	1.4	1.5	1.2	1.3	1.0	1.0	0.9	0.7	1.0	0.9	1.0	0.7	0.8	+0.1
PCP ^{f,g}	0.5	0.6	0.5	0.8	0.8	0.5	0.4	—	—	—	—	—	—	—	—	—
MDMA (Ecstasy, Molly) ^f	1.6	1.8	1.8	1.4	2.3	0.9	1.5 [‡]	1.5	1.1	0.9	0.9	0.5	0.7	0.8	0.2	-0.6 s
Cocaine	2.0	1.9	1.3	1.3	1.1	1.1	1.1	1.0	1.1	0.9	1.2	1.1	1.0	0.8	0.3	-0.5
Crack ⁱ	0.9	0.8	0.6	0.7	0.5	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.7	0.4	0.3	-0.1
Cocaine other than Crack ^j	1.7	1.7	1.1	1.1	1.0	1.0	0.9	0.9	1.1	0.6	1.1	1.0	0.9	1.0	0.1	-0.9 s
Heroin ^k	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.1	-0.2
With a needle ^l	0.2	0.2	0.1	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.1	-0.1
Without a needle ^l	0.4	0.2	0.3	0.4	0.4	0.2	0.2	0.4	0.3	0.1	0.2	0.1	0.2	0.1	0.1	-0.1
Narcotics other than Heroin ^{m,n}	3.8	3.8	4.1	3.6	3.6	3.0	2.8	2.2	2.1	1.7	1.6	1.1	1.0	0.7	0.3	-0.4 s
Amphetamines ^{b,m}	3.7	2.9	3.0	3.3	3.7	3.3	4.2	3.8	3.2	3.0	2.6	2.4	2.0	1.7	1.0	-0.7 s
Methamphetamine ^o	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.8	0.1	-0.7 s
Crystal Methamphetamine (Ice) ^o	0.6	0.6	0.5	0.6	0.6	0.4	0.8	0.4	0.3	0.4	0.5	0.4	0.4	0.0	0.2	+0.1

Table continued on next page.

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12

	Percentage who used in last 30 days															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2021	2020–2021 change
<i>Approximate weighted N =</i>	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Sedatives (Barbiturates) ^{m,p}	2.7	2.8	2.5	2.2	1.8	2.0	2.2	2.0	1.7	1.5	1.4	1.2	1.2	1.2	0.9	-0.4
Sedatives, Adjusted ^{m,q}	2.8	2.9	2.6	2.2	1.9	2.1	—	—	—	—	—	—	—	—	—	—
Methaqualone ^{m,r}	0.4	0.2	0.3	0.2	0.2	0.3	—	—	—	—	—	—	—	—	—	—
Tranquilizers ^{c,m}	2.6	2.6	2.7	2.5	2.3	2.1	2.0	2.1	2.0	1.9	2.0	1.3	1.3	1.0	0.4	-0.6 ss
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s	44.4	43.1	43.5	41.2	40.0	41.5	39.2	37.4	35.3	33.2	33.2	30.2	29.3	33.6	25.8	-7.7 s
Been Drunk ^o	28.7	27.6	27.4	26.8	25.0	28.1	26.0	23.5	20.6	20.4	19.1	17.5	17.5	19.8	15.5	-4.3
Cigarettes	21.6	20.4	20.1	19.2	18.7	17.1	16.3	13.6	11.4	10.5	9.7	7.6	5.7	7.5	4.1	-3.4
Smokeless Tobacco ^{ft}	6.6	6.5	8.4	8.5	8.3	7.9	8.1	8.4	6.1	6.6	4.9	4.2	3.5	§	2.2	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	16.3	12.5‡	16.6	26.7	30.9	28.2	24.0	-4.2
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	11.0	20.9	25.5	24.7	19.6	-5.1
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	4.9	7.5	14.0	12.2	12.4	+0.2
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	9.7	13.5	10.7	8.4	7.4	-1.0
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	4.2	4.0	2.3	0.8	0.7	-0.1
JUUL ^{ee}	—	—	—	—	—	—	—	—	—	—	—	—	20.8	12.9	6.8	-6.0 sss
Any Nicotine Use ^f	—	—	—	—	—	—	—	—	—	—	25.6	32.5	33.6	§	24.6	—
Any Nicotine Use other than Vaping ^f	—	—	—	—	—	—	—	—	—	—	20.6	18.5	15.7	§	7.7	—
Steroids ^{m,u}	1.0	1.0	1.0	1.1	0.7	0.9	1.0	0.9	1.0	0.7	0.8	0.8	0.7	1.2	0.5	-0.7
Legal Use of Over-the-Counter Stimulants																
Diet Pills ^f	3.8	3.7	2.6	2.1	2.4	3.4	2.4	3.6	2.1	2.1	2.4	1.9	1.9	§	1.1	—
Stay-Awake Pills ^f	3.3	2.6	2.3	1.6	2.2	1.9	1.5	1.7	1.2	1.7	1.6	1.2	1.1	§	0.5	—
Look-Alikes ^f	1.1	1.6	1.0	0.8	1.2	0.8	0.7	0.7	0.9	0.9	0.8	—	—	—	—	—
Current, Legal Use of Prescription ADHD Drugs																
Stimulant-Type ^{aa,bb}	2.6	2.9	2.9	3.0	3.3	3.8	4.4	3.8	4.0	3.9	3.4	3.5	3.2	3.1	3.4	+0.4
Non-Stimulant-Type ^{aa,bb}	1.7	1.9	1.5	2.3	1.9	1.8	1.8	2.2	1.5	2.1	2.5	2.6	2.3	1.7	2.3	+0.6
Either Type ^{aa,bb}	4.1	4.4	4.3	5.2	5.1	5.5	6.0	5.5	5.3	5.6	5.7	5.9	5.0	4.2	5.2	+1.0

Source. The Monitoring the Future study, the University of Michigan.

See footnotes following Table 5-4.

TABLE 5-4
Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12

Percentage who used daily in last 30 days

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Approximate weighted N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200
Marijuana/Hashish																
Used Daily in Past 30 Days	6.0	8.2	9.1	10.7	10.3	9.1	7.0	6.3	5.5	5.0	4.9	4.0	3.3	2.7	2.9	2.2
Ever Used Daily for Month or More in Lifetime ^f	—	—	—	—	—	—	—	20.5	16.8	16.3	15.6	14.9	14.7	12.8	11.5	10.0
Inhalants ^d	—	*	*	0.1	*	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3
Inhalants, Adjusted ^{d,e}	—	—	—	—	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.3
Amyl/Butyl Nitrites ^{f,g}	—	—	—	—	*	0.1	0.1	0.0	0.2	0.1	0.3	0.5	0.3	0.1	0.3	0.1
Hallucinogens ^c	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1
Hallucinogens, Adjusted ^{c,h}	—	—	—	—	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.2	*	0.3	0.3
LSD ^c	*	*	*	*	*	*	0.1	*	0.1	0.1	0.1	*	0.1	*	*	0.1
Hallucinogens other than LSD ^c	—	0.1	0.1	*	*	*	0.1	*	*	0.1	*	*	*	*	*	*
PCP ^{f,g}	—	—	—	—	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.1	0.2	0.1
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.1
Crack ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.2	0.1
Cocaine other than Crack ^j	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.2	0.1	0.1
Heroin ^k	0.1	*	*	*	*	*	*	*	0.1	*	*	*	*	*	0.1	*
With a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin ^{m,n}	0.1	0.1	0.2	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Amphetamines ^{b,m}	0.5	0.4	0.5	0.5	0.6	0.7	1.2†	0.7	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.2
Methamphetamine ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1
Sedatives (Barbiturates) ^{m,p}	0.1	0.1	0.2	0.1	*	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	*	0.1	0.1
Sedatives, Adjusted ^{m,q}	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Methaqualone ^{m,r}	*	*	*	*	*	0.1	0.1	0.1	*	*	*	*	*	0.1	*	*
Tranquilizers ^{c,m}	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	*	0.1	*	0.1	0.1
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^s																
Daily ^s	5.7	5.6	6.1	5.7	6.9	6.0	6.0	5.7	5.5	4.8	5.0	4.8	4.8	4.2	4.2	3.7
Been drunk daily ^o	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5+ drinks in a row in last 2 weeks	36.8	37.1	39.4	40.3	41.2	41.2	41.4	40.5	40.8	38.7	36.7	36.8	37.5	34.7	33.0	32.2
Cigarettes																
Daily	26.9	28.8	28.8	27.5	25.4	21.3	20.3	21.1	21.2	18.7	19.5	18.7	18.7	18.1	18.9	19.1
Half pack or more per day	17.9	19.2	19.4	18.8	16.5	14.3	13.5	14.2	13.8	12.3	12.5	11.4	11.4	10.6	11.2	11.3
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco ^{t,t}	—	—	—	—	—	—	—	—	—	—	—	4.7	5.1	4.3	3.3	—
Steroids ^{m,u}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.2

Table continued on next page.

TABLE 5-4 (cont.)
Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Percentage who used daily in last 30 days																
Approximate weighted N =	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200
Marijuana/Hashish																
Used Daily in Past 30 Days	2.0	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0
Ever Used Daily for Month or More in Lifetime ^f	9.0	8.4	9.6	11.3	12.1	15.7	18.8	18.0	17.9	17.0	18.0	15.5	16.4	17.8	14.5	16.6
Inhalants^d	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1
Inhalants, Adjusted ^{d,e}	0.5	0.2	0.2	—	—	0.4	0.2	0.9	0.3	0.3	0.1	0.3	0.4	0.4	0.3	—
Amyl/Butyl Nitrites ^{f,g}	0.2	0.1	0.1	0.2	0.2	0.4	0.1	0.3	0.2	*	0.1	0.3	0.2	0.2	0.2	0.2
Hallucinogens^c	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.2‡	0.2	0.1	0.1	0.2	0.1	0.1
Hallucinogens, Adjusted ^{c,h}	0.1	0.1	0.1	—	—	0.4	0.4	0.8	0.2	0.2‡	0.2	0.4	0.5	0.4	0.3	—
LSD ^c	0.1	0.1	0.1	0.1	0.1	*	0.2	0.1	0.1	0.1	0.2	0.1	*	0.2	0.1	0.1
Hallucinogens other than LSD ^c	*	*	*	*	0.1	0.1	0.1	0.1	*	0.1‡	0.1	*	0.1	0.1	*	0.1
PCP ^{f,g}	0.1	0.1	0.1	0.3	0.3	0.3	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1
MDMA (Ecstasy, Molly) ^f	—	—	—	—	—	0.0	0.1	0.2	0.1	*	0.2	*	0.1	0.1	0.1	*
Cocaine	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2
Crack ⁱ	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cocaine other than Crack ^j	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Heroin^k	*	*	*	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*
With a needle ^l	—	—	—	—	0.1	0.2	0.1	*	*	*	*	0.1	0.1	*	0.1	*
Without a needle ^l	—	—	—	—	*	0.1	0.1	0.0	0.0	*	*	0.1	0.1	*	0.1	*
Narcotics other than Heroin^{m,n}	0.1	*	*	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2‡	0.3	0.2	0.3	0.2	0.2
Amphetamines^{b,m}	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.7	0.5	0.3	0.4	0.3
Methamphetamine ^o	—	—	—	—	—	—	—	—	0.1	0.1	0.1	0.3	0.2	0.2	0.2	*
Crystal Methamphetamine (Ice) ^o	0.1	0.1	0.1	*	0.1	0.1	0.1	*	*	0.1	0.2	0.2	0.1	0.1	0.1	*
Sedatives (Barbiturates)^{m,p}	0.1	*	0.1	*	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1
Sedatives, Adjusted ^{m,q}	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Methaqualone ^{m,r}	*	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	*
Tranquilizers ^{c,m}	0.1	*	*	0.1	*	0.2	0.1	0.1	0.1	0.1‡	0.1	0.2	0.2	0.2	0.2	0.1
Rohypnol ^f	—	—	—	—	—	0.1	0.0	0.1	0.1	0.1	*	—	—	—	—	—
Alcohol^s																
Daily ^s	3.6	3.4‡	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0
Been drunk daily ^o	0.9	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6
5+ drinks in a row in last 2 weeks	29.8	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4
Cigarettes																
Daily	18.5	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2
Half pack or more per day	10.7	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco ^{ft}	—	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2
Steroids ^{m,u}	0.1	0.1	0.1	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.2	0.4

Table continued on next page.

TABLE 5-4 (cont.)
Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12

Percentage who used daily in last 30 days

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^f	2020	2021	2020-2021 change
Approximate weighted N =	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	13,300	12,900	3,500	8,300	
Marijuana/Hashish																
Used Daily in Past 30 Days	5.1	5.4	5.2	6.1	6.6	6.5	6.5	5.8	6.0	6.0	5.9	5.8	6.4	6.9	5.8	-1.1
Ever Used Daily for Month or More in Lifetime ^f	15.7	15.06	14.89	15.5	17.37	18.2	15.8	13.7	12.4	14.3	13.9	12.3	14.9	§	12.4	—
Inhalants^d	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	*	0.0	0.1	0.0	0.0	0.0
Inhalants, Adjusted ^{d,e}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amyl/Butyl Nitrites ^{f,g}	0.2	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens^c	0.1	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	+0.1
Hallucinogens, Adjusted ^{c,h}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LSD ^c	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
Hallucinogens other than LSD ^c	0.1	0.2	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0
PCP ^{f,g}	0.1	0.3	0.2	0.2	0.3	0.1	0.1	—	—	—	—	—	—	—	—	—
MDMA (Ecstasy, Molly) ^f	0.1	0.1	0.1	0.1	0.2	0.1	0.1‡	0.1	0.1	0.1	*	0.0	0.1	0.1	0.1	-0.1
Cocaine	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.0
Crack ⁱ	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0
Cocaine other than Crack ^j	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.1
Heroin^k	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
With a needle ^l	0.1	*	*	0.1	0.1	0.1	*	0.1	0.0	0.0	*	0.1	0.0	0.0	0.0	0.0
Without a needle ^l	*	*	0.1	0.1	0.1	0.1	*	0.1	0.1	0.0	*	0.0	0.0	0.0	0.0	0.0
Narcotics other than Heroin^{m,n}	0.2	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Amphetamines^{b,m}	0.3	0.2	0.3	0.3	0.4	0.3	0.6	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.1	-0.2 s
Methamphetamine ^o	*	0.1	0.1	0.1	0.1	*	*	0.1	0.1	0.1	*	0.0	0.1	0.0	0.1	+0.1
Crystal Methamphetamine (Ice) ^o	0.1	0.2	*	0.1	0.1	0.2	0.1	0.1	0.1	0.1	*	0.0	0.1	0.0	0.0	0.0
Sedatives (Barbiturates)^{m,p}	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Sedatives, Adjusted ^{m,q}	0.2	0.2	0.2	0.2	0.1	0.3	—	—	—	—	—	—	—	—	—	—
Methaqualone ^{m,r}	*	*	0.1	0.1	*	0.3	—	—	—	—	—	—	—	—	—	—
Tranquilizers^{c,m}	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-0.1
Rohypnol ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol^s																
Daily ^s	3.1	2.8	2.5	2.7	2.1	2.5	2.2	1.9	1.9	1.3	1.6	1.2	1.7	2.7	0.9	-1.8
Been drunk daily ^o	1.3	1.4	1.1	1.6	1.3	1.5	1.3	1.1	0.8	0.8	1.1	0.7	1.1	0.8	0.4	-0.4
5+ drinks in a row in last 2 weeks	25.9	24.6	25.2	23.2	21.6	23.7	22.1	19.4	17.2	15.5	16.6	13.8	14.4	16.8	11.8	-5.0 s
Cigarettes																
Daily	12.3	11.4	11.2	10.7	10.3	9.3	8.5	6.7	5.5	4.8	4.2	3.6	2.4	3.1	2.0	-1.1
Half pack or more per day	5.7	5.4	5.0	4.7	4.3	4.0	3.4	2.6	2.1	1.8	1.7	1.5	0.9	1.4	0.8	-0.6
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	11.6‡	5.2	5.4	+0.2
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	3.5‡	1.6	1.7	+0.1
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	2.8‡	1.4	0.8	-0.6
Smokeless Tobacco ^{ft}	2.8	2.7	2.9	3.1	3.1	3.2	3.0	3.4	2.9	2.7	2.0	1.6	1.1	§	0.7	—
Steroids^{m,u}	0.2	0.2	0.2	0.4	0.2	0.3	0.2	0.3	0.3	0.1	0.1	0.2	0.2	0.5	0.0	-0.5

Source. The Monitoring the Future study, the University of Michigan.

See footnotes on the following page.

Footnotes for Tables 5-1 through 5-4

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. ' — ' indicates data not available. ' * ' indicates less than 0.05% but greater than 0%. ' ‡ ' indicates that the question changed in the following year. See relevant footnote for that drug. See relevant figure to assess the impact of the wording changes. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. Daily use is defined as use on 20 or more occasions in the past 30 days except for 5+ drinks, cigarettes, and smokeless tobacco, for which actual daily use is measured.

§ Insufficient data for 2020 estimate.

^aUse of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers not under a doctor's orders. Due to changes in the amphetamine questions 2013 data are based on half the forms for all grades; N is one half of N indicated except for 12th grade any illicit use including inhalants which are based on one form; N is one sixth of N indicated.

See the amphetamine note for details. 2014 data based on all forms

^bBeginning in 1982, the question about amphetamine use was revised to get respondents to exclude the inappropriate reporting of nonprescription amphetamines. The prevalence-of-use rate dropped slightly as a result of this methodological change. In 2009, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. In 2010 the remaining forms were changed in a like manner. In 2011 the question text was changed slightly in one form; bennies, Benzedrine and Methadrine were dropped from the list of examples. An examination of the data did not show any effect from the wording change. In 2013 the question wording was changed in three of the questionnaires. The new wording in 2013 asked "On how many occasions (if any) have you taken amphetamines **or other prescription stimulant drugs...**" In contrast, the old wording did not include the text highlighted in red. Results in 2013 indicated higher prevalence in questionnaires with the new as compared to the old wording; it was 21% higher in 12th grade. 2013 data are based on the changed forms only; N is one half of N indicated. In 2014 all questionnaires included the new, updated wording.

^cIn 2001 the question text was changed in half of the questionnaire forms. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data presented here are based on the changed forms only; N is one half of N indicated. In 2002 the remaining forms were changed to the new wording. Data based on all forms beginning in 2002. Data for any illicit drug other than marijuana and for hallucinogens are also affected by these changes and have been handled in a parallel manner. For hallucinogens, LSD, and hallucinogens other than LSD data based on five of six forms beginning in 2014; N is five sixths of N indicated.

^dData based on four of five forms in 1976–1988; N is four fifths of N indicated. Data based on five of six forms in 1989–1998; N is five sixths of N indicated. Beginning in 1999, data based on three of six forms; N is three sixths of N indicated.

^eAdjusted for underreporting of amyl and butyl nitrites. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of inhalant use and fairly stable rates of nitrite use.

^fData based on one form; N is one fifth of N indicated in 1979–1988 and one sixth of N indicated beginning in 1989. Data for ecstasy (MDMA) and Rohypnol based on two of six forms beginning in 2002; N is two sixths of N indicated. Data for Rohypnol for 2001 and 2002 are not comparable due to changes in the questionnaire forms. Data for Rohypnol based on one of six forms beginning in 2010; N is one sixth of N indicated. The PCP triplet question was dropped in 2014 however the annual use question was moved to another form; N is one sixth of N indicated. In 2014 a revised question on use of ecstasy (MDMA) including "Molly" was added to one form. The 2013 and 2014 "Original wording" data reported here are for only the questionnaires using the original question wording; N is two sixths of N indicated. Beginning in 2014 data reported here for the "Revised wording" which includes "Molly" are for only the questionnaires using the revised wording; N is one sixth of the N indicated in 2014 and three sixths of the N indicated beginning in 2015.

^gQuestion text changed slightly in 1987.

^hAdjusted for underreporting of PCP. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of hallucinogen use and fairly stable rates of PCP use.

ⁱData based on one of five forms in 1986; N is one fifth of N indicated. Data based on two forms in 1987–1989; N is two fifths of N indicated in 1987–1988 and two sixths of N indicated in 1989. Data based on six forms beginning in 1990.

^jData based on one form in 1987–1989; N is one fifth of N indicated in 1987–1988 and one sixth of N indicated in 1989. Data based on four of six forms beginning in 1990; N is four sixths of N indicated.

Footnotes for Tables 5-1 through 5-4 (cont.)

^kIn 1995 the heroin question was changed in half of the questionnaire forms. Separate questions were asked for use with and without injection. Data presented here represent *t* combined data from all forms.

^lData based on three of six forms; *N* is three sixths of *N* indicated.

^mOnly drug use not under a doctor's orders is included here.

ⁿIn 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2003, the remaining forms were changed to the new wording. Data based on all forms beginning in 2003. In 2013 the list of examples was changed on one form: MS Contin, Roxycodone, Hydrocodone (Lortab, Lorcet, Norco), Suboxone, Tylox, and Tramadol were added to the list. An examination of the data did not show any effect from the wording change.

^oData based on two of six forms; *N* is two sixths of *N* indicated. Bidis and kreteks based on one of six forms beginning in 2009; *N* is one sixth of *N* indicated.

^pFor 12th graders only: In 2004 the barbiturate question text was changed on half of the questionnaire forms. Barbiturates was changed to sedatives including barbiturates, and "have you taken barbiturates . . ." was changed to "have you taken sedatives . . ." In the list of examples downs, downers, goofballs, yellows, reds, blues, rainbows were changed to downs, or downers, and include Phenobarbital, Tuinal, Nembutal, and Seconal. An examination of the data did not show any effect from the wording change. In 2005 the remaining forms were changed in a like manner. In 2013 the question text was changed in all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. In one form the list of examples was also changed: Tuinal was dropped from the list and Dalmane, Restoril, Halcion, Intermezzo, and Zolpimist were added. An examination of the data did not show any effect from the wording change.

^qData based on five forms in 1975–1988, six forms in 1989, one form in 1990 (*N* is one sixth of *N* indicated in 1990), and six forms adjusted by one-form data beginning in 1991.

^rData based on five forms in 1975–1988, six forms in 1989, and one of six forms beginning in 1990; *N* is one sixth of *N* indicated beginning in 1990.

^sData based on five forms in 1975–1988 and on six forms in 1989–1992. In 1993, the question text was changed slightly in three of six forms to indicate that a drink meant more than a few sips. The 1993 data are based on the changed forms only; *N* is one half of *N* indicated. In 1994 the remaining forms were changed to the new wording. Data based on all forms beginning in 1994. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

^tThe prevalence of smokeless tobacco use was not asked of 12th graders in 1990 and 1991. Prior to 1990, the prevalence-of-use question on smokeless tobacco was located near the end of one 12th-grade questionnaire form, whereas after 1991 the question was placed earlier and in a different form. This shift could explain the discontinuities between the corresponding data.

^uData based on one of six forms in 1989–1990; *N* is one sixth of *N* indicated. Data based on two of six forms in 1991–2005, and again beginning in 2019; *N* is two sixths of *N* indicated. Data based on three of six forms in 2006–2018; *N* is three sixths of *N* indicated. In 2006, a slightly altered version of this question was added to a third form. An examination of the data did not show any effect from the wording change. In 2007 the remaining forms were changed in a like manner. In 2008, the question text was changed slightly in two of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2009 the remaining form was changed in a like manner.

^vData based on two of six forms in 2002–2005; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated.

^wData based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms in 2001; *N* is three sixths of *N* indicated. Data based on one form beginning in 2002; *N* is one sixth of *N* indicated.

^xData based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2001; *N* is three sixths of *N* indicated. Data based on two of six forms beginning in 2010; *N* is two sixths of *N* indicated.

^yPrior to 2019, data based on two of six forms; *N* is two sixths of *N* indicated. In 2019, data based on four of six forms; *N* is four sixths of *N* indicated. Beginning in 2020, data based on all available forms except for daily use. Daily use based on two thirds of *N* indicated in 2020. Beginning in 2021, daily use based on all available forms.

^zIn 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

^{aa}In 2005, data omitted for one of the questionnaire forms due to an error in the skip pattern in the questionnaire. In 2005, data based on one of six forms and *N* is one sixth of *N* indicated. Beginning in 2006, data based on two of six forms and *N* is two sixths of *N* indicated.

Footnotes for Tables 5-1 through 5-4 (cont.)

^{bb}For the use of prescription ADHD drugs, the question is asked differently than that for other drugs presented here. Therefore, the estimates indicate youth who reported "Yes, I take them now."

^{cc}Includes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.

^{dd}Includes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

^{ee}In 2019, data based on one of six forms. *N* is one sixth of *N* indicated. In 2020, data based on all available forms. Beginning in 2021, data based on 4 of 6 forms. *N* is four sixths of *N* indicated.

^{ff}Drug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE 5-5a
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020– 2021 change	
Any Illicit Drug^{a,ii}																																	
8th Grade	18.7	20.6	22.5	25.7	28.5	31.2	29.4	29.0	28.3	26.8	26.8	24.5	22.8	21.5	21.4	20.9	19.0	19.6	19.9	21.4	20.1	18.5†	21.1	20.3	20.5	17.2	18.2	18.7	20.4	21.3	15.9	-5.4 s	
10th Grade	30.6	29.8	32.8	37.4	40.9	45.4	47.3	44.9	46.2	45.6	45.6	44.6	41.4	39.8	38.2	36.1	35.6	34.1	36.0	37.0	37.7	36.8†	39.1	37.4	34.7	33.7	34.3	36.3	37.5	37.3	25.0	-12.3 sss	
12th Grade	44.1	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2	46.8	47.4	46.7	48.2	49.9	49.1†	49.8	49.1	48.9	48.3	48.9	47.8	47.4	46.6	41.3	-5.3 s	
Any Illicit Drug other than Marijuana^{a,b}																																	
8th Grade	14.3	15.6	16.8	17.5	18.8	19.2	17.7	16.9	16.3	15.8†	17.0	13.7	13.6	12.2	12.1	12.2	11.1	11.2	10.4	10.6	9.8	8.7†	10.4	10.0	10.3	8.9	9.3	9.8	10.8	12.5	8.8	-3.8 s	
10th Grade	19.1	19.2	20.9	21.7	24.3	25.5	25.0	23.6	24.0	23.1†	23.6	22.1	19.7	18.8	18.0	17.5	18.2	15.9	16.7	16.8	15.6	14.9†	16.4	15.9	14.6	14.0	13.7	14.2	13.8	13.2	9.1	-4.1 sss	
12th Grade	26.9	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0†	30.7	29.5	27.7	28.7	27.4	26.9	25.5	24.9	24.0	24.7	24.9	24.1†	24.8	22.6	21.1	20.7	19.5	18.9	18.4	17.5	12.8	-4.6 sss	
Any Illicit Drug including Inhalants^{a,c,ii}																																	
8th Grade	28.5	29.6	32.3	35.1	38.1	39.4	38.1	37.8	37.2	35.1	34.5	31.6	30.3	30.2	30.0	29.2	27.7	28.3	27.9	28.6	26.4	25.1†	25.9	25.2	24.9	20.6	23.3	23.2	25.4	28.4	22.4	-6.0 ss	
10th Grade	36.1	36.2	38.7	42.7	45.9	49.8	50.9	49.3	49.9	49.3	48.8	47.7	44.9	43.1	42.1	40.1	39.8	38.7	40.0	40.6	40.8	40.0†	41.6	40.4	37.2	35.9	37.0	38.7	39.8	39.7	28.5	-11.2 sss	
12th Grade	47.6	44.4	46.6	49.1	51.5	53.5	56.3	56.1	56.3	57.0	56.0	54.6	52.8	53.0	53.5	51.2	49.1	49.3	48.4	49.9	51.8	50.3†	52.3	49.9	51.4	49.3	50.3	49.0	49.1	47.6	43.3	-4.3	
Marijuana/Hashishⁱⁱ																																	
8th Grade	10.2	11.2	12.6	16.7	19.9	23.1	22.6	22.2	22.0	20.3	20.4	19.2	17.5	16.3	16.5	15.7	14.2	14.6	15.7	17.3	16.4	15.2	16.5	15.6	15.5	12.8	13.5	13.9	15.2	14.8	10.2	-4.6 ss	
10th Grade	23.4	21.4	24.4	30.4	34.1	39.8	42.3	39.6	40.9	40.3	40.1	38.7	36.4	35.1	34.1	31.8	31.0	29.9	32.3	33.4	34.5	33.8	35.8	33.7	31.1	29.7	30.7	32.6	34.0	33.3	22.0	-11.3 sss	
12th Grade	36.7	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3	41.8	42.6	42.0	43.8	45.5	45.2	45.5	44.4	44.7	44.5	45.0	43.6	43.7	43.7	38.6	-5.1 s	
Marijuana Under a Doctor's Orders^{n,o}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1	1.1	1.3	1.0	1.3	+0.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1	1.3	2.0	2.0	1.4	-0.7
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.2	2.0	§	2.3	—
Inhalants^{c,d}																																	
8th Grade	17.6	17.4	19.4	19.9	21.6	21.2	21.0	20.5	19.7	17.9	17.1	15.2	15.8	17.3	17.1	16.1	15.6	15.7	14.9	14.5	13.1	11.8	10.8	10.8	9.4	7.7	8.9	8.7	9.5	12.6	11.3	-1.4	
10th Grade	15.7	16.6	17.5	18.0	19.0	19.3	18.3	18.3	17.0	16.6	15.2	13.5	12.7	12.4	13.1	13.3	13.6	12.8	12.3	12.0	10.1	9.9	8.7	8.7	7.2	6.6	6.1	6.5	6.8	7.4	7.2	-0.2	
12th Grade	17.6	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1	10.5	9.9	9.5	9.0	8.1	7.9	6.9	6.5	5.7	5.0	4.9	4.4	5.3	3.8	5.0	+1.2	
Hallucinogens^{b,f}																																	
8th Grade	3.2	3.8	3.9	4.3	5.2	5.9	5.4	4.9	4.8	4.6†	5.2	4.1	4.0	3.5	3.8	3.4	3.1	3.3	3.0	3.4	3.3	2.8	2.5	2.0	2.0	1.9	1.9	2.2	2.4	3.0	1.8	-1.3 s	
10th Grade	6.1	6.4	6.8	8.1	9.3	10.5	10.5	9.8	9.7	8.9†	8.9	7.8	6.9	6.4	5.8	6.1	6.4	5.5	6.1	6.1	6.0	5.2	5.4	5.0	4.6	4.4	4.2	3.9	4.7	4.8	3.5	-1.3 ss	
12th Grade	9.6	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0†	14.7	12.0	10.6	9.7	8.8	8.3	8.4	8.7	7.4	8.6	8.3	7.5	7.6	6.3	6.4	6.7	6.6	6.9	7.5	7.1	-0.4		

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021	2020– 2021 change
LSD^b																																
8th Grade	2.7	3.2	3.5	3.7	4.4	5.1	4.7	4.1	4.1	3.9	3.4	2.5	2.1	1.8	1.9	1.6	1.6	1.9	1.7	1.8	1.7	1.3	1.4	1.1	1.3	1.2	1.3	1.4	1.6	2.1	1.2	-0.9
10th Grade	5.6	5.8	6.2	7.2	8.4	9.4	9.5	8.5	8.5	7.6	6.3	5.0	3.5	2.8	2.5	2.7	3.0	2.6	3.0	3.0	2.8	2.6	2.7	2.6	3.0	3.2	3.0	2.8	3.6	3.8	2.5	-1.3 ss
12th Grade	8.8	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3	3.4	4.0	3.1	4.0	4.0	3.8	3.9	3.7	4.3	4.9	5.0	5.1	5.6	5.9	4.9	-0.9
Hallucinogens other than LSD^b																																
8th Grade	1.4	1.7	1.7	2.2	2.5	3.0	2.6	2.5	2.4	2.3†	3.9	3.3	3.2	3.0	3.3	2.8	2.6	2.5	2.4	2.7	2.8	2.3	1.9	1.5	1.2	1.3	1.2	1.5	1.7	2.0	1.3	-0.7
10th Grade	2.2	2.5	2.8	3.8	3.9	4.7	4.8	5.0	4.7	4.8†	6.6	6.3	5.9	5.8	5.2	5.5	5.7	4.8	5.4	5.3	5.2	4.5	4.4	4.1	3.3	3.1	2.9	2.7	3.3	3.4	2.5	-0.9 s
12th Grade	3.7	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9†	10.4	9.2	9.0	8.7	8.1	7.8	7.7	7.8	6.8	7.7	7.3	6.6	6.4	5.1	4.8	4.7	4.8	4.5	4.3	4.7	5.3	+0.5
MDMA (Ecstasy, Molly)^g																																
8th Grade	—	—	—	—	—	3.4	3.2	2.7	2.7	4.3	5.2	4.3	3.2	2.8	2.8	2.5	2.3	2.4	2.2	3.3	2.6	2.0	1.8†	2.4	2.3	1.7	1.5	1.6	1.7	1.7	1.0	-0.7
10th Grade	—	—	—	—	—	5.6	5.7	5.1	6.0	7.3	8.0	6.6	5.4	4.3	4.0	4.5	5.2	4.3	5.5	6.4	6.6	5.0	5.7†	5.2	3.8	2.8	2.8	2.4	3.2	2.6	1.4	-1.2 sss
12th Grade	—	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5	6.5	6.2	6.5	7.3	8.0	7.2	7.1†	7.9	5.9	4.9	4.9	4.1	3.3	3.6	2.8	-0.8
Cocaine																																
8th Grade	2.3	2.9	2.9	3.6	4.2	4.5	4.4	4.6	4.7	4.5	4.3	3.6	3.6	3.4	3.7	3.4	3.1	3.0	2.6	2.6	2.2	1.9	1.7	1.8	1.6	1.4	1.3	1.4	1.2	1.6	0.6	-0.9 s
10th Grade	4.1	3.3	3.6	4.3	5.0	6.5	7.1	7.2	7.7	6.9	5.7	6.1	5.1	5.4	5.2	4.8	5.3	4.5	4.6	3.7	3.3	3.3	3.3	2.6	2.7	2.1	2.1	2.6	2.5	1.6	1.2	-0.4
12th Grade	7.8	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5	7.8	7.2	6.0	5.5	5.2	4.9	4.5	4.6	4.0	3.7	4.2	3.9	3.8	4.1	2.5	-1.7 s
Crack																																
8th Grade	1.3	1.6	1.7	2.4	2.7	2.9	2.7	3.2	3.1	3.1	3.0	2.5	2.5	2.4	2.4	2.3	2.1	2.0	1.7	1.5	1.5	1.0	1.2	1.2	1.0	0.9	0.8	0.9	0.9	0.9	0.4	-0.5
10th Grade	1.7	1.5	1.8	2.1	2.8	3.3	3.6	3.9	4.0	3.7	3.1	3.6	2.7	2.6	2.5	2.2	2.3	2.0	2.1	1.8	1.6	1.4	1.5	1.0	1.1	0.8	0.8	1.0	0.9	0.7	0.7	0.0
12th Grade	3.1	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5	3.2	2.8	2.4	2.4	1.9	2.1	1.8	1.8	1.7	1.4	1.7	1.5	1.7	1.6	1.5	-0.1
Cocaine other than Crack^h																																
8th Grade	2.0	2.4	2.4	3.0	3.4	3.8	3.5	3.7	3.8	3.5	3.3	2.8	2.7	2.6	2.9	2.7	2.6	2.4	2.1	2.1	1.8	1.6	1.4	1.4	1.3	1.1	1.0	1.2	1.0	1.3	0.5	-0.8 s
10th Grade	3.8	3.0	3.3	3.8	4.4	5.5	6.1	6.4	6.8	6.0	5.0	5.2	4.5	4.8	4.6	4.3	4.8	4.0	4.1	3.4	3.0	3.0	2.9	2.2	2.3	1.9	1.9	2.4	2.3	1.5	1.0	-0.5
12th Grade	7.0	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9	6.8	6.5	5.3	5.1	4.9	4.4	4.2	4.1	3.4	3.3	3.5	3.3	3.2	4.0	2.2	-1.8 s

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021	2020– 2021 change	
Heroinⁱ																																	
8th Grade	1.2	1.4	1.4	2.0	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	1.3	1.3	1.2	0.8	1.0	0.9	0.5	0.5	0.7	0.6	0.7	0.5	0.5	0.0	
10th Grade	1.2	1.2	1.3	1.5	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	1.5	1.3	1.2	1.1	1.0	0.9	0.7	0.6	0.4	0.4	0.4	0.3	0.3	0.0	
12th Grade	0.9	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	1.2	1.6	1.4	1.1	1.0	1.0	0.8	0.7	0.7	0.8	0.6	0.4	0.4	+0.1	
With a Needle^j																																	
8th Grade	—	—	—	—	1.5	1.6	1.3	1.4	1.6	1.1	1.2	1.0	1.0	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.6	0.6	0.8	0.3	0.3	0.4	0.4	0.5	0.3	0.4	+0.1
10th Grade	—	—	—	—	1.0	1.1	1.1	1.2	1.3	1.0	0.8	1.0	0.9	0.8	0.8	0.9	0.9	0.7	0.9	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.3	0.2	0.3	0.2	0.3	+0.1	
12th Grade	—	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.9	0.8	0.7	0.7	0.6	1.1	0.9	0.7	0.7	0.8	0.6	0.5	0.4	0.5	0.4	0.2	0.2	0.0	
Without a Needle^j																																	
8th Grade	—	—	—	—	1.5	1.6	1.4	1.5	1.4	1.3	1.1	1.0	1.1	1.0	0.9	0.9	0.7	0.9	0.8	0.7	0.7	0.5	0.5	0.4	0.3	0.4	0.5	0.3	0.4	0.4	0.2	-0.2	
10th Grade	—	—	—	—	1.1	1.7	1.7	1.7	1.6	1.7	1.3	1.3	1.0	1.1	1.1	1.0	1.1	0.8	1.0	0.9	0.8	0.8	0.7	0.5	0.4	0.3	0.3	0.2	0.3	0.2	0.1	-0.1	
12th Grade	—	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1	1.4	1.1	0.9	1.4	1.3	0.8	0.9	0.7	0.7	0.6	0.4	0.6	0.4	0.1	0.2	+0.1	
Narcotics other than Heroin^{k,l}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.6	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9†	13.5	13.2	13.5	12.8	13.4	13.1	13.2	13.2	13.0	13.0	12.2	11.1	9.5	8.4	7.8	6.8	6.0	5.3	5.3	2.3	-3.0 sss	
Amphetamines^{k,m}																																	
8th Grade	10.5	10.8	11.8	12.3	13.1	13.5	12.3	11.3	10.7	9.9	10.2	8.7	8.4	7.5	7.4	7.3	6.5	6.8	6.0	5.7	5.2	4.5‡	6.9	6.7	6.8	5.7	5.7	5.9	6.8	8.9	5.8	-3.1 s	
10th Grade	13.2	13.1	14.9	15.1	17.4	17.7	17.0	16.0	15.7	15.7	16.0	14.9	13.1	11.9	11.1	11.2	11.1	9.0	10.3	10.6	9.0	8.9‡	11.2	10.6	9.7	8.8	8.2	8.6	8.2	7.0	5.2	-1.8 ss	
12th Grade	15.4	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4	11.4	10.5	9.9	11.1	12.2	12.0‡	13.8	12.1	10.8	10.0	9.2	8.6	7.7	7.3	4.9	-2.5 sss	
Methamphetamine^{n,o}																																	
8th Grade	—	—	—	—	—	—	—	—	4.5	4.2	4.4	3.5	3.9	2.5	3.1	2.7	1.8	2.3	1.6	1.8	1.3	1.3	1.4	1.0	0.8	0.6	0.7	0.7	0.9	1.1	0.3	-0.9	
10th Grade	—	—	—	—	—	—	—	—	7.3	6.9	6.4	6.1	5.2	5.3	4.1	3.2	2.8	2.4	2.8	2.5	2.1	1.8	1.6	1.4	1.3	0.7	0.9	0.8	0.7	0.8	0.4	-0.4	
12th Grade	—	—	—	—	—	—	—	—	8.2	7.9	6.9	6.7	6.2	6.2	4.5	4.4	3.0	2.8	2.4	2.3	2.1	1.7	1.5	1.9	1.0	1.2	1.1	0.7	0.8	1.7	0.6	-1.1	

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change	
Crystal Methamphetamine (Ice)^o																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.3	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4	3.4	2.8	2.1	1.8	2.1	1.7	2.0	1.3	1.2	1.4	1.5	1.1	1.3	0.2	0.7	+0.6 s	
Sedatives (Barbiturates)^{k,p}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.2	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8	9.9	10.5	10.2	9.3	8.5	8.2	7.5	7.0	6.9	7.5	6.8	5.9	5.2	4.5	4.2	4.2	4.4	3.5	-0.9	
Tranquilizers^{b,k}																																	
8th Grade	3.8	4.1	4.4	4.6	4.5	5.3	4.8	4.6	4.4	4.4†	5.0	4.3	4.4	4.0	4.1	4.3	3.9	3.9	3.9	4.4	3.4	3.0	2.9	2.9	3.0	3.0	3.4	3.5	4.0	3.9	2.5	-1.4	
10th Grade	5.8	5.9	5.7	5.4	6.0	7.1	7.3	7.8	7.9	8.0†	9.2	8.8	7.8	7.3	7.1	7.2	7.4	6.8	7.0	7.3	6.8	6.3	5.5	5.8	6.1	6.0	6.0	5.7	4.9	2.6	-2.3 sss		
12th Grade	7.2	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9†	10.3	11.4	10.2	10.6	9.9	10.3	9.5	8.9	9.3	8.5	8.7	8.5	7.7	7.4	6.9	7.6	7.5	6.6	6.1	7.0	3.3	-3.8 sss	
Any Prescription Drug^q																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.0	23.9	22.2	21.5	20.9	21.6	21.7	21.2†	22.2	19.9	18.3	18.0	16.5	15.5	14.6	14.2	8.8	-5.4 sss	
Rohypnol^r																																	
8th Grade	—	—	—	—	—	1.5	1.1	1.4	1.3	1.0	1.1	0.8	1.0	1.0	1.1	1.0	1.0	0.7	0.7	0.9	2.0	1.0	0.7	0.6	0.8	0.9	0.6	0.7	0.6	§	0.3	—	
10th Grade	—	—	—	—	—	1.5	1.7	2.0	1.8	1.3	1.5	1.3	1.0	1.2	1.0	0.8	1.3	0.9	0.7	1.4	1.2	0.8	1.1	1.0	0.5	1.0	0.7	0.5	0.9	§	0.6	—	
12th Grade	—	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Alcohol^s																																	
Any Use																																	
8th Grade	70.1	69.3†	55.7	55.8	54.5	55.3	53.8	52.5	52.1	51.7	50.5	47.0	45.6	43.9	41.0	40.5	38.9	38.9	36.6	35.8	33.1	29.5	27.8	26.8	26.1	22.8	23.1	23.5	24.5	25.6	21.7	-3.9	
10th Grade	83.8	82.3†	71.6	71.1	70.5	71.8	72.0	69.8	70.6	71.4	70.1	66.9	66.0	64.2	63.2	61.5	61.7	58.3	59.1	58.2	56.0	54.0	52.1	49.3	47.1	43.4	42.2	43.0	43.1	46.4	34.7	-11.6 sss	
12th Grade	88.0	87.5†	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7	72.2	71.9	72.3	71.0	70.0	69.4	68.2	66.0	64.0	61.2	61.5	58.5	58.5	61.5	54.1	-7.4 s	

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{hk}	2020	2021	2020– 2021 change		
Been Drunk^o																																		
8th Grade	26.7	26.8	26.4	25.9	25.3	26.8	25.2	24.8	24.8	25.1	23.4	21.3	20.3	19.9	19.5	19.5	17.9	18.0	17.4	16.3	14.8	12.8	12.2	10.8	10.9	8.6	9.2	9.2	10.1	10.1	8.3	-1.8		
10th Grade	50.0	47.7	47.9	47.2	46.9	48.5	49.4	46.7	48.9	49.3	48.2	44.0	42.4	42.3	42.1	41.4	41.2	37.2	38.6	36.9	35.9	34.6	33.5	30.2	28.6	26.0	25.1	26.2	25.5	28.8	17.8	-10.9 sss		
12th Grade	65.4	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4	55.1	54.7	56.5	54.1	51.0	54.2	52.3	49.8	46.7	46.3	45.3	42.9	40.8	41.7	38.9	-2.8		
Flavored Alcoholic Beverages^{e,n}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	37.9	35.5	35.5	34.0	32.8	29.4	30.0	27.0	23.5	21.9	19.2	19.3	16.3	16.0	18.0	15.1	18.3	13.8	-4.5		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.8	58.1	55.7	53.5	51.4	51.3	48.4	46.7	44.9	42.3	38.7	33.3	34.8	35.9	33.2	36.4	24.9	-11.5 ss		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	71.0	73.6	69.9	68.4	65.5	67.4	62.6	62.4	60.5	58.9	57.5	55.6	53.6	51.2	50.4	44.7	§	43.7	—		
Cigarettes																																		
Any Use																																		
8th Grade	44.0	45.2	45.3	46.1	46.4	49.2	47.3	45.7	44.1	40.5	36.6	31.4	28.4	27.9	25.9	24.6	22.1	20.5	20.1	20.0	18.4	15.5	14.8	13.5	13.3	9.8	9.4	9.1	10.0	11.5	7.0	-4.5 ss		
10th Grade	55.1	53.5	56.3	56.9	57.6	61.2	60.2	57.7	57.6	55.1	52.8	47.4	43.0	40.7	38.9	36.1	34.6	31.7	32.7	33.0	30.4	27.7	25.7	22.6	19.9	17.5	15.9	16.0	14.2	13.9	10.0	-3.9 sss		
12th Grade	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1	46.2	44.7	43.6	42.2	40.0	39.5	38.1	34.4	31.1	28.3	26.6	23.8	22.3	24.0	17.8	-6.1		
Smokeless Tobacco^l																																		
8th Grade	22.2	20.7	18.7	19.9	20.0	20.4	16.8	15.0	14.4	12.8	11.7	11.2	11.3	11.0	10.1	10.2	9.1	9.8	9.6	9.9	9.7	8.1	7.9	8.0	8.6	6.9	6.2	6.4	7.1	7.8	4.6	-3.2 s		
10th Grade	28.2	26.6	28.1	29.2	27.6	27.4	26.3	22.7	20.4	19.1	19.5	16.9	14.6	13.8	14.5	15.0	15.1	12.2	15.2	16.8	15.6	15.4	14.0	13.6	12.3	10.2	9.1	10.0	9.2	9.3	4.9	-4.3 sss		
12th Grade	—	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2	15.1	15.6	16.3	17.6	16.9	17.4	17.2	15.1	13.2	14.2	11.0	10.1	9.8	§	8.6	—		
Any Vaping^{hb,cc}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.7	17.5‡	18.5	21.5	24.3	24.1	17.5	-6.6 ss	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	29.0‡	30.9	36.9	41.0	41.0	29.7	-11.3 sss	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35.5	33.8‡	35.8	42.5	45.6	47.2	40.5	-6.7 s	
Vaping Nicotine^{hb}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	13.5	20.3	22.7	16.6	-6.1 ss		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	28.6	36.3	38.7	28.4	-10.3 sss		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.0	34.0	40.8	44.3	38.7	-5.6		

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021	2020– 2021 change			
Vaping Marijuana^{bb}																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	5.5	9.0	10.2	6.5	-3.7 ss		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.8	14.2	21.8	22.7	16.5	-6.3 sss		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	15.6	23.7	27.9	25.7	-2.3		
Vaping Just Flavoring^{bb}																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.0	19.4	18.9	17.8	12.0	-5.8 sss		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.5	31.7	28.3	27.7	19.6	-8.0 sss		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.7	34.1	29.0	29.8	25.2	-4.6 s		
Flavoring Vaping with no Nicotine Vaping^{bb}																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.8	7.8	3.6	1.3	0.8	-0.6 s		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.0	7.6	3.7	1.6	0.9	-0.7 ss		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1	7.6	3.7	2.1	1.1	-1.0 ss		
JUUL^{jj}																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.9	16.9	10.3	-6.6 sss	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	30.7	19.8	-10.9 sss	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.0	36.2	28.5	-7.8 s	
Steroids^{ku}																																			
8th Grade	1.9	1.7	1.6	2.0	2.0	1.8	1.8	2.3	2.7	3.0	2.8	2.5	2.5	1.9	1.7	1.6	1.5	1.4	1.3	1.1	1.2	1.2	1.1	1.0	1.0	0.9	1.1	1.1	1.5	2.0	1.2	-0.9 s			
10th Grade	1.8	1.7	1.7	1.8	2.0	1.8	2.0	2.0	2.7	3.5	3.5	3.5	3.0	2.4	2.0	1.8	1.8	1.4	1.3	1.6	1.4	1.3	1.3	1.4	1.2	1.3	1.1	1.2	1.6	1.7	0.7	-0.9 s			
12th Grade	2.1	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7	2.2	2.2	2.2	2.0	1.8	1.8	2.1	1.9	2.3	1.6	1.6	1.6	1.6	2.0	0.8	-1.2			
Legal Use of Over-the-Counter Stimulants																																			
Diet Pills^o																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	17.2	15.0	14.8	14.9	15.6	16.0	16.6	15.7	17.1	16.6	17.1	21.0	17.9	15.6	13.7	13.0	10.4	10.5	9.5	7.2	7.7	7.7	8.1	9.1	7.9	6.4	6.7	6.2	5.1	§	4.6	—			
Stay-Awake Pills^o																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	37.0	35.6	30.5	31.3	31.2	30.5	31.0	29.6	25.5	23.0	25.6	22.5	19.8	18.4	15.8	14.8	12.3	9.6	7.6	6.4	6.3	5.9	5.2	4.5	3.8	3.6	3.8	3.6	3.4	§	3.4	—			

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change	
Look-Alikes^e																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	8.9	10.1	10.5	10.3	11.6	10.7	10.8	9.4	9.2	10.0	9.8	9.6	8.6	8.1	7.4	5.7	4.6	5.2	4.3	2.6	3.5	2.9	2.7	2.2	3.3	2.3	2.6	—	—	—	—	—	
Legal Use of Prescription ADHD Drugs																																	
Stimulant-Type^{n,dd}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.3	9.3	8.3	8.1	7.8	8.2	7.6	7.7	7.1	7.2	7.1	7.5	6.6	7.1	6.5	5.0	9.0	+3.9 sss	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.7	8.5	8.4	7.8	8.2	8.6	7.2	8.0	8.3	6.8	8.8	7.1	6.5	8.2	6.6	6.0	7.0	+1.0	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.5	7.8	7.6	8.6	8.2	8.3	8.4	9.0	9.6	9.1	9.9	8.4	8.6	8.6	7.9	7.5	8.0	+0.5	
Non-Stimulant-Type^{n,dd}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.3	7.9	6.3	6.3	5.8	5.8	6.1	5.1	5.1	4.8	5.1	5.7	4.9	4.4	4.5	4.2	2.8	-1.4	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.3	8.3	6.7	6.8	6.8	6.1	6.4	5.2	4.9	5.8	5.8	5.2	4.6	5.1	5.2	5.1	3.0	-2.1 ss	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.2	6.1	7.0	6.4	5.4	6.7	5.8	5.9	5.4	5.6	5.6	5.8	6.4	6.1	5.7	4.8	4.5	-0.3	
Either Type^{n,dd}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.7	15.8	13.4	13.1	12.8	12.8	12.4	11.6	11.5	11.2	11.4	12.1	10.9	11.0	9.8	7.3	11.5	+4.3 ss	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.3	14.2	12.9	12.8	13.0	12.7	12.0	12.0	11.7	11.3	13.1	11.5	10.1	12.1	9.8	9.3	9.0	-0.3	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	11.7	12.1	13.1	11.0	12.7	12.2	12.7	13.2	12.6	13.7	12.7	13.0	12.7	11.1	9.9	10.9	+1.0	
Previously surveyed drugs that have been dropped.																																	
Nitrites^e																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.6	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2	1.2	0.6	1.1	—	—	—	—	—	—	—	—	—	—	—	—	—	
PCP^e																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	2.9	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2	2.1	1.8	1.7	1.8	2.3	1.6	1.3	—	—	—	—	—	—	—	—	—	

(Table continued on next page.)

TABLE 5-5a (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^k	2020	2021	2020– 2021 change	
Methaqualone ^{e,k}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.3	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2	1.0	0.8	0.7	0.4	0.6	0.8	—	—	—	—	—	—	—	—	—	—	

Source. The Monitoring the Future study, the University of Michigan.

Note. See footnotes following Table 5-5e.

TABLE 5-5b
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{h,k}	2020	2021	2020– 2021 change		
Any Illicit Drug^{a,l}																																		
8th Grade	11.3	12.9	15.1	18.5	21.4	23.6	22.1	21.0	20.5	19.5	19.5	17.7	16.1	15.2	15.5	14.8	13.2	14.1	14.5	16.0	14.7	13.4†	15.2	14.6	14.8	12.0	12.9	13.4	14.8	15.6	10.2	-5.4 sss		
10th Grade	21.4	20.4	24.7	30.0	33.3	37.5	38.5	35.0	35.9	36.4	37.2	34.8	32.0	31.1	29.8	28.7	28.1	26.9	29.4	30.2	31.1	30.1†	32.1	29.9	27.9	26.8	27.8	29.9	31.0	30.4	18.7	-11.7 sss		
12th Grade	29.4	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	36.5	38.3	40.0	39.7†	40.1	38.7	38.6	38.3	39.9	38.8	38.0	36.8	32.0	-4.8 s		
Any Illicit Drug other than Marijuana^{a,b}																																		
8th Grade	8.4	9.3	10.4	11.3	12.6	13.1	11.8	11.0	10.5	10.2†	10.8	8.8	8.8	7.9	8.1	7.7	7.0	7.4	7.0	7.1	6.4	5.5†	6.3	6.4	6.3	5.4	5.8	6.1	6.5	7.7	4.6	-3.1 s		
10th Grade	12.2	12.3	13.9	15.2	17.5	18.4	18.2	16.6	16.7	16.7†	17.9	15.7	13.8	13.5	12.9	12.7	13.1	11.3	12.2	12.1	11.2	10.8†	11.2	11.2	10.5	9.8	9.4	9.6	9.1	8.6	5.1	-3.5 sss		
12th Grade	16.2	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4†	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	17.0	17.3	17.6	17.0†	17.8	15.9	15.2	14.3	13.3	12.4	11.5	11.4	7.2	-4.2 sss		
Any Illicit Drug including Inhalants^{a,c,l}																																		
8th Grade	16.7	18.2	21.1	24.2	27.1	28.7	27.2	26.2	25.3	24.0	23.9	21.4	20.4	20.2	20.4	19.7	18.0	19.0	18.8	20.3	18.2	17.0†	17.6	16.8	17.0	13.5	15.8	16.0	17.5	18.5	12.6	-5.9 ss		
10th Grade	23.9	23.5	27.4	32.5	35.6	39.6	40.3	37.1	37.7	38.0	38.7	36.1	33.5	32.9	31.7	30.7	30.2	28.8	31.2	31.8	32.5	31.5†	33.2	31.0	28.9	27.7	29.1	31.0	31.7	31.3	19.6	-11.7 sss		
12th Grade	31.2	28.8	32.5	37.6	40.2	41.9	43.3	42.4	42.8	42.5	42.6	42.1	40.5	39.1	40.3	38.0	37.0	37.3	37.6	39.2	41.5	40.2†	42.3	39.2	40.2	38.7	41.2	40.2	38.8	38.7	33.2	-5.4 s		
Marijuana/Hashish^h																																		
8th Grade	6.2	7.2	9.2	13.0	15.8	18.3	17.7	16.9	16.5	15.6	15.4	14.6	12.8	11.8	12.2	11.7	10.3	10.9	11.8	13.7	12.5	11.4	12.7	11.7	11.8	9.4	10.1	10.5	11.8	11.4	7.1	-4.3 ss		
10th Grade	16.5	15.2	19.2	25.2	28.7	33.6	34.8	31.1	32.1	32.2	32.7	30.3	28.2	27.5	26.6	25.2	24.6	23.9	26.7	27.5	28.8	28.0	29.8	27.3	25.4	23.9	25.5	27.5	28.8	28.0	17.3	-10.7 sss		
12th Grade	23.9	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	32.8	34.8	36.4	36.4	36.4	35.1	34.9	35.6	37.1	35.9	35.7	35.2	30.5	-4.7 s		
Synthetic Marijuana^{h,o}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	4.0	3.3	3.1	2.7	2.0	1.6	2.7	1.6	1.3	-0.3		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.8	7.4	5.4	4.3	3.3	2.7	2.9	2.6	2.5	1.6	-0.9		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.4	11.3	7.9	5.8	5.2	3.5	3.7	3.5	3.3	2.4	1.8	-0.6	
Inhalants^{c,d}																																		
8th Grade	9.0	9.5	11.0	11.7	12.8	12.2	11.8	11.1	10.3	9.4	9.1	7.7	8.7	9.6	9.5	9.1	8.3	8.9	8.1	8.1	7.0	6.2	5.2	5.3	4.6	3.8	4.7	4.6	4.7	6.1	4.8	-1.3		
10th Grade	7.1	7.5	8.4	9.1	9.6	9.5	8.7	8.0	7.2	7.3	6.6	5.8	5.4	5.9	6.0	6.5	6.6	5.9	6.1	5.7	4.5	4.1	3.5	3.3	2.9	2.4	2.3	2.4	2.8	2.9	2.0	-0.8 s		
12th Grade	6.6	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	3.4	3.6	3.2	2.9	2.5	1.9	1.9	1.7	1.5	1.6	1.9	1.1	1.8	+0.6		

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change
Hallucinogens ^{b,f}																																
8th Grade	1.9	2.5	2.6	2.7	3.6	4.1	3.7	3.4	2.9	2.8†	3.4	2.6	2.6	2.2	2.4	2.1	1.9	2.1	1.9	2.2	2.2	1.6	1.6	1.3	1.3	1.2	1.1	1.4	1.3	1.7	1.0	-0.7
10th Grade	4.0	4.3	4.7	5.8	7.2	7.8	7.6	6.9	6.9	6.1†	6.2	4.7	4.1	4.1	4.0	4.1	4.4	3.9	4.1	4.2	4.1	3.5	3.4	3.3	3.1	2.9	2.8	2.7	3.1	3.4	2.2	-1.2 ss
12th Grade	5.8	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1†	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	4.7	5.5	5.2	4.8	4.5	4.0	4.2	4.3	4.4	4.3	4.6	5.3	4.1	-1.3
LSD ^b																																
8th Grade	1.7	2.1	2.3	2.4	3.2	3.5	3.2	2.8	2.4	2.4	2.2	1.5	1.3	1.1	1.2	0.9	1.1	1.3	1.1	1.2	1.1	0.8	1.0	0.7	0.9	0.8	0.9	0.9	0.9	1.1	0.7	-0.4
10th Grade	3.7	4.0	4.2	5.2	6.5	6.9	6.7	5.9	6.0	5.1	4.1	2.6	1.7	1.6	1.5	1.7	1.9	1.8	1.9	1.9	1.8	1.7	1.7	1.9	2.0	2.1	2.1	2.0	2.3	2.5	1.5	-1.1 ss
12th Grade	5.2	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	1.9	2.6	2.7	2.4	2.2	2.5	2.9	3.0	3.3	3.2	3.6	3.9	2.5	-1.4
Hallucinogens other than LSD ^b																																
8th Grade	0.7	1.1	1.0	1.3	1.7	2.0	1.8	1.6	1.5	1.4†	2.4	2.1	2.1	1.9	2.0	1.8	1.6	1.6	1.5	1.8	1.8	1.3	1.2	1.0	0.8	0.8	0.7	0.9	0.9	1.1	0.8	-0.3
10th Grade	1.3	1.4	1.9	2.4	2.8	3.3	3.3	3.4	3.2	3.1†	4.3	4.0	3.6	3.7	3.5	3.7	3.8	3.3	3.5	3.5	3.5	3.0	2.7	2.6	1.9	2.0	1.8	1.7	2.1	2.2	1.5	-0.7 s
12th Grade	2.0	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4†	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0	4.2	4.8	4.3	4.0	3.7	3.0	2.9	2.7	2.9	2.7	2.7	2.8	2.9	+0.1
PCP ^e																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7	0.9	1.1	1.0	1.0	1.3	0.9	0.7	0.8	1.4	1.3	1.0	1.1	1.1	§	0.7	—
MDMA (Ecstasy, Molly) ^g																																
8th Grade	—	—	—	—	2.3	2.3	1.8	1.7	3.1	3.5	2.9	2.1	1.7	1.7	1.4	1.5	1.7	1.3	2.4	1.7	1.1	1.1†	1.5	1.4	1.0	0.9	1.1	1.1	1.1	0.8	0.6	-0.2
10th Grade	—	—	—	—	4.6	3.9	3.3	4.4	5.4	6.2	4.9	3.0	2.4	2.6	2.8	3.5	2.9	3.7	4.7	4.5	3.0	3.6†	3.8	2.4	1.8	1.7	1.4	1.7	1.2	0.7	-0.5	
12th Grade	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	4.3	4.5	5.3	3.8	4.0†	5.0	3.6	2.7	2.6	2.2	2.2	1.8	1.1	-0.7	
Salvia ^{n,o}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.7	1.6	1.4	1.2	0.6	0.7	0.9	0.4	0.6	0.8	0.5	0.5	+0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.7	3.9	2.5	2.3	1.8	1.2	0.9	0.9	0.7	0.9	1.2	0.4	-0.8 ss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.7	5.5	5.9	4.4	3.4	1.8	1.9	1.8	1.5	0.9	0.7	0.7	0.6	-0.1

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change
Cocaine																																
8th Grade	1.1	1.5	1.7	2.1	2.6	3.0	2.8	3.1	2.7	2.6	2.5	2.3	2.2	2.0	2.2	2.0	2.0	1.8	1.6	1.6	1.4	1.2	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.5	0.2	-0.2
10th Grade	2.2	1.9	2.1	2.8	3.5	4.2	4.7	4.7	4.9	4.4	3.6	4.0	3.3	3.7	3.5	3.2	3.4	3.0	2.7	2.2	1.9	2.0	1.9	1.5	1.8	1.3	1.4	1.5	1.5	1.1	0.6	-0.5
12th Grade	3.5	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	3.4	2.9	2.9	2.7	2.6	2.6	2.5	2.3	2.7	2.3	2.2	2.9	1.2	-1.7 s
Crack																																
8th Grade	0.7	0.9	1.0	1.3	1.6	1.8	1.7	2.1	1.8	1.8	1.7	1.6	1.6	1.3	1.4	1.3	1.3	1.1	1.1	1.0	0.9	0.6	0.6	0.7	0.5	0.5	0.5	0.4	0.4	0.2	0.2	0.0
10th Grade	0.9	0.9	1.1	1.4	1.8	2.1	2.2	2.5	2.4	2.2	1.8	2.3	1.6	1.7	1.7	1.3	1.3	1.3	1.2	1.0	0.9	0.8	0.8	0.5	0.7	0.4	0.6	0.6	0.6	0.5	0.3	-0.2
12th Grade	1.5	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6	1.3	1.4	1.0	1.2	1.1	1.1	1.1	0.8	1.0	0.9	1.0	1.2	0.7	-0.5
Cocaine other than Crack^h																																
8th Grade	1.0	1.2	1.3	1.7	2.1	2.5	2.2	2.4	2.3	1.9	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.4	1.3	1.3	1.1	1.0	0.8	0.8	0.8	0.6	0.6	0.7	0.6	0.5	0.2	-0.4 s
10th Grade	2.1	1.7	1.8	2.4	3.0	3.5	4.1	4.0	4.4	3.8	3.0	3.4	2.8	3.3	3.0	2.9	3.1	2.6	2.3	1.9	1.7	1.8	1.6	1.3	1.5	1.1	1.2	1.4	1.4	1.0	0.5	-0.5
12th Grade	3.2	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	3.0	2.6	2.6	2.4	2.4	2.4	2.1	2.0	2.3	2.0	1.9	2.9	0.9	-2.0 s
Heroin^{lj}																																
8th Grade	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.7	0.8	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.0
10th Grade	0.5	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.3	0.2	0.1	0.0
12th Grade	0.4	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	0.7	0.9	0.8	0.6	0.6	0.6	0.5	0.3	0.4	0.4	0.4	0.3	0.1	-0.2
With a Needle^j																																
8th Grade	—	—	—	—	0.9	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.5	0.6	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	-0.1
10th Grade	—	—	—	—	0.6	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.0
12th Grade	—	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.7	0.6	0.4	0.4	0.5	0.3	0.3	0.2	0.3	0.3	0.1	0.1	0.0
Without a Needleⁱ																																
8th Grade	—	—	—	—	0.8	1.0	0.8	0.8	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	-0.1
10th Grade	—	—	—	—	0.8	0.9	1.1	1.0	1.1	1.1	0.7	0.8	0.5	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.0
12th Grade	—	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	0.6	0.8	0.7	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change		
Narcotics other than Heroin^{kl}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.5	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7†	9.4	9.3	9.5	9.0	9.0	9.2	9.1	9.2	8.7	8.7	7.9	7.1	6.1	5.4	4.8	4.2	3.4	2.7	2.1	1.0	-1.1	ss	
OxyContin^{k,n,v}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	1.3	1.7	1.7	1.8	2.6	1.8	2.1	2.0	2.1	1.8	1.6	2.0	1.0	0.8	0.9	0.8	0.8	1.2	0.9	0.8	0.0		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.5	3.2	3.8	3.9	3.6	5.1	4.6	3.9	3.0	3.4	3.0	2.6	2.1	2.2	2.2	2.0	1.0	0.9	-0.1		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3	5.2	4.7	4.9	5.1	4.9	4.3	3.6	3.3	3.7	3.4	2.7	2.3	1.7	2.4	0.9	-1.5		
Vicodin^{k,n,v}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	2.5	2.8	2.5	2.6	3.0	2.7	2.9	2.5	2.7	2.1	1.3	1.4	1.0	0.9	0.8	0.7	0.6	0.9	0.5	0.6	+0.1		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	6.9	7.2	6.2	5.9	7.0	7.2	6.7	8.1	7.7	5.9	4.4	4.6	3.4	2.5	1.7	1.5	1.1	1.1	0.9	0.5	-0.4		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	9.7	8.0	8.1	7.5	5.3	4.8	4.4	2.9	2.0	1.7	1.1	1.2	0.9	-0.4		
Amphetamines^{k,m}																																		
8th Grade	6.2	6.5	7.2	7.9	8.7	9.1	8.1	7.2	6.9	6.5	6.7	5.5	5.5	4.9	4.9	4.7	4.2	4.5	4.1	3.9	3.5	2.9†	4.2	4.3	4.1	3.5	3.5	3.7	4.1	5.3	3.0	-2.3	ss	
10th Grade	8.2	8.2	9.6	10.2	11.9	12.4	12.1	10.7	10.4	11.1	11.7	10.7	9.0	8.5	7.8	7.9	8.0	6.4	7.1	7.6	6.6	6.5†	7.9	7.6	6.8	6.1	5.6	5.7	5.2	4.3	2.7	-1.6	ss	
12th Grade	8.2	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	6.6	7.4	8.2	7.9†	9.2	8.1	7.7	6.7	5.9	5.5	4.5	4.3	2.3	-1.9	sss	
Ritalin^{k,n,o}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	2.9	2.8	2.6	2.5	2.4	2.6	2.1	1.6	1.8	1.5	1.3	0.7	1.1	0.9	0.6	0.8	0.4	0.5	1.0	0.5	0.6	+0.1	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	4.8	4.8	4.1	3.4	3.4	3.6	2.8	2.9	3.6	2.7	2.6	1.9	1.8	1.8	1.6	1.2	0.8	0.9	0.7	1.0	0.3	-0.6	s
12th Grade	—	—	—	—	—	—	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4	3.8	3.4	2.1	2.7	2.6	2.6	2.3	1.8	2.0	1.2	1.3	0.9	1.1	1.7	0.5	-1.2	
Adderall^{k,n,o}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	2.3	1.7	1.7	1.8	1.3	1.0	1.5	1.3	1.8	2.5	2.7	1.8	-0.9	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.7	5.3	4.6	4.5	4.4	4.6	5.2	4.2	4.0	4.1	3.1	2.9	1.6	-1.3	ss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.4	6.5	6.5	7.6	7.4	6.8	7.5	6.2	5.5	4.6	3.9	4.4	1.8	-2.6	s

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019**	2020	2021	2020– 2021 change
Methamphetamine^{n,o}																																
8th Grade	—	—	—	—	—	—	—	—	3.2	2.5	2.8	2.2	2.5	1.5	1.8	1.8	1.1	1.2	1.0	1.2	0.8	1.0	1.0	0.6	0.5	0.4	0.5	0.4	0.5	0.5	0.2	-0.3
10th Grade	—	—	—	—	—	—	—	—	4.6	4.0	3.7	3.9	3.3	3.0	2.9	1.8	1.6	1.5	1.6	1.6	1.4	1.0	1.0	0.8	0.8	0.4	0.4	0.4	0.5	0.3	0.2	-0.1
12th Grade	—	—	—	—	—	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5	1.7	1.2	1.2	1.0	1.4	1.1	0.9	1.0	0.6	0.6	0.6	0.5	0.5	1.4	0.2	-1.2
Crystal Methamphetamine (Ice)^o																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9	1.6	1.1	0.9	0.9	1.2	0.8	1.1	0.8	0.5	0.8	0.8	0.6	0.6	0.0	0.4	+0.3 s
Bath salts (synthetic stimulants)^{h,o}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	1.0	0.5	0.4	0.9	0.5	0.9	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.6	0.9	0.9	0.7	0.8	0.4	0.5	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	0.9	0.9	1.0	0.8	0.6	0.6	—	—	—	—
Sedatives (Barbiturates)^{k,p}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.4	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6	6.2	5.8	5.2	4.8	4.3	4.5	4.8	4.3	3.6	3.0	2.9	2.7	2.5	2.4	1.8	-0.6
Tranquilizers^{b,k}																																
8th Grade	1.8	2.0	2.1	2.4	2.7	3.3	2.9	2.6	2.5	2.6‡	2.8	2.6	2.7	2.5	2.8	2.6	2.4	2.4	2.6	2.8	2.0	1.8	1.8	1.7	1.7	1.7	2.0	2.0	2.4	2.2	1.1	-1.1
10th Grade	3.2	3.5	3.3	3.3	4.0	4.6	4.9	5.1	5.4	5.6‡	7.3	6.3	5.3	5.1	4.8	5.2	5.3	4.6	5.0	5.1	4.5	4.3	3.7	3.9	3.9	4.1	4.1	3.9	3.4	2.6	1.3	-1.4 sss
12th Grade	3.6	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7‡	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	6.3	5.6	5.6	5.3	4.6	4.7	4.7	4.9	4.7	3.9	3.4	3.2	1.2	-1.9 sss
Any Prescription Drug^q																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.1	16.8	15.8	15.4	14.4	15.0	15.2	14.8‡	15.9	13.9	12.9	12.0	10.9	9.9	8.6	7.6	4.4	-3.1 sss

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{hk}	2020	2021	2020– 2021 change	
OTC Cough/Cold Medicines^{no}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.2	4.0	3.6	3.8	3.2	2.7	3.0	2.9	2.0	1.6	2.6	2.1	2.8	3.2	4.6	3.5	-1.1	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	5.4	5.3	6.0	5.1	5.5	4.7	4.3	3.7	3.3	3.0	3.6	3.3	2.6	3.3	2.7	-0.6	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	5.8	5.5	5.9	6.6	5.3	5.6	5.0	4.1	4.6	4.0	3.2	3.4	2.5	3.2	1.7	-1.5	
Rohypnol^r																																	
8th Grade	—	—	—	—	—	1.0	0.8	0.8	0.5	0.5	0.7	0.3	0.5	0.6	0.7	0.5	0.7	0.5	0.4	0.5	0.8	0.4	0.4	0.3	0.3	0.5	0.4	0.3	0.4	§	0.2	—	
10th Grade	—	—	—	—	—	1.1	1.3	1.2	1.0	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.7	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.2	0.5	0.3	0.3	0.6	§	0.2	—	
12th Grade	—	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9†	1.6	1.3	1.6	1.2	1.1	1.0	1.3	1.0	1.5	1.3	1.5	0.9	0.7	1.0	1.1	0.8	0.7	0.5	§	0.4	—	
GHB^{nw}																																	
8th Grade	—	—	—	—	—	—	—	—	—	1.2	1.1	0.8	0.9	0.7	0.5	0.8	0.7	1.1	0.7	0.6	0.6	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	1.1	1.0	1.4	1.4	0.8	0.8	0.7	0.6	0.5	1.0	0.6	0.5	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1	0.9	1.2	1.1	1.4	1.4	1.4	1.0	1.0	0.7	0.9	0.4	0.3	0.4	§	0.4	—	
Ketamine^{nx}																																	
8th Grade	—	—	—	—	—	—	—	—	—	1.6	1.3	1.3	1.1	0.9	0.6	0.9	1.0	1.2	1.0	1.0	0.8	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	2.1	2.1	2.2	1.9	1.3	1.0	1.0	0.8	1.0	1.3	1.1	1.2	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4	1.3	1.5	1.7	1.6	1.7	1.5	1.4	1.5	1.4	1.2	1.2	0.7	0.7	1.3	0.9	-0.4	
Alcohol^s																																	
Any Use																																	
8th Grade	54.0	53.7‡	45.4	46.8	45.3	46.5	45.5	43.7	43.5	43.1	41.9	38.7	37.2	36.7	33.9	33.6	31.8	32.1	30.3	29.3	26.9	23.6	22.1	20.8	21.0	17.6	18.2	18.7	19.3	20.5	17.2	-3.2	
10th Grade	72.3	70.2‡	63.4	63.9	63.5	65.0	65.2	62.7	63.7	65.3	63.5	60.0	59.3	58.2	56.7	55.8	56.3	52.5	52.8	52.1	49.8	48.5	47.1	44.0	41.9	38.3	37.7	37.8	37.7	40.7	28.5	-12.2 sss	
12th Grade	77.7	76.8‡	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5	66.4	65.5	66.2	65.2	63.5	63.5	62.0	60.2	58.2	55.6	55.7	53.3	52.1	55.3	46.5	-8.8 ss	
Been Drunk^o																																	
8th Grade	17.5	18.3	18.2	18.2	18.4	19.8	18.4	17.9	18.5	18.5	16.6	15.0	14.5	14.5	14.1	13.9	12.6	12.7	12.2	11.5	10.5	8.6	8.4	7.3	7.7	5.7	6.4	6.5	6.6	7.5	5.7	-1.8	
10th Grade	40.1	37.0	37.8	38.0	38.5	40.1	40.7	38.3	40.9	41.6	39.9	35.4	34.7	35.1	34.2	34.5	34.4	30.0	31.2	29.9	28.8	28.2	27.1	24.6	23.4	20.5	20.4	20.9	20.2	23.1	13.4	-9.7 sss	
12th Grade	52.7	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9	46.1	45.6	47.0	44.0	42.2	45.0	43.5	41.4	37.7	37.3	35.6	33.9	32.8	36.9	28.8	-8.2 s	

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change					
Flavored Alcoholic Beverages^{e,n,y}																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	30.4	27.9	26.8	26.0	25.0	22.2	21.9	19.2	17.0	15.7	13.4	13.4	11.2	10.8	12.1	10.7	14.7	10.2	-4.5 s					
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	49.7	48.5	48.8	45.9	43.4	41.5	41.0	38.3	37.8	35.6	33.2	31.4	26.1	28.3	28.8	26.8	29.6	18.8	-10.9 ss					
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	55.2	55.8	58.4	54.7	53.6	51.8	53.4	47.9	47.0	44.4	44.2	43.6	42.8	40.0	39.6	38.4	37.5	§	32.1	—					
Alcoholic Beverages containing Caffeine^{n,o,z}																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	10.9	10.2	9.5	8.4	6.5	5.6	6.0	7.3	5.7	6.2	+0.5					
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5	19.7	16.9	14.3	12.8	10.6	9.9	9.8	8.4	8.3	7.5	-0.7					
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.4	26.4	23.5	20.0	18.3	17.0	16.9	14.7	12.3	12.3	9.9	-2.4					
Tobacco using a Hookah^o																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
Small cigars^o																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Dissolvable Tobacco Products^{e,n}																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Snus^{e,n}																																					
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change
Any Vaping^{bb}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.3	17.6	20.1	19.2	13.4	-5.7 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.9	32.3	35.7	34.6	22.2	-12.4 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.8	37.3	40.6	39.0	31.5	-7.5 s
Vaping Nicotine^{bb}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.5	10.9	16.5	16.6	12.1	-4.5 s
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15.8	24.7	30.7	30.7	19.5	-11.2 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8	29.7	35.3	34.5	26.6	-7.9 s
Vaping Marijuana^{bb}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	4.4	7.0	8.1	4.7	-3.4 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1	12.4	19.4	19.1	12.4	-6.7 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.5	13.1	20.8	22.1	18.3	-3.8
Vaping Just Flavoring^{bb}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	15.1	14.7	12.3	7.7	-4.6 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.3	24.7	20.8	18.4	10.6	-7.8 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.6	25.7	20.3	16.6	11.7	-4.9 ss
Flavoring Vaping with no Nicotine Vaping^{bb}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.5	6.2	3.0	2.0	1.0	-1.1 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.0	6.4	2.9	2.0	1.0	-1.0 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.5	6.0	3.1	1.9	1.2	-0.7
JUUL^{jj}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.7	12.8	6.2	-6.6 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.7	23.3	9.2	-14.1 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.4	26.1	12.2	-13.8 sss
Steroids^{k,u}																																
8th Grade	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4	1.1	1.1	0.9	0.8	0.9	0.8	0.5	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.8	1.1	0.5	-0.7 s
10th Grade	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7	1.5	1.3	1.2	1.1	0.9	0.8	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.8	0.9	0.3	-0.6 sss
12th Grade	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	1.5	1.5	1.2	1.3	1.5	1.5	1.7	1.0	1.1	1.1	1.0	1.2	0.5	-0.7

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change				
Androstenedione^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	1.1	1.2	1.0	0.9	0.6	1.0	0.9	0.9	0.8	0.9	0.6	0.6	0.7	0.4	0.4	—	—	—	—	—	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	2.2	1.9	1.7	1.1	0.9	0.9	0.6	0.9	1.1	1.0	0.8	0.9	0.9	0.9	0.7	—	—	—	—	—	—	—	—			
12th Grade	—	—	—	—	—	—	—	—	—	—	3.0	2.5	2.5	2.1	1.7	1.1	0.9	1.3	1.1	1.5	0.7	1.0	0.7	1.1	0.9	0.9	0.6	0.5	0.5	§	0.6	—				
Creatine^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	2.7	2.3	2.3	1.9	1.3	2.2	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.6	1.2	1.8	1.7	1.7	2.0	2.5	3.2	+0.7				
10th Grade	—	—	—	—	—	—	—	—	—	—	7.9	7.6	5.8	5.3	5.1	6.5	6.1	5.8	6.0	6.0	7.1	6.8	5.7	6.0	6.0	7.8	6.8	6.2	5.4	4.5	6.0	+1.4				
12th Grade	—	—	—	—	—	—	—	—	—	—	11.7	8.5	8.3	8.1	8.1	7.8	8.0	8.3	9.1	9.2	8.6	9.5	9.3	10.0	8.8	9.0	8.1	9.3	7.6	7.2	7.4	+0.2				
Legal Use of Over-the-Counter Stimulants																																				
Diet Pills^e																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	8.8	8.4	8.0	9.3	9.8	9.3	9.8	9.6	10.2	11.1	11.8	15.1	13.0	10.7	10.0	9.4	6.7	7.2	6.1	4.3	4.9	5.5	5.3	6.4	5.1	4.5	4.0	3.5	3.1	§	2.5	—				
Stay-Awake Pills^e																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	22.2	20.4	19.1	20.7	20.3	19.0	19.7	19.0	15.7	15.0	17.3	14.9	12.5	11.8	10.4	10.0	7.6	6.3	4.8	3.2	3.9	3.8	3.2	3.5	2.7	2.5	2.5	2.4	1.8	§	1.5	—				
Look-Alikes^e																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	5.2	5.4	6.2	6.0	6.8	6.5	6.4	5.7	5.0	5.8	7.1	6.6	5.4	5.0	4.2	3.7	2.8	3.1	2.6	1.7	2.2	2.1	1.7	1.4	2.3	1.6	1.5	—	—	—	—	—	—			
Previously surveyed drugs that have been dropped.																																				
Nitrites^e																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	0.9	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5	0.8	0.6	0.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Provigil^{k,o}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 5-5b (cont.)
Trends in Annual Prevalence of Use of Various Drugs
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change				
Powdered Alcohol^{n,o}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.0	0.8	0.8	1.2	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	0.8	1.2	1.0	—	—	—			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.7	1.0	1.3	1.4	—	—	—			
Methaqualone^{e,k}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	0.5	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8	0.5	0.5	0.6	0.3	0.3	0.4	—	—	—	—	—	—	—	—	—	—	—	—		
Bidis^{n,o}																																				
8th Grade	—	—	—	—	—	—	—	—	—	3.9	2.7	2.7	2.0	1.7	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	6.4	4.9	3.1	2.8	2.1	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	—	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3	1.7	1.9	1.5	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Kreteks^{n,o}																																				
8th Grade	—	—	—	—	—	—	—	—	—	2.6	2.6	2.0	1.9	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	6.0	4.9	3.8	3.7	2.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2	6.8	6.8	5.5	4.6	2.9	3.0	1.6	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—

Source: The Monitoring the Future study, the University of Michigan.

Note: See footnotes following Table 5-5e.

TABLE 5-5c
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																												2020– 2021 change				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021		
Any Illicit Drug ^{a,ll}																																	
8th Grade	5.7	6.8	8.4	10.9	12.4	14.6	12.9	12.1	12.2	11.9	11.7	10.4	9.7	8.4	8.5	8.1	7.4	7.6	8.1	9.5	8.5	7.7‡	8.7	8.3	8.1	6.9	7.0	7.3	8.5	8.7	5.9	-2.8 s	
10th Grade	11.6	11.0	14.0	18.5	20.2	23.2	23.0	21.5	22.1	22.5	22.7	20.8	19.5	18.3	17.3	16.8	16.9	15.8	17.8	18.5	19.2	18.6‡	19.2	18.5	16.5	15.9	17.2	18.3	19.8	18.2	10.9	-7.2 sss	
12th Grade	16.4	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5	21.9	22.3	23.3	23.8	25.2	25.2‡	25.2	23.7	23.6	24.4	24.9	24.0	23.7	22.2	20.6	-1.6	
Any Illicit Drug other than Marijuana ^{a,b}																																	
8th Grade	3.8	4.7	5.3	5.6	6.5	6.9	6.0	5.5	5.5	5.6‡	5.5	4.7	4.7	4.1	4.1	3.8	3.6	3.8	3.5	3.5	3.4	2.6‡	3.6	3.3	3.1	2.7	2.7	3.0	3.4	3.5	2.4	-1.1	
10th Grade	5.5	5.7	6.5	7.1	8.9	8.9	8.8	8.6	8.6	8.5‡	8.7	8.1	6.9	6.9	6.4	6.3	6.9	5.3	5.7	5.8	5.4	5.0‡	4.9	5.6	4.9	4.4	4.5	4.2	4.2	3.7	2.5	-1.2 ss	
12th Grade	7.1	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4‡	11.0	11.3	10.4	10.8	10.3	9.8	9.5	9.3	8.6	8.6	8.9	8.4‡	8.2	7.7	7.6	6.9	6.3	6.0	5.2	4.8	2.9	-1.9 sss	
Any Illicit Drug including Inhalants ^{a,c,ll}																																	
8th Grade	8.8	10.0	12.0	14.3	16.1	17.5	16.0	14.9	15.1	14.4	14.0	12.6	12.1	11.2	11.2	10.9	10.1	10.4	10.6	11.7	10.5	9.5‡	10.0	9.5	9.3	7.9	8.6	8.3	9.7	10.2	6.9	-3.4 ss	
10th Grade	13.1	12.6	15.5	20.0	21.6	24.5	24.1	22.5	23.1	23.6	23.6	21.7	20.5	19.3	18.4	17.7	18.1	16.8	18.8	19.4	20.1	19.3‡	20.0	19.1	17.1	16.4	18.0	18.7	20.4	18.7	11.4	-7.2 sss	
12th Grade	17.8	15.5	19.3	23.0	24.8	25.5	26.9	26.6	26.4	26.4	26.5	25.9	24.6	23.3	24.2	22.1	22.8	22.8	24.1	24.5	26.2	25.2‡	26.5	24.3	24.7	24.6	25.7	25.0	24.1	23.8	21.0	-2.8	
Marijuana/Hashish ^{ll}																																	
8th Grade	3.2	3.7	5.1	7.8	9.1	11.3	10.2	9.7	9.7	9.1	9.2	8.3	7.5	6.4	6.6	6.5	5.7	5.8	6.5	8.0	7.2	6.5	7.0	6.5	6.5	5.4	5.5	5.6	6.6	6.5	4.1	-2.4 s	
10th Grade	8.7	8.1	10.9	15.8	17.2	20.4	20.5	18.7	19.4	19.7	19.8	17.8	17.0	15.9	15.2	14.2	14.2	13.8	15.9	16.7	17.6	17.0	18.0	16.6	14.8	14.0	15.7	16.7	18.4	16.6	10.1	-6.6 sss	
12th Grade	13.8	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3	18.8	19.4	20.6	21.4	22.6	22.9	22.7	21.2	21.3	22.5	22.9	22.2	22.3	21.1	19.5	-1.7	
Inhalants ^{c,d}																																	
8th Grade	4.4	4.7	5.4	5.6	6.1	5.8	5.6	4.8	5.0	4.5	4.0	3.8	4.1	4.5	4.2	4.1	3.9	4.1	3.8	3.6	3.2	2.7	2.3	2.2	2.0	1.8	2.1	1.8	2.1	2.9	1.8	-1.1	
10th Grade	2.7	2.7	3.3	3.6	3.5	3.3	3.0	2.9	2.6	2.6	2.4	2.4	2.2	2.4	2.2	2.3	2.5	2.1	2.2	2.0	1.7	1.4	1.3	1.1	1.2	1.0	1.1	1.0	1.1	1.2	0.9	-0.3	
12th Grade	2.4	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5	1.2	1.4	1.2	1.4	1.0	0.9	1.0	0.7	0.7	0.8	0.8	0.7	0.9	0.7	0.7	0.0	
Hallucinogens ^{b,f}																																	
8th Grade	0.8	1.1	1.2	1.3	1.7	1.9	1.8	1.4	1.3	1.2‡	1.6	1.2	1.2	1.0	1.1	0.9	1.0	0.9	0.9	1.0	1.0	0.6	0.8	0.5	0.6	0.6	0.5	0.6	0.6	0.9	0.4	-0.5 s	
10th Grade	1.6	1.8	1.9	2.4	3.3	2.8	3.3	3.2	2.9	2.3‡	2.1	1.6	1.5	1.6	1.5	1.5	1.7	1.3	1.4	1.6	1.4	1.2	1.1	1.2	0.9	0.9	1.1	0.8	1.3	1.4	0.8	-0.6 sss	
12th Grade	2.2	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6‡	3.3	2.3	1.8	1.9	1.9	1.5	1.7	2.2	1.6	1.9	1.6	1.6	1.4	1.5	1.6	1.4	1.6	1.4	1.8	1.8	1.0	-0.8 s	

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																													2020– 2021 change		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	
LSD^b																																
8th Grade	0.6	0.9	1.0	1.1	1.4	1.5	1.5	1.1	1.1	1.0	1.0	0.7	0.6	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.3	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.6	0.2	-0.4
10th Grade	1.5	1.6	1.6	2.0	3.0	2.4	2.8	2.7	2.3	1.6	1.5	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.5	0.7	0.7	0.5	0.6	0.6	0.6	0.7	0.8	0.5	1.1	1.0	0.4	-0.7 ss
12th Grade	1.9	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6	0.6	1.1	0.5	0.8	0.8	0.8	0.8	1.0	1.1	1.0	1.2	1.0	1.4	1.4	0.5	-0.9 ss
Hallucinogens other than LSD^b																																
8th Grade	0.3	0.4	0.5	0.7	0.8	0.9	0.7	0.7	0.6	0.6 [‡]	1.1	1.0	1.0	0.8	0.9	0.7	0.7	0.7	0.7	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.6	0.2	-0.4
10th Grade	0.4	0.5	0.7	1.0	1.0	1.0	1.2	1.4	1.2	1.2 [‡]	1.4	1.4	1.2	1.4	1.3	1.3	1.4	1.0	1.1	1.2	1.1	0.9	0.8	0.8	0.6	0.5	0.6	0.5	0.8	0.9	0.6	-0.3
12th Grade	0.7	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7 [‡]	1.9	2.0	1.5	1.7	1.6	1.3	1.4	1.6	1.4	1.5	1.2	1.3	1.0	1.0	0.9	0.7	1.0	0.9	1.0	0.7	0.8	+0.1
MDMA (Ecstasy, Molly)^g																																
8th Grade	—	—	—	—	1.0	1.0	0.9	0.8	1.4	1.8	1.4	0.7	0.8	0.6	0.7	0.6	0.8	0.6	1.1	0.6	0.5	0.5 [‡]	0.7	0.5	0.3	0.4	0.4	0.5	0.3	0.2	-0.0	
10th Grade	—	—	—	—	1.8	1.3	1.3	1.8	2.6	2.6	1.8	1.1	0.8	1.0	1.2	1.2	1.1	1.3	1.9	1.6	1.0	1.2 [‡]	1.1	0.9	0.5	0.5	0.4	0.7	0.5	0.1	-0.4 ss	
12th Grade	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3	1.6	1.8	1.8	1.4	2.3	0.9	1.5 [‡]	1.5	1.1	0.9	0.9	0.5	0.7	0.8	0.2	-0.6 s	
Cocaine																																
8th Grade	0.5	0.7	0.7	1.0	1.2	1.3	1.1	1.4	1.3	1.2	1.2	1.1	0.9	0.9	1.0	1.0	0.9	0.8	0.8	0.6	0.8	0.5	0.5	0.5	0.5	0.3	0.4	0.3	0.3	0.1	0.1	0.0
10th Grade	0.7	0.7	0.9	1.2	1.7	1.7	2.0	2.1	1.8	1.8	1.3	1.6	1.3	1.7	1.5	1.5	1.3	1.2	0.9	0.9	0.7	0.8	0.8	0.6	0.8	0.4	0.5	0.6	0.6	0.4	0.3	0.0
12th Grade	1.4	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5	2.0	1.9	1.3	1.3	1.1	1.1	1.1	1.0	1.1	0.9	1.2	1.1	1.0	0.8	0.3	-0.5
Crack																																
8th Grade	0.3	0.5	0.4	0.7	0.7	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.0
10th Grade	0.3	0.4	0.5	0.6	0.9	0.8	0.9	1.1	0.8	0.9	0.7	1.0	0.7	0.8	0.7	0.7	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	-0.1
12th Grade	0.7	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9	0.9	0.8	0.6	0.7	0.5	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.7	0.4	0.3	-0.1
Cocaine other than Crack^h																																
8th Grade	0.5	0.5	0.6	0.9	1.0	1.0	0.8	1.0	1.1	0.9	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.5	0.6	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.0	
10th Grade	0.6	0.6	0.7	1.0	1.4	1.3	1.6	1.8	1.6	1.6	1.2	1.3	1.1	1.5	1.3	1.3	1.1	1.0	0.8	0.7	0.6	0.7	0.7	0.5	0.7	0.3	0.4	0.5	0.6	0.3	0.3	0.0
12th Grade	1.2	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4	1.7	1.7	1.1	1.1	1.0	1.0	0.9	0.9	1.1	0.6	1.1	1.0	0.9	1.0	0.1	-0.9 s

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																													2020– 2021 change			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021		
Heroin^{lj}																																	
8th Grade	0.3	0.4	0.4	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.1	-0.2	
10th Grade	0.2	0.2	0.3	0.4	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	
12th Grade	0.2	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.1	-0.2	
With a Needle^j																																	
8th Grade	—	—	—	—	0.4	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.0	-0.2	
10th Grade	—	—	—	—	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	
12th Grade	—	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.1	-0.1	
Without a Needle^j																																	
8th Grade	—	—	—	—	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.0	-0.1	
10th Grade	—	—	—	—	0.3	0.3	0.4	0.5	0.5	0.4	0.2	0.4	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.1	0.0	0.0	
12th Grade	—	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3	0.4	0.2	0.3	0.4	0.4	0.2	0.2	0.4	0.3	0.1	0.2	0.1	0.2	0.1	0.1	-0.1	
Narcotics other than Heroin^{kl}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0†	4.0	4.1	4.3	3.9	3.8	3.8	3.8	4.1	3.6	3.6	3.0	2.8	2.2	2.1	1.7	1.6	1.1	1.0	0.7	0.3	-0.4 s	
Amphetamines^{km}																																	
8th Grade	2.6	3.3	3.6	3.6	4.2	4.6	3.8	3.3	3.4	3.4	3.2	2.8	2.7	2.3	2.3	2.1	2.0	2.2	1.9	1.8	1.8	1.3‡	2.3	2.1	1.9	1.7	1.7	1.8	2.2	2.2	1.7	-0.6	
10th Grade	3.3	3.6	4.3	4.5	5.3	5.5	5.1	5.1	5.0	5.4	5.6	5.2	4.3	4.0	3.7	3.5	4.0	2.8	3.3	3.3	3.1	2.8‡	3.3	3.7	3.1	2.7	2.5	2.4	2.4	1.9	1.4	-0.5	
12th Grade	3.2	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7	3.7	2.9	3.0	3.3	3.7	3.3‡	4.2	3.8	3.2	3.0	2.6	2.4	2.0	1.7	1.0	-0.7 s	
Methamphetamine^{no}																																	
8th Grade	—	—	—	—	—	—	—	—	1.1	0.8	1.3	1.1	1.2	0.6	0.7	0.6	0.6	0.7	0.5	0.7	0.4	0.5	0.4	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.0	-0.1	
10th Grade	—	—	—	—	—	—	—	—	1.8	2.0	1.5	1.8	1.4	1.3	1.1	0.7	0.4	0.7	0.6	0.7	0.5	0.6	0.4	0.3	0.3	0.2	0.1	0.1	0.3	0.2	0.1	-0.1	
12th Grade	—	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.8	0.1	-0.7 s	

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																												2020– 2021 change					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021			
Crystal Methamphetamine (Ice) ^o																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	0.6	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7	0.6	0.6	0.5	0.6	0.6	0.4	0.8	0.4	0.3	0.4	0.5	0.4	0.4	0.0	0.2	+0.1		
Sedatives (Barbiturates) ^{k,p}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	1.4	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9‡	2.9	3.3	3.0	2.7	2.8	2.5	2.2	1.8	2.0	2.2	2.0	1.7	1.5	1.4	1.2	1.2	1.2	0.9	-0.4		
Tranquilizers ^{b,k}																																		
8th Grade	0.8	0.8	0.9	1.1	1.2	1.5	1.2	1.2	1.1	1.4‡	1.2	1.2	1.4	1.2	1.3	1.3	1.1	1.2	1.2	1.0	0.8	0.9	0.8	0.8	0.8	0.7	0.9	1.2	1.1	0.4	-0.7			
10th Grade	1.2	1.5	1.1	1.5	1.7	1.7	2.2	2.2	2.2	2.5‡	2.9	2.9	2.4	2.3	2.3	2.4	2.6	1.9	2.0	2.2	1.9	1.7	1.6	1.6	1.7	1.5	1.5	1.3	1.3	0.7	0.5	-0.2		
12th Grade	1.4	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6‡	2.9	3.3	2.8	3.1	2.9	2.7	2.6	2.6	2.7	2.5	2.3	2.1	2.0	2.1	2.0	1.9	2.0	1.3	1.3	1.0	0.4	-0.6 ss		
Any Prescription Drug ^q																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.6	8.1	7.8	7.2	7.3	6.9	7.2	7.0‡	7.1	6.4	5.9	5.4	4.9	4.2	3.6	3.3	2.1	-1.2 ss		
Rohypnol ^r																																		
8th Grade	—	—	—	—	—	0.5	0.3	0.4	0.3	0.3	0.4	0.2	0.1	0.2	0.2	0.4	0.3	0.1	0.2	0.2	0.6	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.4	§	0.1	—		
10th Grade	—	—	—	—	—	0.5	0.5	0.4	0.5	0.4	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.4	0.1	0.3	0.0	0.1	0.2	§	0.1	—		
12th Grade	—	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Alcohol ^s																																		
Any Use																																		
8th Grade	25.1	26.1‡	24.3	25.5	24.6	26.2	24.5	23.0	24.0	22.4	21.5	19.6	19.7	18.6	17.1	17.2	15.9	15.9	14.9	13.8	12.7	11.0	10.2	9.0	9.7	7.3	8.0	8.2	7.9	9.9	7.3	-2.6 s		
10th Grade	42.8	39.9‡	38.2	39.2	38.8	40.4	40.1	38.8	40.0	41.0	39.0	35.4	35.4	35.2	33.2	33.8	33.4	28.8	30.4	28.9	27.2	27.6	25.7	23.5	21.5	19.9	19.7	18.6	18.4	20.3	13.1	-7.2 sss		
12th Grade	54.0	51.3‡	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	43.5	41.2	40.0	41.5	39.2	37.4	35.3	33.2	33.2	30.2	29.3	33.6	25.8	-7.7 s		

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																												2020– 2021 change				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021		
Been Drunk ^o																																	
8th Grade	7.6	7.5	7.8	8.7	8.3	9.6	8.2	8.4	9.4	8.3	7.7	6.7	6.7	6.2	6.0	6.2	5.5	5.4	5.4	5.0	4.4	3.6	3.5	2.7	3.1	1.8	2.2	2.1	2.6	3.4	2.0	-1.4 s	
10th Grade	20.5	18.1	19.8	20.3	20.8	21.3	22.4	21.1	22.5	23.5	21.9	18.3	18.2	18.5	17.6	18.8	18.1	14.4	15.5	14.7	13.7	14.5	12.8	11.2	10.3	9.0	8.9	8.4	8.8	9.3	5.4	-3.9 sss	
12th Grade	31.6	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	27.4	26.8	25.0	28.1	26.0	23.5	20.6	20.4	19.1	17.5	17.5	19.8	15.5	-4.3	
Flavored Alcoholic Beverages ^{e,n}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	14.6	12.9	13.1	12.2	10.2	9.5	9.4	8.6	7.6	6.3	5.7	5.5	4.0	4.4	4.9	4.5	6.6	4.6	-2.0	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	25.1	23.1	24.7	21.8	20.2	19.0	19.4	15.8	16.3	15.5	14.0	12.8	11.0	12.9	11.8	11.1	12.5	7.8	-4.7 s	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	31.1	30.5	29.3	29.1	27.4	27.4	24.1	23.1	21.8	21.0	19.9	20.8	18.3	20.2	18.1	18.5	§	15.3	—	
Cigarettes																																	
Any Use																																	
8th Grade	14.3	15.5	16.7	18.6	19.1	21.0	19.4	19.1	17.5	14.6	12.2	10.7	10.2	9.2	9.3	8.7	7.1	6.8	6.5	7.1	6.1	4.9	4.5	4.0	3.6	2.6	1.9	2.2	2.3	2.2	1.1	-1.0 s	
10th Grade	20.8	21.5	24.7	25.4	27.9	30.4	29.8	27.6	25.7	23.9	21.3	17.7	16.7	16.0	14.9	14.5	14.0	12.3	13.1	13.6	11.8	10.8	9.1	7.2	6.3	4.9	5.0	4.2	3.4	3.2	1.8	-1.4 ss	
12th Grade	28.3	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	20.1	19.2	18.7	17.1	16.3	13.6	11.4	10.5	9.7	7.6	5.7	7.5	4.1	-3.4	
Smokeless Tobacco ^l																																	
8th Grade	6.9	7.0	6.6	7.7	7.1	7.1	5.5	4.8	4.5	4.2	4.0	3.3	4.1	4.1	3.3	3.7	3.2	3.5	3.7	4.1	3.5	2.8	2.8	3.0	3.2	2.5	1.7	2.1	2.5	2.3	1.6	-0.6	
10th Grade	10.0	9.6	10.4	10.5	9.7	8.6	8.9	7.5	6.5	6.1	6.9	6.1	5.3	4.9	5.6	5.7	6.1	5.0	6.5	7.5	6.6	6.4	6.4	5.3	4.9	3.5	3.8	3.9	3.2	3.5	1.7	-1.8 ss	
12th Grade	—	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	8.4	8.5	8.3	7.9	8.1	8.4	6.1	6.6	4.9	4.2	3.5	§	2.2	—	
Large Cigars ⁱⁱ																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.4	1.5	1.5	1.7	1.3	1.5	1.1	-0.4
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.9	3.4	2.3	2.6	2.8	2.1	1.2	1.3	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.4	7.0	6.5	5.6	5.2	5.3	§	2.3	—
Flavored Little Cigars ⁱⁱ																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1	4.1	2.8	2.6	2.6	2.2	2.3	1.0	-1.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	6.1	4.9	4.0	5.3	3.7	3.0	1.5	-1.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	11.4	9.5	10.1	8.9	7.7	§	1.9	—

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																											2020– 2021 change								
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021					
Regular Little Cigars ⁱⁱ																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.5	3.3	1.9	1.6	1.6	1.6	1.4	0.8	-0.5			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	3.8	3.0	3.0	3.1	2.6	2.4	1.2	-1.2 s			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.0	7.8	6.1	6.6	5.8	4.9	§	1.8	—			
Any Vaping ^{bb,cc}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.0	6.2‡	6.6	10.4	12.2	12.5	8.9	-3.6 s			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	11.0‡	13.1	21.7	25.0	23.5	15.6	-7.9 sss			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.3	12.5‡	16.6	26.7	30.9	28.2	24.0	-4.2			
Vaping Nicotine ^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	6.1	9.6	10.5	7.6	-2.9			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.2	16.1	19.9	19.3	13.1	-6.2 ss			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.0	20.9	25.5	24.7	19.6	-5.1			
Vaping Marijuana ^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	2.6	3.9	4.2	2.9	-1.3			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	7.0	12.6	11.3	8.4	-2.9 s			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.9	7.5	14.0	12.2	12.4	+0.2			
Vaping Just Flavoring ^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Flavoring Vaping with no Nicotine Vaping ^{bb}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
JUUL ^{jj}																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Tobacco Using a Hookah ⁱⁱ																																				
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																												2020- 2021 change			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		2019 ^{kk}	2020	2021
Any Nicotine Use ^{e,gg}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	11.2	9.4	-1.8
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.0	18.8	15.7	-3.2
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.6	32.5	33.6	§	24.6	—
Any Nicotine Use other than Vaping ^{e,hh}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.9	4.7	3.2	-1.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.3	6.6	4.2	-2.4 ss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.6	18.5	15.7	§	7.7	—
Steroids ^{k,u}																																
8th Grade	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5	0.7	0.8	0.7	0.8	0.7	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	-0.2
10th Grade	0.6	0.6	0.5	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.9	1.0	0.8	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.1	-0.3 ss
12th Grade	0.8	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1	1.0	1.0	1.0	1.1	0.7	0.9	1.0	0.9	1.0	0.7	0.8	0.8	0.7	1.2	0.5	-0.7
Legal Use of Over-the-Counter Stimulants																																
Diet Pills ^e																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.7	4.0	3.8	4.2	3.8	4.3	4.6	4.8	5.4	5.8	6.3	9.2	6.5	5.6	4.4	5.3	3.8	3.7	2.6	2.1	2.4	3.4	2.4	3.6	2.1	2.1	2.4	1.9	1.9	§	1.1	—
Stay-Awake Pills ^e																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.8	7.2	7.0	6.3	7.3	7.5	7.8	7.4	6.8	7.3	7.2	5.8	5.0	4.5	4.2	4.2	3.3	2.6	2.3	1.6	2.2	1.9	1.5	1.7	1.2	1.7	1.6	1.2	1.1	§	0.5	—
Look-Alikes ^e																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	2.1	2.4	2.7	2.4	3.0	3.1	2.7	2.7	2.4	2.6	3.3	2.8	2.4	2.5	1.9	2.3	1.1	1.6	1.0	0.8	1.2	0.8	0.7	0.7	0.9	0.9	0.8	—	—	—	—	—

(Table continued on next page.)

TABLE 5-5c (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs
in Grades 8, 10, and 12

	Percentage who used in last 30 days																							2020– 2021 change										
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021			
Legal Use of Prescription ADHD Drugs																																		
Stimulant-Type ^{n,dd,ee}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.9	3.5	3.1	3.5	3.7	3.4	3.3	3.5	3.4	3.2	3.6	3.7	3.4	3.7	2.8	2.0	4.2	+2.2 ss		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.4	2.8	2.8	2.9	3.3	3.1	2.8	3.8	3.7	3.4	4.2	3.0	3.0	3.9	2.9	2.5	3.6	+1.0		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.3	2.6	2.9	2.9	3.0	3.3	3.8	4.4	3.8	4.0	3.9	3.4	3.5	3.2	3.1	3.4	+0.4		
Non-Stimulant-Type ^{n,dd,ee}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.2	1.9	1.4	1.6	1.2	1.4	1.5	1.2	1.4	1.2	1.2	2.0	1.1	1.2	1.4	1.4	0.9	-0.5		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.3	2.3	1.6	1.7	1.9	1.6	1.3	1.3	1.3	1.4	1.7	1.2	1.0	1.4	1.8	1.8	1.5	-0.3		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	1.6	1.7	1.9	1.5	2.3	1.9	1.8	1.8	2.2	1.5	2.1	2.5	2.6	2.3	1.7	2.3	+0.6		
Either Type ^{n,dd,ee}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	5.2	4.5	5.1	4.9	4.7	4.9	4.7	5.0	4.6	4.9	5.6	4.7	5.2	3.8	2.7	5.5	+2.8 ss		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.6	4.8	4.2	4.5	5.0	4.6	4.2	5.1	5.0	4.8	5.8	4.3	4.0	5.1	4.4	4.0	4.8	+0.8		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.5	3.7	4.1	4.4	4.3	5.2	5.1	5.5	6.0	5.5	5.3	5.6	5.7	5.9	5.0	4.2	5.2	+1.0		
Previously surveyed drugs that have been dropped.																																		
Nitrites ^e																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.4	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
PCP ^e																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4	0.5	0.6	0.5	0.8	0.8	0.5	0.4	—	—	—	—	—	—	—	—	—		
Methaqualone ^{e,k}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.2	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.2	0.3	0.2	0.2	0.3	—	—	—	—	—	—	—	—	—	—	—	

Source: The Monitoring the Future study, the University of Michigan.

Note: See footnotes following Table 5-5e.

TABLE 5-5d
Trends in 30-Day Prevalence of Daily Use of Various Drugs and Binge Drinking
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change
Marijuana/Hashish																																
Used Daily in Past 30 Days ^{aa,l}																																
8th Grade	0.2	0.2	0.4	0.7	0.8	1.5	1.1	1.1	1.4	1.3	1.3	1.2	1.0	0.8	1.0	1.0	0.8	0.9	1.0	1.2	1.3	1.1	1.1	1.0	1.1	0.7	0.8	0.7	1.3	1.1	0.6	-0.4
10th Grade	0.8	0.8	1.0	2.2	2.8	3.5	3.7	3.6	3.8	3.8	4.5	3.9	3.6	3.2	3.1	2.8	2.8	2.7	2.8	3.3	3.6	3.5	4.0	3.4	3.0	2.5	2.9	3.4	4.8	4.4	3.2	-1.3 s
12th Grade	2.0	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0	5.1	5.4	5.2	6.1	6.6	6.5	6.5	5.8	6.0	6.0	5.9	5.8	6.4	6.9	5.8	-1.1
Ever Used Daily for Month or More in Lifetime ^e																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	9.0	8.4	9.6	11.3	12.1	15.7	18.8	18.0	17.9	17.0	18.0	15.5	16.4	17.8	14.5	16.6	15.7	15.1	14.9	15.5	17.4	18.2	15.8	13.7	12.4	14.3	13.9	12.3	14.9	§	12.4	—
Alcohol ^{s,aa}																																
Any Daily Use																																
8th Grade	0.5	0.6‡	1.0	1.0	0.7	1.0	0.8	0.9	1.0	0.8	0.9	0.7	0.8	0.6	0.5	0.5	0.6	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.3	-0.1
10th Grade	1.3	1.2‡	1.8	1.7	1.7	1.6	1.7	1.9	1.9	1.8	1.9	1.8	1.5	1.3	1.3	1.4	1.4	1.0	1.1	1.1	0.8	1.0	0.9	0.8	0.5	0.5	0.6	0.5	0.6	1.0	0.4	-0.5
12th Grade	3.6	3.4‡	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0	3.1	2.8	2.5	2.7	2.1	2.5	2.2	1.9	1.9	1.3	1.6	1.2	1.7	2.7	0.9	-1.8
Been Drunk																																
Daily ^{o,aa}																																
8th Grade	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	-0.1
10th Grade	0.2	0.3	0.4	0.4	0.6	0.4	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.3	0.1	-0.2
12th Grade	0.9	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6	1.3	1.4	1.1	1.6	1.3	1.5	1.3	1.1	0.8	0.8	1.1	0.7	1.1	0.8	0.4	-0.4
5+ Drinks in a Row																																
in Last 2 Weeks																																
8th Grade	10.9	11.3	11.3	12.1	12.3	13.3	12.3	11.5	13.1	11.7	11.0	10.3	9.8	9.4	8.4	8.7	8.3	8.1	7.8	7.2	6.4	5.1	5.1	4.1	4.6	3.4	3.7	3.7	3.8	4.5	2.8	-1.8 s
10th Grade	21.0	19.1	21.0	21.9	22.0	22.8	23.1	22.4	23.5	24.1	22.8	20.3	20.0	19.9	19.0	19.9	19.6	16.0	17.5	16.3	14.7	15.6	13.7	12.6	10.9	9.7	9.8	8.7	8.5	9.6	5.9	-3.7 sss
12th Grade	29.8	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	25.2	23.2	21.6	23.7	22.1	19.4	17.2	15.5	16.6	13.8	14.4	16.8	11.8	-5.0 s

(Table continued on next page.)

TABLE 5-5d (cont.)
Trends in 30-Day Prevalence of Daily Use of Various Drugs and Binge Drinking
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change		
10+ Drinks in a Row in Last 2 Weeks^{e,ff}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2	1.1	1.1	1.7	0.9	1.0	+0.1		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.3	3.3	2.5	2.1	-0.4		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	12.9	11.1	10.4	10.6	9.9	9.8	10.4	8.1	7.1	6.1	4.4	6.0	4.6	5.3	§	3.2	—		
15+ Drinks in a Row in Last 2 Weeks^e																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.7	7.2	5.6	5.6	6.0	6.3	4.6	5.5	4.4	4.1	3.5	2.3	3.1	2.5	3.2	§	1.3	—		
Cigarettes																																		
Any Daily Use																																		
8th Grade	7.2	7.0	8.3	8.8	9.3	10.4	9.0	8.8	8.1	7.4	5.5	5.1	4.5	4.4	4.0	4.0	3.0	3.1	2.7	2.9	2.4	1.9	1.8	1.4	1.3	0.9	0.6	0.8	0.8	0.8	0.4	-0.4		
10th Grade	12.6	12.3	14.2	14.6	16.3	18.3	18.0	15.8	15.9	14.0	12.2	10.1	8.9	8.3	7.5	7.6	7.2	5.9	6.3	6.6	5.5	5.0	4.4	3.2	3.0	1.9	2.2	1.8	1.3	1.2	0.8	-0.4		
12th Grade	18.5	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	11.2	10.7	10.3	9.3	8.5	6.7	5.5	4.8	4.2	3.6	2.4	3.1	2.0	-1.1		
1/2 Pack+/Day																																		
8th Grade	3.1	2.9	3.5	3.6	3.4	4.3	3.5	3.6	3.3	2.8	2.3	2.1	1.8	1.7	1.7	1.5	1.1	1.2	1.0	0.9	0.7	0.6	0.7	0.5	0.4	0.3	0.2	0.3	0.2	0.1	0.2	+0.1		
10th Grade	6.5	6.0	7.0	7.6	8.3	9.4	8.6	7.9	7.6	6.2	5.5	4.4	4.1	3.3	3.1	3.3	2.7	2.0	2.4	2.4	1.9	1.5	1.5	1.2	1.0	0.6	0.7	0.7	0.5	0.6	0.3	-0.2		
12th Grade	10.7	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4	5.0	4.7	4.3	4.0	3.4	2.6	2.1	1.8	1.7	1.5	0.9	1.4	0.8	-0.6		
Vaping Nicotine^{bb}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0‡	0.8	1.1	+0.3	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.8‡	3.0	2.5	-0.5
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.6‡	5.2	5.4	+0.2
Vaping Marijuana^{bb}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8‡	0.2	0.4	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0‡	0.9	1.2	+0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5‡	1.6	1.7	+0.1
Vaping Just Flavoring^{bb}																																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2‡	0.4	0.5	+0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0‡	1.2	0.9	-0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8‡	1.4	0.8	-0.6

(Table continued on next page.)

TABLE 5-5d (cont.)
Trends in 30-Day Prevalence of Daily Use of Various Drugs and Binge Drinking
in Grades 8, 10, and 12
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{kk}	2020	2021	2020– 2021 change
Smokeless Tobacco																																
Daily ^l																																
8th Grade	1.6	1.8	1.5	1.9	1.2	1.5	1.0	1.0	0.9	0.9	1.2	0.8	0.8	1.0	0.7	0.7	0.8	0.8	0.8	0.9	0.8	0.5	0.5	0.5	0.8	0.6	0.4	0.3	0.5	0.5	0.4	-0.1
10th Grade	3.3	3.0	3.3	3.0	2.7	2.2	2.2	2.2	1.5	1.9	2.2	1.7	1.8	1.6	1.9	1.7	1.6	1.4	1.9	2.5	1.7	2.0	1.9	1.8	1.6	1.0	0.6	1.0	0.9	0.7	0.4	-0.3
12th Grade	—	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	2.9	3.1	3.1	3.2	3.0	3.4	2.9	2.7	2.0	1.6	1.1	§	0.7	—
Legal Use of Stimulants																																
Energy Drinks																																
1 or More Daily ^{e,z}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.6	17.7	16.3	14.2	12.8	12.1	11.3	10.1	10.3	10.5	§	13.8	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	11.4	10.8	10.3	9.6	7.8	9.2	8.8	9.1	10.5	§	12.6	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	9.5	9.2	8.2	8.3	7.8	9.8	9.4	10.1	11.6	§	13.1	—
Energy Shots																																
1 or More Daily ^{e,z}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.4	6.8	5.7	5.6	4.2	5.3	4.4	4.0	3.7	4.6	§	3.7	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.6	4.0	4.0	3.4	2.6	3.3	3.3	3.8	4.1	§	2.6	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.0	2.7	2.5	2.1	3.1	4.1	3.8	4.2	4.1	§	2.9	—
Either Energy Drinks or Energy Shots																																
1 or More Daily ^{e,z}																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.5	18.9	17.2	15.4	13.5	13.0	12.3	11.1	11.4	11.7	§	14.5	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	12.4	11.8	11.3	10.1	8.4	10.0	9.5	9.9	11.6	§	13.2	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	11.0	9.9	9.1	9.3	9.0	10.9	10.9	11.2	12.8	§	14.3	—

Source. The Monitoring the Future study, the University of Michigan.

Note. See footnotes following Table 5-5e.

Footnotes for Tables 5-5a through 5-5d

Approximate Weighted <i>N</i> s	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
8th Graders	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500
10th Graders	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200
12th Graders	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200

Approximate Weighted <i>N</i> s	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2017	2018	2019	2020	2021
8th Graders	16,100	15,700	15,000	15,300	16,000	15,100	14,600	14,600	14,400	16,900	15,300	15,300	14,000	13,600	3,100	10,700
10th Graders	16,100	15,100	15,900	15,200	14,900	15,000	12,900	13,000	15,600	14,700	13,500	13,500	14,300	14,000	4,800	11,000
12th Graders	14,500	14,000	13,700	14,400	14,100	13,700	12,600	12,400	12,900	11,800	12,600	12,600	13,300	12,900	3,500	8,300

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. '‡' indicates that the question changed in the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^aFor 12th graders only: Use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers). Due to changes in the amphetamines questions 2013 data for all grades for any illicit drug use, any illicit drug use other than marijuana and 8th and 10th grade any illicit drug use including inhalants are based on one half of the N indicated. 12th grade any illicit drug use including inhalants data are based on one form; N is one sixth of N indicated. 2014 data are based on all forms. See the amphetamine note for details.

^bIn 2001 the question text was changed on half of the questionnaire forms for each age group. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. For 8th, 10th, and 12th graders: The 2001 data presented here are based on the changed forms only N is one half of N indicated. In 2002 the remaining forms were changed to the new wording. The data are based on all forms beginning in 2002. Data for any illicit drug other than marijuana and data for hallucinogens are also affected by these changes and have been handled in a parallel manner. Hallucinogens, LSD, and hallucinogens other than LSD are based on five of six forms beginning in 2014 N is five sixths of N indicated.

^cFor 12th graders only: Data based on five of six forms in 1991–1998; N is five sixths of N indicated. Data based on three of six forms beginning in 1999; N is three sixths of N indicated. For 8th and 10th graders only, beginning in 2014 data based on two thirds of N indicated.

^dInhalants are unadjusted for underreporting of amyl and butyl nitrites.

^eFor 12th graders only: Data based on one of six forms; N is one sixth of N indicated. In 2011 for flavored alcoholic beverages Skyy Blue and Zima were dropped from the list of examples. An examination of the data did not show any effect from the wording change. In 2014 the PCP use questions were dropped; annual PCP use was moved to another form. In 2016 a question on use of tobacco using a hookah was added to two additional forms; N is three sixths of N indicated.

^fHallucinogens are unadjusted for underreporting of PCP.

^gFor 8th and 10th graders only: Data based on one of two forms in 1996; N is one half of N indicated. Data based on one third of N indicated in 1997–2001 due to changes in the questionnaire forms. Data based on two of four forms beginning in 2002; N is one half of N indicated. In 2014 a revised question on use of ecstasy (MDMA) including "Molly" was added to one form. The 2013 and 2014 "Original wording" data reported here are for only the questionnaires using the original question wording; N is one half of N indicated. Beginning in 2014 data

(Footnote continued on next page.)

Footnotes for Tables 5-5a through 5-5d (cont.)

reported here for the "Revised wording" are for only the questionnaires which include "Molly"; N is two sixths of N indicated in 2014 and five sixths of the N indicated in 2015. For 12th graders only: Data based on one of six forms in 1996–2001; N is one sixth of N indicated. Data based on two of six forms beginning in 2002; N is two sixths of N indicated. In 2014 a revised question on use of ecstasy (MDMA) including "Molly" was added to one form. The 2013 and 2014 "Original wording" data reported here are for only the questionnaires using the original question wording; N is two sixths of N indicated. Beginning in 2014 data reported for the "Revised wording" are for only the questionnaires which include "Molly."; N is one sixth of the N indicated in 2014 and three sixths of the N indicated in 2015.

^hFor 12th graders only: Data based on four of six forms; N is four sixths of N indicated.

ⁱIn 1995 the heroin question was changed in one of two forms for 8th and 10th graders and in three of six forms for 12th graders. Separate questions were asked for use with and without injection. In 1996, the heroin question was changed in the remaining 8th- and 10th-grade forms. Data presented here represent the combined data from all forms.

^jFor 8th and 10th graders only: Data based on one of two forms in 1995; N is one half of N indicated. Data based on all forms in 1996 through 2014. In 2015 the question was dropped from 1 form; N is four sixths of N indicated. For 12th graders only: Data based on three of six forms; N is three sixths of N indicated.

^kOnly drug use not under a doctor's orders is included here.

^lIn 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; N is one half of N indicated. In 2003, the remaining forms were changed to the new wording. The data are based on all forms beginning in 2003. In 2013 the list of examples was changed on one form: MS Contin, Roxycodone, Hydrocodone (Lortab, Lorcet, Norco), Suboxone, Tylox, and Tramadol were added to the list. An examination of the data did not show any effect from the wording change.

^mFor 8th, 10th, and 12th graders: In 2009, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. In 2010 the remaining forms were changed in a like manner. In 2011 the question text was changed slightly in one form; bennies, Benzedrine and Methadrine were dropped from the list of examples. An examination of the data did not show any effect from the wording change. In 2013 the question wording was changed slightly in two of the 8th and 10th grade questionnaires and in three of the 12th grade questionnaires. The new wording in 2013 asked "On how many occasions (if any) have taken amphetamines or other prescription stimulant drugs..." In contrast, the old wording did not include the text highlighted in red. Results in 2013 indicated higher prevalence in questionnaires with the new wording as compared to the old wording; it was proportionally 61% higher in 8th grade, 34% higher in 10th grade, and 21% higher in 12th grade. 2013 data are based on the changed forms only; for 8th, 10th, and 12th graders N is one half of N indicated. Beginning in 2014 all questionnaires included the new, updated wording.

ⁿFor 8th and 10th graders only: Data based on one of four forms; N is one third of N indicated. See text for detailed explanation. In 2011 for flavored alcoholic beverages: Skyy Blue and Zima were dropped from the list of examples. An examination of the data did not show any effect from the wording change. Annual synthetic marijuana use questions asked of one third of N indicated.

^oFor 12th graders only: Data based on two of six forms; N is two sixths of N indicated. Bidis and kreteks based on one of six forms beginning in 2009; N is one sixth N indicated.

^pFor 12th graders only: In 2004 the barbiturate question text was changed on half of the questionnaire forms. Barbiturates was changed to sedatives including barbiturates, and "have you taken barbiturates . . ." was changed to "have you taken sedatives . . ." In the list of examples downs, downers, goofballs, yellow, reds, blues, rainbows were changed to downs, or downers, and include Phenobarbital, Tuinal, Nembutal, and Seconal. An examination of the data did not show any effect from the wording change. In 2005 the remaining forms were changed in a like manner. In 2013 the question text was changed in all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. In one form the list of examples was also changed: Tuinal was dropped from the list and Dalmene, Restoril, Halcion, Intermezzo, and Zolpimist were added. An examination of the data did not show any effect from the wording change.

Footnotes for Tables 5-5a through 5-5d (cont.)

^qThe use of any prescription drug includes use of any of the following: amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers "...without a doctor telling you to use them."

^rFor 8th and 10th graders only: Data based on one of two forms in 1996; N is one half of N indicated. Data based on three of four forms in 1997–1998; N is two thirds of N indicated. Data based on two of four forms in 1999–2001; N is one third of N indicated. Data based on one of four forms beginning in 2002; N is one sixth of N indicated. See text for detailed explanation. For 12th graders only: Data based on one of six forms in 1996–2001; N is one sixth of N indicated. Data based on two of six forms in 2002–2009; N is two sixths of N indicated. Data for 2001 and 2002 are not comparable due to changes in the questionnaire forms. Data based on one of six forms beginning in 2010; N is one sixth of N indicated.

^sFor 8th, 10th, and 12th graders: In 1993, the question text was changed slightly in half of the forms to indicate that a drink meant more than just a few sips. The 1993 data are based on the changed forms only; N is one half of N indicated for these groups. In 1994 the remaining forms were changed to the new wording. The data are based on all forms beginning in 1994. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

^tFor 8th and 10th graders only: Data based on one of two forms for 1991–1996 and on two of four forms beginning in 1997; N is one half of N indicated. For 12th graders only: Data based on one of six forms; N is one sixth of N indicated. For all grades in 2011: snus and dissolvable tobacco were added to the list of examples. An examination of the data did not show any effect from the wording change.

^uFor 8th and 10th graders only: In 2006, the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2007 the remaining forms were changed in a like manner. In 2008 the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2009 the remaining forms were changed in a like manner. For 12th graders only: Data based on two of six forms in 1991–2005 and ; again beginning in 2019; N is two sixths of N indicated. Data based on three of six forms in 2006–2018; N is three sixths of N indicated. In 2006 a slightly altered version of the question was added to a third form. An examination of the data did not show any effect from the wording change. In 2007 the remaining forms were changed in a like manner. In 2008 the question text was changed slightly in two of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2009 the remaining form was changed in a like manner.

^vFor 12th graders only: Data based on two of six forms in 2002–2005; N is two sixths of N indicated. Data based on three of six forms beginning in 2006; N is three sixths of N indicated.

^wFor 12th graders only: Data based on two of six forms in 2000; N is two sixths of N indicated. Data based on three of six forms in 2001; N is three sixths of N indicated. Data based on one of six forms beginning in 2002; N is one sixth of N indicated.

^xFor 12th graders only: Data based on two of six forms in 2000; N is two sixths of N indicated. Data based on three of six forms in 2001–2009; N is three sixths of N indicated. Data based on two of six forms beginning in 2010; N is two sixths of N indicated.

^yThe 2003 flavored alcoholic beverage data were created by adjusting the 2004 data to reflect the change in the 2003 and 2004 alcopops data.

^zFor 8th and 10th graders only: Data based on one of four forms; N is one third of N indicated. See text for detailed explanation.

For 12th graders only: Data based on two of six forms; N is two sixths of N indicated. For all grades: In 2011 the question text was "...had an alcoholic beverage containing caffeine (like Four Loko or Joose)." In 2012 the question text was changed to "...had an alcoholic beverage mixed with an energy drink (like Red Bull)." An examination of the data did not show any effect from the wording changes.

^{aa}Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes and smokeless tobacco, for which actual daily use is measured, and for 5+ drinks, for which the prevalence of having five or more drinks in a row in the last two weeks is measured.

^{ab}8th and 10th grade data based on one third of N indicated until 2019. In 2019, data based on two thirds of N indicated. 12th grade data based on two of six forms until 2019; N is two sixths of N indicated. In 2019, data based on four of six forms; N is four sixths of N indicated. Beginning in 2020, data based on all available forms for 8th, 10th, and 12th graders except for daily use. Daily use based on two thirds of N indicated in 2020 and all forms beginning in 2021.

For androstenedione, beginning in 2016, data based on one form. N is one sixth of N indicated.

^{ac}In 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

^{ad}In 2005, data omitted for one of the questionnaire forms due to an error in the skip pattern in the questionnaire. In 2005, data based on one of six forms and N is one sixth of N indicated. Beginning in 2006, data based on two of six forms and N is two sixths of N indicated.

Footnotes for Tables 5-5a through 5-5d (cont.)

^eFor the use of prescription ADHD drugs, the question is asked differently than that for other drugs presented here. Therefore, the estimates indicate youth who reported "Yes, I take them now."

^fFor 8th and 10th graders only: Data based on two of four forms; *N* is one third of *N* indicated.

^gIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.

^hIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

ⁱFor 8th and 10th graders only: Data based on one third of *N* indicated. For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated.

^jFor 8th and 10th graders only: In 2019, data based on one sixth of *N* indicated. In 2020, data based on two thirds of *N* indicated. Beginning in 2021, data based on one half of *N* indicated. For 12th graders only: In 2019, data based on one sixth of *N* indicated. In 2020, data based on all forms. Beginning in 2021, data based on two thirds of *N* indicated.

^kDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, Addiction). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

^lFor 8th and 10th graders only: In 2021, the question on marijuana use was changed in half of the questionnaire forms to include smoking, vaping, and edibles in the list of examples. Data presented here for 2021 based on the forms that included the original question wording. *N* is one half of *N* indicated. Any illicit drug use and any illicit drug use including inhalants were also impacted by this change.

TABLE 5-6a
Trends in Lifetime Prevalence of Use of Heroin *with* and *without* a Needle
in Grades 8, 10, and 12

	Percentage who used in lifetime																									2020– 2021 change		
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
8th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.7	0.8	0.7	0.8	0.9	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.2	0.1	0.2	0.3	0.3	0.1	0.3	+0.2 s
Only <i>without</i> a needle	0.7	0.9	0.8	0.9	0.7	0.8	0.6	0.6	0.7	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	-0.1
Both ways	0.8	0.7	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	-0.1
Used heroin at all	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	1.3	1.3	1.2	0.8	1.0	0.9	0.5	0.5	0.6	0.6	0.7	0.5	0.5	0.0
<i>Approx. weighted N =</i> 8,800 17,800 18,600 18,100 16,700 16,700 16,200 15,100 16,500 17,000 16,800 16,500 16,100 15,700 15,000 15,300 16,000 15,100 14,600 14,500 9,600 11,300 10,200 9,300 9,100 2,100 7,100																												
10th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.6	0.5	0.4	0.6	0.7	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.3	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	+0.1
Only <i>without</i> a needle	0.7	1.1	1.0	1.2	1.1	1.2	0.8	0.9	0.6	0.7	0.7	0.6	0.7	0.5	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	*	-0.1
Both ways	0.4	0.6	0.6	0.6	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.0
Used heroin at all	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	1.5	1.3	1.2	1.1	1.0	0.9	0.7	0.6	0.4	0.3	0.4	0.3	0.3	0.0
<i>Approx. weighted N =</i> 8,500 15,600 15,500 15,000 13,600 14,300 14,000 14,300 15,800 16,400 16,200 16,200 16,100 15,100 15,900 15,200 14,900 15,000 12,900 13,000 10,400 9,800 9,000 9,500 9,300 3,200 7,300																												
12th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.0
Only <i>without</i> a needle	0.9	1.1	1.3	1.2	1.2	1.8	1.2	1.0	1.0	0.9	0.7	0.7	0.9	0.6	0.6	0.6	0.6	0.4	0.4	0.2	0.2	0.3	0.2	0.3	0.2	0.0	0.2	+0.2
Both ways	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.6	0.6	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0
Used heroin at all	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	1.2	1.6	1.4	1.1	1.0	1.0	0.8	0.7	0.6	0.7	0.6	0.2	0.4	+0.1
<i>Approx. weighted N =</i> 7,700 7,200 7,700 7,600 6,800 6,400 6,400 6,500 7,300 7,300 7,400 7,100 7,300 7,000 6,900 7,200 7,100 6,900 6,300 6,400 6,500 5,900 6,300 6,700 6,500 1,800 4,200																												

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. For 8th and 10th graders only: Data based on one of two forms in 1995, on all forms in 1995-2014, and on three of four forms beginning in 2015. For 12th graders only: Data based on three of six forms except for used heroin at all which was based on all six forms until 2014. The six form *N* is approximately 11,800. Beginning in 2015 used heroin at all is based on three of six forms and is not comparable to the six-form heroin prevalences used elsewhere in this volume.

TABLE 5-6b
Trends in Annual Prevalence of Use of Heroin *with* and *without* a Needle
in Grades 8, 10, and 12

	Percentage who used in lifetime																							2020– 2021 change				
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
8th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.5	0.6	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.1	*	0.1	0.1	0.1	*	0.1	+0.1
Only <i>without</i> a needle	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	*	0.1	0.1	0.1	0.0	0.1	+0.1
Both ways	0.4	0.4	0.3	0.4	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	*	-0.1
Used heroin at all	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.7	0.8	0.7	0.5	0.5	0.5	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.0
<i>Approx. weighted N =</i>	8,800	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	15,000	15,300	16,000	15,100	14,600	14,500	9,600	11,300	10,200	9,300	9,100	2,100	7,100	
10th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Only <i>without</i> a needle	0.5	0.6	0.7	0.6	0.8	0.8	0.5	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	*	*	0.1	*	0.0	*	0.0
Both ways	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	*	0.1	0.1	*	0.0
Used heroin at all	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.6	0.6	0.5	0.5	0.3	0.1	0.2	0.3	0.2	0.1	0.0
<i>Approx. weighted N =</i>	8,500	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	15,900	15,200	14,900	15,000	12,900	13,000	10,400	9,800	9,000	9,500	9,300	3,200	7,300	
12th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	*	0.0
Only <i>without</i> a needle	0.6	0.6	0.7	0.6	0.8	1.1	0.6	0.6	0.4	0.5	0.4	0.3	0.6	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	*	0.0	*	0.0
Both ways	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0
Used heroin at all	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	0.7	0.9	0.8	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.3	0.1	0.1	0.0
<i>Approx. weighted N =</i>	7,700	7,200	7,700	7,600	6,800	6,400	6,400	6,500	7,300	7,300	7,400	7,100	7,300	7,000	6,900	7,200	7,100	6,900	6,300	6,300	6,500	5,900	6,300	6,700	6,500	1,800	4,200	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. For 8th and 10th graders only: Data based on one of two forms in 1995, on all forms in 1995-2014, and on three of four forms beginning in 2015. For 12th graders only: Data based on three of six forms except for used heroin at all which was based on all six forms until 2014. The six form N is approximately 11,800. Beginning in 2015 used heroin at all is based on three of six forms and is not comparable to the six-form heroin prevalences used elsewhere in this volume.

TABLE 5-6c
Trends in 30-Day Prevalence of Use of Heroin *with* and *without* a Needle
in Grades 8, 10, and 12

	Percentage who used in lifetime																								2020– 2021 change			
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
8th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	*	*	0.1	*	*	*	*	0.0
Only <i>without</i> a needle	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	*	0.1	0.1	*	0.1	0.0	*	0.0
Both ways	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	*	*	0.2	*	-0.1
Used heroin at all	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.1	-0.1
<i>Approx. weighted N =</i> 8,800 17,800 18,600 18,100 16,700 16,700 16,200 15,100 16,500 17,000 16,800 16,500 16,100 15,700 15,000 15,300 16,000 15,100 14,600 14,600 9,600 11,300 10,200 9,300 9,100 2,100 7,100																												
10th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	*	0.1	0.1	*	0.1	0.1	0.1	0.0
Only <i>without</i> a needle	0.2	0.2	0.3	0.3	0.4	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	*	0.1	0.1	*	*	*	*	0.0	0.0	0.0
Both ways	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	*	0.1	*	*	0.1	0.1	*	0.0
Used heroin at all	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0
<i>Approx. weighted N =</i> 8,500 15,600 15,500 15,000 13,600 14,300 14,000 14,300 15,800 16,400 16,200 16,200 16,100 15,100 15,900 15,200 14,900 15,000 12,900 12,900 10,400 9,800 9,000 9,500 9,300 3,200 7,300																												
12th Graders																												
Used heroin:																												
Only <i>with</i> a needle	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	*	*	0.1	0.0	*	0.0
Only <i>without</i> a needle	0.3	0.1	0.3	0.3	0.3	0.5	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	*	*	*	0.0	0.0	0.0	0.0
Both ways	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.1
Used heroin at all	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	-0.1
<i>Approx. weighted N =</i> 7,700 7,200 7,700 7,600 6,800 6,400 6,400 6,500 7,300 7,300 7,400 7,100 7,300 7,000 6,900 7,200 7,100 6,900 6,300 6,300 6,500 5,900 6,300 6,700 6,500 1,800 4,200																												

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. For 8th and 10th graders only: Data based on one of two forms in 1995, on all forms in 1995-2014, and on three of four forms beginning in 2015. For 12th graders only: Data based on three of six forms except used heroin at all which was based on all six forms until 2014. The six form *N* is approximately 11,800. Beginning in 2015 used heroin at all is based on three of six forms and is not comparable to the six-form heroin prevalences used elsewhere in this volume.

TABLE 5-7a
Trends in Noncontinuation Rates among 12th Graders
Who Ever Used Drug in Lifetime

Percentage who did not use in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Marijuana/Hashish	15.4	15.7	15.6	15.2	15.9	19.1	22.5	24.5	25.8	27.1	25.1	23.8	27.7	29.9	32.3	33.7	34.9	32.8	26.3	19.6	16.8	20.3	22.4	23.6
Inhalants	—	70.9	66.7	65.8	57.5	61.3	66.7	64.8	68.4	64.6	63.0	61.6	59.4	61.1	66.5	61.7	62.5	62.7	59.8	56.5	54.0	54.2	58.4	59.2
Inhalants, Adjusted	—	—	—	—	50.8	55.7	65.5	63.3	64.4	58.4	59.8	55.7	56.5	59.4	62.9	59.5	61.7	62.4	58.2	55.2	52.8	51.4	56.8	57.0
Amyl/Butyl Nitrites	—	—	—	—	41.4	48.6	63.4	63.3	57.1	50.6	49.4	45.3	44.7	46.9	48.5	33.3	†	†	†	†	†	†	†	†
Hallucinogens ^a	31.3	37.7	36.7	32.9	29.8	30.1	32.3	35.2	38.7	39.3	38.8	38.1	37.9	38.2	40.4	37.2	39.6	35.9	32.1	33.3	26.8	27.9	35.1	36.2
Hallucinogens, Adjusted ^a	—	—	—	—	31.2	32.5	35.7	38.0	36.7	40.6	36.9	36.1	36.8	37.0	37.4	38.1	39.0	34.0	31.0	33.3	26.0	26.2	35.1	36.1
LSD	36.3	41.8	43.9	35.1	30.5	30.1	33.7	36.5	39.3	41.3	41.3	37.5	38.1	37.7	41.0	37.9	40.9	34.9	34.0	34.3	28.2	30.2	38.2	39.7
Hallucinogens other than LSD ^a	33.3	42.1	38.4	37.1	36.4	36.7	38.5	41.3	43.8	42.4	44.6	47.4	40.7	48.8	48.8	48.8	45.9	48.5	43.6	36.7	29.6	35.3	38.7	35.2
PCP	—	—	—	—	45.3	54.2	59.0	63.3	53.6	54.0	40.8	50.0	56.7	58.6	38.5	57.1	51.7	41.7	51.7	42.9	33.3	35.0	41.0	46.2
Ecstasy (MDMA)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.6	42.0	37.9
Cocaine	37.8	38.1	33.3	30.2	22.1	21.7	24.8	28.1	29.6	28.0	24.3	24.9	32.2	34.7	36.9	43.6	55.1	49.2	45.9	39.0	33.3	31.0	36.8	38.7
Crack	—	—	—	—	—	—	—	—	—	—	—	—	27.8	35.4	34.0	45.7	51.6	42.3	42.3	36.7	30.0	36.4	38.5	43.2
Cocaine other than Crack	—	—	—	—	—	—	—	—	—	—	—	—	30.0	38.8	38.8	46.5	54.3	50.9	46.3	42.3	33.3	34.4	39.0	41.7
Heroin ^b	54.5	55.6	55.6	50.0	54.5	54.5	54.5	50.0	50.0	61.5	50.0	54.5	58.3	54.5	53.8	61.5	55.6	50.0	54.5	50.0	31.3	44.4	42.9	50.0
With a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.6	37.5	44.4	50.0
Without a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.6	41.2	42.9	50.0
Narcotics other than Heroin ^{c,d}	36.7	40.6	37.9	39.4	38.6	35.7	41.6	44.8	45.7	46.4	42.2	42.2	42.4	46.5	47.0	45.8	47.0	45.9	43.8	42.4	34.7	34.2	36.1	35.7
Amphetamines ^{c,e}	27.4	30.1	29.1	25.3	24.4	21.2	19.3	27.2	33.5	36.6	39.7	42.7	43.5	44.9	43.5	48.0	46.8	48.9	44.4	40.1	39.2	37.9	38.2	38.4
Methamphetamine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51.9	57.6	55.2	45.2	47.1	38.5	36.4	47.7	43.4
Sedatives (Barbiturates) ^{c,f}	36.7	40.7	40.4	40.9	36.4	38.2	41.6	46.6	47.5	50.5	50.0	50.0	51.4	52.2	49.2	50.0	45.2	49.1	46.0	41.4	36.5	35.5	37.0	36.8
Sedatives, Adjusted	35.7	39.5	37.9	38.1	32.2	30.9	34.4	40.1	45.1	50.4	50.8	50.0	52.9	52.6	50.0	—	—	—	—	—	—	—	—	—
Methaqualone ^c	37.0	39.7	38.8	38.0	28.9	24.2	28.3	36.4	46.5	54.2	58.2	59.6	62.5	60.6	51.9	69.6	†	†	†	†	†	†	†	†
Tranquilizers ^{c,g}	37.6	38.7	40.0	41.8	41.1	42.8	45.6	50.0	48.1	50.8	48.7	46.8	49.5	48.9	50.0	51.4	50.0	53.3	45.3	43.9	38.0	36.1	39.7	35.3
Rohypnol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	53.3
Alcohol ^h	6.2	6.7	5.9	5.8	5.3	5.7	6.0	6.5	5.7	7.1	7.2	7.4	7.0	7.3	8.8	9.9	11.7	12.2†	9.1	9.2	8.7	8.5	8.4	8.7
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.4	20.7	20.6	17.8	16.9	16.0	17.1	16.7
Cigarettes ^j	50.1	48.5	49.2	51.3	53.4	57.0	58.6	57.1	57.1	57.9	56.2	56.2	56.2	56.7	56.4	54.4	55.1	55.1	51.7	49.6	47.7	46.4	44.1	46.3
Vaping Nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco ^j	—	—	—	—	—	—	—	—	—	—	—	63.4	64.9	66.1	71.2	—	—	64.7	65.6	63.4	60.4	67.3	61.7	66.5
Steroids ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.7	41.4	33.3	47.6	40.0	45.8	34.8	26.3	41.7	37.0

(Table continued on next page.)

TABLE 5-7a (cont.)
Trends in Noncontinuation Rates among 12th Graders
Who Ever Used Drug in Lifetime

Percentage who did not use in last 12 months

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Marijuana/Hashish	23.9	25.2	24.5	24.3	24.3	24.9	25.0	25.6	24.1	24.0	21.9	20.5	20.1	19.5	20.0	20.9	21.8	20.0	17.6	17.6	18.4	19.4	20.8
Inhalants	63.6	58.5	65.4	61.5	65.2	61.5	55.6	59.4	65.1	62.0	63.8	59.7	60.8	63.6	63.7	70.1	66.6	67.0	68.8	63.9	64.1	70.5	64.6
Inhalants, Adjusted	62.5	57.5	64.5	60.5	63.1	59.6	54.6	58.7	63.2	60.7	60.1	—	—	—	—	—	—	—	—	—	—	—	—
Amyl/Butyl Nitrites	†	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens ^a	31.4	37.7‡	34.4	45.0	44.3	36.1	38.2	41.3	35.4	32.3	36.7	35.9	38.0	36.5	41.4	36.9	34.5	35.4	33.9	35.0	34.0	29.0	42.6
Hallucinogens, Adjusted ^a	31.0	36.0‡	32.8	43.8	40.4	35.4	35.8	39.8	34.9	31.6	35.6	34.5	34.3	35.7	39.9	—	—	—	—	—	—	—	—
LSD ^a	33.6	40.5	39.4	58.3	67.8	52.2	48.8	49.0	38.6	31.4	40.9	35.6	33.0	37.5	44.5	33.3	32.5	38.7	33.6	37.7	35.8	33.8	48.7
Hallucinogens other than LSD ^a	35.8	36.2‡	37.1	41.3	40.0	35.6	38.6	41.4	37.5	35.3	37.7	38.1	41.4	38.7	42.2	40.3	39.5	42.2	38.8	39.6	37.1	40.6	45.6
PCP	47.1	32.4	48.6	64.5	48.0	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—
Ecstasy (MDMA)	30.0	25.5	21.4	29.5	45.8	46.7	44.0	36.8	30.2	30.3	34.8	38.8	33.7	47.5	43.7	35.7‡	39.3	45.4	47.2	46.4	34.3	48.5	59.3
Cocaine	36.7	41.9	41.5	35.9	37.7	34.6	36.8	32.6	33.0	39.6	44.2	46.2	44.7	43.9	41.8	38.4	36.9	38.2	34.5	40.1	40.7	30.7	51.5
Crack	41.3	43.6	43.2	39.5	38.9	41.0	43.9	41.7	40.1	43.2	45.4	42.1	45.4	42.5	41.6	37.5	38.6	41.9	39.4	39.5	37.0	25.9	51.5
Cocaine other than Crack	34.1	41.6	40.5	37.1	37.3	35.6	36.6	34.6	34.3	38.0	44.1	49.0	46.0	46.2	43.5	42.0	36.9	37.7	34.2	41.5	42.0	27.1	57.4
Heroin ^b	45.0	37.5	50.0	41.2	46.7	40.0	43.9	45.6	39.9	43.1	39.8	45.1	46.4	41.3	42.9	38.9	40.6	55.7	42.2	53.3	37.1	†	72.7
With a needle	55.6	†	†	†	42.9	42.9	46.7	37.7	48.6	†	†	40.0	33.6	†	†	36.9	48.0	†	†	†	†	†	†
Without a needle	44.4	33.3	46.7	50.0	55.6	50.0	39.9	48.1	30.7	53.6	30.9	40.0	46.4	50.0	51.0	†	†	†	†	†	†	†	†
Narcotics other than Heroin ^{c,d}	34.3	34.0	32.3‡	30.7	29.5	29.6	29.4	32.5	30.1	30.8	30.2	33.2	33.0	35.4	36.3	36.0	36.5	38.9	37.8	43.6	49.3	60.3	57.5
Amphetamines ^{c,e}	37.4	32.7	32.7	33.9	31.3	33.3	34.5	35.1	34.7	35.8	32.9	33.7	33.2	34.3‡	29.3	32.7	28.8	33.1	36.1	36.5	41.9	42.1	52.4
Methamphetamine	42.7	45.6	43.5	46.3	48.4	45.2	43.3	43.5	44.3	55.6	50.0	53.7	34.1	37.9	38.6	50.5	42.8	†	†	†	†	†	†
Crystal Methamphetamine (Ice)	60.4	45.0	39.0	36.2	48.7	47.5	41.9	46.0	52.0	62.6	54.0	50.9	45.1	49.1	43.0	39.9	54.4	†	†	†	†	†	†
Sedatives (Barbiturates) ^{c,f}	34.8	32.6	34.5	29.5	31.8	34.3	31.8	35.7	33.3	31.5	36.2	35.5	38.4	34.8	36.0	37.6	38.2	41.6	34.8	37.0	41.4	45.0	48.7
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone ^c	†	†	†	†	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—	—
Tranquilizers ^{c,g}	37.6	36.0‡	29.3	32.5	34.3	31.1	31.5	35.5	35.2	30.4	32.5	34.5	35.5	37.1	39.4	36.0	31.7	36.1	37.8	41.5	45.3	55.0	61.9
Rohypnol	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^h	7.8	8.8	8.0	8.8	8.5	8.1	8.7	8.5	8.0	9.0	8.5	8.2	9.3	8.5	9.2	8.8	9.0	9.2	9.4	8.9	11.0	10.1	14.1
Been Drunk	14.6	16.9	16.7	18.2	17.4	14.1	17.0	15.1	16.3	16.7	16.7	18.6	17.4	17.0	16.9	16.8	19.5	19.3	21.5	21.0	19.5	11.4	26.1
Cigarettes ^j	46.4	49.7	51.6	53.3	54.5	52.6	53.5	54.2	53.2	54.3	53.7	54.5	53.2	56.5	57.3	60.4	63.3	62.8	63.7	67.9	74.2	68.8	76.9
Vaping Nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.7	12.6	13.5	31.3
Vaping Marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.8	16.2	12.2	28.8
Smokeless Tobacco ^j	64.4	67.0	60.3	64.6	61.1	60.3	56.7	60.2	56.4	58.1	48.7	51.5	50.9	54.6	52.8	44.3	53.2	53.2	54.7	58.8	64.5	§	74.3
Steroids ⁱ	37.9	32.0	35.1	37.5	40.0	26.5	44.2	35.6	35.5	31.5	32.3	27.1	32.5	30.2	31.5	23.7	27.1	37.0	35.5	28.9	33.7	†	38.7

(Table continued on next page.)

TABLE 5-7a (cont.)
Trends in Noncontinuation Rates among 12th Graders
Who Ever Used Drug in Lifetime

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '†' indicates that the cell entry was omitted because it was based on fewer than 50 twelfth graders who ever used drug in lifetime.

All other cells are based on more than 50 cases. '‡' indicates that the question changed in the following year. See relevant footnote for that drug.

§This estimate is not presented in 2020 due to small sample size. The survey question for this estimate appears on a randomly-selected 1/6 of the questionnaires, and the number of responses is uniquely small in 2020 when the COVID-19 pandemic halted MTF data collection prematurely and the resulting sample size was only 25% of the target.

^aIn 2001 the question text was changed in half of the questionnaire forms. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens are also affected by these changes and have been handled in a parallel manner. Beginning in 2014 hallucinogens, LSD and hallucinogens other than LSD were based on five of six forms.

^bIn 1995, the heroin question was changed in three of six forms. Separate questions were asked for use with and without injection. Data presented here represent the combined data from all forms.

^cOnly drug use not under a doctor's orders is included here.

^dIn 2002 the question text was changed in half of the questionnaire forms. In the list of examples of narcotics other than heroin, Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet. The 2002 data are based on the changed forms only. In 2003, the remaining forms were changed to the new wording. Beginning in 2003, the data are based on all forms. In 2013 the list of examples was changed on one form: MS Contin, Roxycodone, Hydrocodone (Lortab, Lorcet, Norco), Suboxone, Tylox, and Tramadol were added to the list. An examination of the data did not show any effect from the wording change.

^eIn 2009, the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording change. The remaining forms where changed in 2010. In 2011 the introduction to the question was changed slightly in one of six forms. An examination of the data did not show any effect from the wording change. In 2013 the question wording was changed in three of the questionnaires. The new wording in 2013 asked "On how many occasions (if any) have you taken amphetamines or other prescription stimulant drugs..." In contrast, the old wording did not include the text highlighted in red. Results in 2013 indicated higher prevalence in questionnaires with the new as compared to the old wording; it was 21% higher in 12th grade. 2013 data are based on the changed forms only; *N* is one half of *N* indicated. In 2014 all questionnaires included the new, updated wording.

^fFor 12th graders only: In 2004 the question text was changed in half of the questionnaire forms. Barbiturates was changed to sedatives, including barbiturates. Goofballs, yellows, reds, blues, and rainbows were deleted from the list of examples; Phenobarbital, Tuinal, Nembutal, and Seconal were added. An examination of the data did not show any effect from the wording change. In 2005 the remaining forms were changed in a like manner. In 2013 the question text was changed in all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. In one form the list of examples was also changed: Tuinal was dropped from the list and Dalmane, Restoril, Halcion, Intermezzo, and Zolpimist were added. An examination of the data did not show any effect from the wording change.

^gIn 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax in half of the questionnaire forms. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms.

^hIn 1993, the question text was changed slightly in half of the questionnaire forms to indicate that a drink meant more than a few sips. The 1993 data are based on the changed forms only. In 1994 the remaining forms were changed to the new wording. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

ⁱIn 2006, the question text was changed slightly in one of the questionnaire forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2007. In 2008 the question text was changed slightly. An examination of the data did not show any effect from the wording change. In 2009 the remaining forms were changed.

^jNumbers presented here represent percent of lifetime users who have not used in the past 30 days.

TABLE 5-7b
Trends in Noncontinuation Rates among 12th Graders
Who Used Drug 10 or More Times in Lifetime

Percentage who did not use in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Marijuana/Hashish	4.0	4.0	4.1	3.7	4.6	5.4	7.2	7.6	8.3	8.8	7.8	7.9	9.2	9.9	10.6	12.3	10.5	10.9	7.8	5.0	4.7	6.6	7.7	8.2
Inhalants ^a	—	48.9	42.6	34.6	23.8	25.2	23.8	27.2	23.1	23.4	25.8	15.3	21.1	21.5	25.9	24.0	23.7	28.6	21.8	26.4	21.6	24.8	25.2	28.0
Amyl/Butyl Nitrites	—	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Hallucinogens ^b	10.8	16.1	15.2	10.8	8.1	8.4	7.7	7.5	13.0	14.1	12.2	11.1	11.9	16.6	21.8	16.5	17.4	11.5	12.1	14.3	10.6	9.0	12.2	16.4
LSD ^{b,c}	15.2	17.3	18.0	12.2	7.4	6.4	7.1	7.5	15.3	12.1	12.6	12.2	11.5	16.0	21.2	16.0	18.5	11.4	11.9	15.3	11.5	10.5	16.8	20.3
Hallucinogens other than LSD ^b	—	16.6	14.4	13.3	11.5	13.1	7.7	8.2	8.5	14.5	13.7	16.0	15.8	20.1	19.5	22.6	29.3	19.6	16.2	16.0	10.1	15.5	15.9	17.5
PCP	—	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Ecstasy (MDMA) ^d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†
Cocaine	7.7	8.2	6.2	3.8	3.1	3.1	3.1	2.9	6.2	3.1	2.5	3.5	7.6	11.4	11.3	19.6	25.3	20.2	14.1	22.9	9.6	8.8	12.0	12.4
Crack ^e	—	—	—	—	—	—	—	—	—	—	—	—	13.4	2.1	5.2	26.2	31.1	15.3	16.4	16.8	6.3	8.3	17.4	19.5
Cocaine other than Crack	—	—	—	—	—	—	—	—	—	—	—	—	10.2	6.1	16.2	18.5	24.3	23.2	14.7	24.1	15.5	13.9	14.6	17.1
Heroin ^f	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
With a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†
Without a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†
Narcotics other than Heroin ^{g,h}	9.6	11.6	9.7	9.9	8.7	10.8	10.1	13.5	16.4	15.4	12.2	13.8	15.6	19.3	15.2	15.9	16.1	16.8	16.7	16.8	12.6	11.5	10.1	12.4
Amphetamines ^{g,i}	8.0	9.8	7.6	7.4	6.1	4.1	4.4	8.4	10.7	12.7	17.5	17.6	17.5	16.0	17.4	18.1	17.2	19.8	13.5	13.8	11.9	10.2	10.8	15.0
Methamphetamine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) ^j	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†	†	†	†	†	†	†
Sedatives (Barbiturates) ^{g,k}	13.4	16.5	12.9	13.5	11.2	11.7	8.9	12.6	17.7	22.8	20.6	19.7	20.7	23.4	18.0	19.8	19.7	23.4	11.0	14.9	10.9	8.3	11.1	12.5
Sedatives, Adjusted	13.6	16.2	12.4	12.8	8.6	10.5	7.6	8.6	16.4	20.8	23.6	19.7	23.1	25.2	17.3	—	—	—	—	—	—	—	—	—
Methaqualone ^g	13.5	15.9	11.9	13.1	6.1	6.0	4.9	8.0	16.3	23.3	26.7	24.9	32.2	29.8	18.6	—	—	—	—	—	—	—	—	—
Tranquilizers ^{g,l}	12.0	13.0	11.1	14.4	14.1	14.3	16.3	16.0	14.8	18.8	19.2	15.0	17.1	15.8	11.7	19.3	13.1	21.0	6.7	13.8	6.2	6.9	13.9	13.6
Rohypnol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†
Alcohol ^m	0.6	0.8	0.6	0.9	0.7	0.8	1.0	0.9	0.9	1.1	1.2	1.0	1.1	1.2	1.5	1.9	1.9	2.3†	2.5	2.1	2.0	1.6	1.9	1.9
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3	4.1	4.6	3.3	2.8	2.1	3.6	2.8
Cigarettes ^o	16.0	16.7	16.2	17.9	19.6	21.4	20.8	19.1	18.6	18.5	15.9	17.0	17.1	18.2	18.5	18.2	17.4	18.6	16.9	15.9	14.6	13.5	13.1	14.3
Smokeless Tobacco ^o	—	—	—	—	—	—	—	—	—	—	—	21.8	18.4	25.7	26.2	—	—	29.6	25.5	33.1	26.5	27.3	26.2	17.9
Steroids ⁿ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†	†	†	†	†	†	†

(Table continued on next page.)

TABLE 5-7b (cont.)
Trends in Noncontinuation Rates among 12th Graders
Who Used Drug 10 or More Times in Lifetime

Percentage who did not use in last 12 months

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Marijuana/Hashish	8.5	9.0	8.7	9.4	8.4	8.9	8.8	9.2	8.8	7.2	7.7	7.7	6.4	6.6	6.8	7.1	6.6	7.0	4.2	4.2	5.1	5.9	5.1
Inhalants ^a	27.8	23.0	30.8	25.7	23.8	30.1	12.2	26.3	24.8	19.3	20.7	26.4	23.2	24.4	31.7	33.8	20.7	†	†	41.7	†	†	†
Amyl/Butyl Nitrites	†	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens ^b	12.8	12.9†	12.3	20.0	21.5	12.1	14.3	19.1	13.3	7.3	13.1	12.7	5.4	8.8	14.6	16.6	9.9	4.4	7.4	10.6	7.5	†	39.3
LSD ^c	14.3	15.7	14.6	28.6	47.8	23.0	16.3	23.4	14.9	5.9	15.8	11.6	4.8	5.5	8.0	7.9	10.6	†	15.2	3.6	13.7	†	47.8
Hallucinogens other than LSD ^b	13.4	6.2†	10.8	11.0	18.4	9.7	13.1	17.7	15.3	7.7	15.7	12.9	7.6	8.7	15.2	21.6	12.5	†	8.4	6.5	11.7	†	61.3
PCP	†	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—
Ecstasy (MDMA) ^d	†	†	2.5	8.3	33.2	17.7	12.2	†	18.9	6.8	7.7	18.2	15.5	15.4	††	7.8	7.8	†	†	†	†	†	†
Cocaine	12.3	18.1	15.6	11.3	11.8	13.2	10.5	11.9	15.0	14.7	16.3	20.1	21.9	14.9	18.0	11.4	17.8	14.3	11.9	11.7	10.2	†	9.6
Crack ^e	16.0	13.5	7.1	10.9	12.1	13.7	7.5	18.5	18.4	17.9	14.6	21.9	19.9	15.2	13.2	8.7	17.4	†	†	†	7.2	†	†
Cocaine other than Crack	13.1	22.5	14.9	11.7	11.0	15.6	12.4	14.5	11.8	17.5	18.4	19.5	24.8	14.8	17.6	13.5	†	†	15.6	13.6	12.0	†	†
Heroin ^f	†	†	†	†	†	†	†	†	†	†	13.5	21.4	14.5	25.5	†	†	†	†	†	†	†	†	†
With a needle	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Without a needle	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Narcotics other than Heroin ^{g,h}	12.2	10.8	9.7†	8.3	9.2	8.2	8.4	12.2	9.0	9.0	11.1	12.4	9.2	14.2	14.5	13.8	11.5	19.2	16.2	20.3	22.1	†	†
Amphetamines ^{g,i}	12.7	11.2	7.7	10.0	8.9	12.9	13.0	11.3	13.8	17.7	13.3	11.2	17.2	16.3†	9.7	11.9	11.8	13.6	13.4	18.2	21.3	25.9	42.4
Methamphetamine	12.4	22.8	19.2	23.9	29.1	13.5	21.5	16.9	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Crystal Methamphetamine (Ice) ^j	†	†	†	11.2	†	23.1	†	†	†	†	†	†	†	†	†	†	†	†	20.0	†	†	†	†
Sedatives (Barbiturates) ^{g,k}	10.7	7.0	5.6	5.7	6.9	8.5	10.4	11.4	11.9	10.0	11.6	10.3	16.8	10.4	12.2	9.4	14.9	10.6	9.8	10.4	17.3	†	15.5
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers ^{g,l}	9.9	5.3†	8.1	5.8	11.2	7.9	9.8	12.3	10.7	8.7	8.8	10.6	14.4	12.9	15.7	18.1	10.2	14.0	13.6	14.4	19.8	†	34.4
Rohypnol	†	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^m	1.7	1.7	1.3	1.9	1.5	1.3	1.6	1.4	1.2	1.5	1.6	1.6	1.8	1.4	1.7	1.5	1.5	1.2	1.3	1.2	1.6	2.5	2.1
Been Drunk	1.8	2.6	2.3	2.0	2.9	2.1	2.9	3.1	2.2	2.6	2.9	3.0	2.4	2.0	2.0	2.4	2.3	2.4	1.7	2.8	2.7	5.0	3.9
Cigarettes ^o	16.1	16.3	17.5	17.3	17.2	15.9	16.7	18.9	17.9	17.9	17.8	18.3	20.0	20.4	21.4	22.8	22.1	24.0	24.0	29.8	42.6	32.2	36.0
Smokeless Tobacco ^o	20.7	15.1	18.9	20.4	16.2	15.3	15.4	25.1	17.4	16.0	15.6	14.8	18.2	17.6	15.3	7.5	13.9	15.6	22.0	32.2	†	†	35.2
Steroids ⁿ	†	†	†	†	†	†	†	11.9	†	†	†	0.0	†	†	†	†	†	†	†	†	†	†	†

(Table continued on next page.)

TABLE 5-7b (cont.)
Trends in Noncontinuation Rates among 12th Graders
Who Used Drug 10 or More Times in Lifetime

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '†' indicates that the cell entry was omitted because it was based on fewer than 50 twelfth graders who used 10 or more times.

All other cells are based on more than 50 cases. '‡' indicates that the question changed in the following year. See relevant footnote for that drug.

^aInhalants are unadjusted for underreporting of amyl and butyl nitrites.

^bIn 2001 the question text was changed in half of the questionnaire forms. Other psychedelics was changed to other hallucinogens, and shrooms was added to the list of examples. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens are also affected by these changes and have been handled in a parallel manner. Hallucinogens are unadjusted for underreporting of PCP. Beginning in 2014 hallucinogens, LSD and hallucinogens other than LSD were based on five of six forms.

^cBased on 55 cases in 2009.

^dBased on 54 cases in 2005, 55 cases in 2009, 56 cases in 2010, and 57 cases in 2012.

^eBased on 85 cases in 1987, 54 cases in 1988, and 56 cases in 1989. Crack was included in all six questionnaire forms beginning in 1990. Based on 56 cases in 2013.

^fIn 1995, the heroin question was changed in three of six forms. Separate questions were asked for use with and without injection. Data presented here represent the combined data from all forms. Based on 54 cases in 2009.

^gOnly drug use not under a doctor's orders is included here.

^hIn 2002 the question text was changed in half of the questionnaire forms. In the list of examples of narcotics other than heroin, Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet. The 2002 data are based on the changed forms only. In 2003, the remaining forms were changed to the new wording. Beginning in 2003, the data are based on all forms. In 2013 the list of examples was changed on one form: MS Contin, Roxycodone, Hydrocodone (Lortab, Lorcet, Norco), Suboxone, Tylox, and Tramadol were added to the list. An examination of the data did not show any effect from the wording change.

ⁱIn 2009, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. In 2010 the remaining forms were changed. In 2011 the introduction to the question was changed slightly in one of six forms. An examination of the data did not show any effect from the wording change. In 2013 the question wording was changed in three of the questionnaires. The new wording in 2013 asked "On how many occasions (if any) have you taken amphetamines or other prescription stimulant drugs..." In contrast, the old wording did not include the text highlighted in red. Results in 2013 indicated higher prevalence in questionnaires with the new as compared to the old wording; it was 21% higher in 12th grade. 2013 data are based on the changed forms only; *N* is one half of *N* indicated. In 2014 all questionnaires included the new, updated wording.

^jBased on 55 cases in 2002 and 56 cases in 2004.

^kFor 12th graders only: In 2004 the question text was changed in half of the questionnaire forms. Barbiturates was changed to sedatives, including barbiturates. Goofballs, yellows, reds, blues, and rainbows were deleted from the list of examples; Phenobarbital, Tuinal, Nembutal, and Seconal were added. An examination of the data did not show any effect from the wording change. In 2005 the remaining forms were changed in a like manner. In 2013 the question text was changed in all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. In one form the list of examples was also changed: Tuinal was dropped from the list and Dalmane, Restoril, Halcion, Intermezzo, and Zolpimist were added. An examination of the data did not show any effect from the wording change.

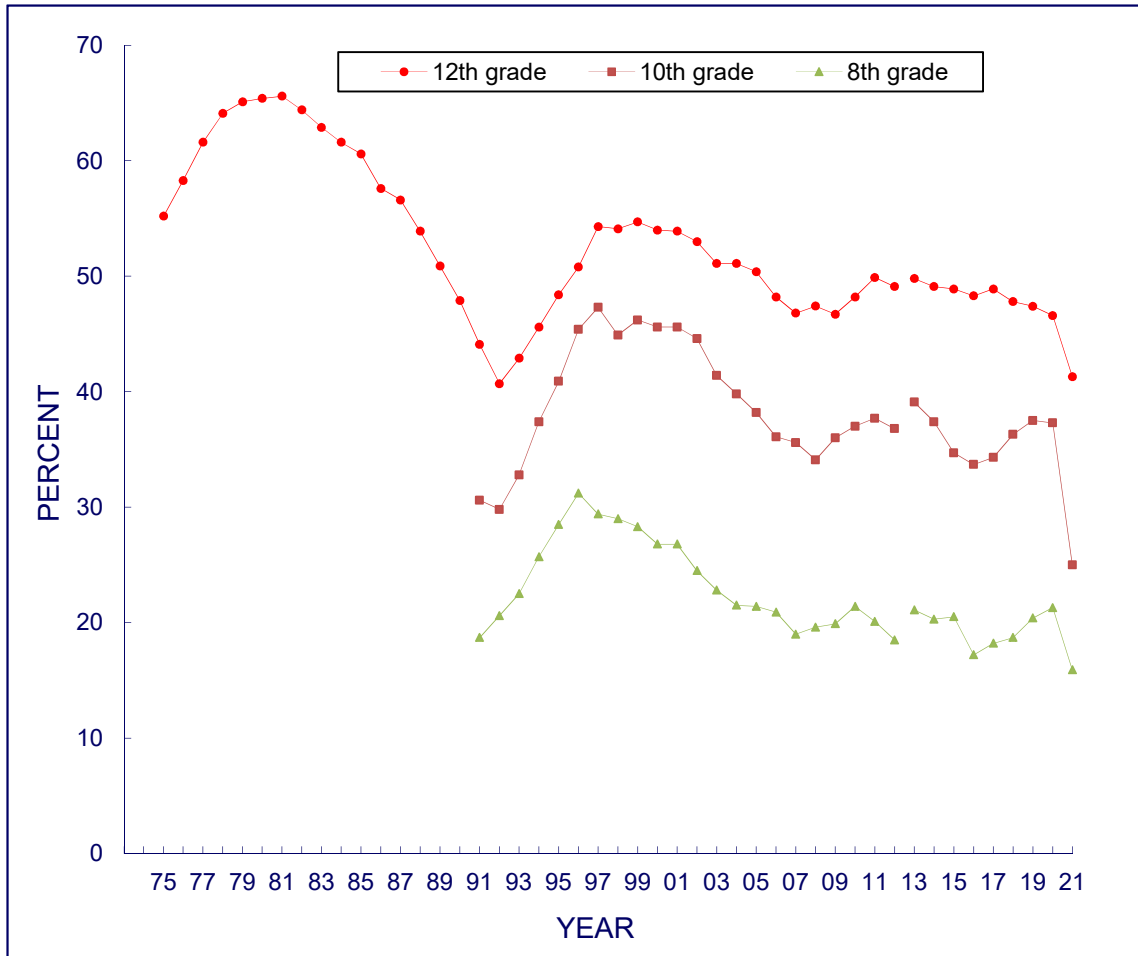
^lIn 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax in half of the questionnaire forms. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms.

^mIn 1993, the question text was changed slightly in half of the questionnaire forms to indicate that a drink meant more than a few sips. The 1993 data are based on the changed forms only. In 1994 the remaining forms were changed to the new wording. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

ⁿIn 2006, the question text was changed slightly in one of the questionnaire forms. An examination of the data did not show any effect from the wording change. Based on 62 cases in 2006. The remaining forms were changed in 2007. In 2008 the question text was changed slightly. An examination of the data did not show any effect from the wording change. In 2009 the remaining forms were changed in a like manner. Based on 51 cases in 2010.

^oPercentage of regular users (ever) who did not use at all in the last 30 days.

FIGURE 5-1a
Any Illicit Drug Use
Trends in Lifetime Prevalence by Grade



Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

For 8th and 10th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use.

FIGURE 5-1b
Any Illicit Drug Use other than Marijuana
Trends in Lifetime Prevalence by Grade



Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

For 8th and 10th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced.

Data for any illicit drug other than marijuana are affected by these changes.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use other than marijuana.

FIGURE 5-2a
Any Illicit Drug Use
Trends in Annual Prevalence by Grade



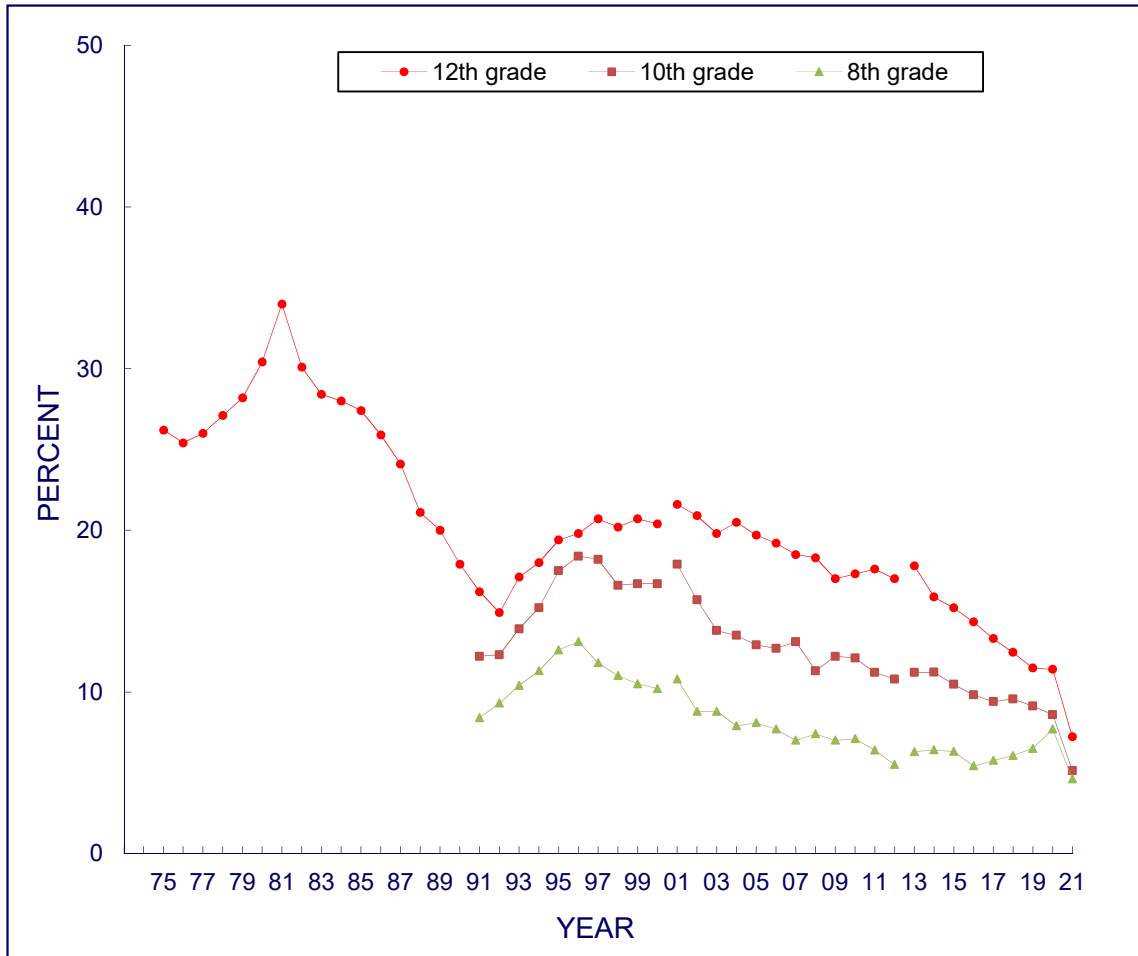
Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

For 8th and 10th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use.

FIGURE 5-2b
Any Illicit Drug Use other than Marijuana
Trends in Annual Prevalence by Grade



Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

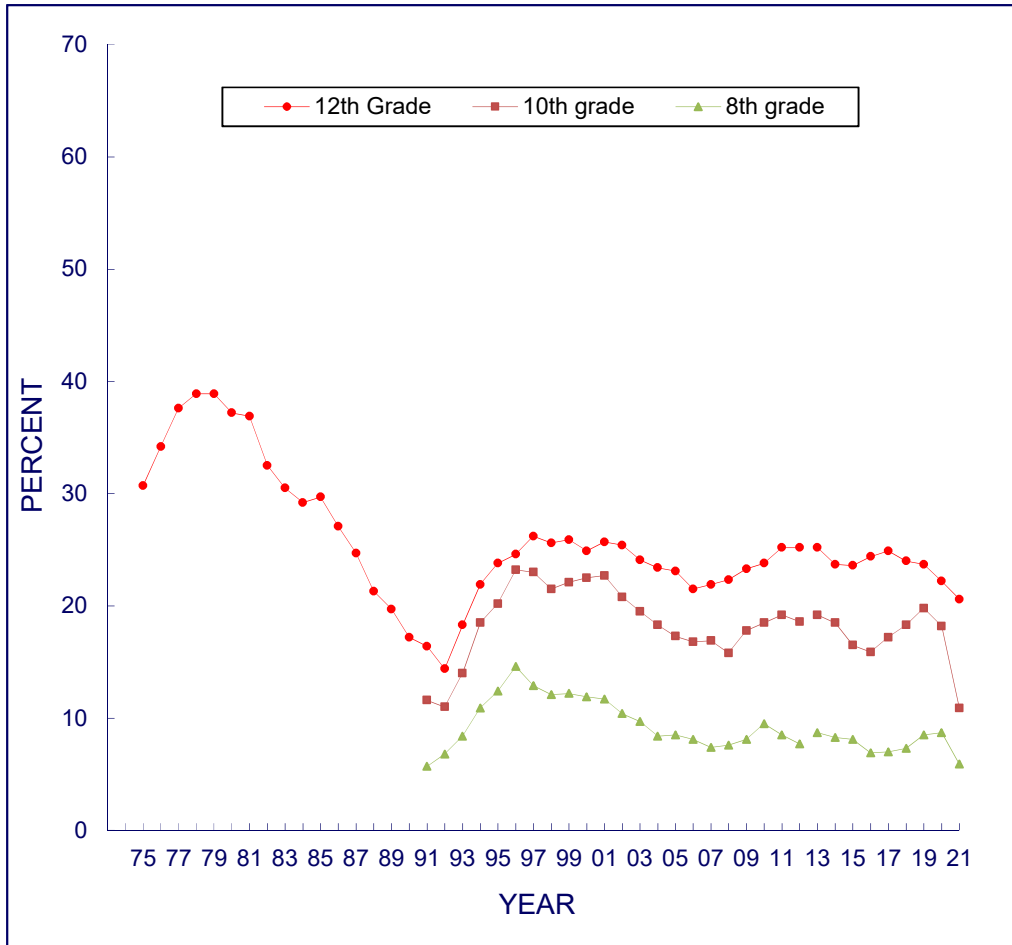
For 8th and 10th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced.

Data for any illicit drug other than marijuana are affected by these changes.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use other than marijuana.

FIGURE 5-3a
Any Illicit Drug Use Index
Trends in 30-Day Prevalence by Grade



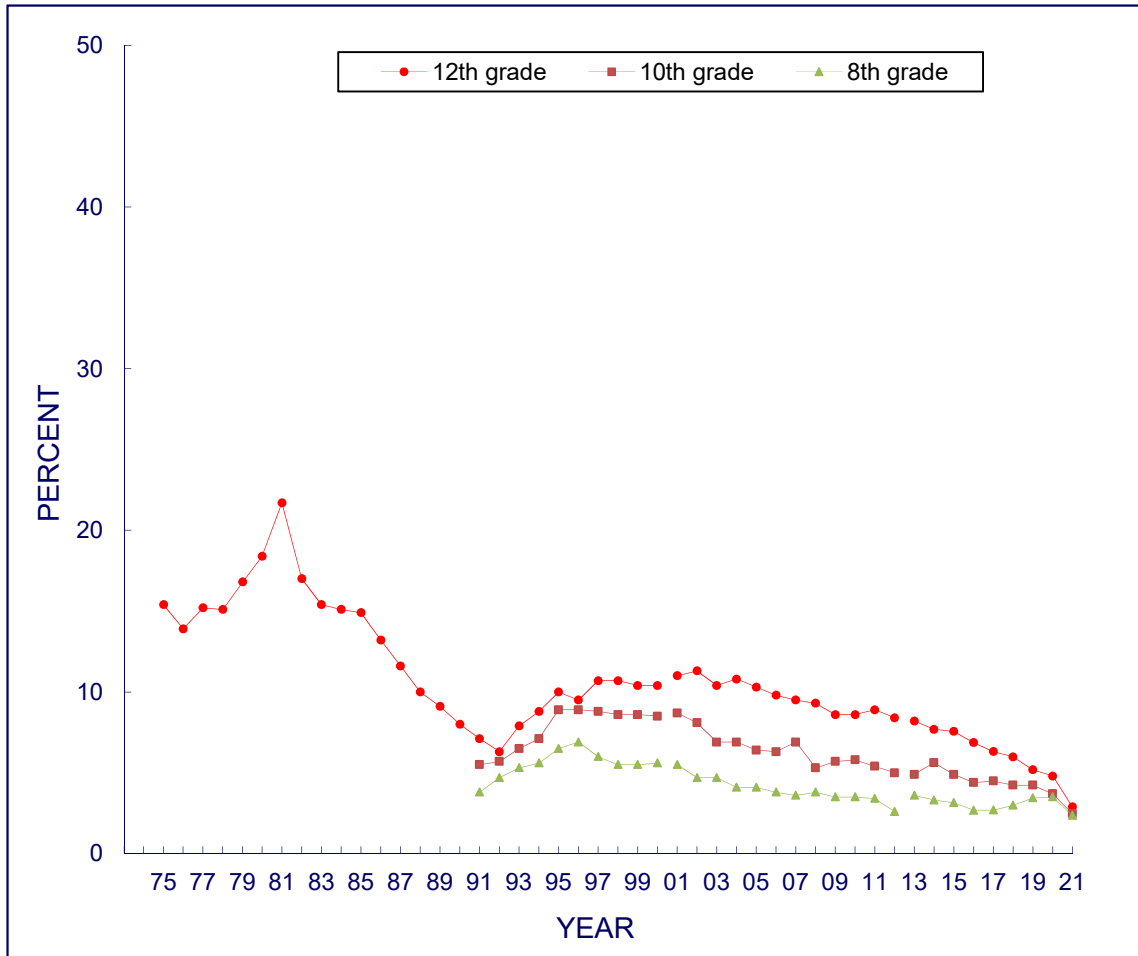
Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

For 8th and 10th graders, use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use.

FIGURE 5-3b
Any Illicit Drug Use other than Marijuana
Trends in 30-Day Prevalence by Grade



Source. The Monitoring the Future study, the University of Michigan.

Notes. For 12th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which are not under a doctor's orders.

For 8th and 10th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced.

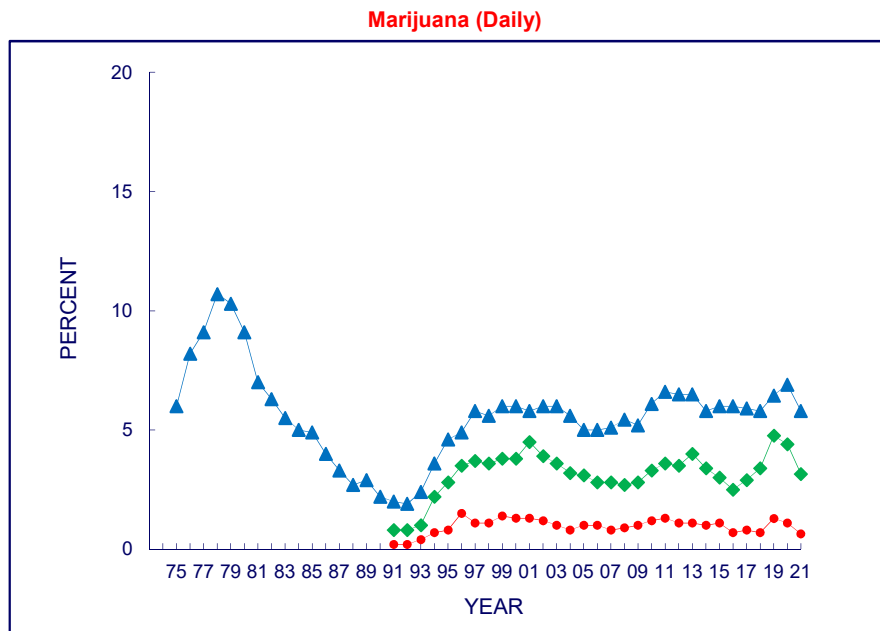
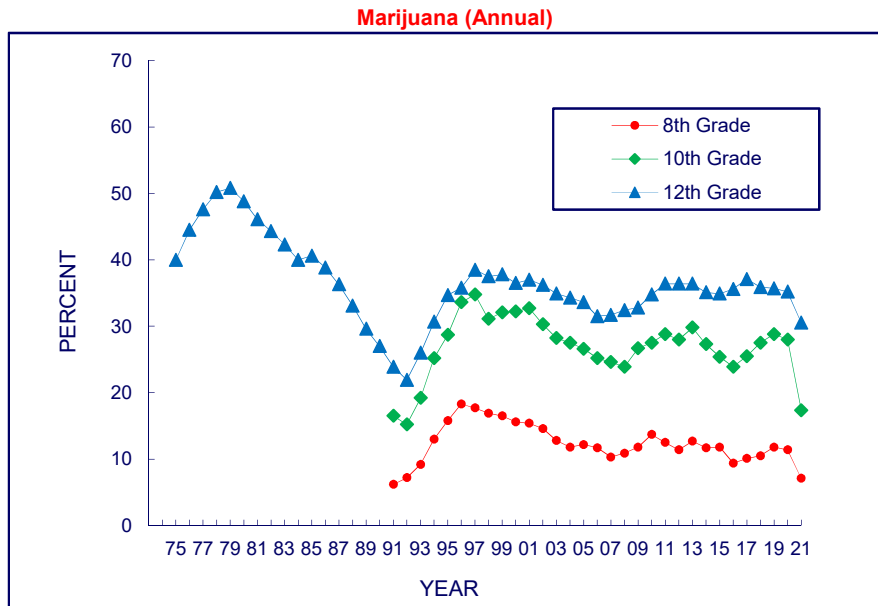
Data for any illicit drug other than marijuana are affected by these changes.

Beginning in 2013, revised sets of questions on amphetamine use were introduced, which affected data for any illicit drug use other than marijuana.

FIGURE 5-4a

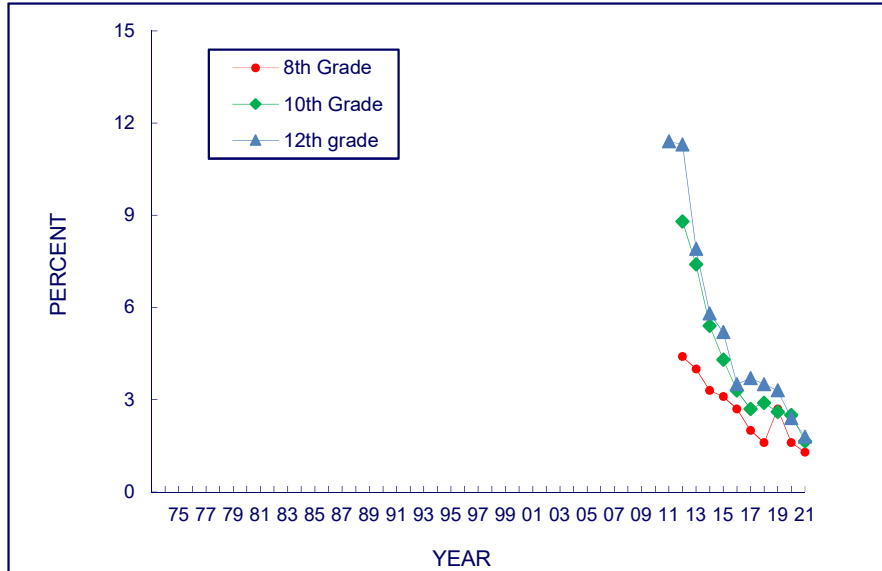
MARIJUANA

Trends in Annual Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12



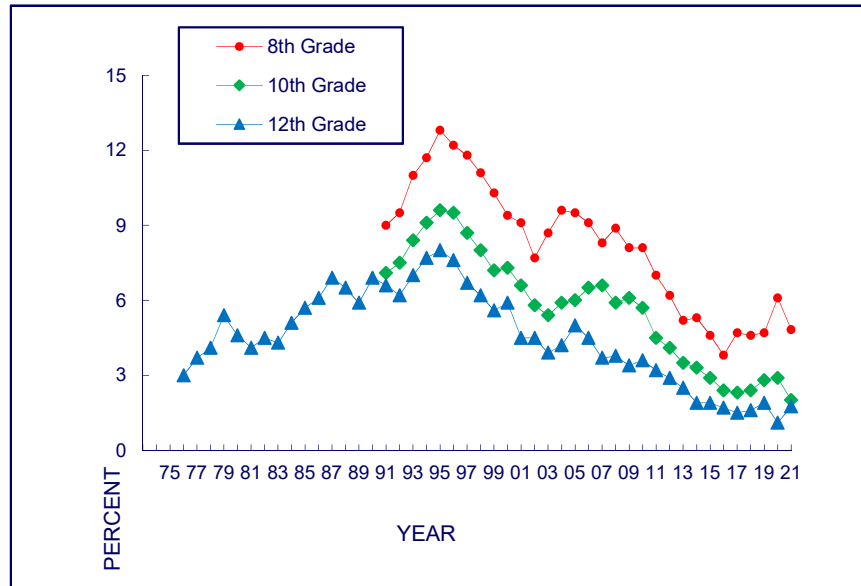
Source: The Monitoring the Future study, the University of Michigan.

FIGURE 5-4b
Synthetic Marijuana
Trends in Annual Prevalence
in Grades 8, 10, and 12



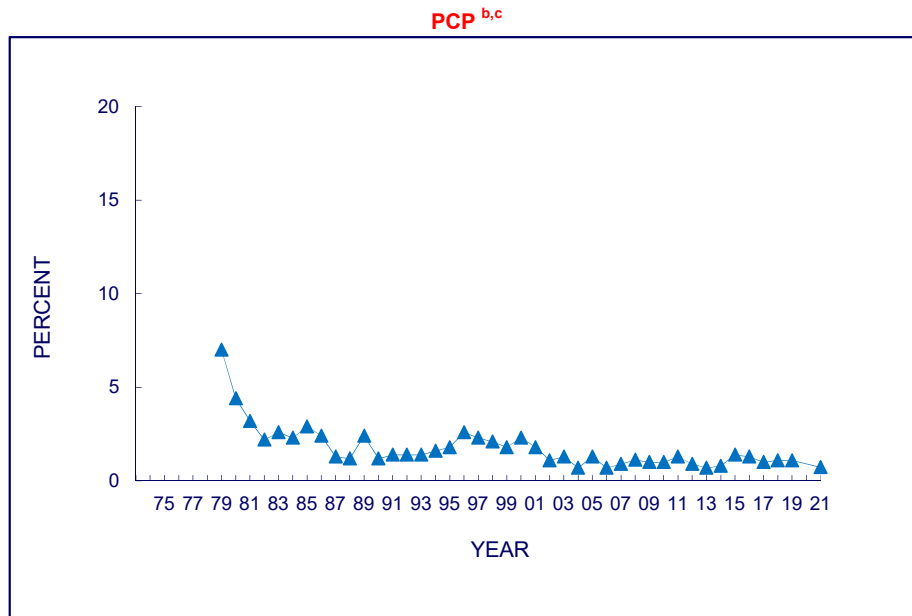
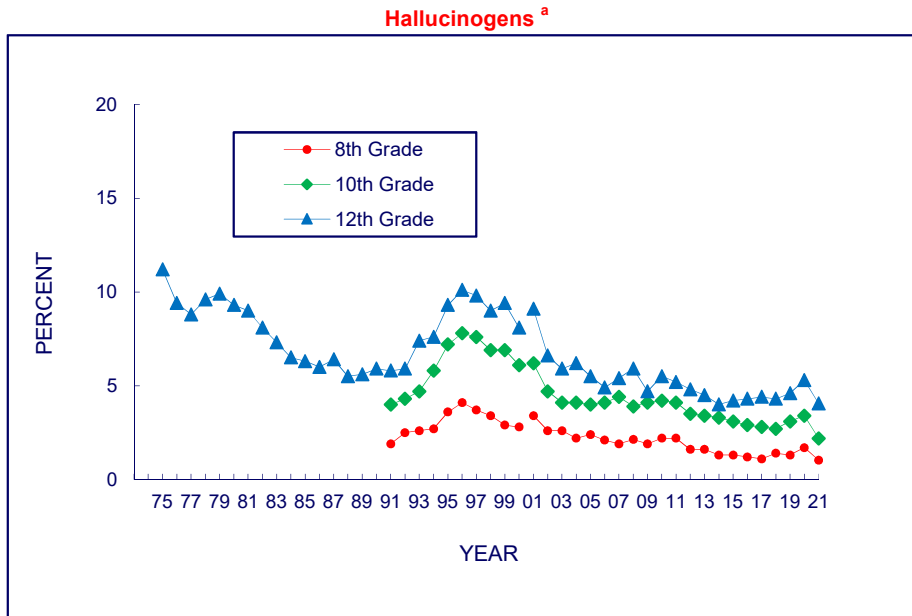
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4c
INHALANTS
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4d
HALLUCINOGENS AND PCP
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

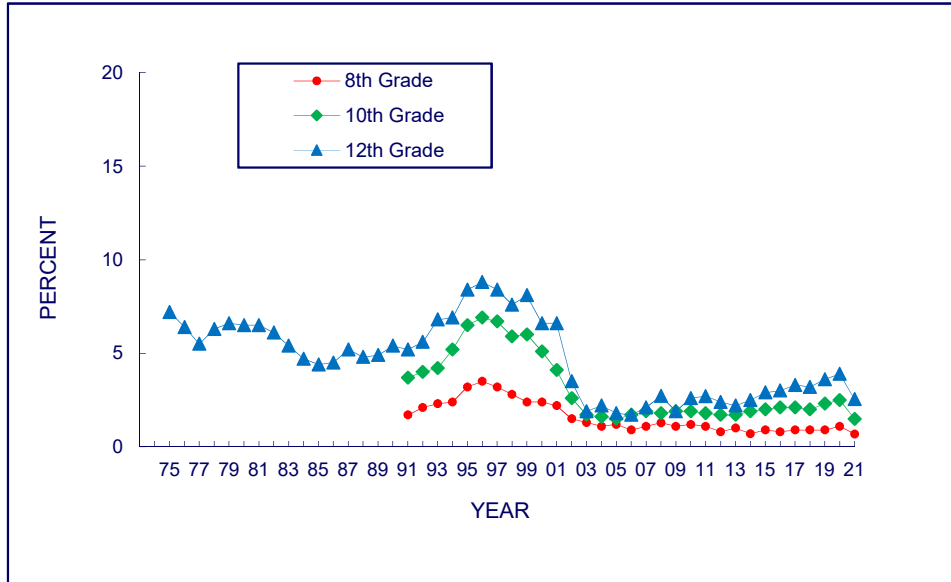
^aIn 2001, a revised set of questions on other hallucinogen use was introduced. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. Data for hallucinogens were affected by these changes. From 2001 on, data points are based on the revised question.

^bEighth and 10th graders are not asked about PCP use.

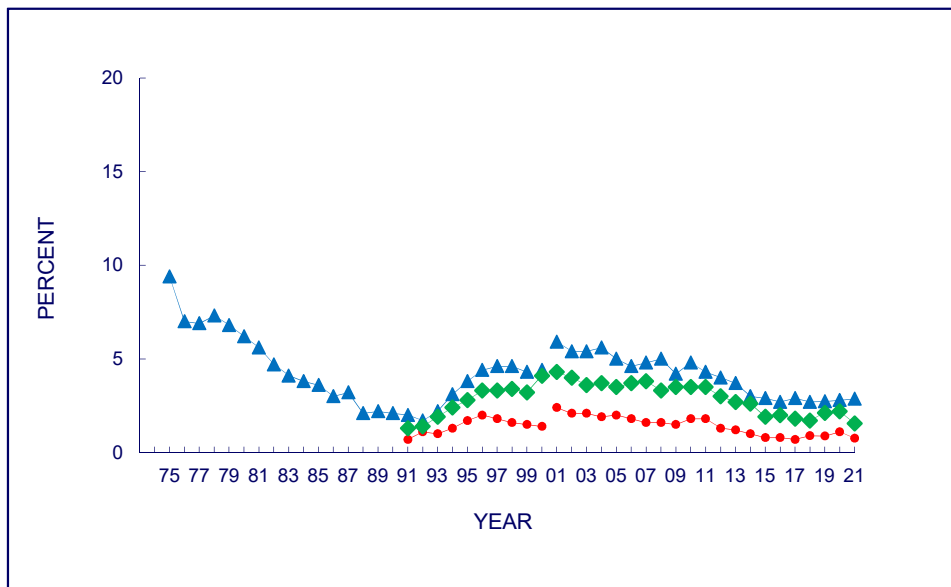
^cThis estimate not presented in 2020 due to insufficient data.

FIGURE 5-4e
LSD AND HALLUCINOGENS OTHER THAN LSD
Trends in Annual Prevalence
in Grades 8, 10, and 12

LSD



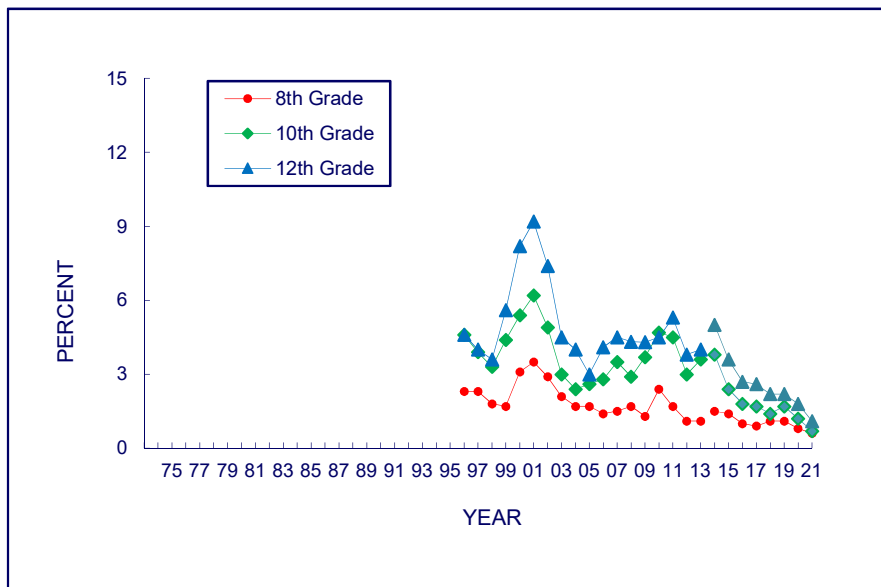
Hallucinogens other than LSD ^a



Source: The Monitoring the Future study, the University of Michigan.

^aIn 2001, a revised set of questions on other hallucinogen use was introduced. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. From 2001 on data points are based on the revised question.

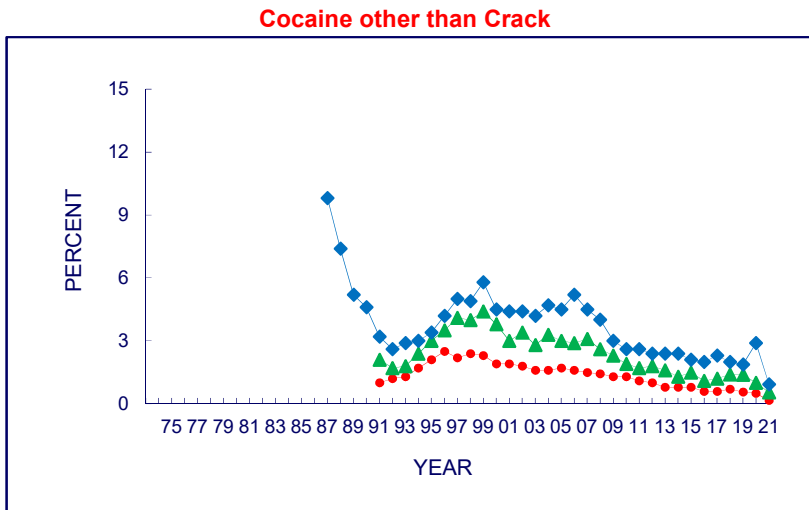
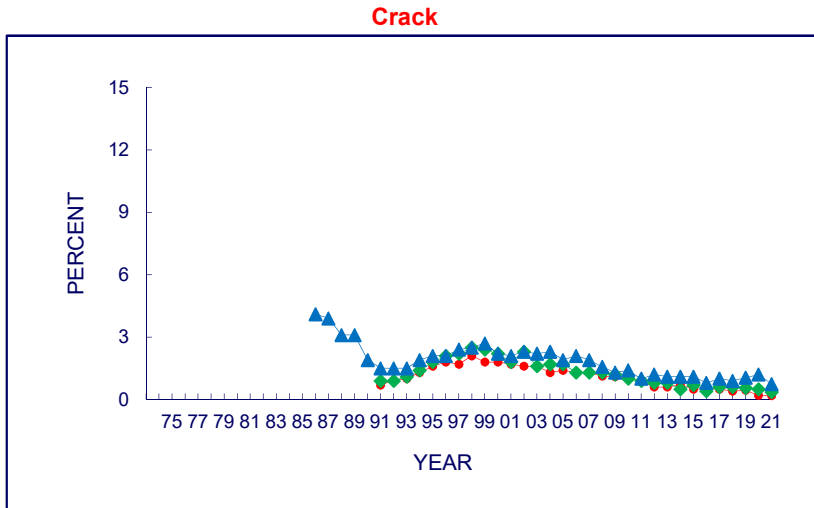
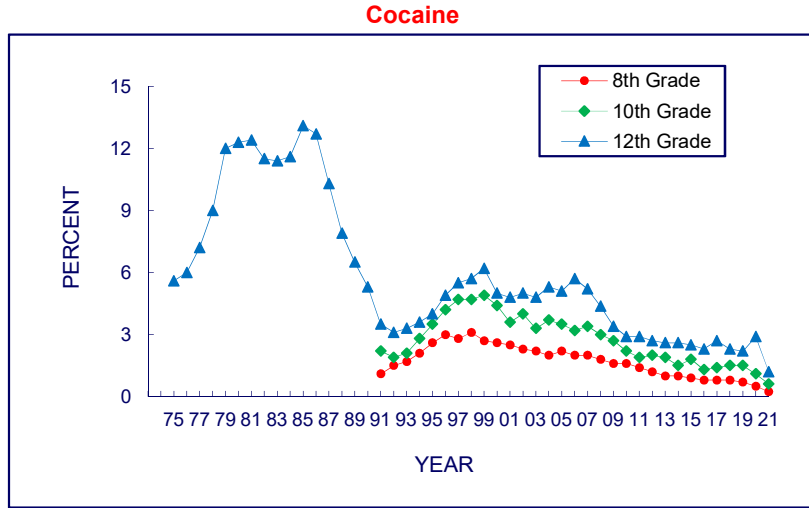
FIGURE 5-4f
ECSTASY (MDMA)
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source: The Monitoring the Future study, the University of Michigan.

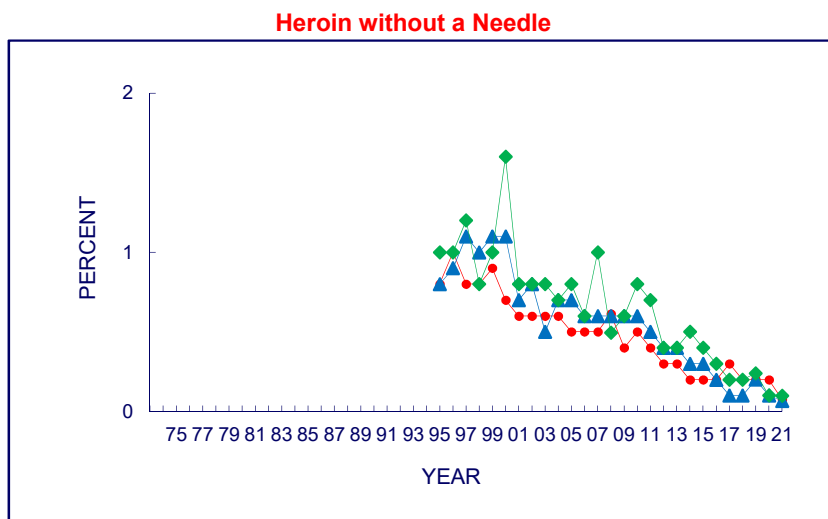
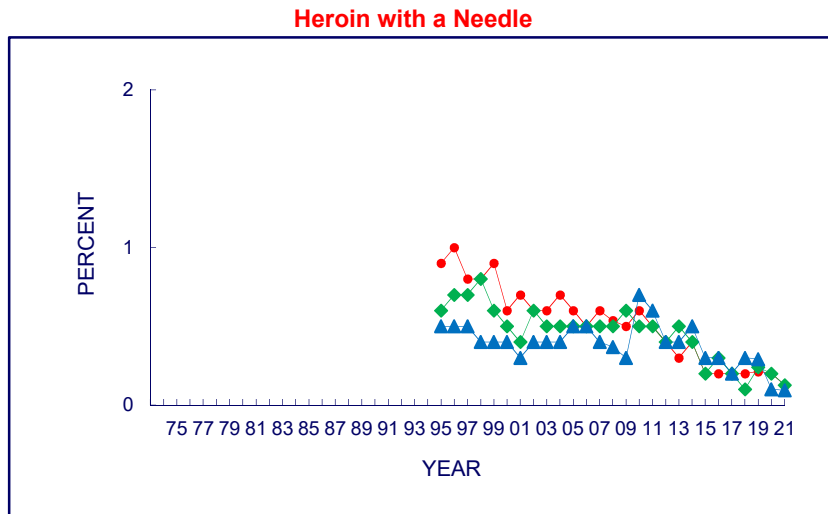
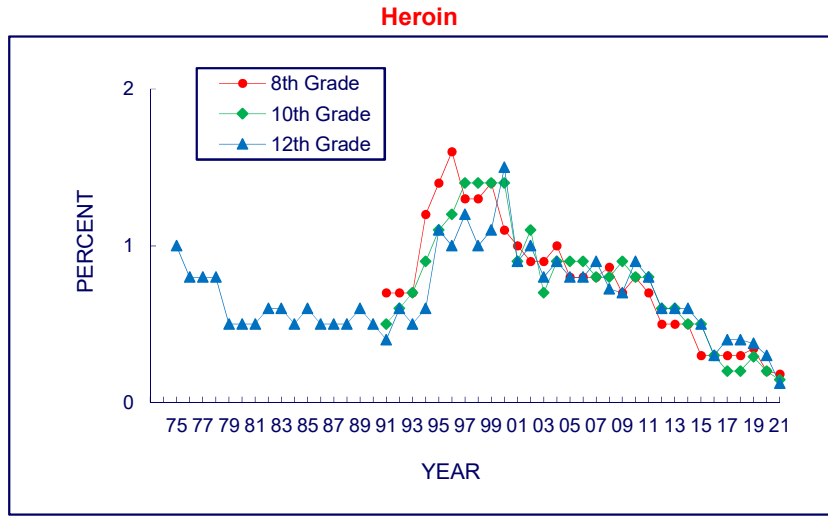
Notes. In 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015.

FIGURE 5-4g
COCAINE, CRACK, AND COCAINE OTHER THAN CRACK
Trends in Annual Prevalence
in Grades 8, 10, and 12



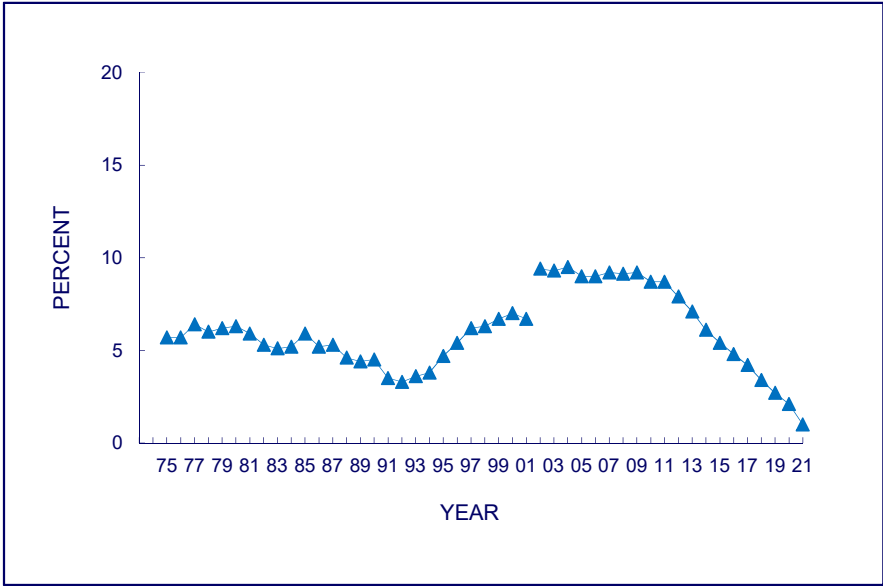
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4h
HEROIN
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

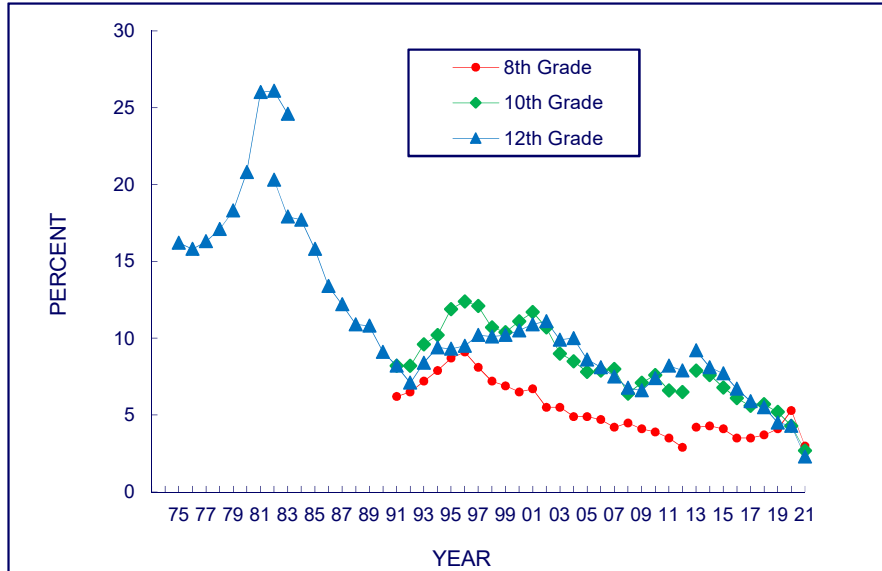
FIGURE 5-4i
NARCOTICS OTHER THAN HEROIN ^a
Trends in Annual Prevalence
in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

^aData for 8th and 10th graders are not reported for use of narcotics other than heroin. In 2002, a revised set of questions on other narcotic use was introduced. Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet in the list of examples. From 2002 on, data points are based on the revised question.

FIGURE 5-4j
AMPHETAMINES^a
Trends in Annual Prevalence
in Grades 8, 10, and 12

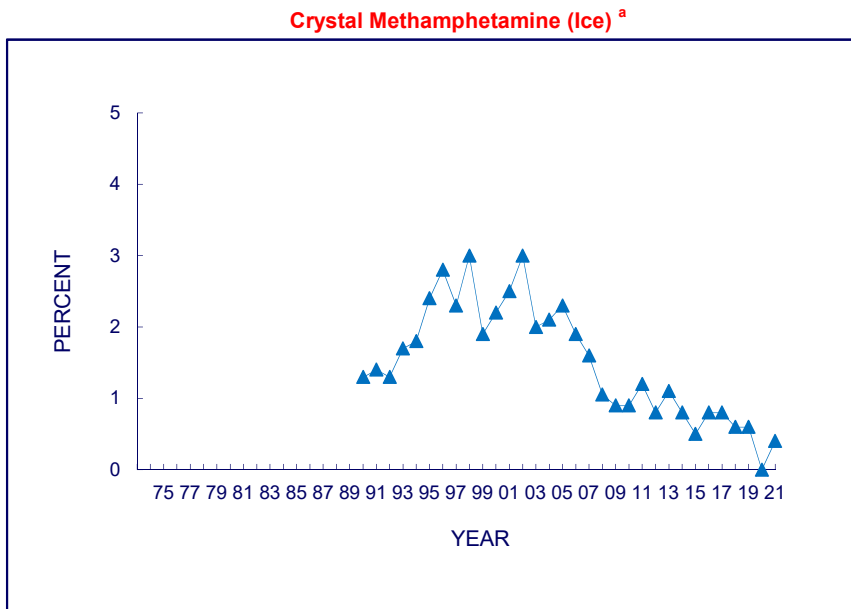
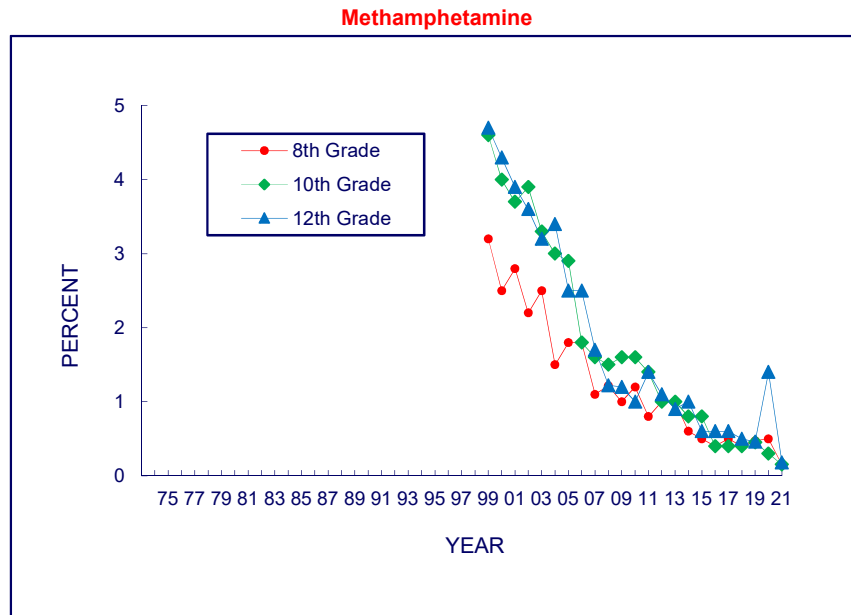


Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 1982, the lines connect percentages that result if nonprescription stimulants are excluded.

In 2013, the text was changed on some of the questionnaire forms for all three grades, with the remaining forms changed in 2014. Data presented here include only the changed forms.

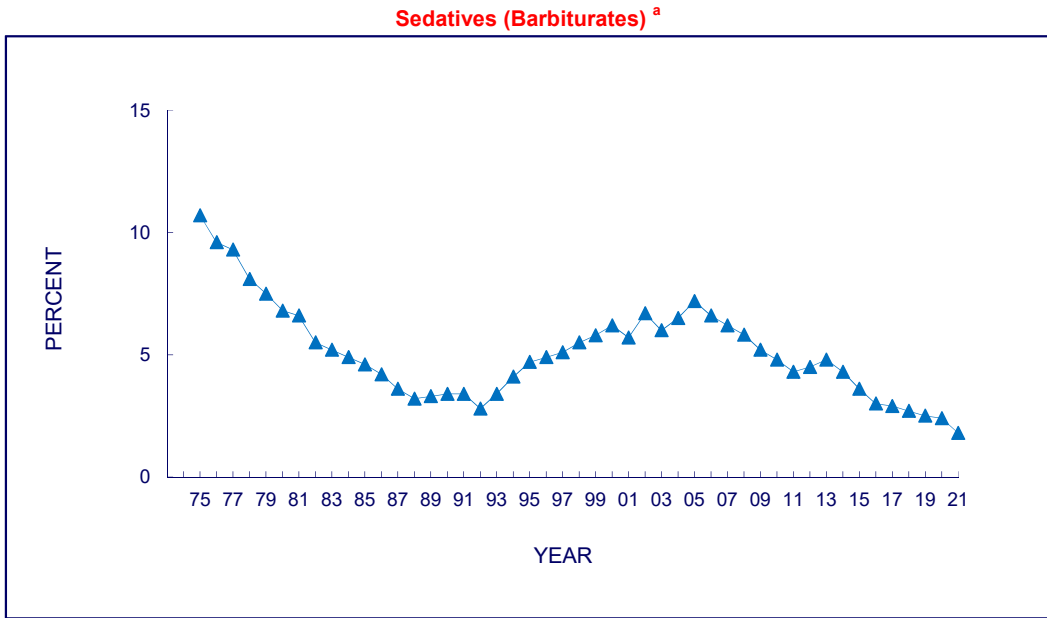
FIGURE 5-4k
METHAMPHETAMINE AND CRYSTAL METHAMPHETAMINE (ICE)
Trends in Annual Prevalence in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

^aEighth and 10th graders are not asked about crystal methamphetamine use.

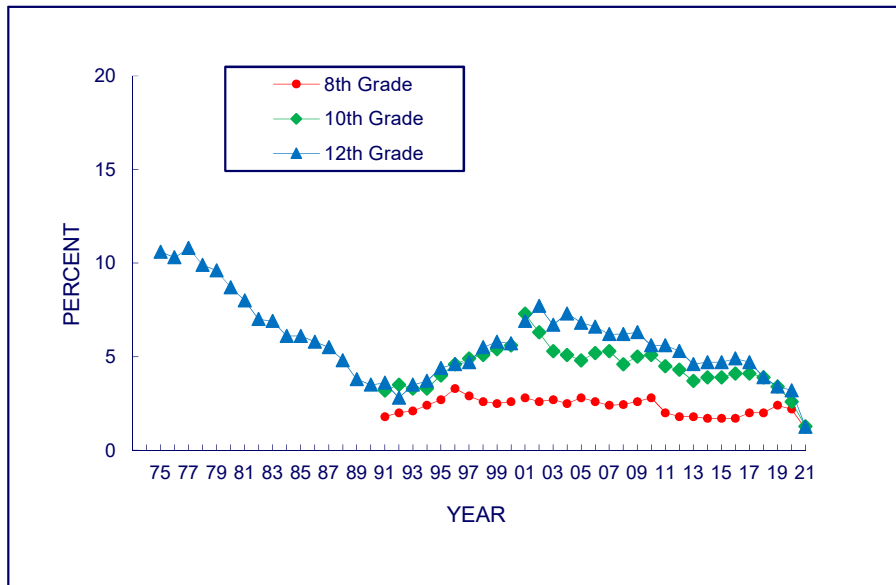
FIGURE 5-41
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence
in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

^aIn 2004 the question text was changed. Goofballs, yellows, reds, blues, and rainbows were deleted from the list of examples. Phenobarbital, Tuinal, and Seconal were added. An examination of the data did not show any effect from the wording change.

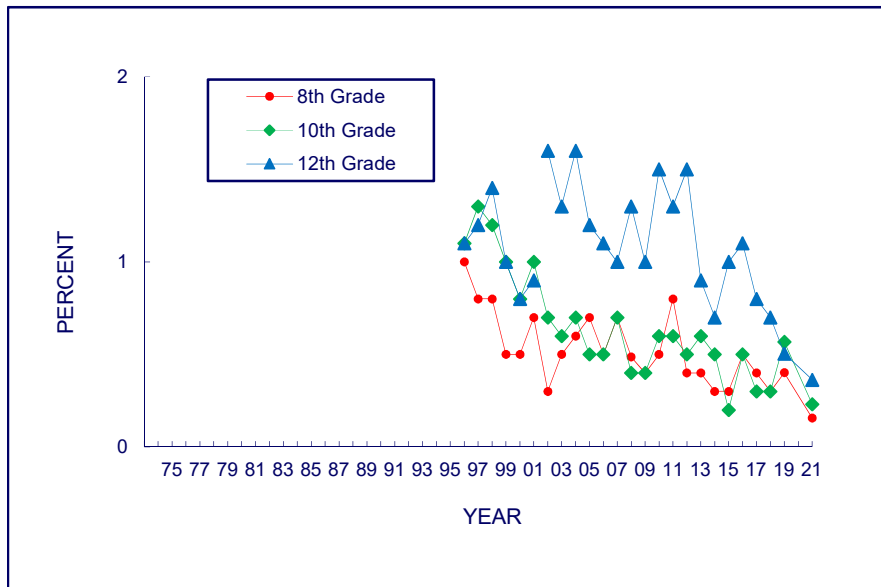
FIGURE 5-4m
TRANQUILIZERS^a
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 2001, a revised set of questions on tranquilizer use was introduced in which Xanax replaced Miltown in the list of examples. From 2001 on data points are based on the revised question.

FIGURE 5-4n
ROHYPNOL^{a,b}
Trends in Annual Prevalence
in Grades 8, 10, and 12

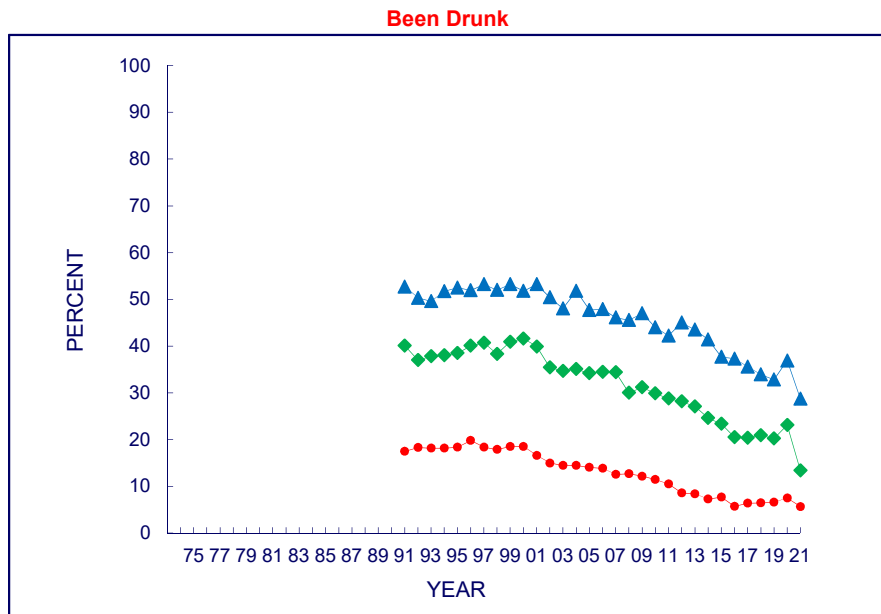
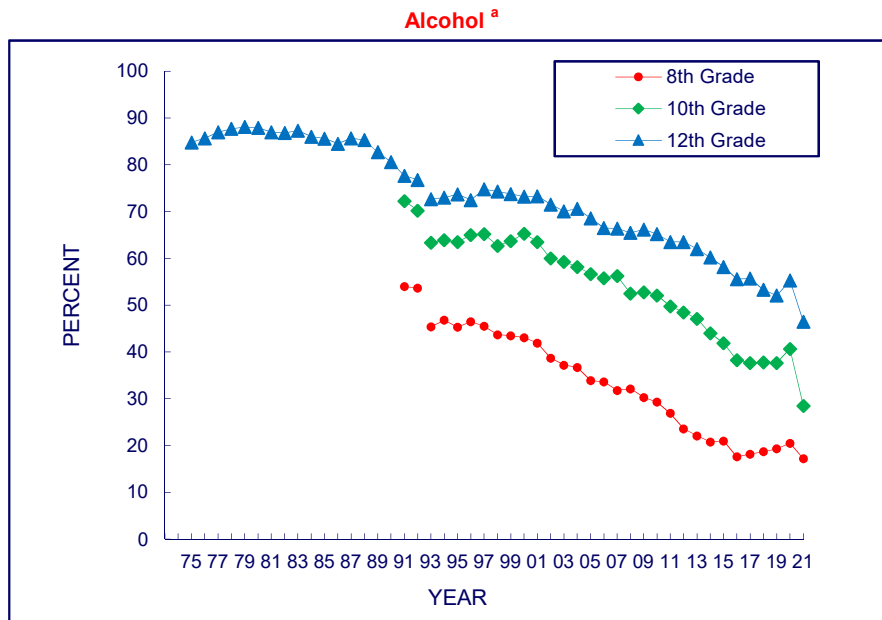


Source. The Monitoring the Future study, the University of Michigan.

^aFor 12th graders only, Rohypnol data for 2001 are not comparable with data for 2002 due to changes in the questionnaire forms.

^bEstimates not presented in 2020 due to insufficient data.

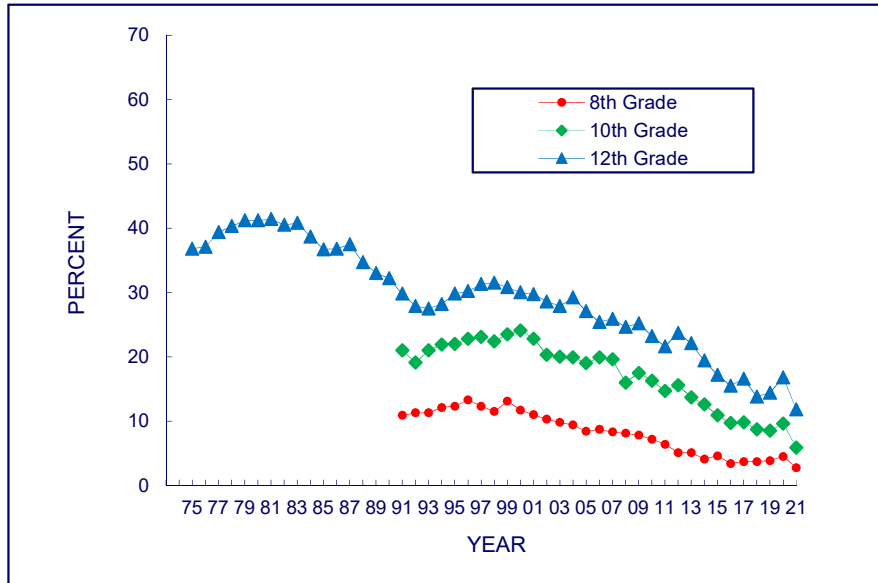
FIGURE 5-4o
ALCOHOL AND BEEN DRUNK
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

^aIn 1993, a revised set of questions on alcohol use was introduced indicating that a drink meant more than a few sips. From 1993 on, data points are based on the revised question.

FIGURE 5-4p
FIVE OR MORE DRINKS IN A ROW
Trends in 2-Week Prevalence
in Grades 8, 10, and 12

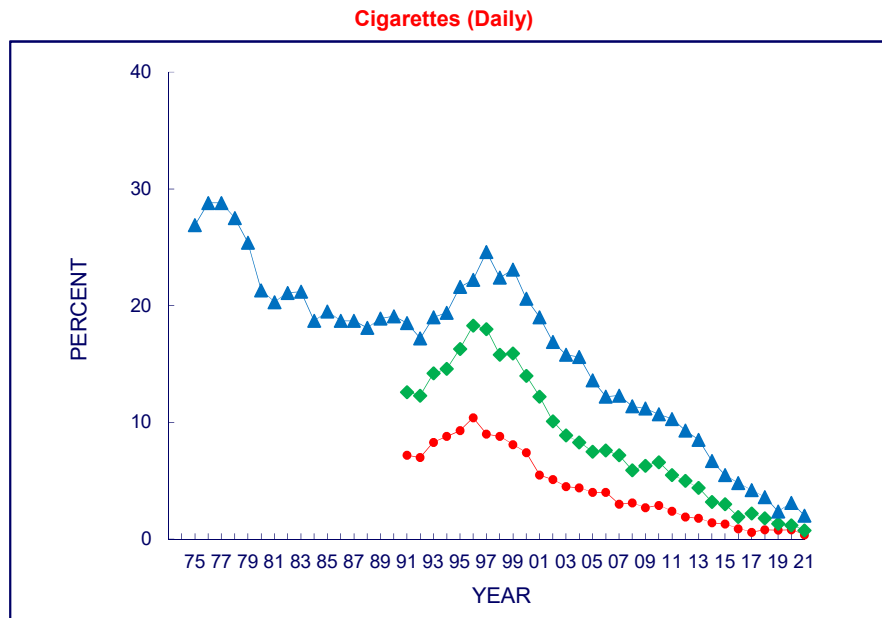
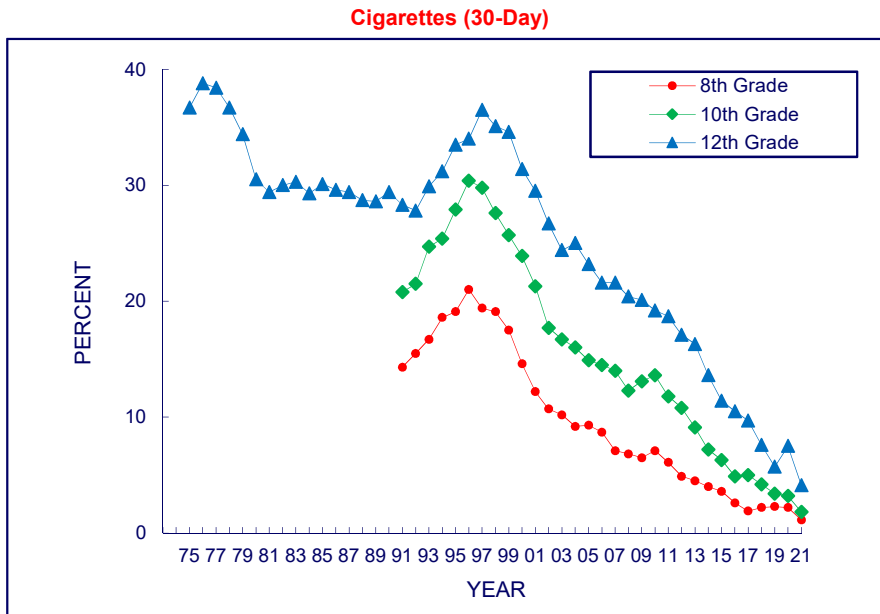


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4q

CIGARETTES

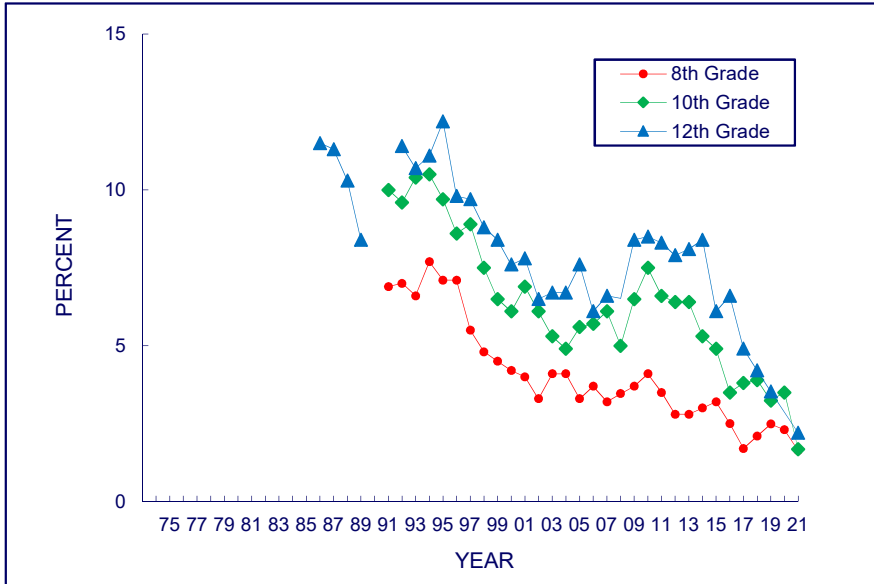
Trends in 30-Day Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12



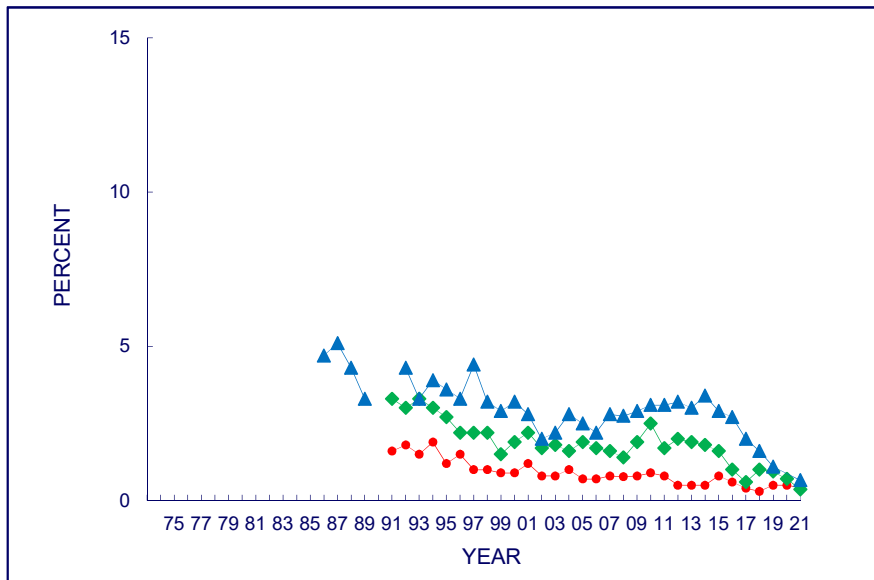
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4r
SMOKELESS TOBACCO
Trends in 30-Day Prevalence and 30-Day Prevalence of
Daily Use in Grades 8, 10, and 12

Smokeless Tobacco (30-Day)^b

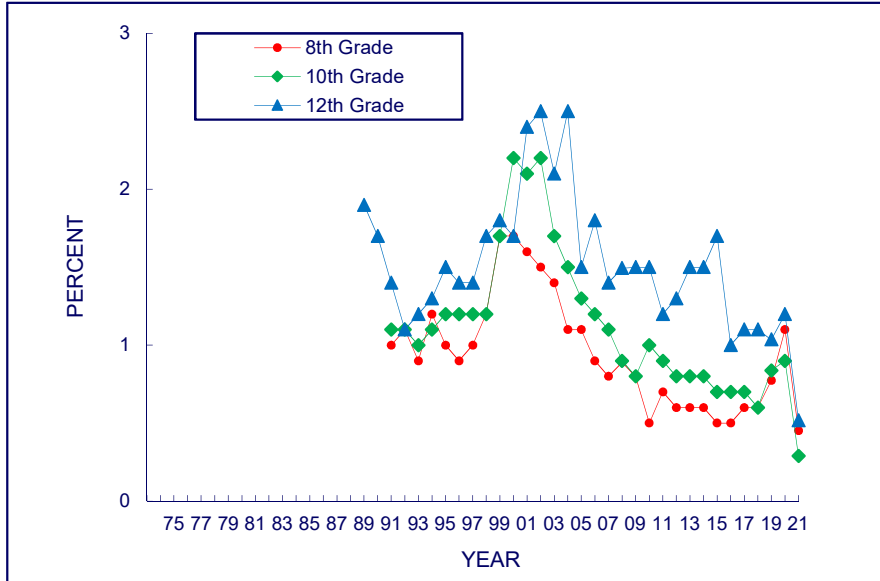


Smokeless Tobacco (Daily)^{a,b}



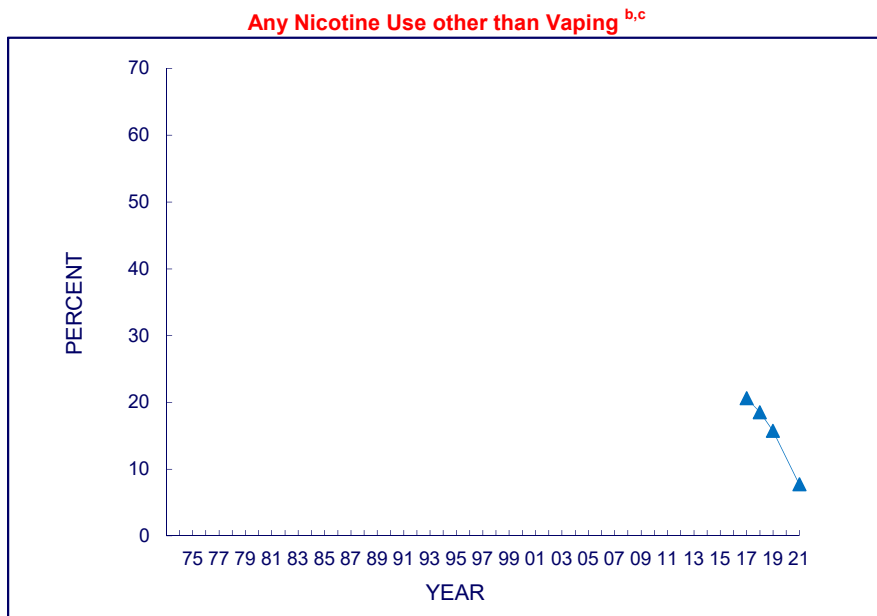
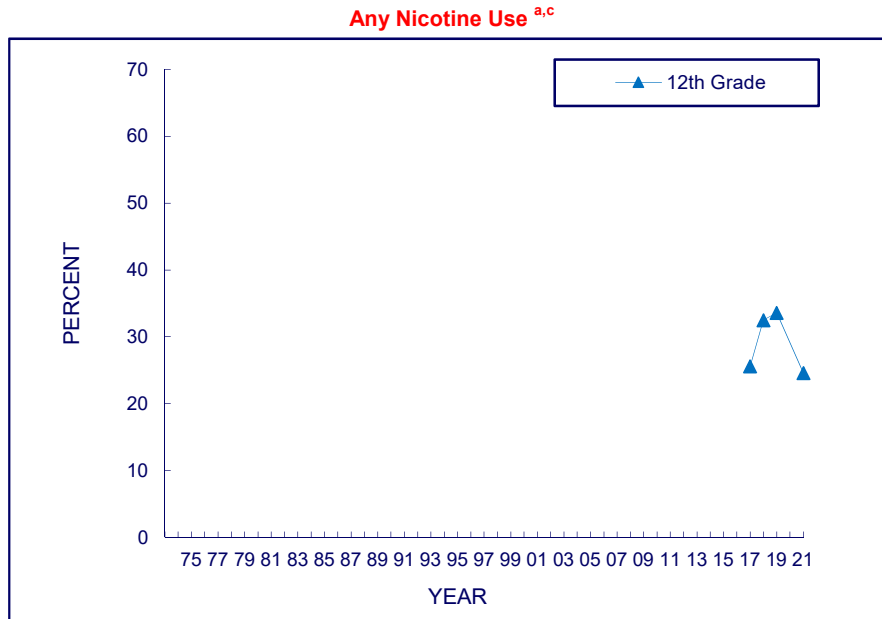
Source. The Monitoring the Future study, the University of Michigan.
^aTwelfth graders: Smokeless tobacco data not available in 1990 or 1991.
^bThis estimate not presented for 12th graders in 2020 due to insufficient data.

FIGURE 5-4s
STEROIDS
Trends in Annual Prevalence
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4t
ANY NICOTINE USE AND
ANY NICOTINE USE OTHER THAN VAPING
Trends in 30-Day Prevalence
in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

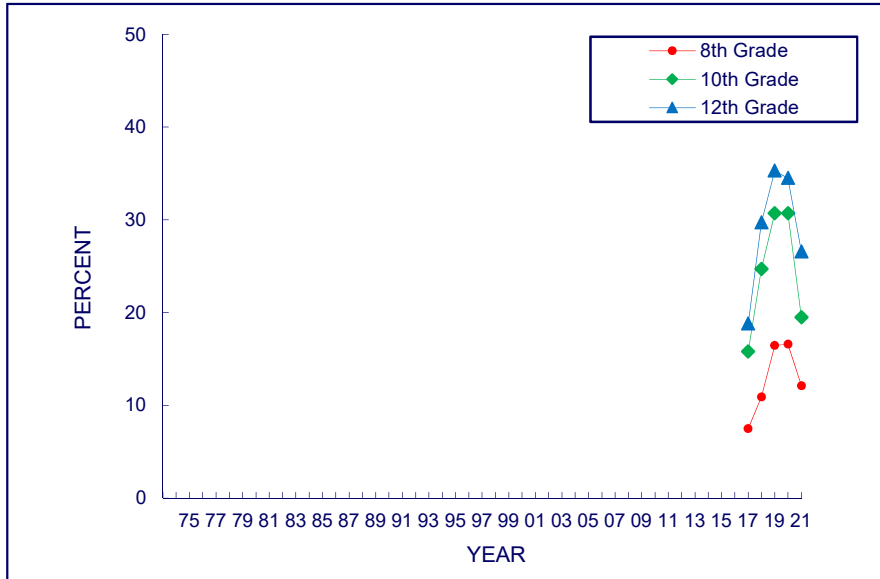
^aIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.

^bIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

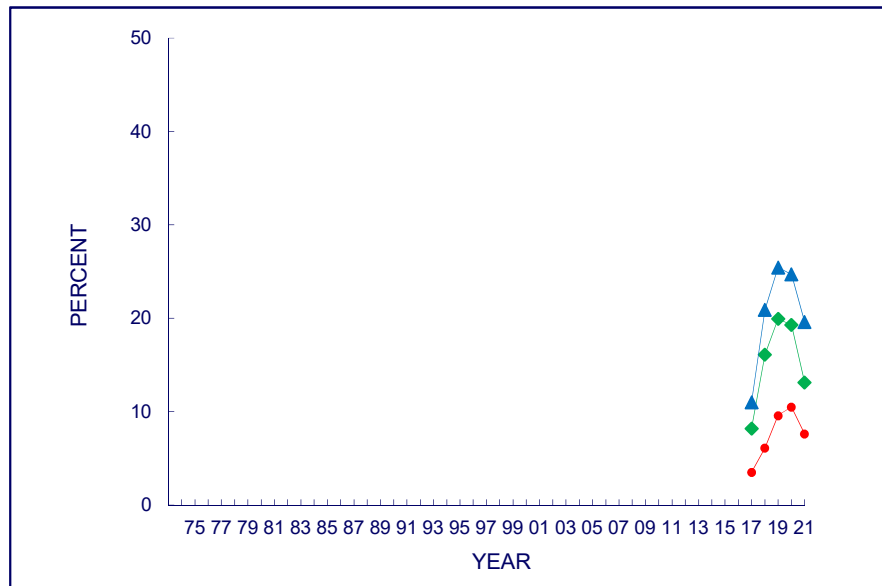
^cThis estimate not presented in 2020 due to insufficient data.

FIGURE 5-4u
VAPING NICOTINE
Trends in Annual and 30-Day Prevalence
in Grades 8, 10, and 12

Vaping Nicotine (Annual)



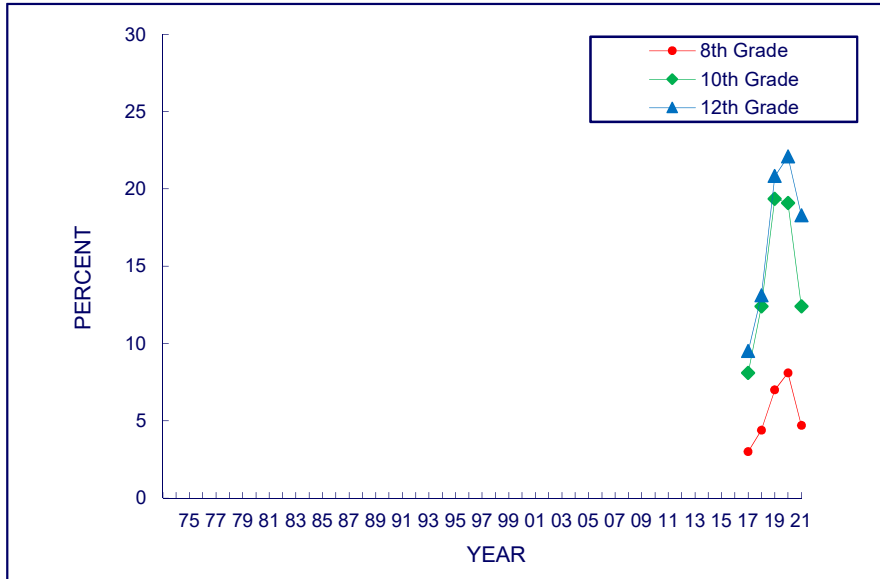
Vaping Nicotine (30-Day)



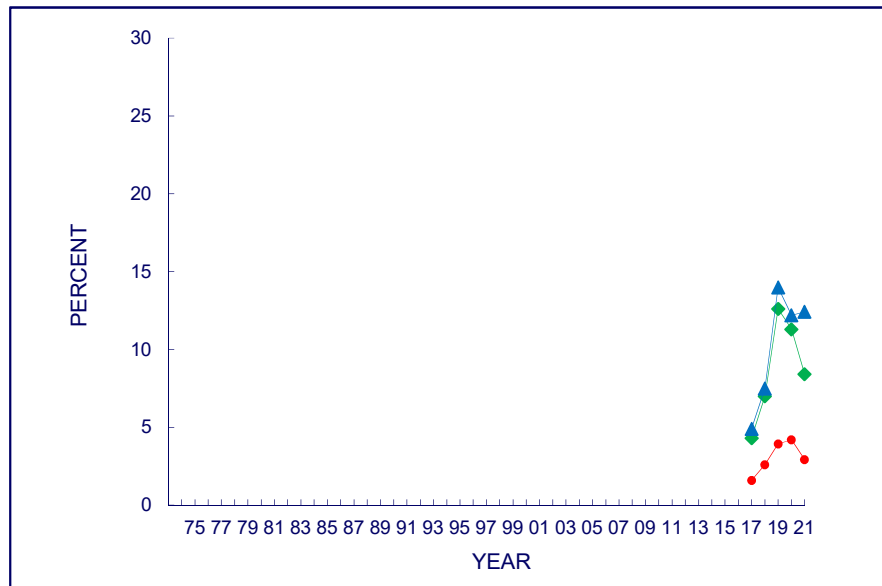
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4v
VAPING MARIJUANA
Trends in Annual and 30-Day Prevalence
in Grades 8, 10, and 12

Vaping Marijuana (Annual)

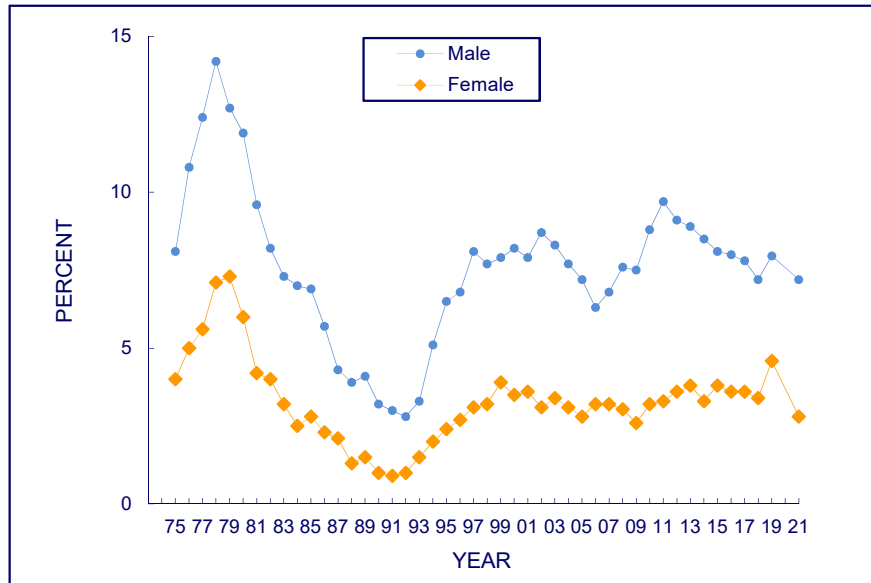
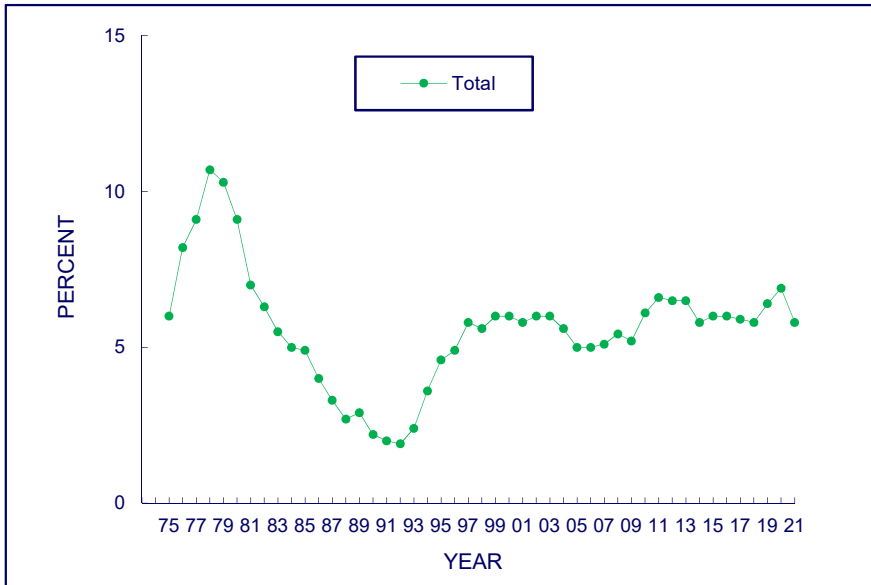


Vaping Marijuana (30-Day)



Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-5a
MARIJUANA
Trends in 30-Day Prevalence of Daily Use in Grade 12
by Total and by Gender ^a

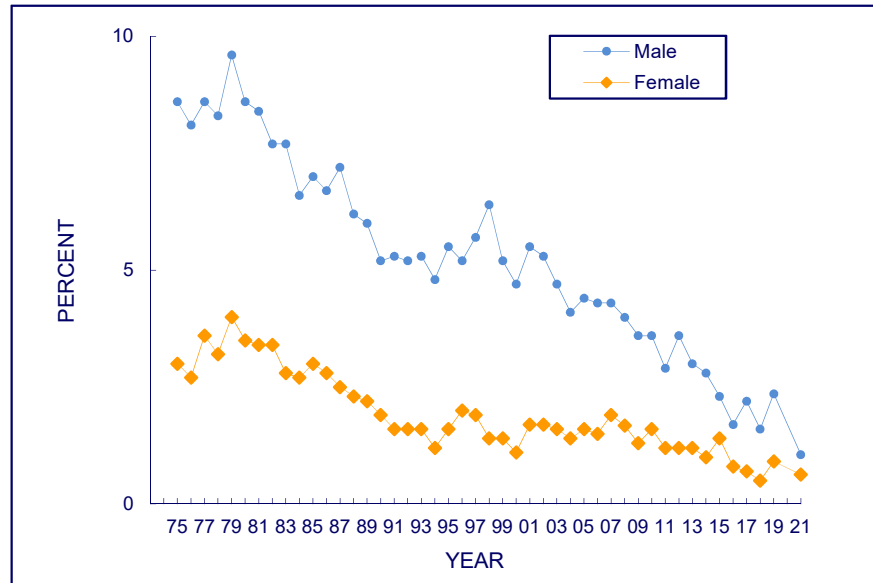
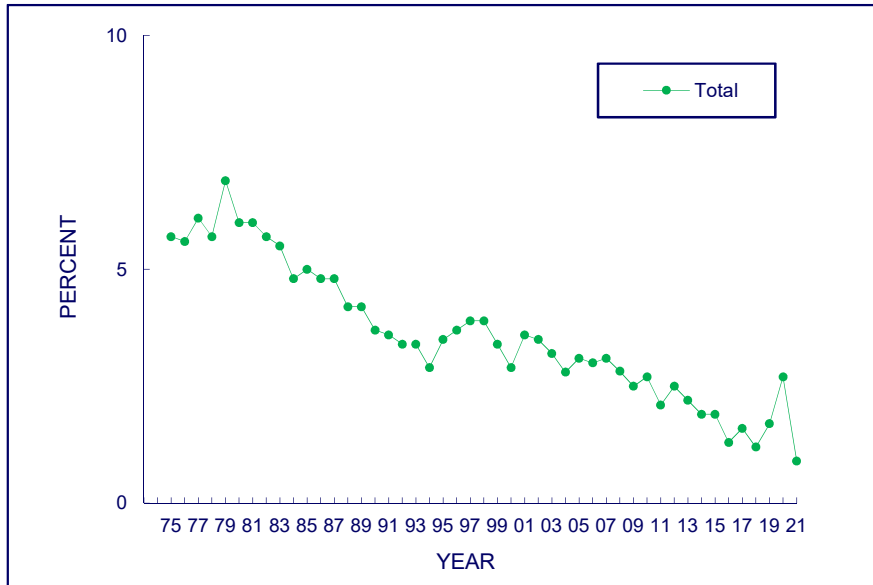


Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for marijuana is defined as use on 20 or more occasions in the last 30 days.

^aEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-5b
ALCOHOL^a
Trends in 30-Day Prevalence of Daily Use in Grade 12
by Total and by Gender^b



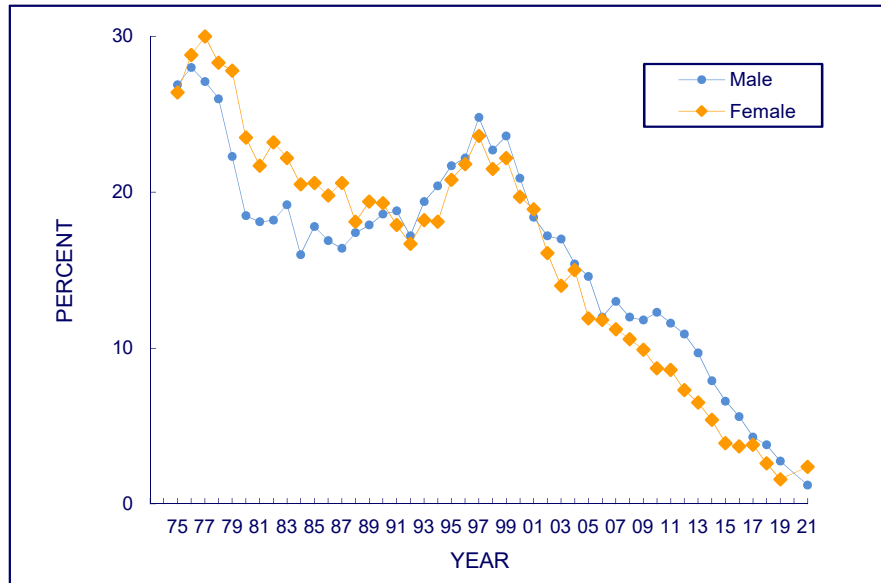
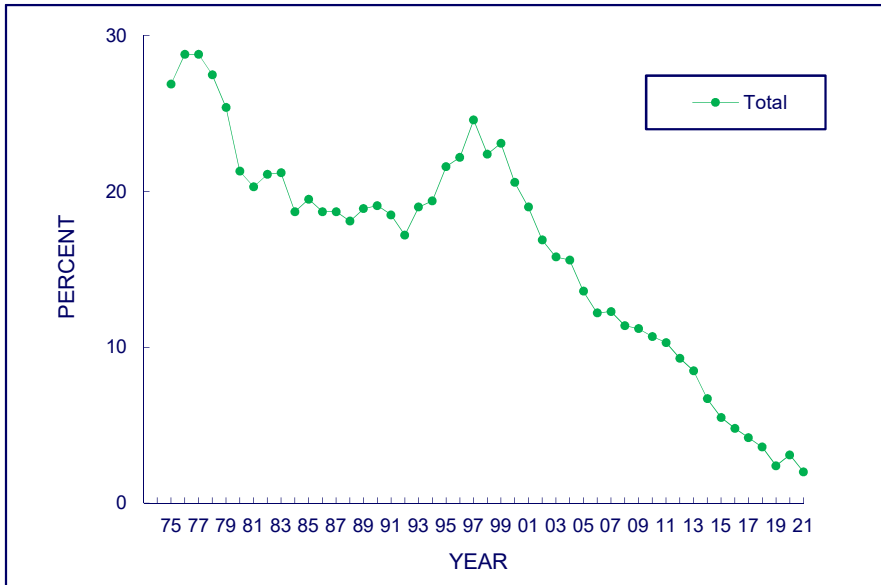
Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for alcohol is defined as use on 20 or more occasions in the last 30 days.

^aIn 1993, a revised set of questions on alcohol use was introduced indicating that a drink meant more than a few sips. From 1993 on, data points are based on the revised question.

^bEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-5c
CIGARETTES
Trends in 30-Day Prevalence of Daily Use in Grade 12
by Total and by Gender ^a

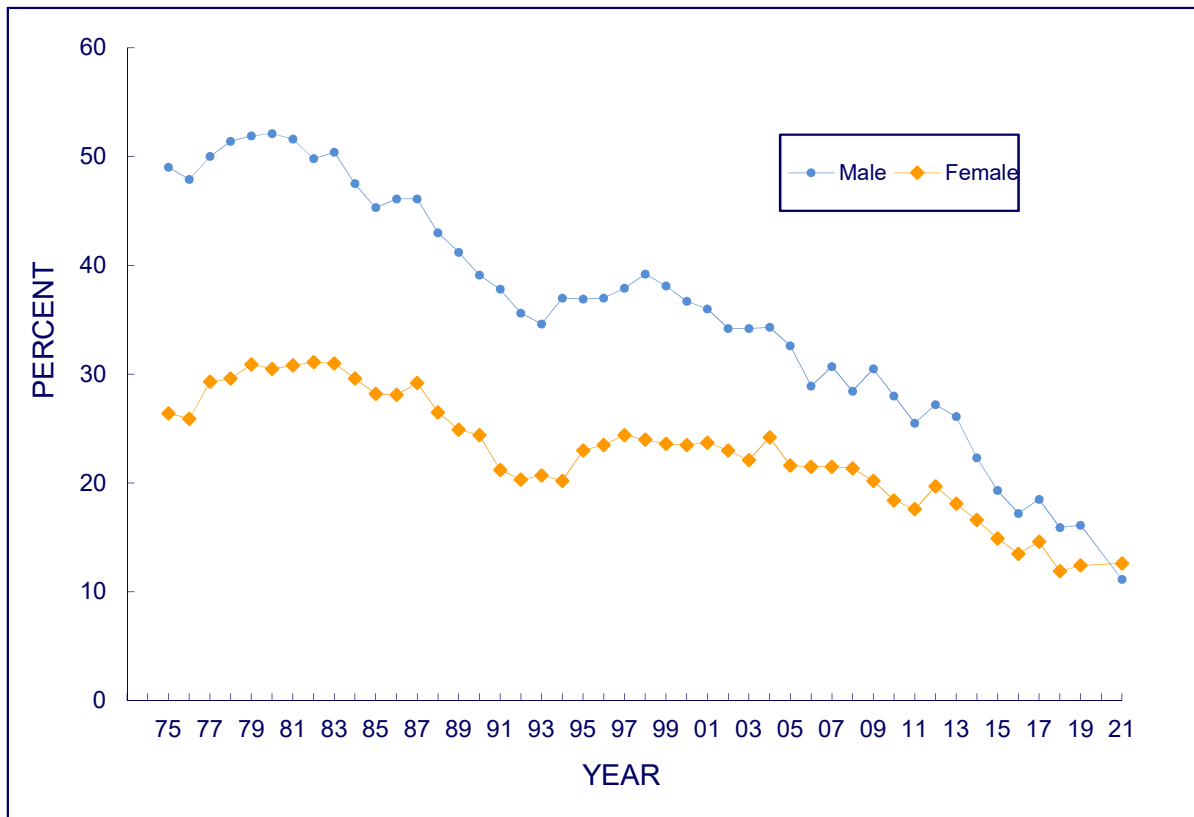


Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for cigarettes is defined as smoking one or more cigarettes per day in the last 30 days.

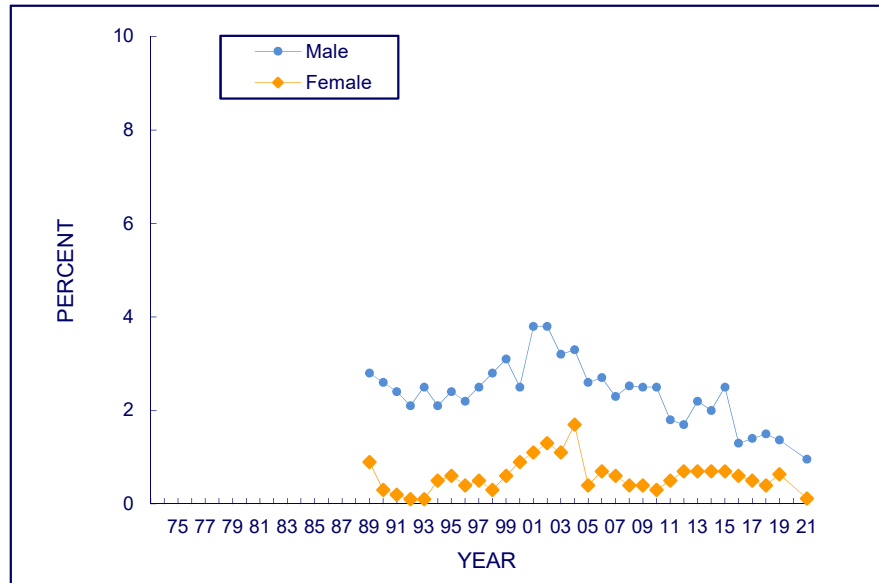
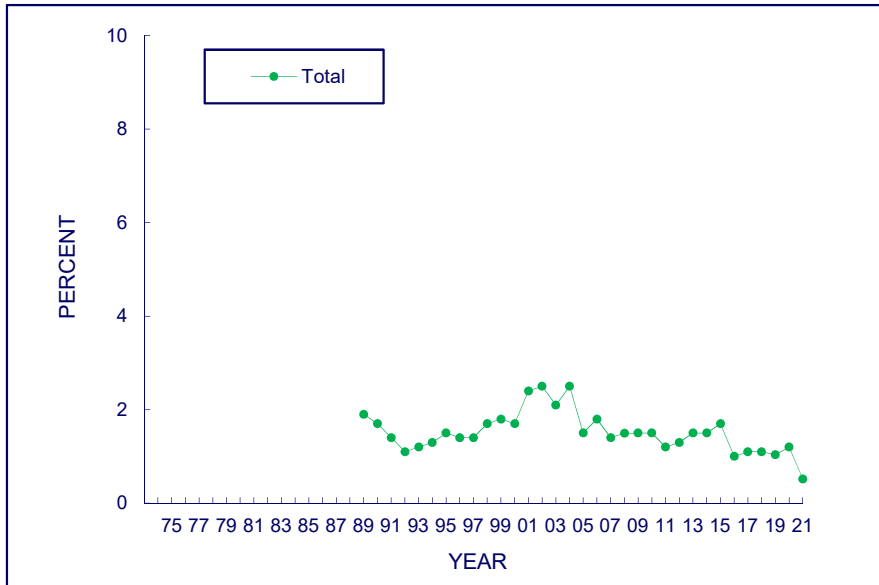
^aEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-6a
ALCOHOL
Trends in 2-Week Prevalence of Heavy Drinking in Grade 12
by Gender ^a



Source. The Monitoring the Future study, the University of Michigan.
^aEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-6b
STERIODS
Trends in Annual Prevalence in Grade 12
by Total and by Gender^a

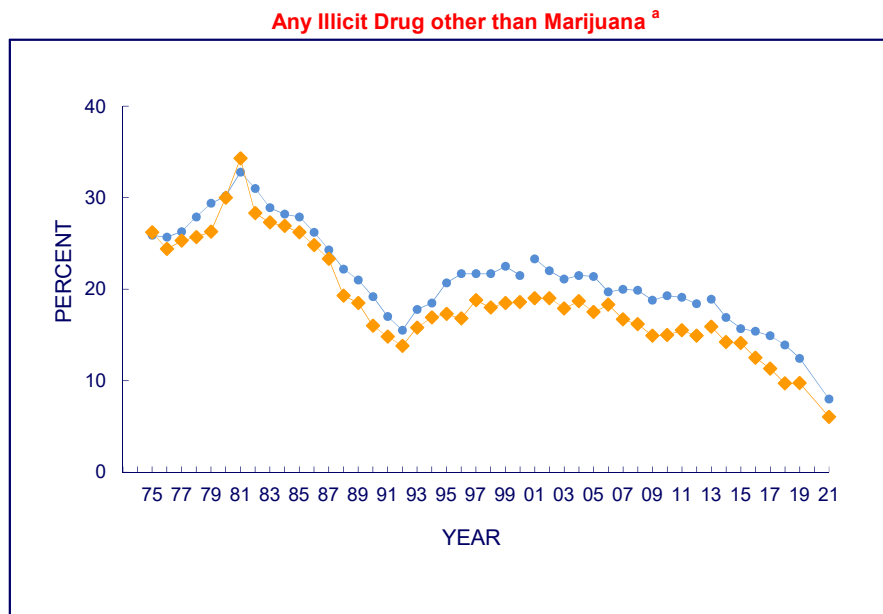
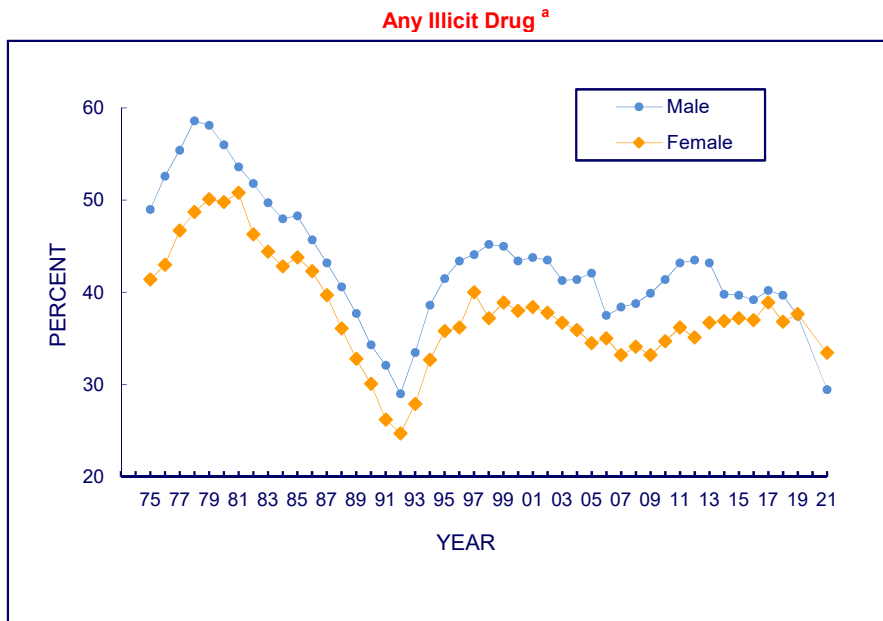


Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for marijuana is defined as use on 20 or more occasions in the last 30 days.

^aEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-7
AN ILLICIT DRUG USE INDEX
Trends in Annual Prevalence in Grade 12
by Gender^b

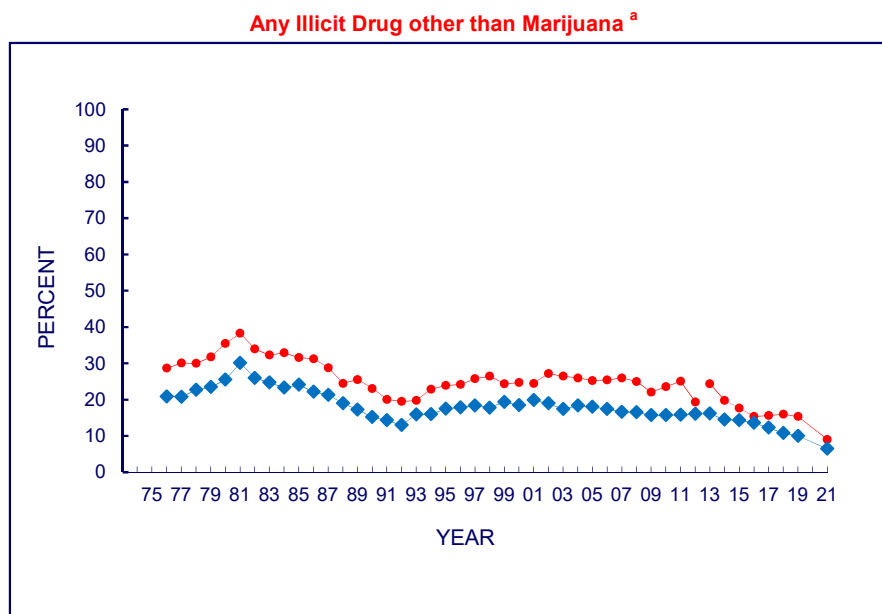
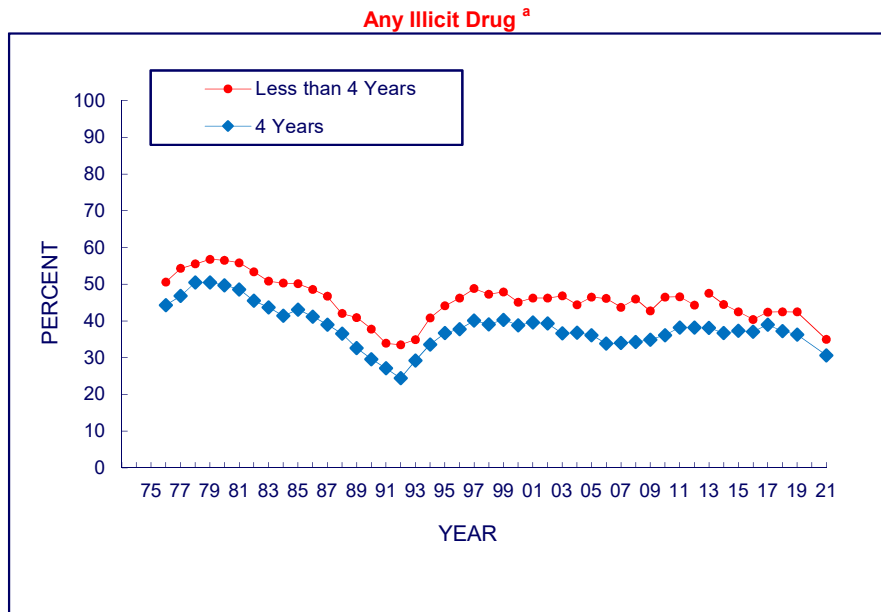


Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. In 2013, revised sets of questions on amphetamine use were introduced. Any illicit drug and any illicit drug other than marijuana are affected by this change.

^bEstimates not presented by gender in 2020 due to insufficient data.

FIGURE 5-8
AN ILLICIT DRUG USE INDEX
Trends in Annual Prevalence in Grade 12
by College Plans ^b



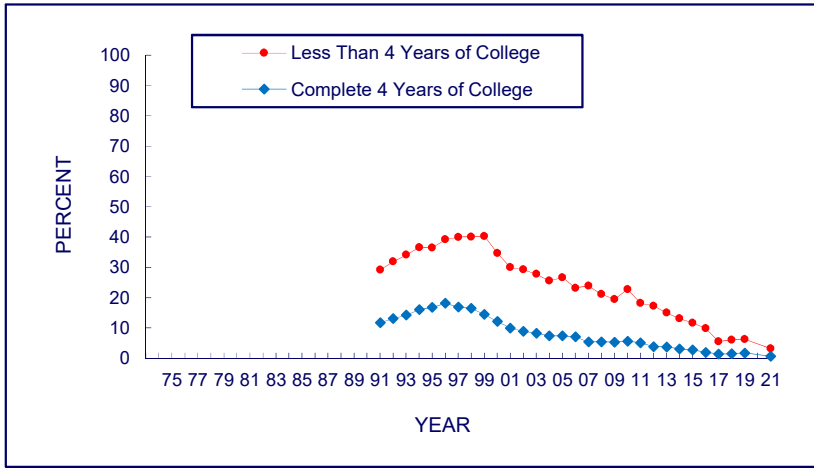
Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. In 2013, revised sets of questions on amphetamine use were introduced. Any illicit drug and any illicit drug other than marijuana are affected by this change.

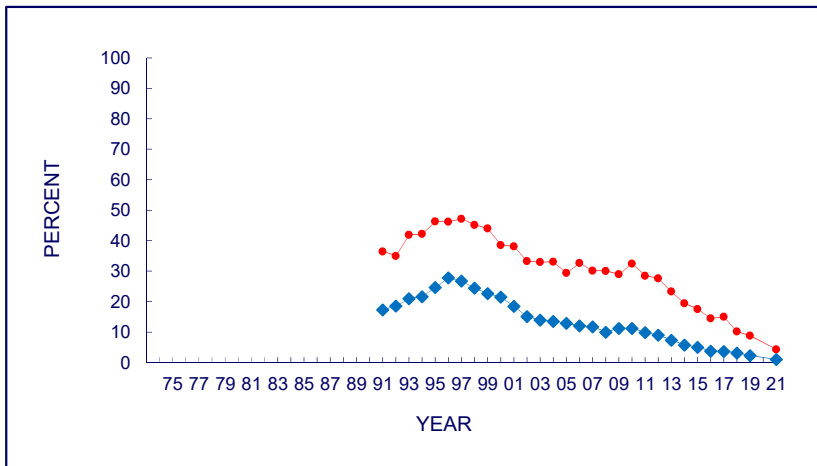
^bEstimates not presented by college plans in 2020 due to insufficient data.

FIGURE 5-9
CIGARETTES
Trends in 30-Day Prevalence in Grades 8, 10, and 12
by College Plans ^a

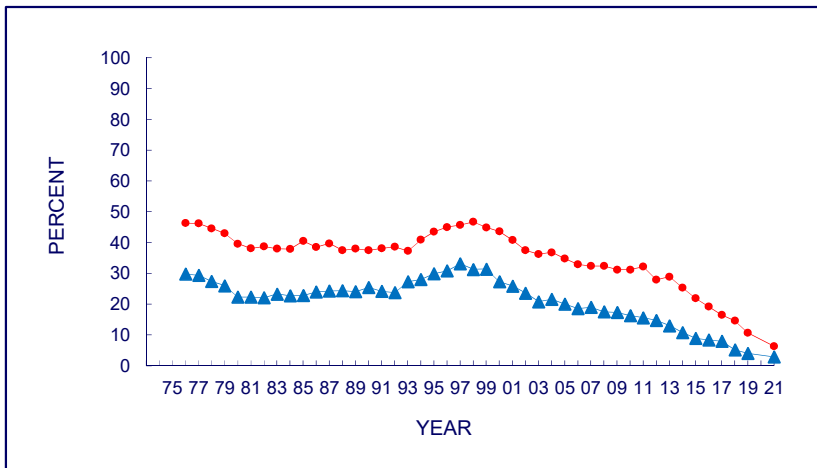
8th Graders



10th Graders

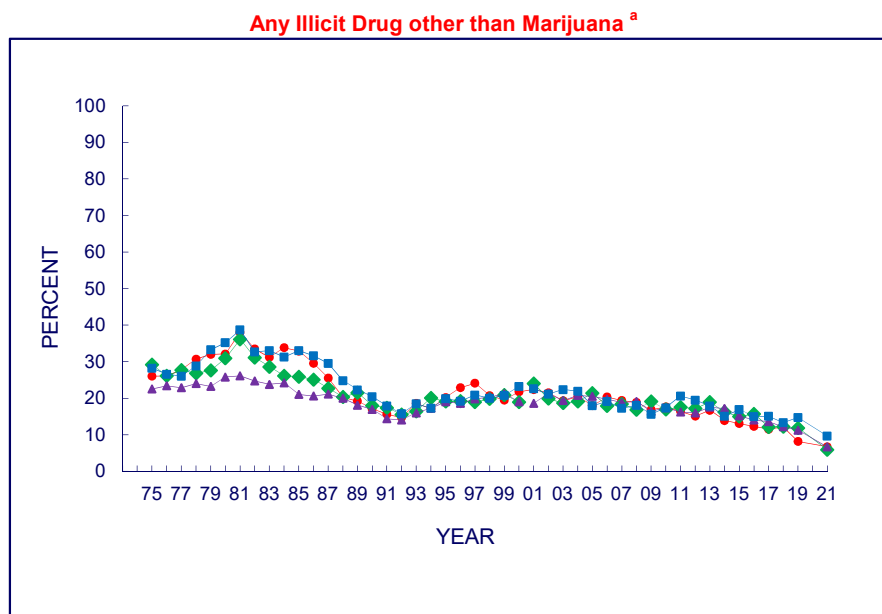
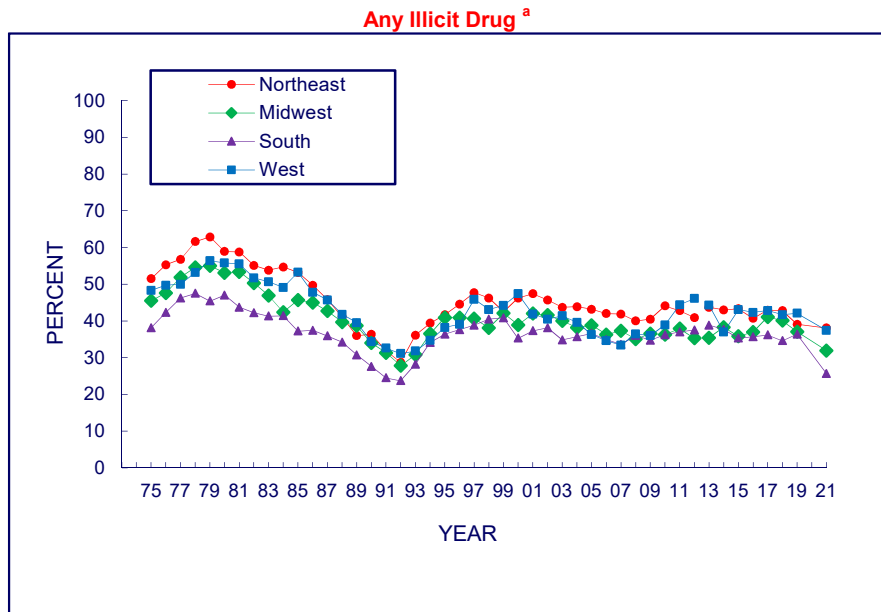


12th Graders



Source. The Monitoring the Future study, the University of Michigan.
^aEstimates not presented by college plans in 2020 due to insufficient data.

FIGURE 5-10a
AN ILLICIT DRUG USE INDEX
Trends in Annual Prevalence in Grade 12
by Region of the Country^b

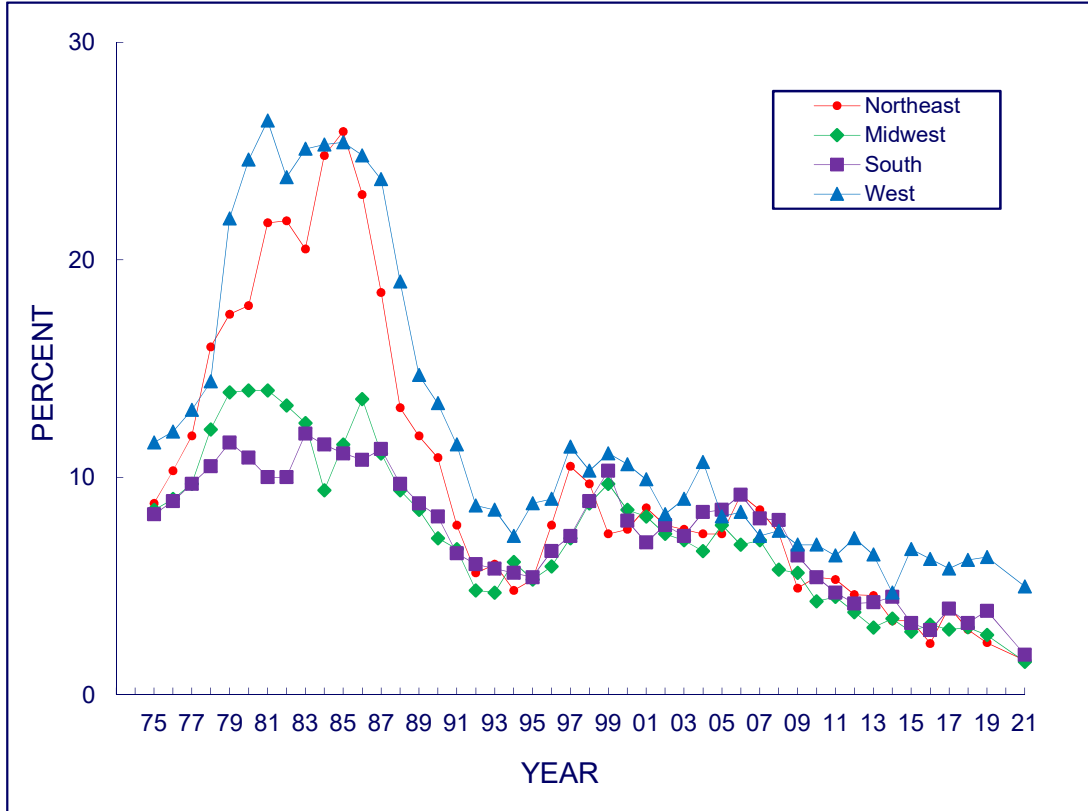


Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. In 2013, revised sets of questions on amphetamine use were introduced. Any illicit drug and any illicit drug other than marijuana are affected by this change.

^bEstimates not presented by geographic region in 2020 due to insufficient data.

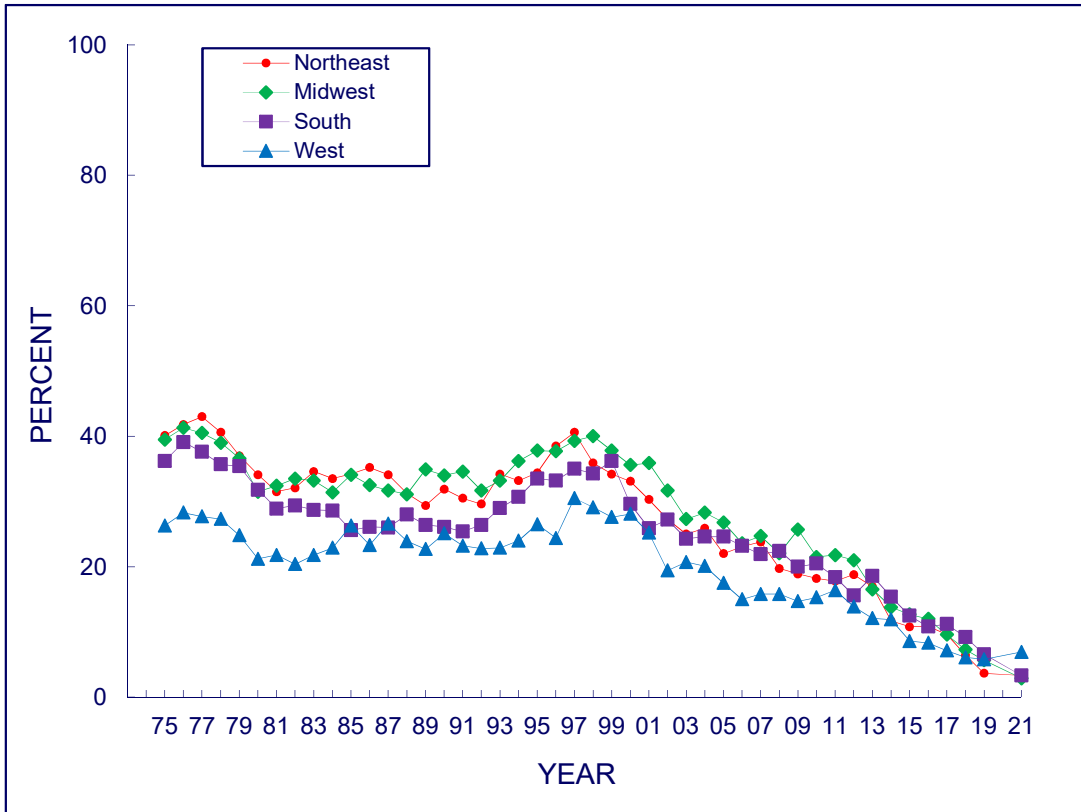
FIGURE 5-10b
COCAINE
Trends in Lifetime Prevalence in Grade 12
by Region of the Country ^a



Source: The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by geographic region in 2020 due to insufficient data.

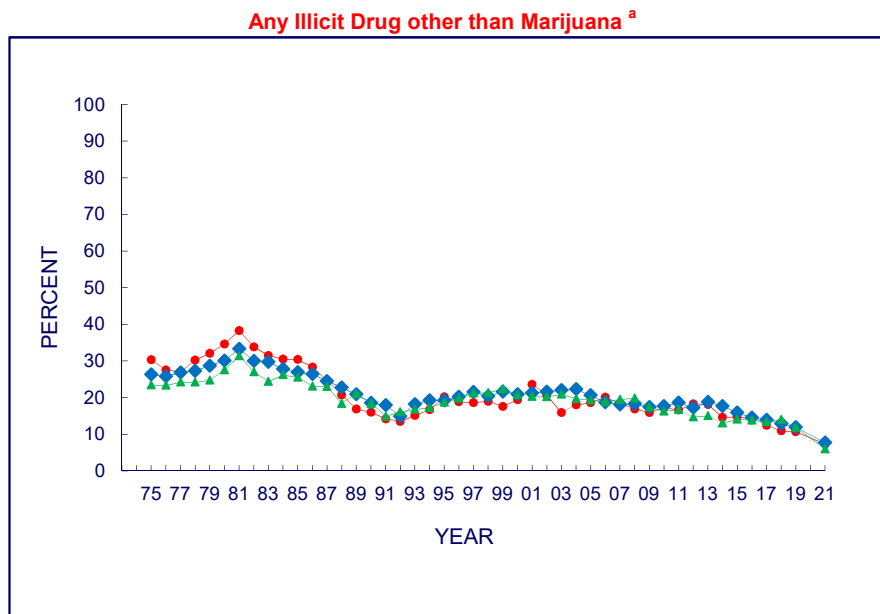
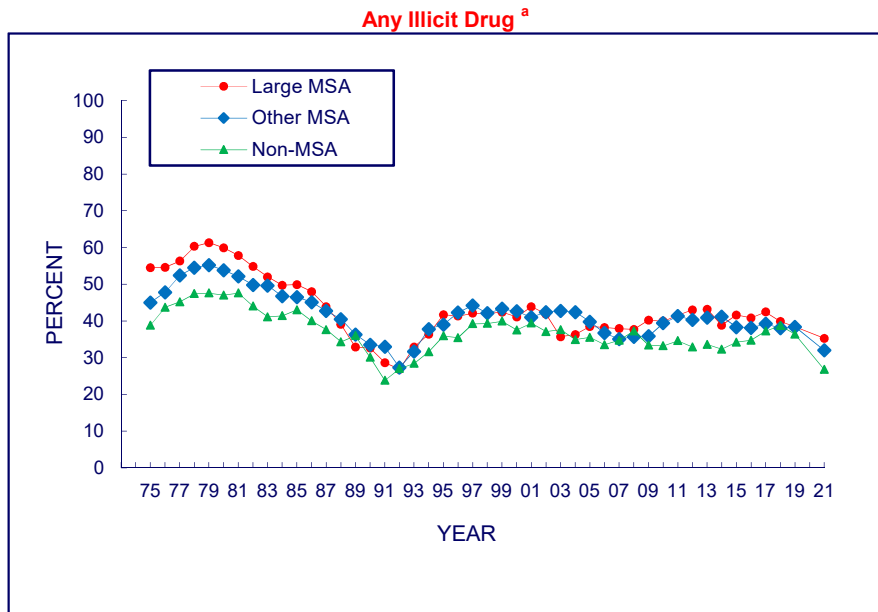
FIGURE 5-10c
CIGARETTES
Trends in 30-Day Prevalence in Grade 12
by Region of the Country ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by geographic region in 2020 due to insufficient data.

FIGURE 5-11a
AN ILLICIT DRUG USE INDEX
Trends in Annual Prevalence in Grade 12
by Population Density ^b

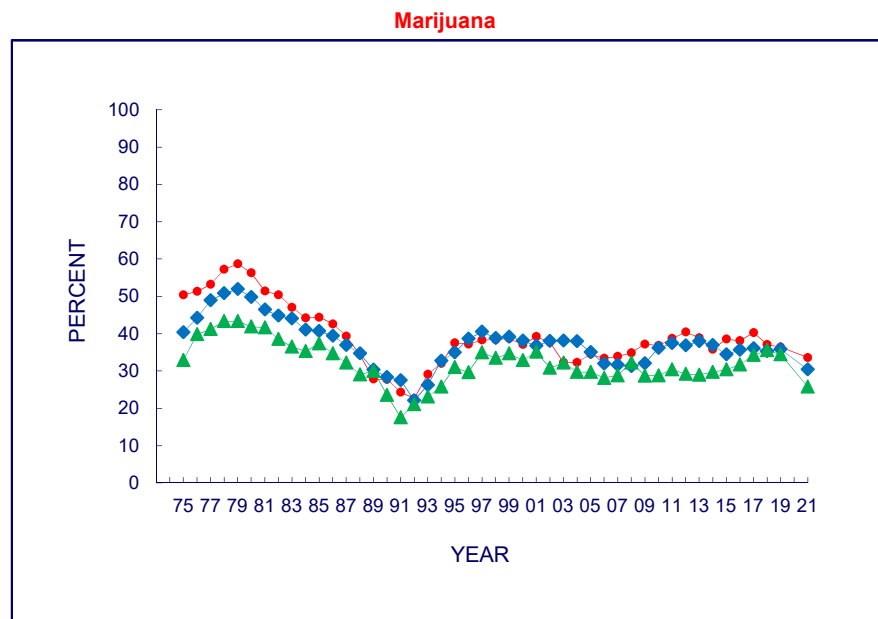
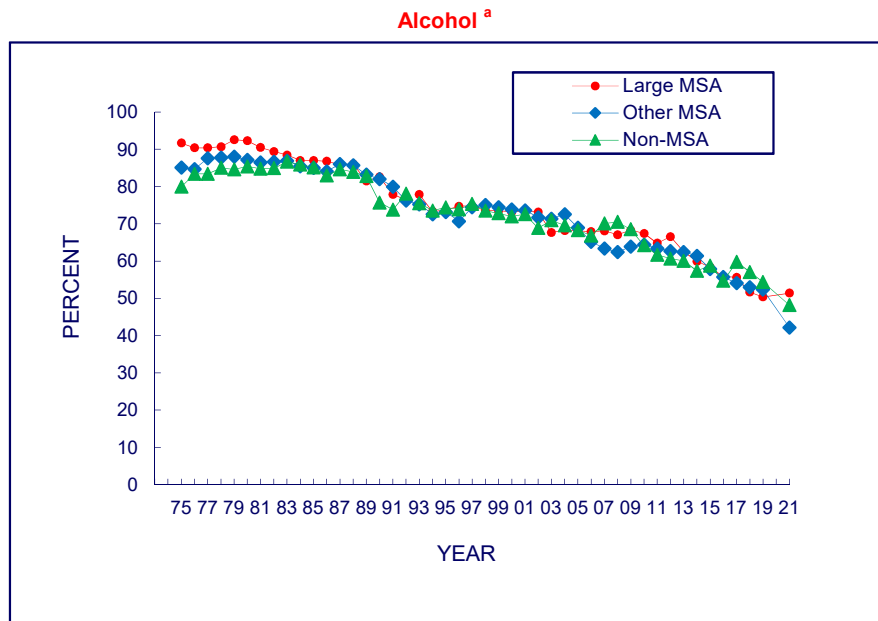


Source. The Monitoring the Future study, the University of Michigan.

^aBeginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. In 2013, revised sets of questions on amphetamine use were introduced. Any illicit drug and any illicit drug other than marijuana are affected by this change.

^bEstimates not presented by population density in 2020 due to insufficient data.

FIGURE 5-11b
ALCOHOL AND MARIJUANA
Trends in Annual Prevalence in Grade 12
by Population Density ^b

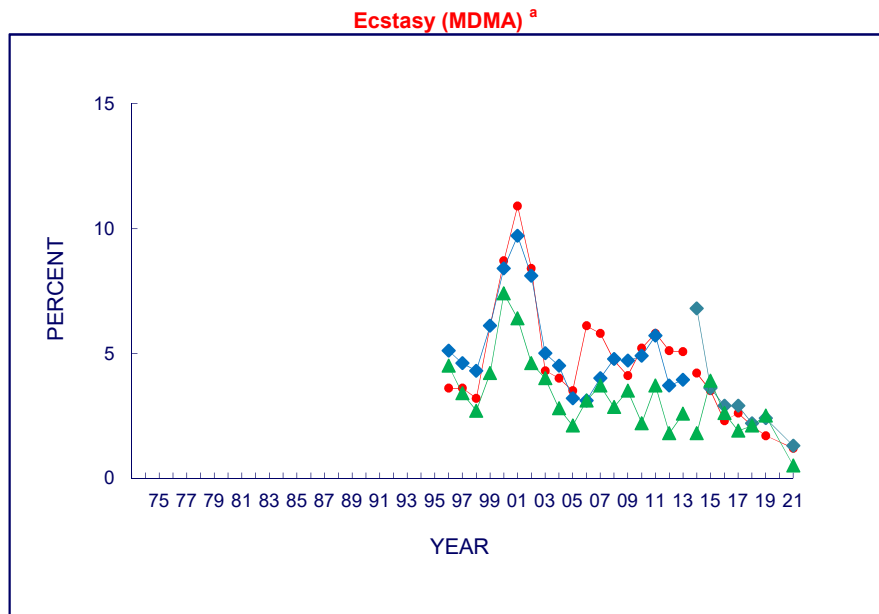
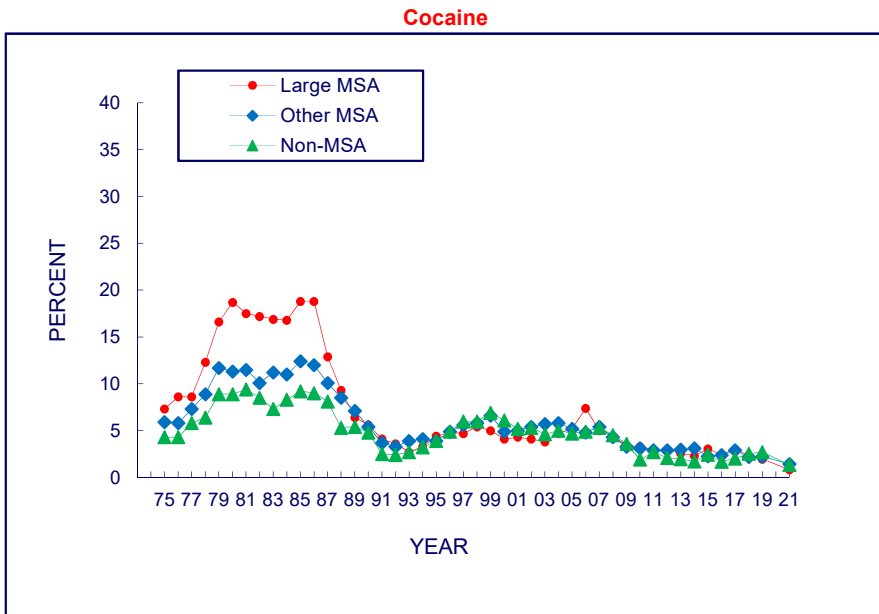


Source. The Monitoring the Future study, the University of Michigan.

^aIn 1993, a revised set of questions on alcohol use was introduced indicating that a drink meant more than a few sips. From 1993 on, data points are based on the revised question.

^bEstimates not presented by population density in 2020 due to insufficient data.

FIGURE 5-11c
COCAINE AND ECSTASY (MDMA)
Trends in Annual Prevalence in Grade 12
by Population Density ^b

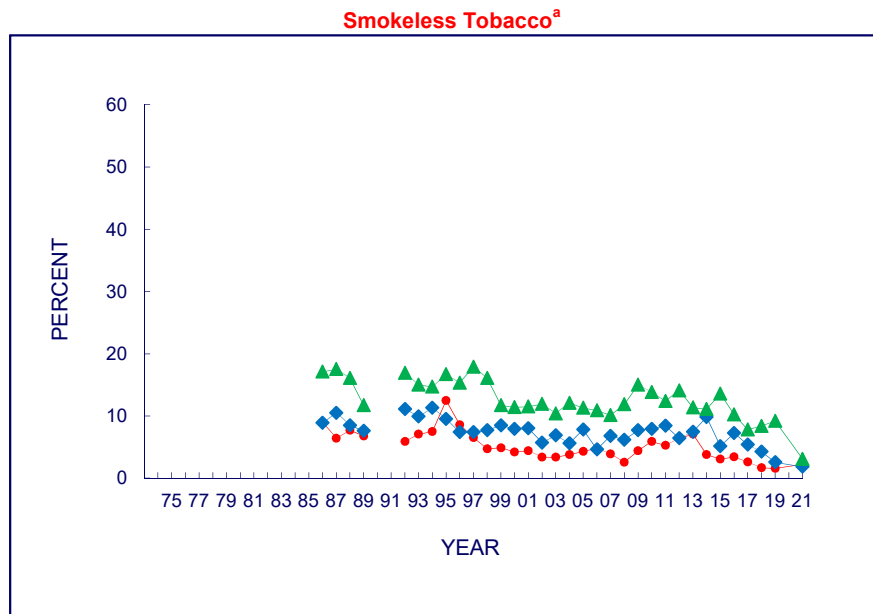
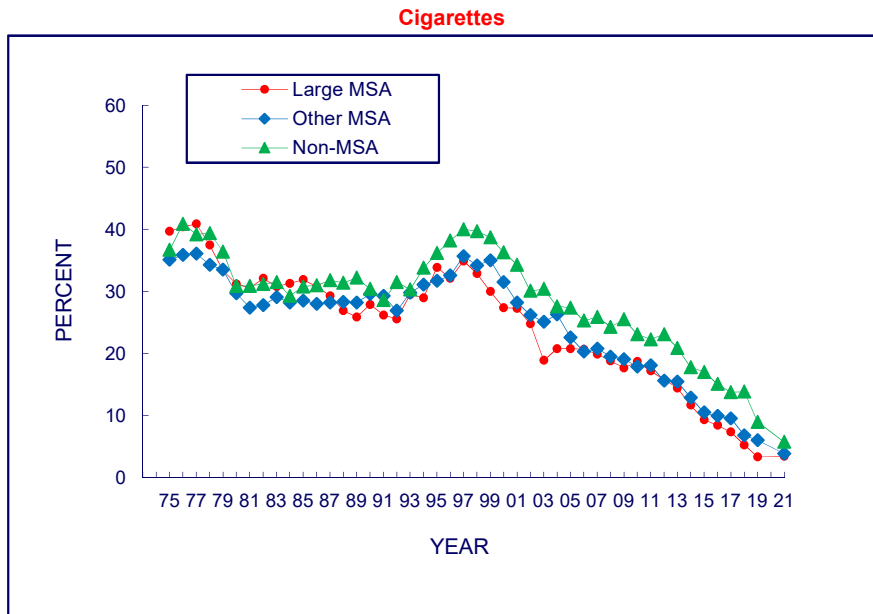


Source. The Monitoring the Future study, the University of Michigan.

^aIn 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

^bEstimates not presented by population density in 2020 due to insufficient data.

FIGURE 5-11d
CIGARETTES AND SMOKELESS TOBACCO
Trends in 30-Day Prevalence in Grade 12
by Population Density^b

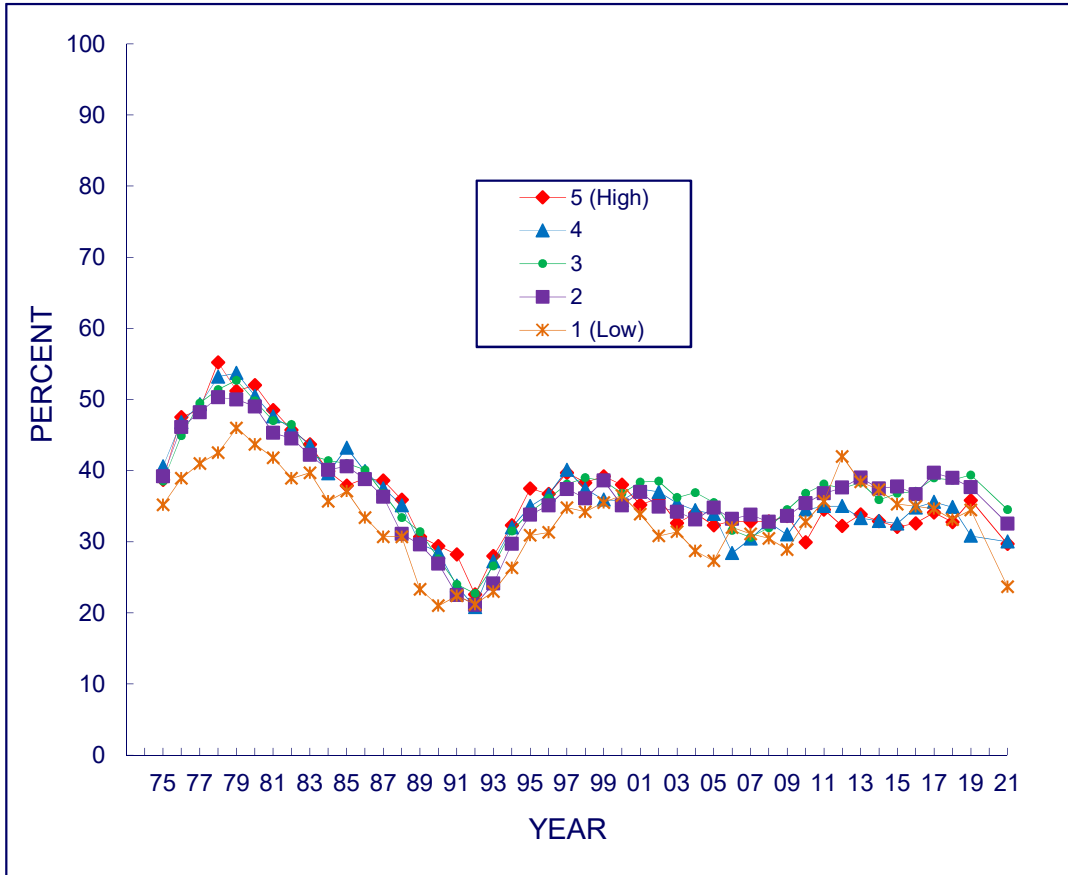


Source. The Monitoring the Future study, the University of Michigan.

^aThe question on smokeless tobacco was not asked in 1990 or 1991.

^bEstimates not presented by population density in 2020 due to insufficient data.

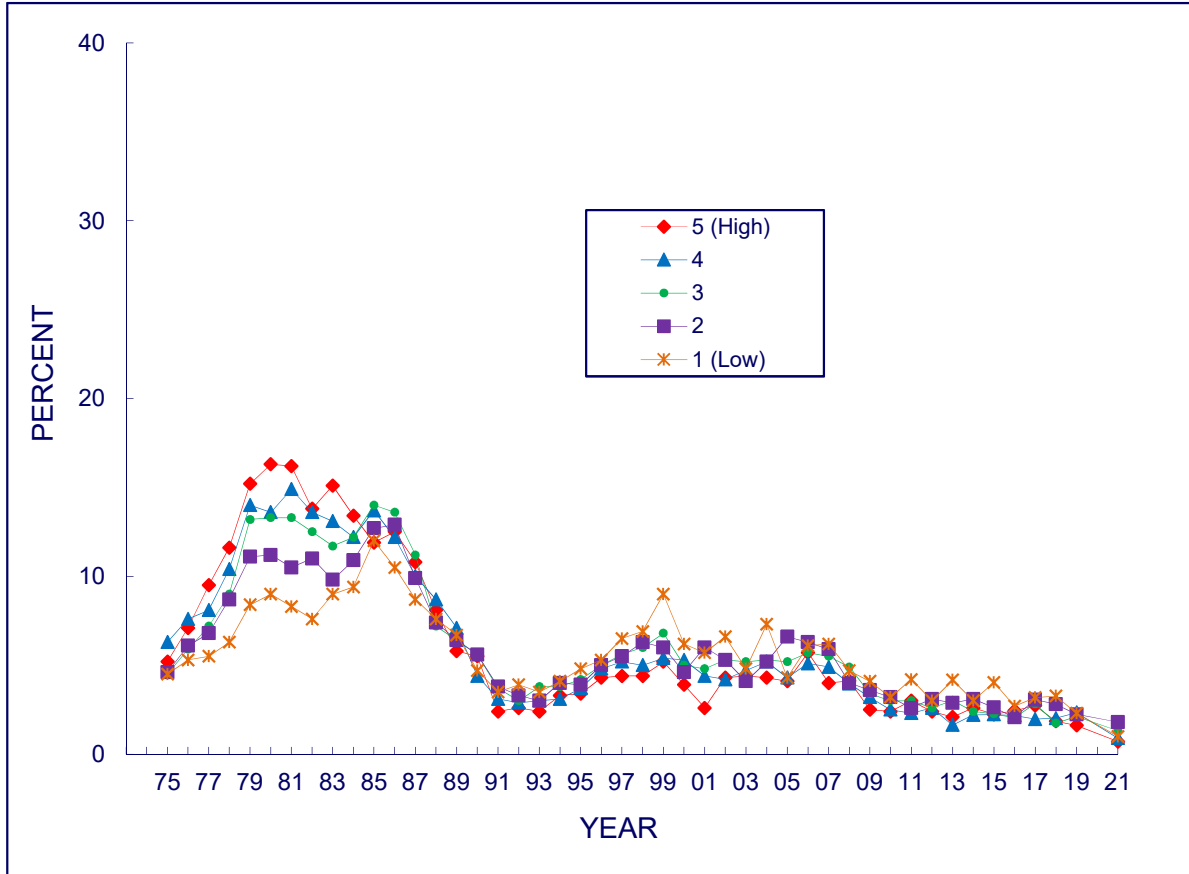
FIGURE 5-12a
MARIJUANA
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by parental education in 2020 due to insufficient data.

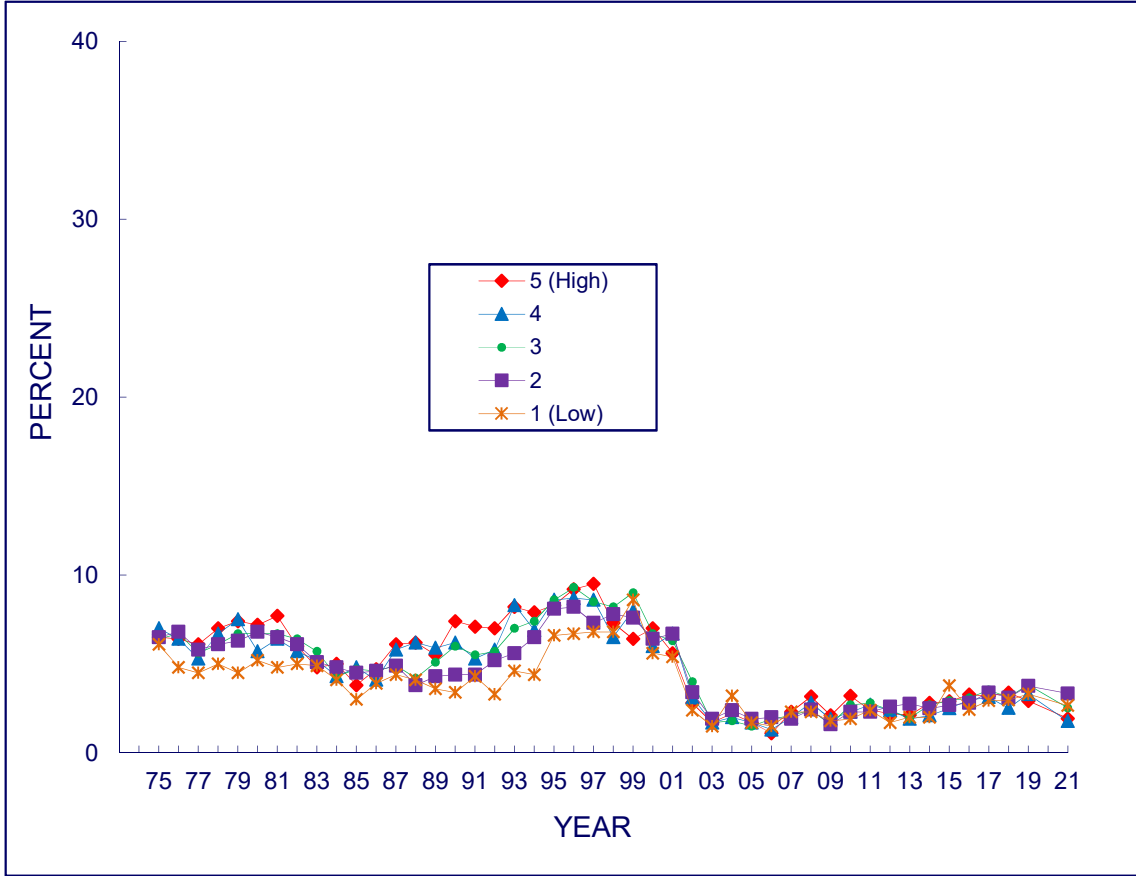
FIGURE 5-12b
COCAINE
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by parental education in 2020 due to insufficient data.

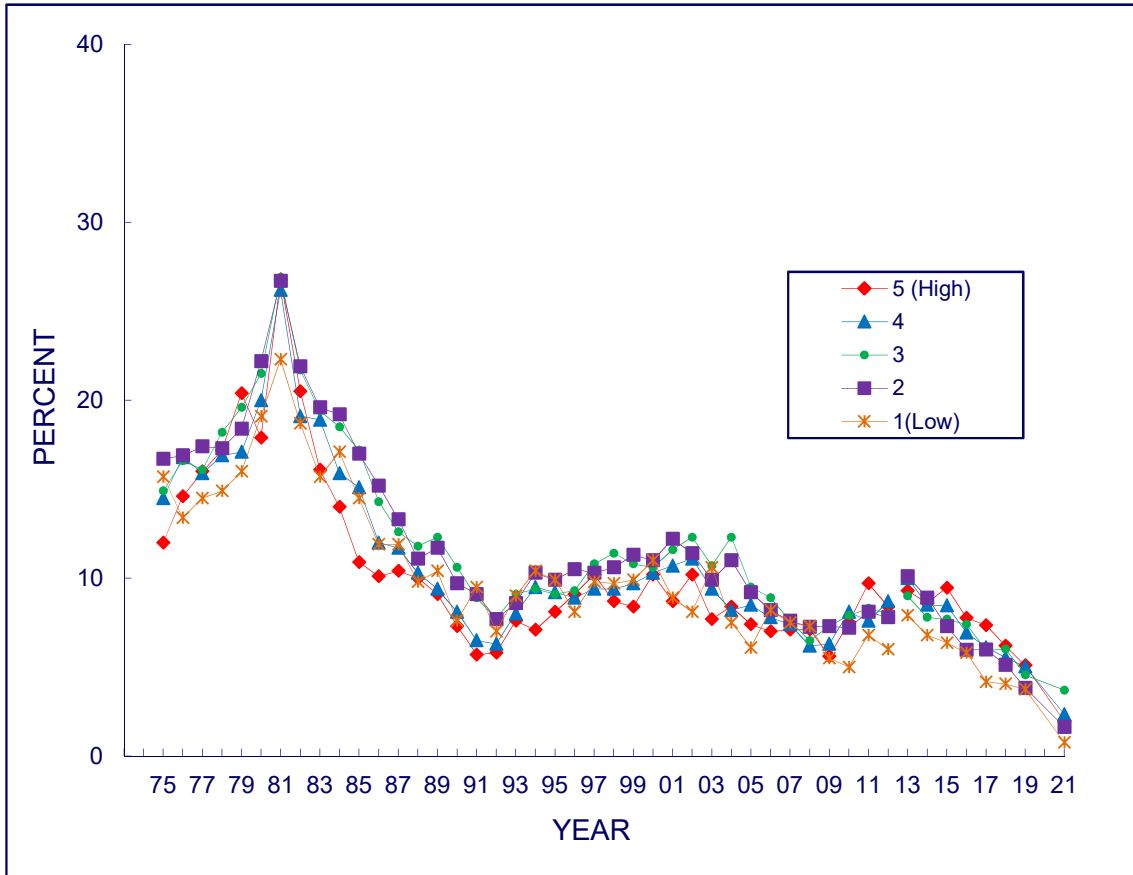
FIGURE 5-12c
LSD
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by parental education in 2020 due to insufficient data.

FIGURE 5-12d
AMPHETAMINES^a
Trends in Annual Prevalence in Grade 12
by Average Education of Parents^b



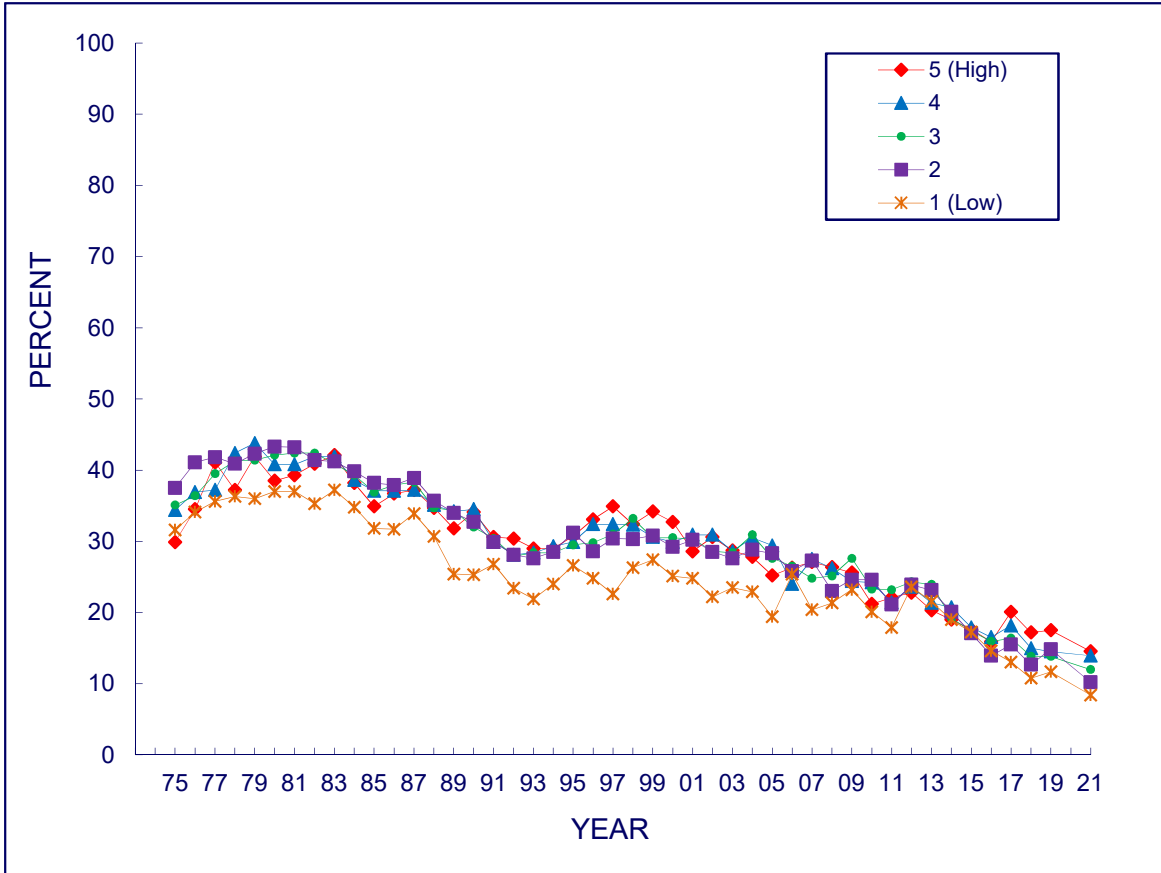
Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.

^aIn 2013, the text was changed on some of the questionnaire forms for all three grades, with the remaining forms changed in 2014. Data presented here include only the changed forms.

^bEstimates not presented by parental education in 2020 due to insufficient data.

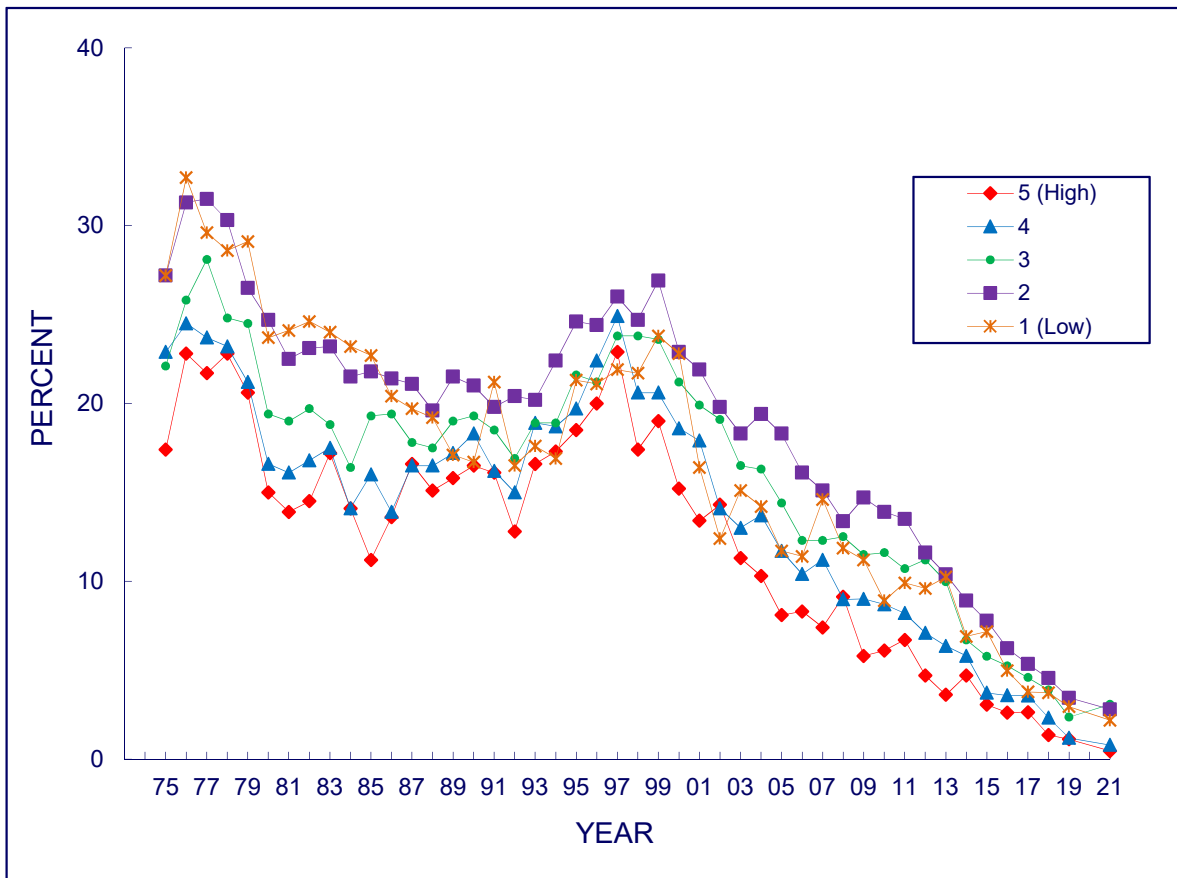
FIGURE 5-12e
ALCOHOL
Trends in 2-Week Prevalence of
5 or More Drinks in a Row in Grade 12
by Average Education of Parents ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by parental education in 2020 due to insufficient data.

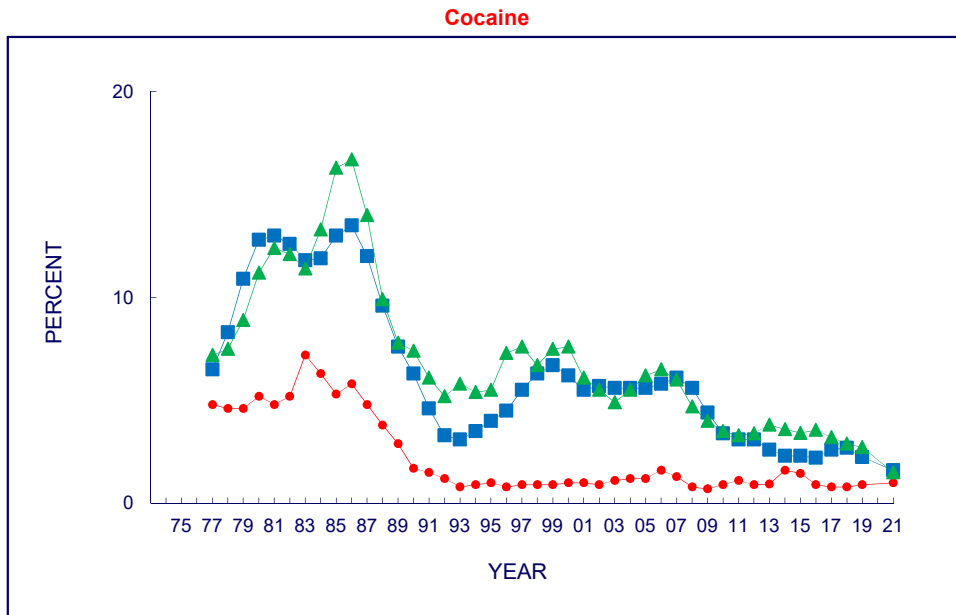
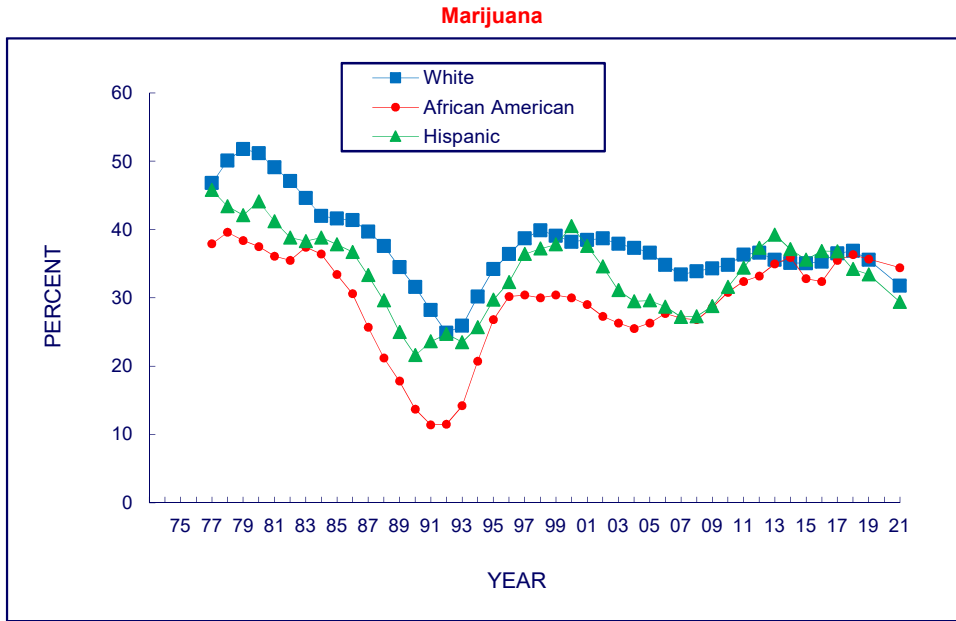
FIGURE 5-12f
CIGARETTES
Trends in Daily Prevalence in Grade 12
by Average Education of Parents ^a



Source. The Monitoring the Future study, the University of Michigan.

^aEstimates not presented by parental education in 2020 due to insufficient data.

FIGURE 5-13a
MARIJUANA AND COCAINE
Trends in Annual Prevalence in Grade 12
by Race/Ethnicity^b
(Two-year moving average^a)



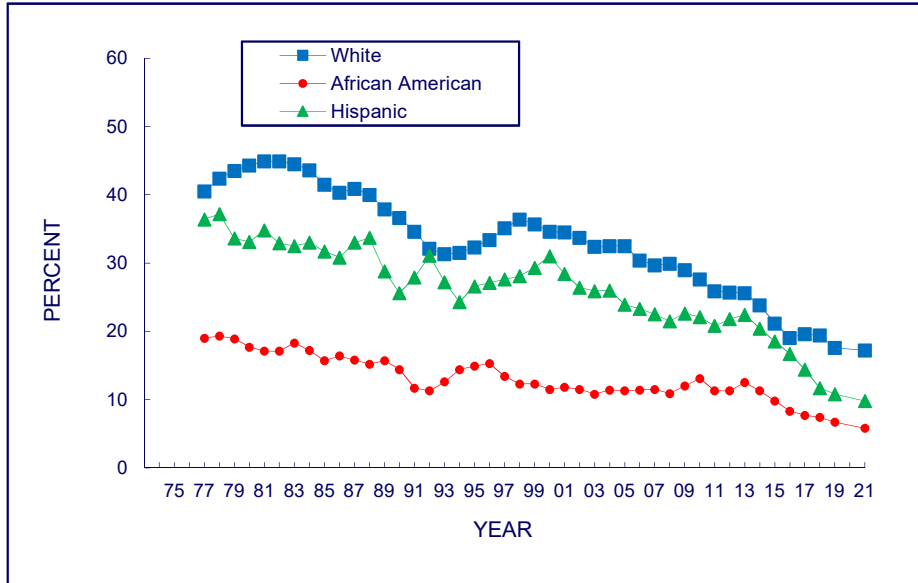
Source. The Monitoring the Future study, the University of Michigan.

^aEach point plotted here is the mean of the specified year and the previous year.

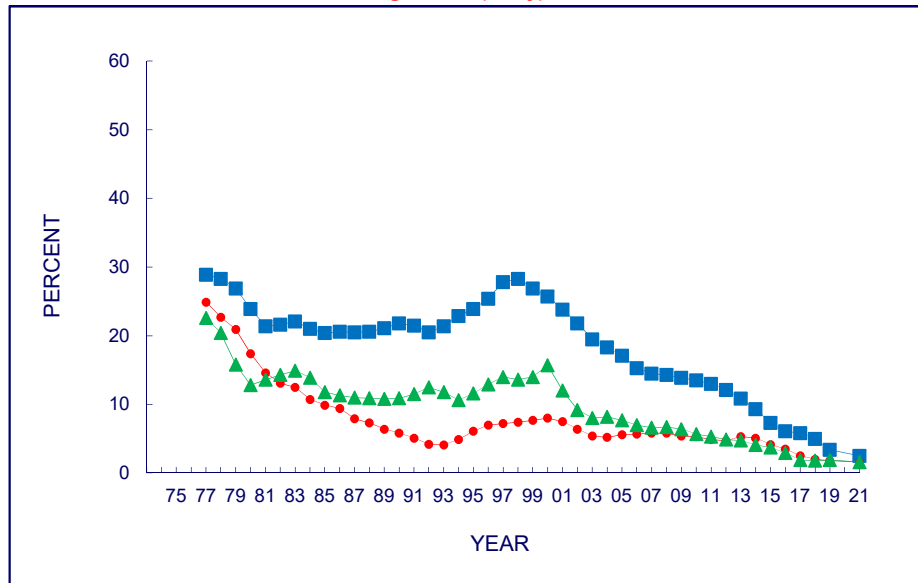
^bEstimates not presented by race/ethnicity in 2020 due to insufficient data.

FIGURE 5-13b
ALCOHOL AND CIGARETTES
Trends in Prevalence in Grade 12
by Race/Ethnicity^b
(Two-year moving average^a)

Five or More Drinks in a Row in Last Two Weeks



Cigarettes (Daily)

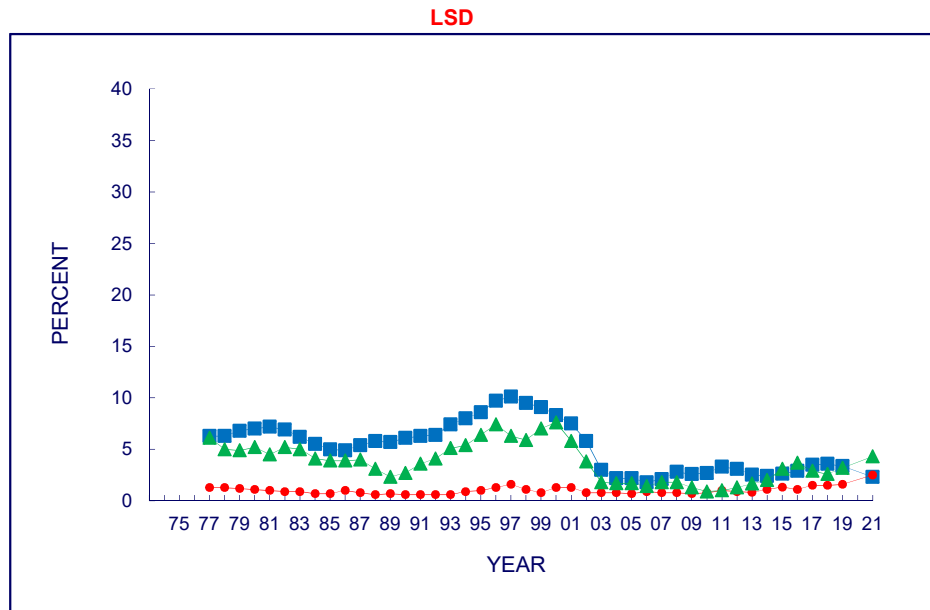
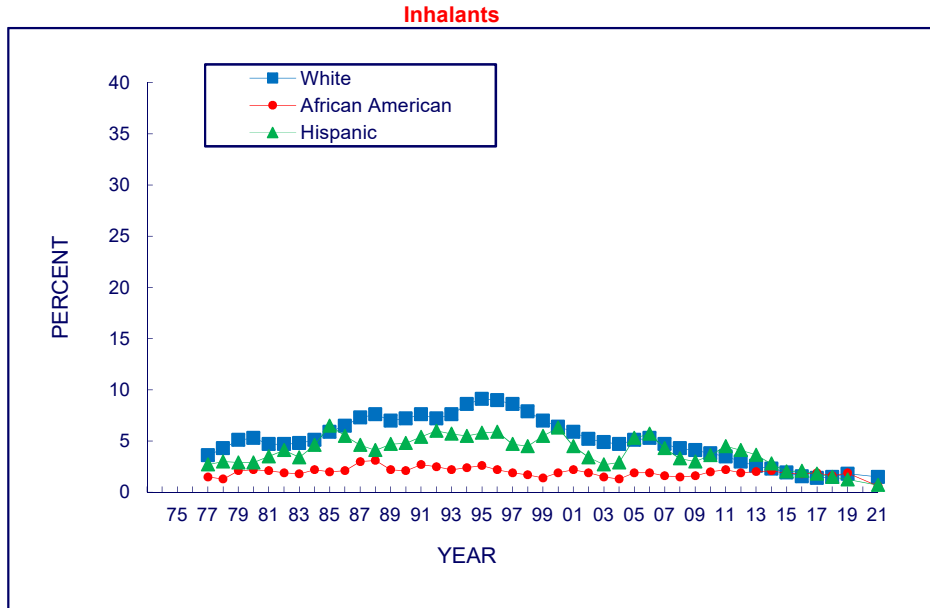


Source. The Monitoring the Future study, the University of Michigan.

^aEach point plotted here is the mean of the specified year and the previous year.

^bEstimates not presented by race/ethnicity in 2020 due to insufficient data.

FIGURE 5-13c
INHALANTS AND LSD
Trends in Annual Prevalence in Grade 12
by Race/Ethnicity^b
(Two-year moving average^a)



Source. The Monitoring the Future study, the University of Michigan.

^aEach point plotted here is the mean of the specified year and the previous year.

^bEstimates not presented by race/ethnicity in 2020 due to insufficient data.

Chapter 6

INITIATION RATES AND TRENDS IN INITIATION RATES

Knowing when young people begin to use various drugs helps us better understand the etiology of substance use and provides a guide to the timing and nature of various interventions, which are likely most effective when administered prior to the grades of peak initiation. We know that grades of peak initiation vary according to drug and tend to progress from drugs perceived as the least risky, deviant, or illegal toward those perceived as more so.

One way to estimate when use of a particular drug is initiated is to ask respondents to self-report when they first used a drug. In the MTF study we ask about initiation in terms of grade levels rather than age, because we believe that adolescents' memories are more likely to be organized in those terms. It also could be argued that social experiences and risk-taking opportunities are organized more by grade than age. Given that each grade level is composed of students who are about the same age, grade can be readily translated into modal ages.

MTF has been collecting grade of initiation data from 12th graders since 1975, and from 8th and 10th graders since 1991. The results reported in this chapter provide a retrospective view of trends in lifetime prevalence of use at earlier grade levels. These retrospective reports provide information on drug use at grade levels not directly surveyed by MTF (i.e., 11th grade, 9th grade, and every grade below 8th). We present a series of tables of reports from 8th, 10th, and 12th graders, with accompanying figures for 8th and 12th graders.

One would not necessarily expect a particular year's 8th, 10th, and 12th graders to give the same retrospective prevalence level for a drug, even for a given grade, because the three groups differ in a number of important ways:

- The 8th and 10th grade samples include eventual school dropouts, whereas 12th grade samples (completing the survey late in the school year) include almost none. The lower grades also have lower absentee rates. For any given year, both of these factors should cause the prevalence-of-use levels derived contemporaneously from a particular class cohort of 8th graders to be higher (for any specified grade level up through 8th grade) than the retrospectively reported prevalence rates derived from that same class cohort of young people who are still in school near the end of 10th or 12th grades.
- Because each class cohort experienced 8th grade in a different year, any broad historical or secular trend in the use of a drug could contribute substantially to differences in respondents' reports of their experiences when they were in 8th grade.
- Because 8th, 10th, and 12th graders are in three different class cohorts, any lasting differences among cohorts could contribute to differences in reported use at any specified grade level.

In addition, two types of method artifacts could also explain observed differences:

- Memory errors for early years are more likely to occur for older respondents (who are, of course, further removed in time from the initiation experience). They may forget that an event ever occurred (although this may be unlikely for use of drugs), or they may not accurately remember *when* an event occurred. For example, events may be remembered as having occurred more recently than they actually did—a kind of forward telescoping of the recalled timing of events.¹
- The definition of the eligible event may change as a respondent gets older. Thus, an older student may be less likely to include an occasion of taking a sip from someone’s beer as an alcohol use event, or an older student may be more likely to appropriately exclude an over the counter stimulant when asked about amphetamine use. While we attempt to ask the questions as clearly as possible, some of these drug definitions are fairly subtle and may be more difficult for younger respondents. Indeed, we have omitted from this report 8th and 10th graders’ data on their use of sedatives (barbiturates) and narcotics other than heroin because we judged them to contain erroneous information.²

INCIDENCE OF USE BY GRADE LEVEL

Tables 6-1 through 6-3 provide retrospective initiation levels for various types of drug use as reported by students surveyed in 8th, 10th, and 12th grades.³ Obviously, the older students have a longer age span over which they can report initiation. Table 6-4 shows the retrospective initiation rates from all three grades separately to allow comparison by grade levels.

The questions from which the data are derived have a common stem: “When (if ever) did you FIRST do each of the following things? Don’t count anything you took because a doctor told you to.” Various drug-using behaviors are asked about, for example, “smoke your first cigarette,” “smoke cigarettes on a daily basis,” “try an alcoholic beverage—more than just a few sips,” etc. The answer alternatives differentiate the grade levels at which first use occurred.

- In general, drug use by the end of 6th grade is very low. For each drug less than 1% of the 2021 respondents from each of the three grades retrospectively reported use of ***hallucinogens, LSD, hallucinogens other than LSD, MDMA (ecstasy, Molly), cocaine in general, crack cocaine, cocaine other than crack, heroin, amphetamines, and tranquilizers***. As reported retrospectively by 12th grade students only, prevalence was also less than 1% by the end of 6th grade for use of ***vaping nicotine, sedatives (barbiturates), smokeless tobacco, and narcotics other than heroin***.

¹ See Bachman, J. G., & O’Malley, P. M. (1981). [When four months equal a year: Inconsistencies in students’ reports of drug use](#). *Public Opinion Quarterly*, 45, 536–548; Jabine, T. B., Straf, M. L., Tanur, J. M., & Tourangeau, R. (Eds.). (1984). *Cognitive aspects of survey methodology: Building a bridge between disciplines*. Washington DC: National Academy Press.

² We have found that young adult follow-up surveys of 12th graders yield higher recanting rates for the psychotherapeutic drugs, in contrast to the illegal drugs. We interpret this discrepancy as reflecting, in part, a better understanding of the distinctions between prescription and nonprescription drugs in young adulthood. See Johnston, L. D., & O’Malley, P. M. (1997). [The recanting of earlier reported drug use by young adults](#). In L. Harrison & A. Hughes (Eds.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (pp. 59–80) (NIDA Research Monograph No. 167). Rockville, MD: National Institute on Drug Abuse.

³ Prevalence levels in Chapter 6 Tables and Figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents. Previous to 2019 the prevalence levels in Chapter 6 Tables and Figures were adjusted to match the estimates in Chapters 4 and 5. In 2019 and later the estimates in Chapter 6 Tables and Figures are not adjusted.

- As reported by respondents from all three grade levels, *alcohol* is the drug most likely to have been initiated by the end of 6th grade (Table 6-4).
- Among 8th grade respondents in 2021, 2.2% said they had tried *marijuana* by the end of 6th grade (Table 6-4). In 2021, older respondents gave somewhat lower retrospective estimates of their marijuana use by end of 6th grade: 2.0% among 10th graders and 1.9% among 12th graders. As noted at the beginning of this chapter, these differences by grade may reflect a number of factors, including higher levels of marijuana use among 8th grade student who will later drop out of high school.
- Patterns of *nicotine vaping* initiation reflect its recent and rapid uptake among adolescents. In 2021 nicotine vaping was one of the most common forms of substance use among adolescents, after rapid acceleration from much lower prevalence levels in 2017. The 12th graders of 2021 were in 6th grade in 2015 when vaping was rare, and accordingly initiation of vaping by 6th grade for this cohort is near zero (0.7%). The 10th graders of 2021 were in 6th grade in 2017 when vaping prevalence started its increase, which is reflected in the 1.9% level of initiation by 6th grade that is much higher than it had been among the 12th graders. The 8th graders of 2021 were in 6th grade in 2019, after vaping had risen rapidly, and initiation by 6th grade was 4.5%, behind only alcohol.

Twelfth grade students in future years will have much higher levels of early initiation of vaping, and consequently a longer history of vaping. As a result, any influence of nicotine vaping on progression to use of other substances, such as regular cigarettes, would be expected to appear stronger in the coming cohorts.

- *Cigarette* smoking tends to be initiated particularly early. Based on data from the 2021 8th graders (Table 6-1), the peak year for initiation of cigarette smoking was in the 7th (1.5%) grade—or modal ages 12 through 13—but a considerable number initiated smoking even earlier. Indeed, in 2021 1.9% of 8th grade respondents reported having had their first cigarette by the end of 5th grade.

Note that in 2021, 8th graders' reports of smoking initiation by the end of 6th grade were higher (31%) than 12th graders' reports of initiation by end of 6th grade (2.1%). Several factors noted earlier in this chapter could contribute to this difference; however, it seems likely that much of the difference occurs because the 8th grade samples include nearly all those who will eventually drop out, a group that has markedly higher levels of cigarette smoking (see Table A-1 in Appendix A).⁴

- *Smokeless tobacco* use also tends to be initiated early, as Tables 6-1 through 6-3 illustrate, with the highest rates of initiation found in grades 7 through 10. Of the 8th grade respondents in 2021, 1.9% reported trying smokeless tobacco by 6th grade, and another 1.9% by 8th grade (for a total of 3.8%). These rates are based on boys and girls combined—initiation rates are substantially higher among boys.

⁴ Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education–drug use connection: How successes and failures in school relate to adolescent smoking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis Group.

- **Inhalant** use tends to occur early, according to responses from 8th graders; inhalants have the third highest initiation by 6th grade after alcohol and nicotine vaping; and, based on the responses from 10th graders, most inhalant initiation appears to have occurred by the end of 9th grade with the highest initiation occurring in 8th and 9th grades.
- **Amphetamine** use by 6th grade was reported by 0.3% of 8th grade students in 2021. We suspect that many youth who report using amphetamines may be using their own ADHD medications, or those of friends or relatives. If it is their own ADHD medication, then the estimate is higher than the true value due to misreporting, because the text specifically asks for use outside of medical supervision. Estimates of use by 6th grade are three times lower among 12th grade respondents; we think this is partly because older adolescents are likely better able to understand that the question refers to nonmedical use and answer the question appropriately.
- **Alcohol** use by the end of 6th grade was reported by 9.0% of 8th grade respondents in 2021, but by only 3.5% of 12th grade respondents (Table 6-4). At least two factors as noted earlier may contribute to this difference. One is that students who eventually drop out are much more likely than average to drink at an early age.⁴ A second one is related to the issue of what is meant by “first use.” The questions for all grades refer specifically to the first use of “an alcoholic beverage—more than just a few sips,” but we believe that the 12th graders are more likely to report only use that is not adult approved and not count having a small amount (more than a few sips) with parents or for religious or celebratory purposes. Note that data from the three groups of respondents tend to converge as we ask about lifetime alcohol use by the time they reach higher grade levels (Table 6-4).

For these reasons, we rely more on 12th grade data to examine changes in initiation of alcohol use across age, and these data suggest that the peak years of alcohol initiation are 7th through 11th grades. The first occasion of *drunkenness* is most likely to occur in grades 9 through 11.

- The *illicit drugs other than marijuana* generally do not reach peak initiation rates until the high school years (grades 9 through 11 for most drugs).

TRENDS IN LIFETIME PREVALENCE AT EARLIER GRADE LEVELS

Using the retrospective data provided by members of each 12th grade class concerning their grade of first use, it is possible to reconstruct lifetime prevalence-of-use trend lines for lower grade levels over many earlier years as the 12th graders passed through those grades prior to their participation in MTF. Obviously, data from school dropouts are not included in these trends. Figures 6-1 through 6-22 present the reconstructed lifetime prevalence curves (reflecting any use in lifetime) for most drugs. Starting with Figure 6-4, retrospective prevalence curves are also presented for 8th graders, who have been included in the annual MTF surveys since 1991. These trends include data from some students who will later drop out of school.

When comparing the retrospective prevalence curves for 12th versus 8th grade respondents, the reader should keep in mind that the trends are often plotted on different scales on the vertical axis to improve the clarity of the 8th grade figures, which have lower prevalence levels.

We have chosen to report initiation rates in terms of trends in lifetime prevalence attained by each class of students as they reach different grade levels. Although average age of initiation is another way to discuss this type of data, we think it could be misleading. For example, the average age of initiation could be lower in more recent classes because fewer students are initiating use at later ages (perhaps due to a recent downward secular trend) rather than because more students are starting at younger ages. Yet many readers may interpret a decline in average age of initiation as reflecting a downward shift in the propensity to use at younger ages, independent of any secular trends, and therein lies the potential confusion.

- Based on retrospective data provided by successive 12th grade classes, Figure 6-1 shows trends at each grade level for lifetime use of *any illicit drug*. Very few 12th graders report initiation of drug use by the end of 6th grade, a finding that persists throughout all forty plus years of the study. These results indicate that the vast majority of initiation begins after elementary school.

Grades 7 through 10 are a key developmental period for the initiation of illicit drug use. More than half of 12th graders who report having ever used an illicit drug had done so while in grades 7 through 10 (see Table 6-3).

- As we discuss in more detail below, the inclusion of marijuana in the composite measure of “any illicit drug use” has a substantial influence on findings for initiation. Marijuana has high initiation levels in middle school. In contrast, first use of illicit drugs other than marijuana typically occurs in high school (Figure 6-2 and later).
- In all years, more than half of 12th graders who reported using *marijuana* had done so by 10th grade. This is visually depicted in Figure 6-4 by trend lines for retrospective accounts of 10th grade use that are higher than half the lifetime prevalence for the cohort when it was in 12th grade (2 to 3 years later).

The historical increases and decreases in 12th grade lifetime prevalence of marijuana use are also present in 8th grade. Parallel trends for 8th and 12th grade are seen in the top panel of Figure 6-4 and are present for the near constant level of lifetime marijuana prevalence since the mid-1990s, the substantial increase during the 1990s relapse, the decline in lifetime prevalence through the 1980s, as well as the increase in the late 1970s. These results indicate that the social influences that lead to changes in adolescent marijuana use extend as far down as 8th grade.

In fact, the historical variation in marijuana observed among 12th grade students is seen as far down as 7th grade, as indicated in the lower panel of Figure 6-4. This panel depicts retrospective reports by 8th graders on their lifetime marijuana use. It shows a marked increase in lifetime marijuana prevalence during the 1990s drug relapse in both 8th grade and 7th grade. While there is a slight increase present in 6th grade, prevalence does not rise much above 5% in this grade in any year. Taken as a whole, these results indicate that the behaviors of middle school students may be particularly sensitive to the changing norms and mores about marijuana use in the general population.

- Variation in lifetime prevalence of *any illicit drug other than marijuana* over the course of the study has been driven primarily by initiation in high school (Figure 6-2), that is, 9th grade and after. The lifetime prevalence level for 8th grade students is relatively flat over the course of the study, with a slight, overall decline in the past decade. In contrast, the trends for high school students show much more variation, especially before the mid-1990s. The biggest cause of increases in these curves from 1978 to 1981 was the rise in reports of *amphetamine* use. As noted earlier, we suspect that at least some of that rise was an artifact of the improper inclusion by some respondents of nonprescription stimulants (“*look-alikes*” and “*sound-alikes*”). The removal of amphetamines from the drug index (Figure 6-3) results in substantially less variation in lifetime prevalence over the course of the study, although most of the variation that is still present continues to occur in the high school years.
- The majority of 12th grade *inhalant* initiation has taken place by 9th grade. This is depicted in Figure 6-6 and Table 6-3 by the finding that lifetime prevalence in 9th grade is half or more of the lifetime prevalence for the same cohort in 12th grade (four years later). As a result, lifetime inhalant trends over time in 12th grade are in large part a reflection of initiation trends that took place by 9th grade. This result is consistent with the finding that inhalants are considered a “kids’ drug” and are the only class of drugs with prevalence of current use that declines markedly with rising grade level (discussed in more detail in Chapters 4 and 5). It is clear from Figure 6-6 that inhalant initiation rates for adolescents have fallen substantially since the late 1990s.

The lower panel of Figure 6-6 presents reports from 8th grade students on their past use of inhalants. It shows that their initiation levels are quite high in 7th grade, again pointing to the importance of the middle school years as a key age of initiation for use of inhalants.

Lifetime prevalence levels as reported by 8th grade students are substantially higher than lifetime prevalence levels in 8th grade as reported by 12th grade students. This is, in part, because the surveys of 8th graders include students who will later drop out of school and, consequently, not be included in 12th grade reports of earlier inhalant use.

- Of 12th grade students who have used *hallucinogens*, about half initiated use by 10th grade. This is depicted in Figure 6-7 with a lifetime prevalence level for students in 10th grade that is about half or more than their lifetime prevalence in 12th grade, two years later. Lifetime prevalence of students when in 6th grade is near zero in all forty plus years of the study and for 9th grade students is typically less than 5%. Throughout the life of the study, a substantial jump in lifetime prevalence occurs when students are in 10th and 11th grade, indicating that these are key years of initiation. Since 2012 hallucinogen initiation (and therefore use) plateaued in all grades. The apparent upturn in the class of 2001 is an artifact of a change in question wording; when the term “shrooms” (a commonly used term for hallucinogenic mushrooms containing psilocybin) was added to the list of examples in the question about use of *hallucinogens other than LSD*, the absolute level of reported hallucinogen use increased somewhat that year, but thereafter the trend lines continued to show declines.

- Lifetime prevalence trends for *hallucinogens other than LSD* (Figure 6-9) have been on a slight upturn in recent years. Increases are apparent first in 9th grade in 2017–2018, and then follow in later years at older grades, suggesting a cohort effect.

Initiation trends for *LSD* (Figure 6-8) show a decrease from 2020 to 2021 in 12th grade that countered a spike in 2020 and returned lifetime prevalence levels to the 2019 level. A similar one-year spike and subsequent decrease is apparent a year earlier in 11th grade and two years earlier in 10th grade, again consistent with a cohort effect. A decrease in lifetime prevalence is also apparent in 8th grade.

- Trends in lifetime prevalence of *cocaine* use at various grade levels, as estimated from the retrospective grade of initiation data, are displayed in Figure 6-10. For the 12th grade classes, about half of cocaine initiation takes place in grades 10 through 12. Fluctuations in the use of this drug have been greatest in the high school grades, with very low lifetime prevalence (below 5%) in grades 6 through 9. Initiation has been decreasing since the mid-2000s, as indicated by a declining lifetime prevalence in all grades. The data reported by our 8th grade respondents (bottom panel of Figure 6-10) show a little more variation in 7th and 8th grade but still show lifetime cocaine prevalence to be below 5% since 1989 for 8th graders.
- Similarly, much of the initiation of *crack cocaine* (Figure 6-11) takes place during the high school years. In 2021 all lifetime prevalence by 12th grade had been initiated in 9th grade or later. In early years of the study most crack use was initiated after 10th grade.
- Little initiation of *heroin, narcotics other than heroin, amphetamines, sedatives (barbiturates), and tranquilizers* has taken place in recent years, as indicated by lifetime prevalence near zero in 2021 in all grades (Figures 6-13 through 6-17). In earlier years when initiation was higher, more than half of lifetime prevalence for each of these drugs had been initiated by 10th grade. This finding is indicated by a lifetime prevalence for 10th grade cohorts that in most years is half or more of what it is for the same cohort when it is in 12th grade (2 years later).
- About half of all 12th graders who have ever used *alcohol* initiated use by 10th grade (Figure 6-18). This is indicated by lifetime prevalence in all years of the study for 10th grade cohorts that are at half or more of the levels when those same cohorts were in 12th grade (two years later). From the early 1970s to mid-1980s, the trends lines were fairly steady in grade 12 and increased modestly in grades 8 through 10. Since the mid-1980s, all grades have shown steady declines. Because the results from the classes since 1993 are based on the revised question about alcohol use—which qualifies the question with the phrase “more than just a few sips”—these data are not strictly comparable to earlier trend data. (A break in the trend lines shows the rather modest decline in the initiation rates that this change produced.) The lower panel of Figure 6-18, based on data from 8th grade respondents, also shows a gradual, steady, and substantial decline in lifetime prevalence of use that has taken place over the life of the study. This decline paused during a levelling that took place from 2016 to 2019 and has since resumed.

- In 1986, we began asking 12th graders about the first time they drank “enough to feel *drunk* or very high” (Figure 6-19). In all years, the trend lines for being drunk show a substantial gap in lifetime prevalence between 8th and 9th grades, as well as between 9th and 11th grades. These gaps reflect substantial increases in the initiation of drinking alcohol to the point of drunkenness between 8th and 10th grades and even into 11th grade. In fact, among 12th grade students who had ever been drunk, about half first became drunk between 8th and 10th grade, as indicated by the distance between the 8th and 10th grades encompassing half or more of the total lifetime prevalence recorded at 12th grade (two to four years later). Since the late 1980s the overall trends in initiation for all grades have been downward, with the exception of a short period in the relapse phase of the drug epidemic in the 1990s when initiation rates rose slightly and then leveled.

Until 2017, responses reported by 8th graders reveal a fairly steady decline for 6th, 7th, and 8th grade in lifetime incidence of drunkenness throughout most of the 1990s and into the 2000s. The proportional declines at these younger ages have been sharp, particularly among 7th and 8th graders. By 2016 or 2017 this trend appeared to have reversed, with a slight upturn in the prevalence of getting drunk that persisted into 2020. In 2021 the long-term decline resumed in all grades.

- Of all substances considered in the survey, *cigarette smoking* has one of the lowest ages of initiation (Figure 6-20). The gaps between the trend lines for lifetime smoking in 6th and 8th grade have been one of the largest for all drugs, indicating substantial initiation at these ages. Although lifetime prevalence of cigarette smoking has declined very substantially over the course of the study, still 5.5% of 8th grade students report having smoked a cigarette in 2021 (Table 6-1). After 8th grade, lifetime prevalence increases by about 2 percentage points at each grade until it reaches a prevalence of 13.6% among 12th grade students in 2021 (Table 6-3).

The important decline in teen smoking initiation that began in the mid-1990s can be seen in the lower panel of Figure 6-20, based on responses from 8th grade students. This figure also shows evidence of a secular trend, in that the sharp decline since 1996 at 8th grade is not much reflected in the retrospective data for earlier grades until the 8th grade class of 2002. After a sharp drop, the rate of decline in smoking initiation by 8th grade decelerated across about five classes until both the 8th and 12th grade classes of 2011 showed a sharper decline, likely due at least in part to an increase in federal tobacco taxes in 2009. After 2015 cigarette use plateaued across all grades, and the long-term decline appears to have resumed in 2021. This lower panel shows that the rate of initiation by 8th grade is largely due to increases prior to 7th grade, particularly between 5th and 7th grades. This suggests that late elementary school and early middle school may be strategic times to focus smoking prevention efforts.

- Figure 6-21 presents the lifetime prevalence of cigarette smoking “on a daily basis,” a measure included since the beginning of MTF in 1975. Substantial historical variation in *daily smoking* is seen starting in 7th grade, but for 6th grade students prevalence has remained fairly consistently low (less than 5%) and steady throughout the study. These results suggest that the historical/social influences that alter the prevalence of lifetime daily

smoking reach down to about 7th grade. For the past decade, historical change has consisted of a decline in all grades. The decline seen in the early 1970s among younger teens—which was subsequently evident at increasingly higher grades indicative of a cohort effect—may well have reflected the effects of the Federal Communications Commission’s “fairness doctrine,” which had the effect of greatly diminishing cigarette advertising on television for some time, followed by the Congressional ban on all cigarette advertising on television and radio starting in January, 1971. The data from 8th graders in the lower panel show that the transition from smoking to daily smoking is particularly great between 6th and 7th grade, which is when many students transition out of elementary school into middle school or junior high school.

- Initiation of *nicotine vaping* by 8th grade was reported by 15.2% of 8th graders in 2021, a rate second only to alcohol (Table 6-1). This high initiation rate is consistent with the large increases in nicotine vaping observed since 2017, and indicates that the reach of these products extends down to middle school students. Among 12th graders only 2.5% reported initiation by 8th grade; these students were in 8th grade in 2017 when vaping was much less common and dramatic increases in prevalence were yet to come.
- Questions about *smokeless tobacco* initiation (Figure 6-22) were first asked of 12th graders in the class of 1986. These prevalence questions were dropped from the 1990 and 1991 surveys of 12th graders, but reinstated in 1992. The 1986–1989 survey questions were located near the end of one questionnaire form; the questions since 1992 have been relocated so they appear early in the form. As a result, estimates based on two versions are not strictly comparable, and it may be misleading, therefore, to connect the two trend lines.

Initiation patterns are similar to those for cigarette smoking (discussed above), with the earliest grades showing both substantial initiation and historical variation in levels of initiation (even in 4th grade), a large jump in lifetime prevalence between 6th and 8th grade during the earlier years of the study, and a substantial decline in initiation in all grades over the course of the study. One important difference between trends in smokeless tobacco and cigarettes is that for all grades the decline in smokeless tobacco paused in the late 2000s. This pause actually turned to a slight upswing beginning in the lower grades around 2005 and continuing through 2010 in 12th grade (again suggesting a cohort effect). Initiation rates have since declined, with the exception of a slight, one-year upsurge present among 9th graders in 2013 that followed the cohort as it aged and has since moved out of the high school years. The introduction of new products and advertising may have played a role in the resurgence in lifetime prevalence seen in the early to mid-2000s.

A substantial decrease in overall initiation rates across all three grades in 2021 more than countered a slight increase that took place in 2020.

DRUGS NO LONGER ANNUALLY TRACKED FOR INITIATION DUE TO LOW LEVELS OF USE

- The study reported the use of *nitrite* inhalants from 1975 until 2009, when prevalence fell to such a low level that questions on nitrites were dropped and replaced with questions on other drugs. For a discussion of nitrite initiation, see the [2014 version](#) of this monograph that reports data through 2013.
- Retrospective questions about grade of first use for *PCP* were added in 1980 and discontinued in 2009 because very low prevalence made it strategic for the survey to ask questions about other drugs. For a discussion of initiation trends for this drug see the [2014 version](#) of this volume that reports data through 2013.
- The study tracked the initiation of *methaqualone* use (brand name Quaalude) from 1975 to 2013, when items were deleted due to low prevalence. A full discussion of initiation trends for this drug is available in the [2014 version](#) of this volume that reports data through 2013.
- The study reported initiation of *steroid* use among 12th grade students from 1989 to 2019, and for 8th and 10th grade students from 1991 to 2015. Due to low prevalence, these questions have been removed to make room for questions on other drugs. For information on steroid use initiation among 12th grade students see the [version](#) of this volume that reports data through 2019 (published in 2020), and for 8th and 10th grade students see the [version](#) that reports data through 2014 (published in 2015).

TABLE 6-1
Incidence of Use of Various Drugs by Grade
for 8th Graders, 2021

(Entries are percentages.)

Grade in which drug was first used:	Marijuana	Inhalants	Hallucinogens	LSD	Hallucinogens other than LSD	Ecstasy (MDMA)	Cocaine	Crack	Cocaine other than Crack	Heroin	Amphetamines	Tranquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) ^a	Smokeless Tobacco	Vaping Nicotine
4th (or below)	0.4	1.7	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.0	3.0	0.4	1.1	0.1	0.7	0.7
5th	0.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.3	0.5	0.8	0.1	0.3	0.9
6th	1.4	0.9	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	3.7	1.1	1.2	0.2	0.9	2.9
7th	2.4	0.9	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.0	0.2	0.2	6.4	2.8	1.5	0.2	1.0	5.6
8th	3.2	0.3	0.5	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.3	0.3	4.2	3.9	0.8	0.2	0.9	5.1
Never used	92.2	95.2	99.0	99.4	99.3	99.4	99.6	99.7	99.7	99.6	99.1	99.3	80.4	91.3	94.5	99.3	96.2	84.8

Source. The Monitoring the Future study, the University of Michigan.

Notes. Questions on marijuana, inhalants, cocaine, crack, cocaine other than crack, alcohol, been drunk, cigarettes, and daily cigarettes included on all surveys. Questions on vaping included in randomly-selected five-sixths of surveys. Questions on hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco included in randomly-selected one-half of surveys. Questions on ecstasy (MDMA) included in randomly-selected one-third of surveys.

Prevalence levels in these tables do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

^aData based on the percentage of regular smokers (ever).

TABLE 6-2
Incidence of Use of Various Drugs by Grade
for 10th Graders, 2021

(Entries are percentages.)

Grade in which drug was first used:	Marijuana	Inhalants	Hallucinogens	LSD	Hallucinogens other than LSD	Ecstasy (MDMA)	Cocaine	Crack	Cocaine other than Crack	Heroin	Amphetamines	Tranquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) ^a	Smokeless Tobacco	Vaping Nicotine
4th (or below)	0.4	1.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	2.2	0.7	0.9	0.1	0.3	0.4
5th	0.3	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1.1	0.2	0.5	0.0	0.2	0.3
6th	1.2	0.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	2.3	0.6	0.9	0.1	0.4	1.2
7th	2.5	0.4	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	3.8	1.5	1.4	0.3	0.7	4.0
8th	4.7	0.6	0.4	0.3	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.3	8.2	3.6	2.0	0.3	1.0	7.2
9th	6.8	0.3	1.0	1.1	0.5	0.4	0.3	0.1	0.3	0.1	0.6	0.4	10.7	8.2	1.8	0.4	1.5	8.8
10th	4.4	0.2	0.8	0.5	0.5	0.2	0.2	0.1	0.2	0.0	0.3	0.2	4.9	4.8	0.8	0.3	0.7	3.5
Never used	79.7	96.4	97.5	98.0	98.4	99.2	99.3	99.7	99.3	99.6	98.7	98.9	66.7	80.5	91.7	98.5	95.2	74.7

Source. The Monitoring the Future study, the University of Michigan.

Notes. Questions on marijuana, inhalants, cocaine, crack, cocaine other than crack, alcohol, been drunk, cigarettes, and daily cigarettes included on all surveys. Questions on vaping included in randomly-selected five-sixths of surveys. Questions on hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco included in randomly-selected one-half of surveys. Questions on ecstasy (MDMA) included in randomly-selected one-third of surveys.

Prevalence levels in these tables do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

^aData based on the percentage of regular smokers (ever).

TABLE 6-3
Incidence of Use of Various Drugs by Grade
for 12th Graders, 2021

(Entries are percentages.)

Grade in which drug was first used:	Any Illicit Drug	Any Illicit Drug other than Marijuana	Marijuana	Marijuana Daily for Month or More	Inhalants	Hallucinogens ^a	LSD	Hallucinogens other than LSD	Ecstasy (MDMA)	Cocaine	Crack	Heroin	Narcotics other than Heroin	Amphetamines ^b	Sedatives (Barbiturates)	Tranquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) ^c	Smokeless Tobacco	Vaping Nicotine
6th (or below)	2.1	0.2	1.9	1.4	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.5	2.1	0.4	0.6	0.7
7th–8th ^d	5.2	1.1	4.7	1.2	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	9.8	4.5	2.2	0.2	0.5	1.8
9th	8.4	1.5	8.1	3.7	0.2	0.9	0.9	1.2	0.2	0.4	0.9	0.1	0.1	0.0	0.2	0.9	10.7	7.1	2.9	0.6	1.4	14.4
10th	8.8	1.6	8.5	2.2	0.0	1.2	0.8	0.7	0.1	0.8	0.0	0.1	0.1	0.1	0.1	0.2	13.0	9.4	2.0	0.2	1.1	9.0
11th	7.9	3.0	6.9	1.2	0.3	1.9	1.3	1.3	1.1	0.3	0.1	0.0	0.2	0.5	0.5	0.4	10.3	8.4	2.5	0.1	1.3	5.4
12th	4.8	1.8	4.5	1.4	0.2	1.2	0.5	1.0	0.0	0.9	0.1	0.0	0.0	0.1	0.1	0.3	7.5	5.5	1.9	0.2	1.1	3.2
Never used	62.7	90.8	65.4	89.1	98.5	94.2	95.9	95.6	98.5	97.6	98.9	99.8	99.4	99.0	98.8	98.0	45.1	64.7	86.4	98.4	94.1	65.5

Source. The Monitoring the Future study, the University of Michigan.

Notes. Questions on marijuana daily for month or more, inhalants, crack, and ecstasy (MDMA) included in randomly-selected one-sixth of surveys. Questions on vaping included in randomly-selected two-thirds of surveys. Questions on any illicit drug, any illicit drug other than marijuana, marijuana, hallucinogens, LSD, hallucinogens other than LSD, cocaine, heroin, narcotics other than heroin, amphetamines, sedatives (barbiturates), tranquilizers, alcohol, been drunk, and smokeless tobacco included in randomly-selected one-third of surveys. Questions on cigarettes and daily cigarettes included in randomly-selected one-half of surveys.

Prevalence levels in these tables do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

^aUnadjusted for known underreporting of certain drugs. See text for details.

^bBased on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

^cData based on the percentage of regular smokers (ever).

^dFor 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about initiation in each grade separately. For consistency, those 12th graders reporting initiation of use in 7th or 8th grade are combined on the chapter 6 tables and figures.

TABLE 6-4
Incidence of Use of Various Drugs: A Comparison of Responses
from 8th, 10th, and 12th Graders, 2021

Grade level of respondents:	Marijuana	Inhalants	Hallucinogens ^a	LSD	Hallucinogens other than LSD	Ecstasy (MDMA)	Cocaine	Crack	Cocaine other than Crack	Heroin	Amphetamines ^b	Tranquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) ^c	Smokeless Tobacco	Vaping Nicotine	
	Percentage who used by end of 6th grade																		
8th	2.2	3.5	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.1	9.0	2.0	3.2	0.3	1.9	4.5	
10th	2.0	2.2	0.2	0.1	0.2	0.0	0.1	0.1	0.0	0.2	0.2	0.2	5.6	1.5	2.2	0.2	0.9	1.9	
12th	1.9	0.3	0.1	0.1	0.0	0.1	0.0	0.0	—	0.0	0.0	0.0	3.5	0.5	2.1	0.4	0.6	0.7	
Percentage who used by end of 8th grade																			
8th	7.8	4.8	1.0	0.6	0.7	0.6	0.4	0.3	0.3	0.4	0.9	0.7	19.6	8.7	5.5	0.7	3.8	15.2	
10th	9.1	3.1	0.8	0.4	0.6	0.2	0.3	0.2	0.2	0.3	0.4	0.5	17.7	6.6	5.6	0.8	2.6	13.0	
12th	6.6	0.8	0.6	0.6	0.1	0.1	0.0	0.0	—	0.0	0.3	0.2	13.4	5.0	4.3	0.6	1.1	2.5	
Percentage who used by end of 10th grade																			
10th	20.3	3.6	2.5	2.0	1.6	0.9	0.7	0.3	0.7	0.4	1.3	1.1	33.3	19.5	8.3	1.5	4.8	25.3	
12th	23.2	1.0	2.7	2.3	2.0	0.4	1.2	0.9	—	0.2	0.4	1.3	37.1	21.4	9.3	1.4	3.6	25.9	

Source. The Monitoring the Future study, the University of Michigan.

Notes. For 8th and 10th graders only: Questions on marijuana, inhalants, cocaine, crack, cocaine other than crack, alcohol, been drunk, cigarettes, and daily cigarettes included on all surveys. Questions on vaping included in randomly-selected five-sixths of surveys. Questions on hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco included in randomly-selected one-half of surveys. Questions on ecstasy (MDMA) included in randomly-selected one-third of surveys.

For 12th graders only: Questions on marijuana daily for month or more, inhalants, crack, and ecstasy (MDMA) included in randomly-selected one-sixth of surveys. Questions on vaping included in randomly-selected two-thirds of surveys. Questions on any illicit drug, any illicit drug other than marijuana, marijuana, hallucinogens, LSD, hallucinogens other than LSD, cocaine, heroin, narcotics other than heroin, amphetamines, sedatives (barbiturates), tranquilizers, alcohol, been drunk, and smokeless tobacco included in randomly-selected one-third of surveys. Questions on cigarettes and daily cigarettes included in randomly-selected one-half of surveys.

Prevalence levels in these tables do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

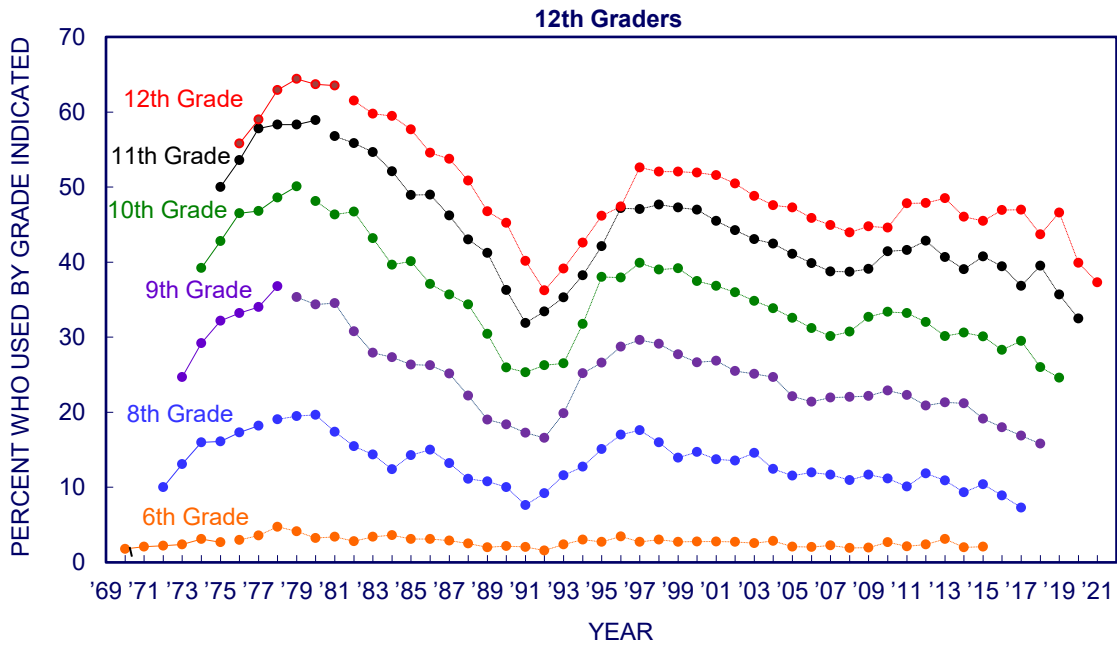
§ Insufficient data for 2020 estimate.

^aUnadjusted for underreporting of certain drugs. See text for details.

^bBased on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

^cData based on the percentage of regular smokers (ever).

FIGURE 6-1
Any Illicit Drug
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th Graders



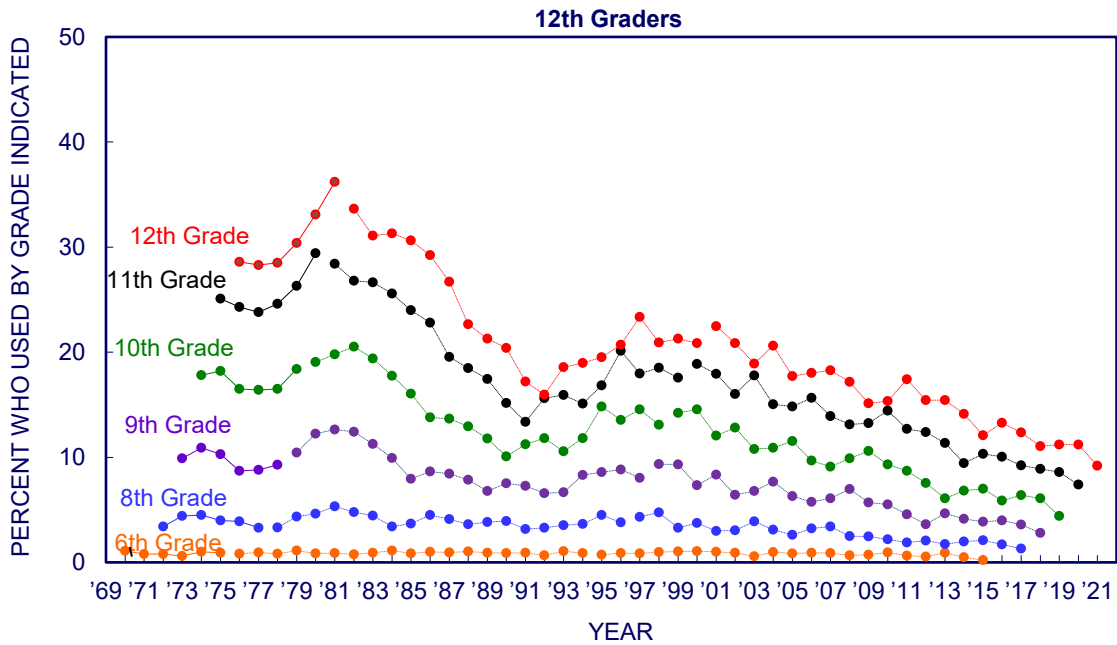
Source. The Monitoring the Future study, the University of Michigan.

Notes. The dashed lines connect percentages that result if nonprescription stimulants are excluded.

Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-2
Any Illicit Drug other than Marijuana
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

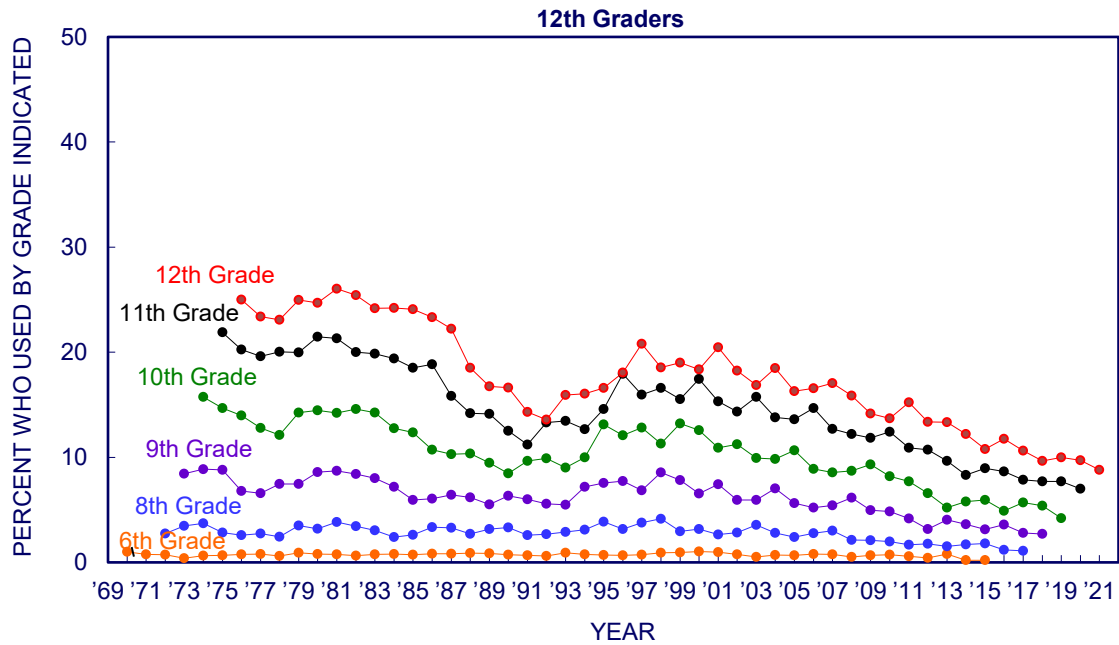
Notes. The dashed lines connect percentages that result if nonprescription stimulants are excluded.

Beginning in 2001, revised sets of questions on other hallucinogens use were introduced. Data for any illicit drug other than marijuana are affected by these changes.

Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-3
Any Illicit Drug other than Marijuana or Amphetamines
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

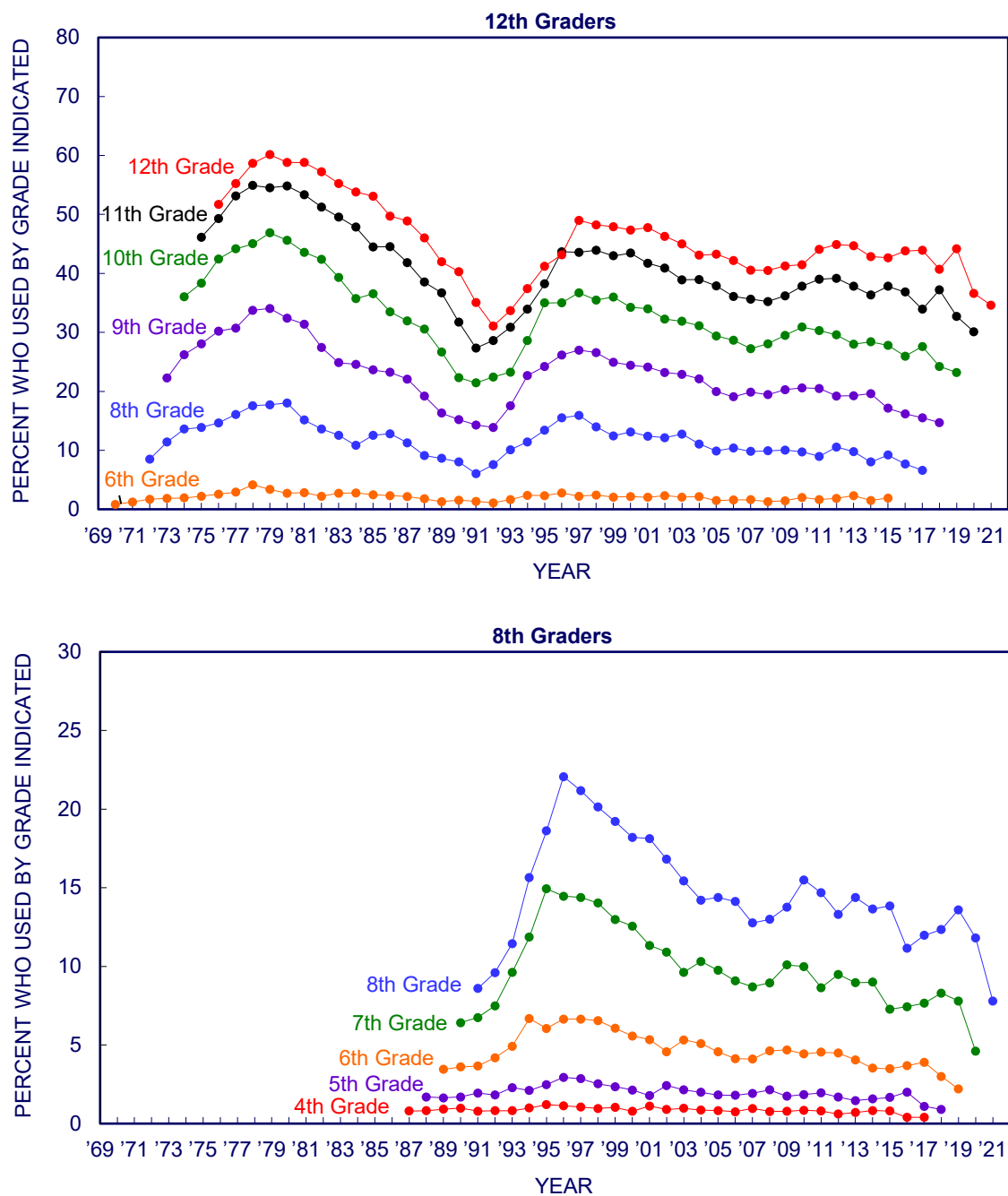
Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-4

Marijuana

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

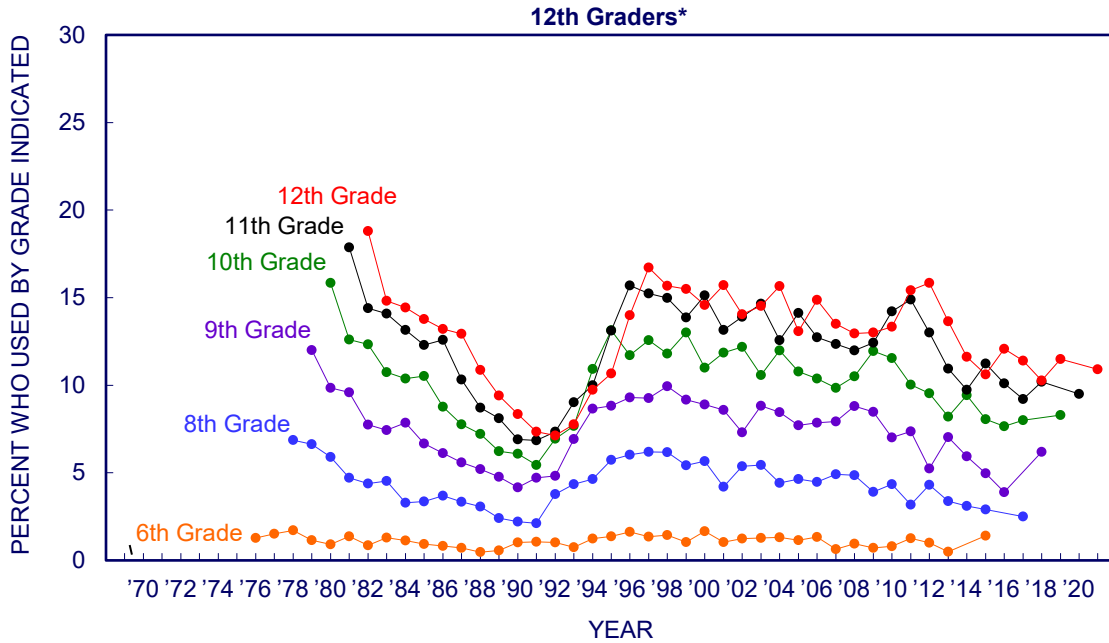


Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-5
Daily Marijuana Use for a Month or More
Trends in Lifetime Prevalence for Earlier Grade Levels
based on Retrospective Reports from 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

Notes. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*These estimates not presented in 2020 due to insufficient data.

FIGURE 6-6

Inhalants

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

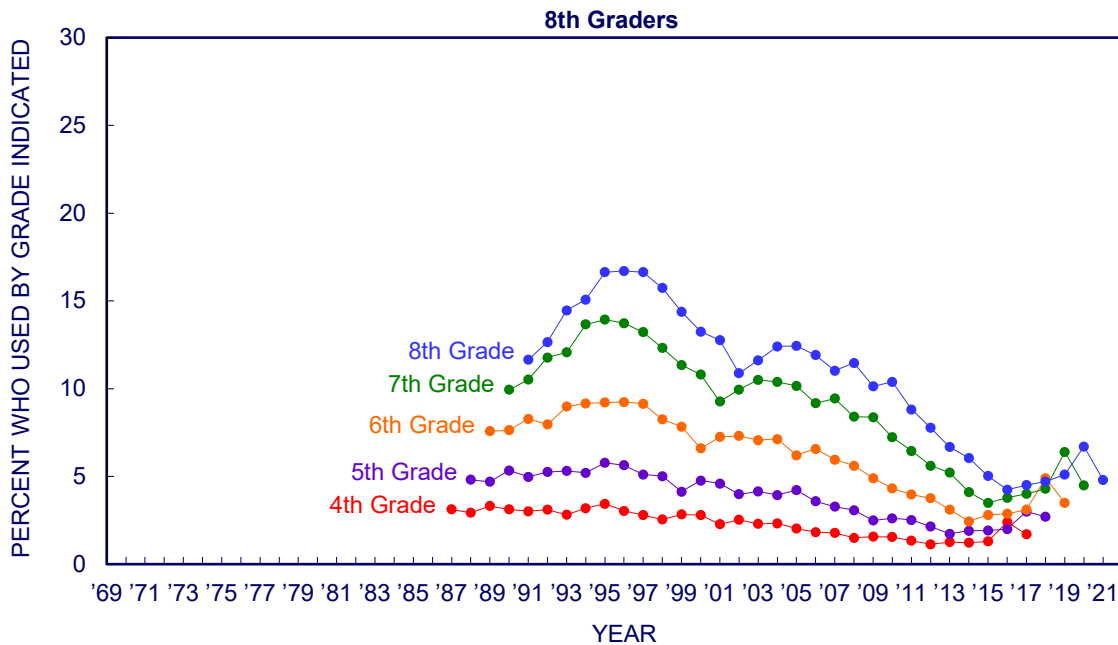
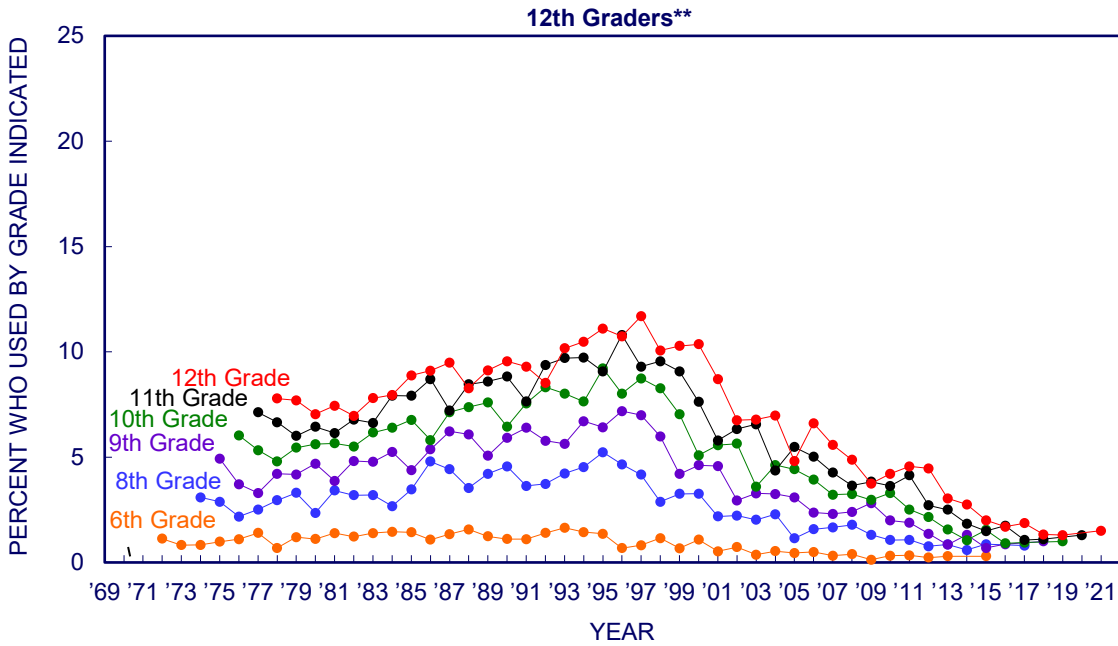


FIGURE 6-6 (cont.)

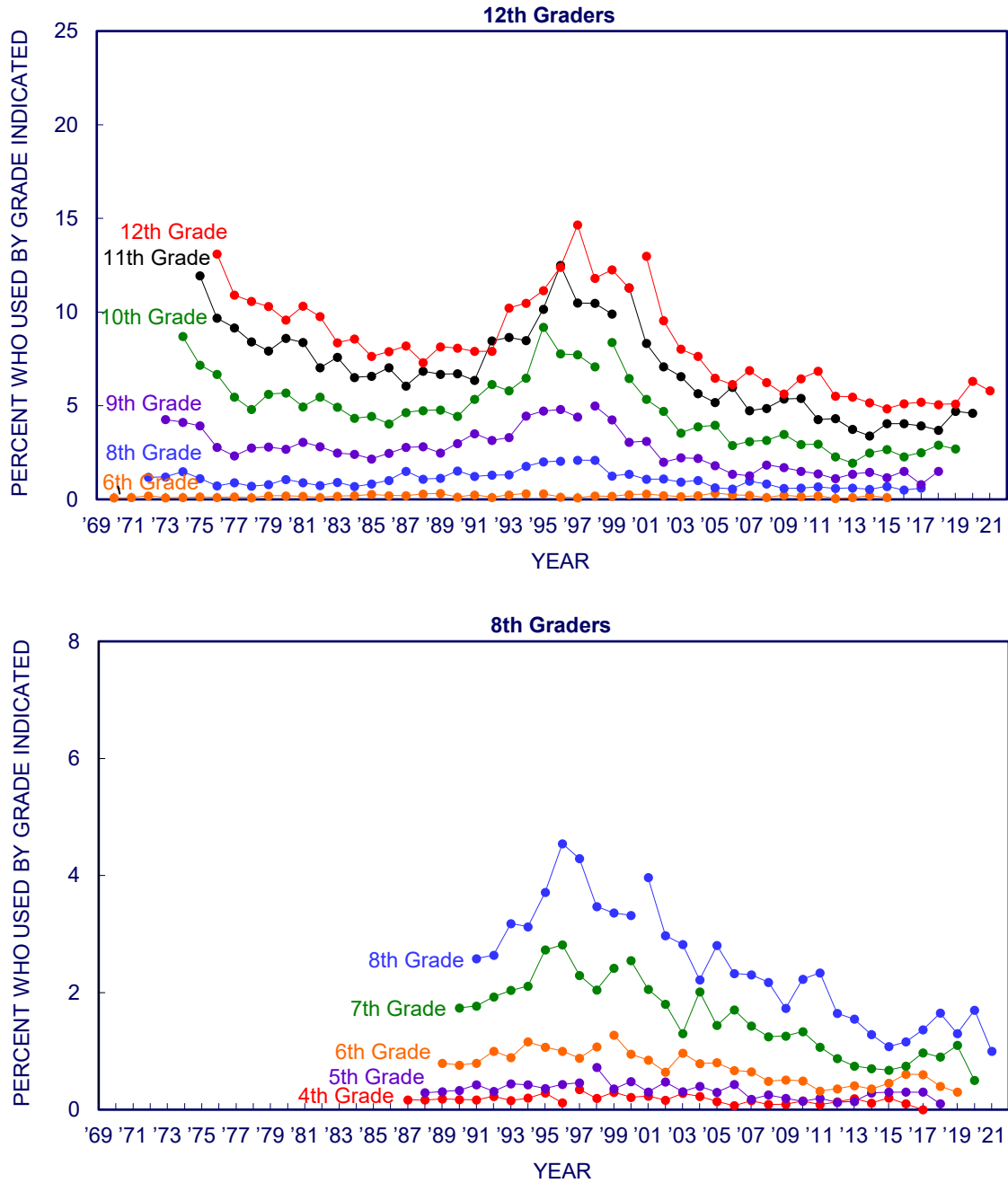
Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

**These estimates not presented in 2020 due to insufficient data.

FIGURE 6-7
Hallucinogens
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders



Source. The Monitoring the Future study, the University of Michigan.

Notes. Beginning in 2001, revised sets of questions on other hallucinogens use were introduced. Data for hallucinogens are affected by these changes.

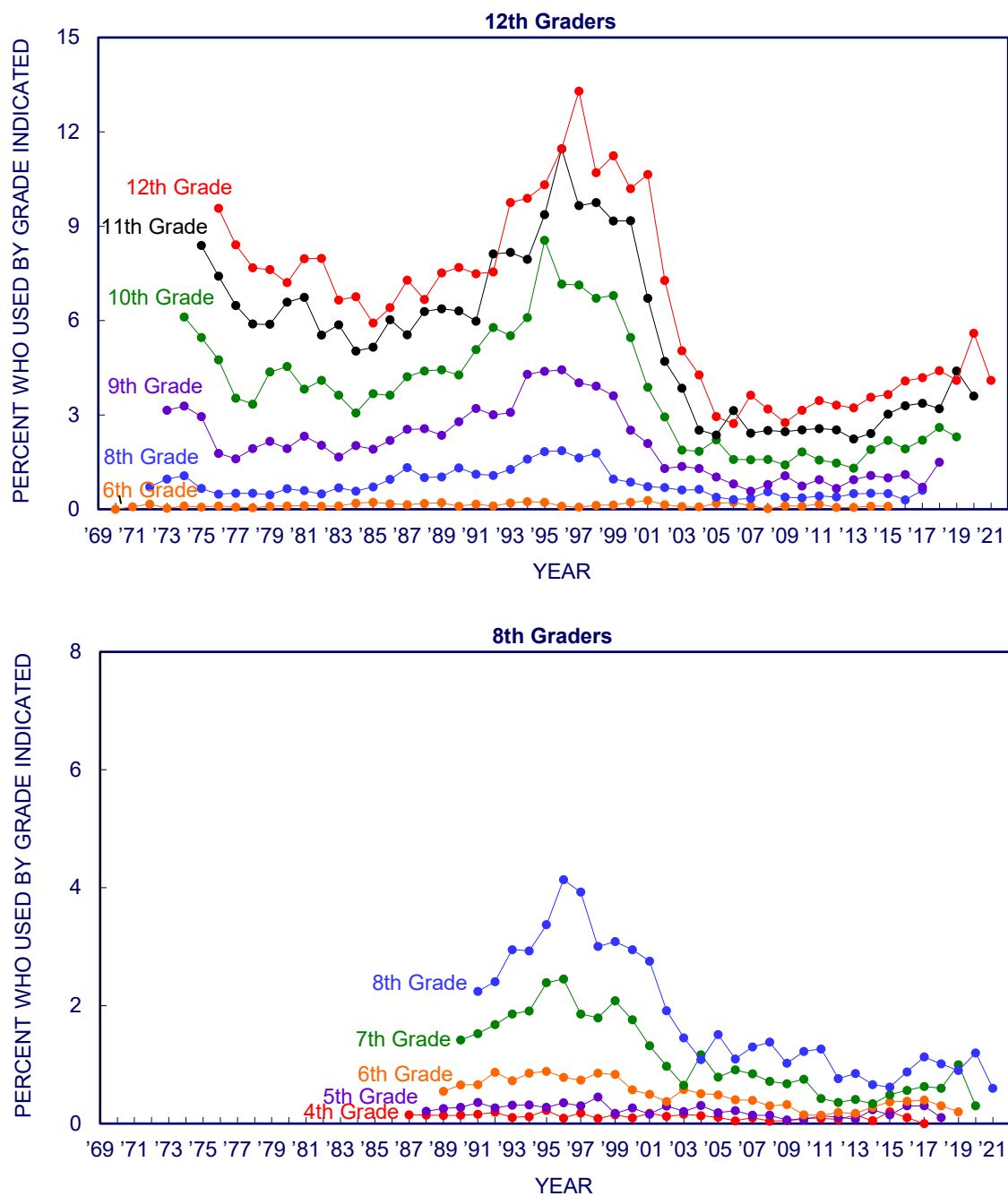
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-8

LSD

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

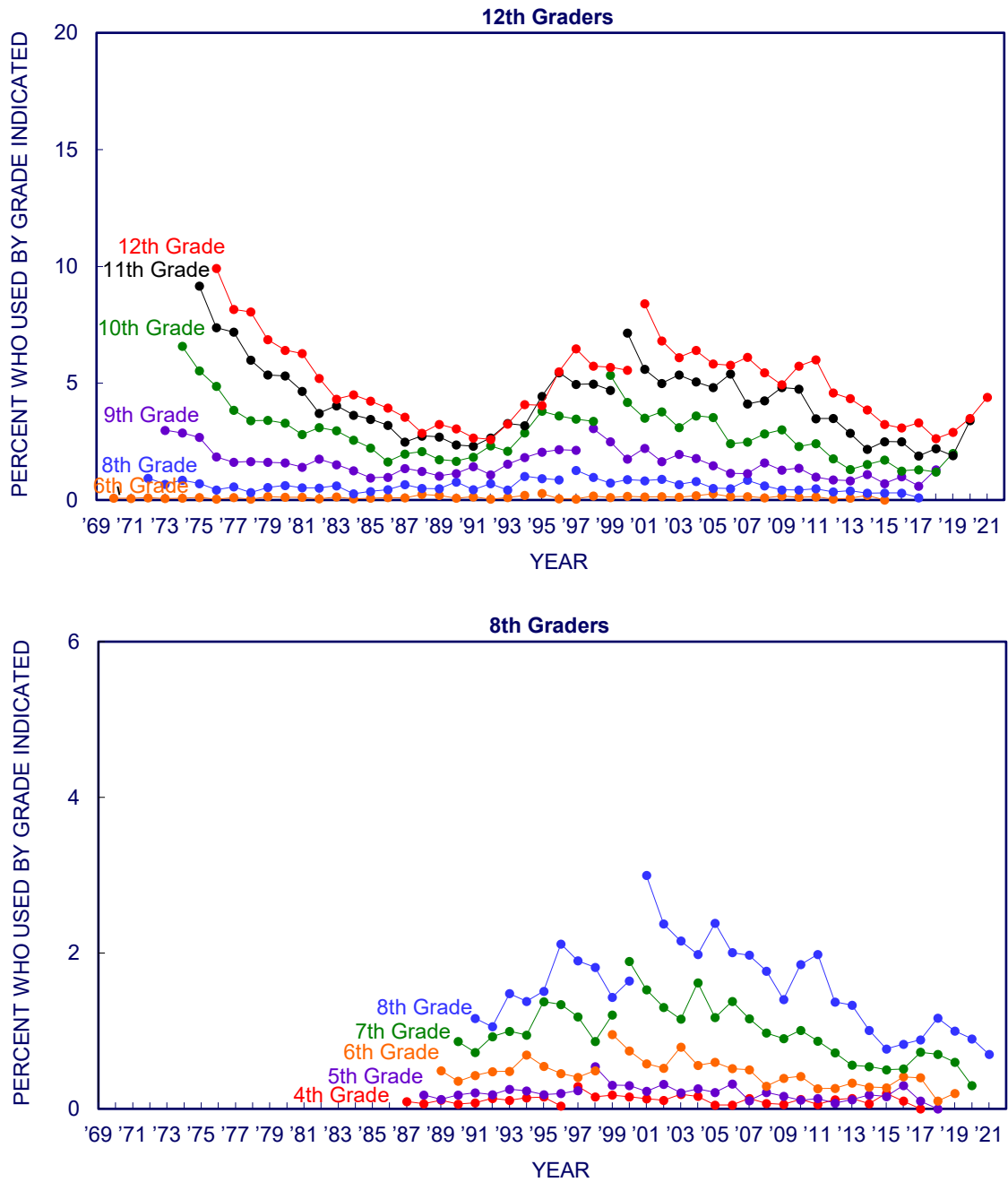


Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-9
Hallucinogens other than LSD
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders



Source. The Monitoring the Future study, the University of Michigan.

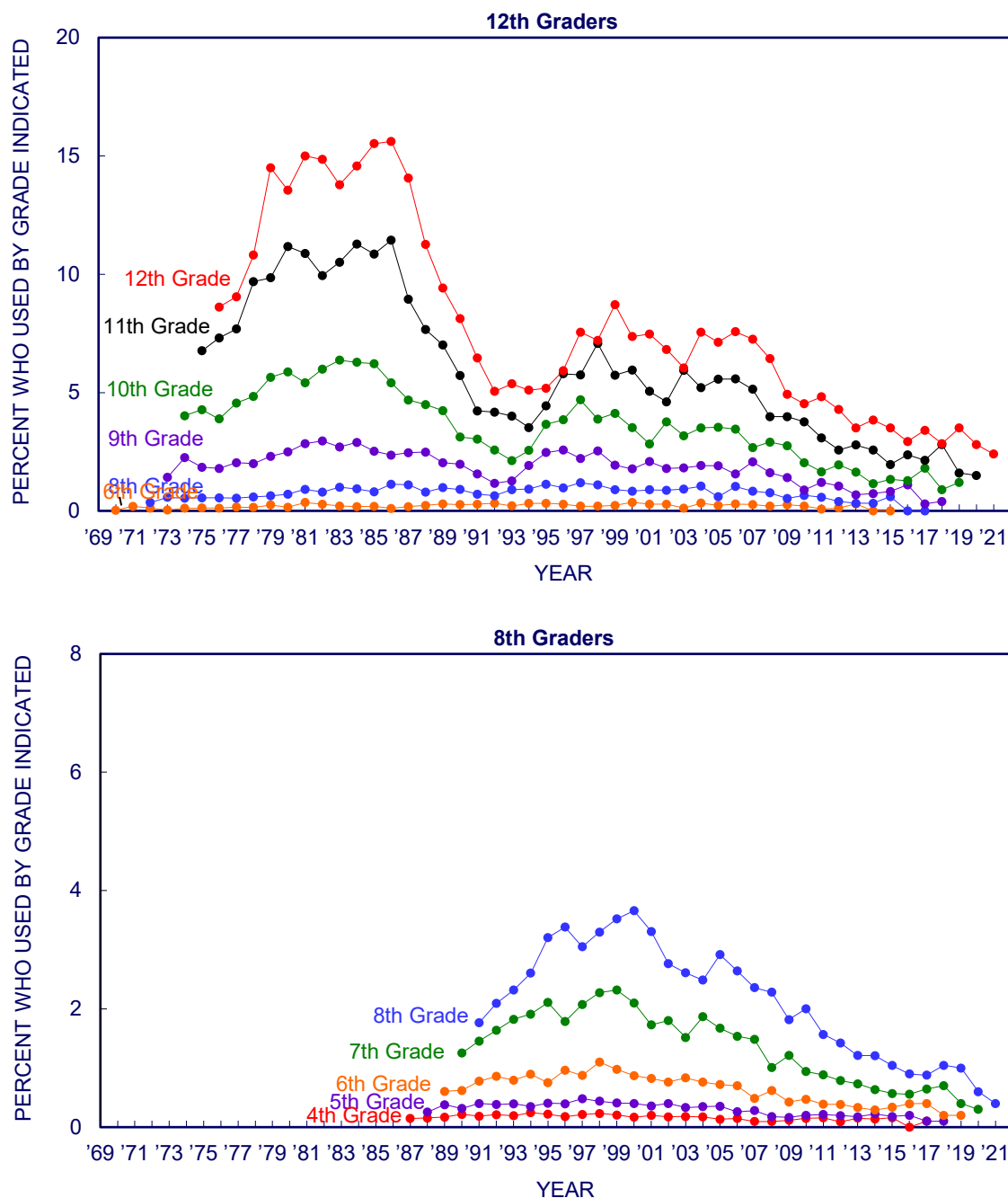
Notes. Beginning in 2001, revised sets of questions on other hallucinogens use were introduced, in which other psychedelics was replaced with other hallucinogens and shrooms was added to the list of examples. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-10

Cocaine

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-11

Crack Cocaine

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

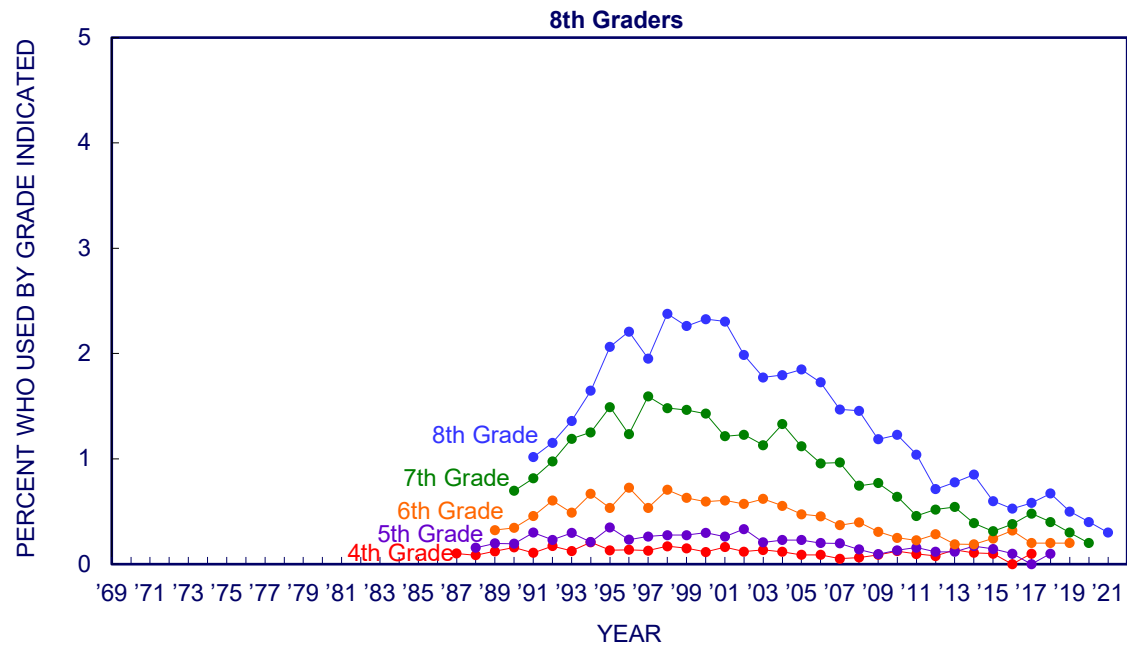
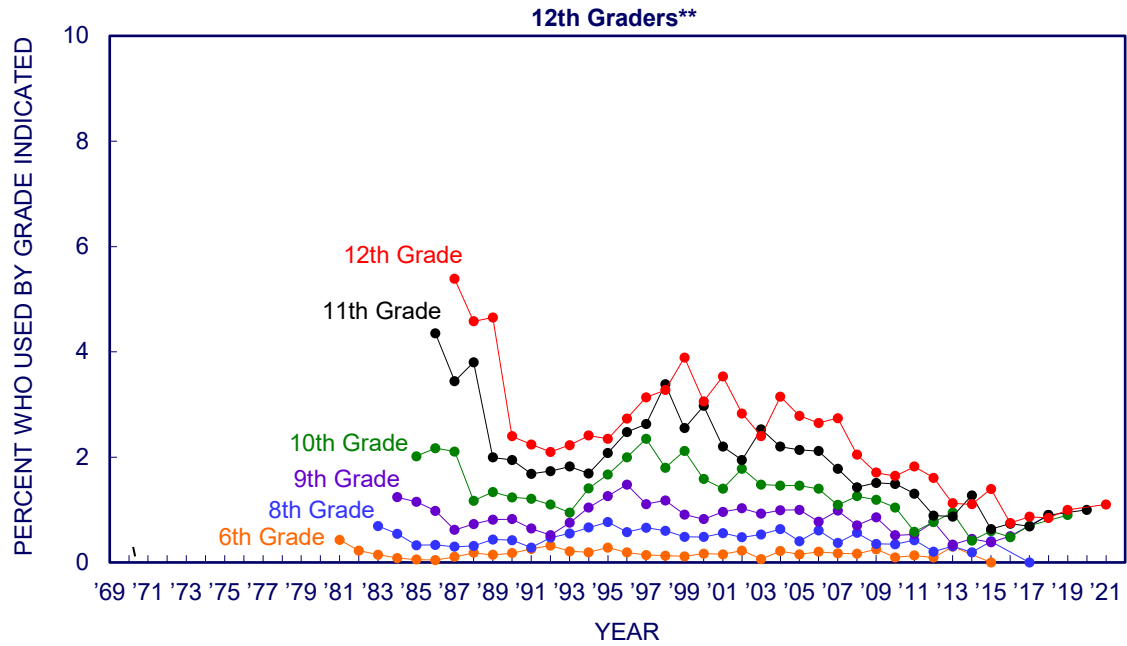


FIGURE 6-11 (cont.)

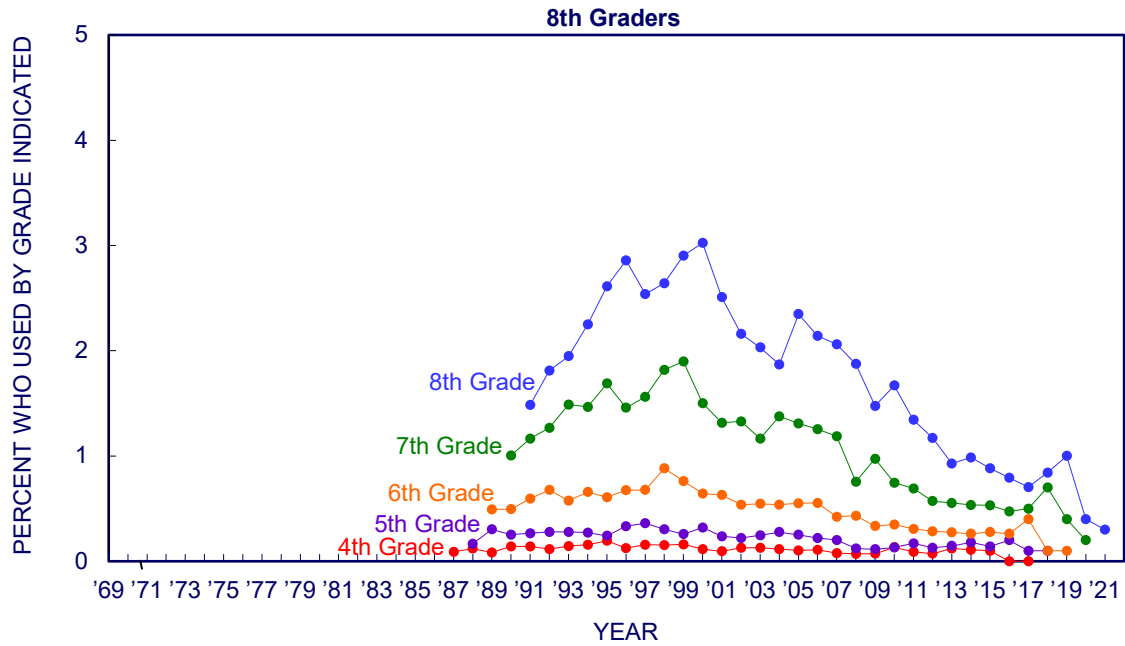
Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

**These estimates not presented in 2020 due to insufficient data.

FIGURE 6-12
Other Forms of Cocaine
Trends in Lifetime Prevalence for Earlier Grade Levels
based on Retrospective Reports from 8th Graders



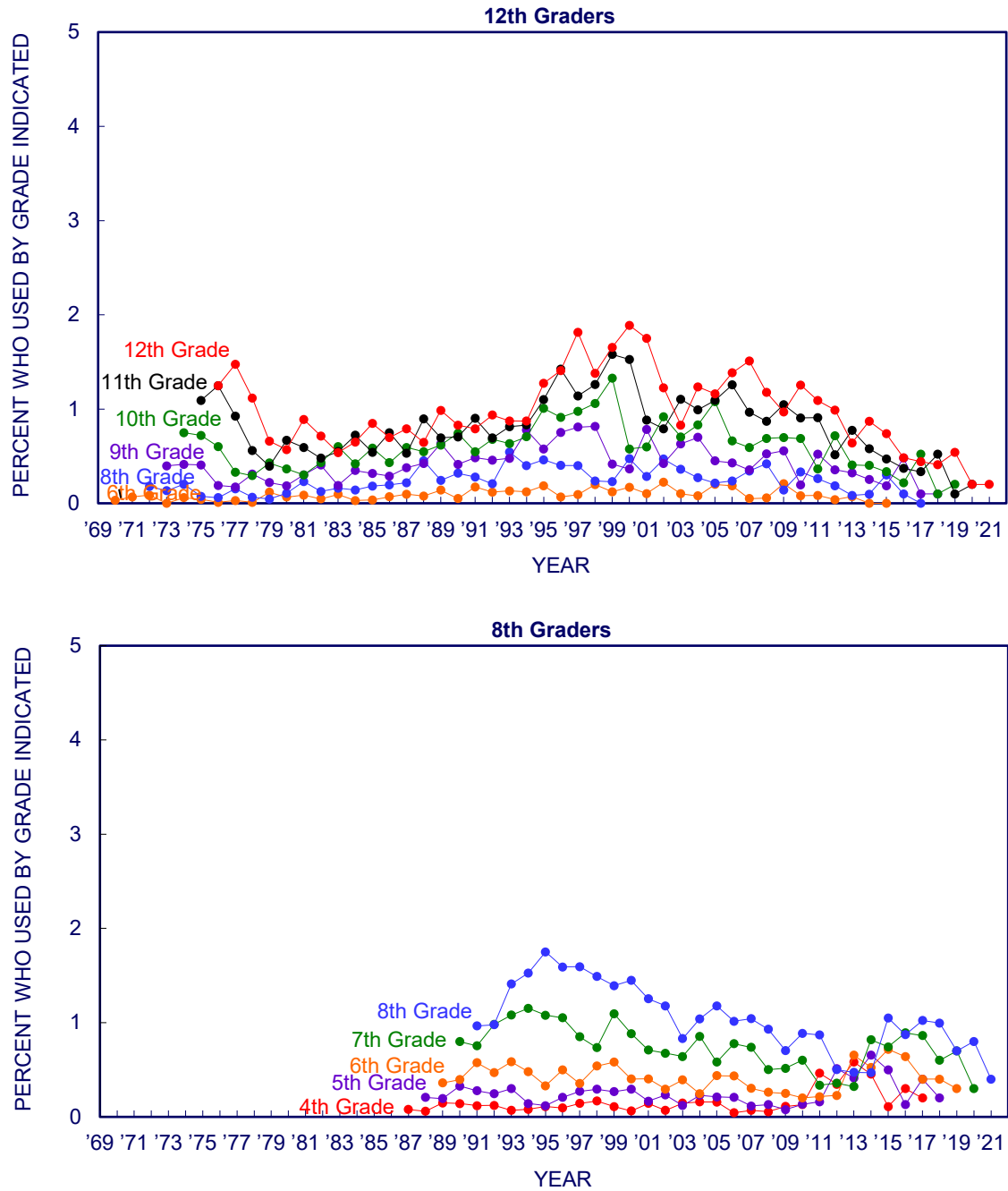
Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

FIGURE 6-13

Heroin

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

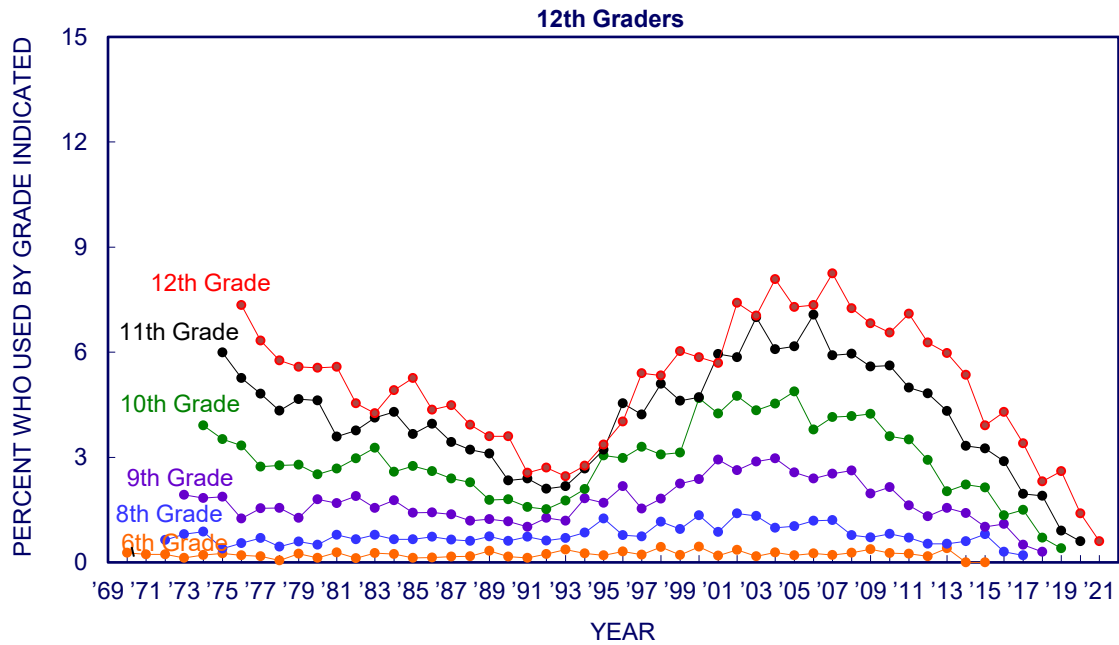


Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-14
Narcotics other than Heroin
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th Graders



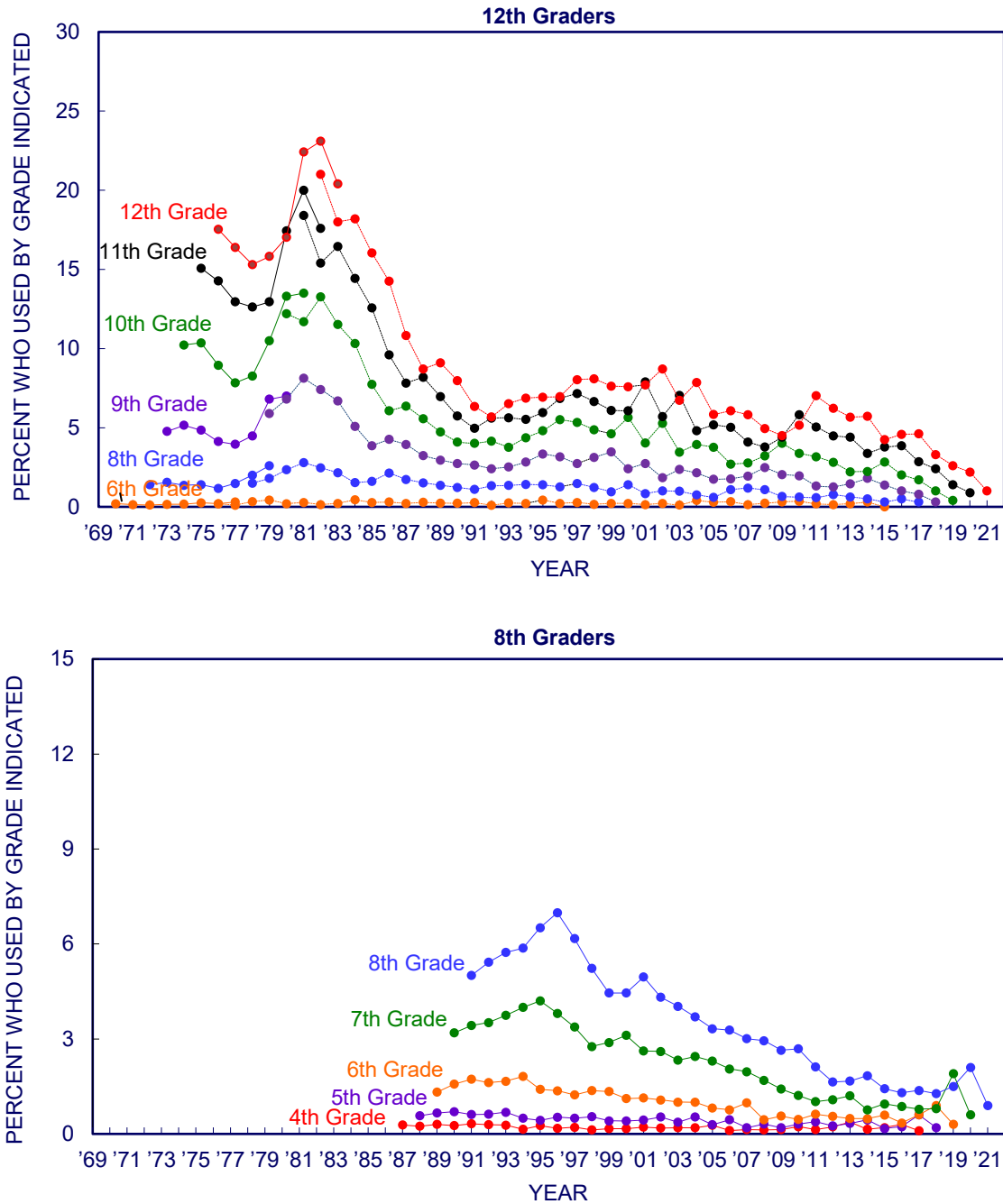
Source. The Monitoring the Future study, the University of Michigan.

Notes. Beginning in 2002, revised sets of questions on narcotics other than heroin use were introduced.

Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-15
Amphetamines
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders



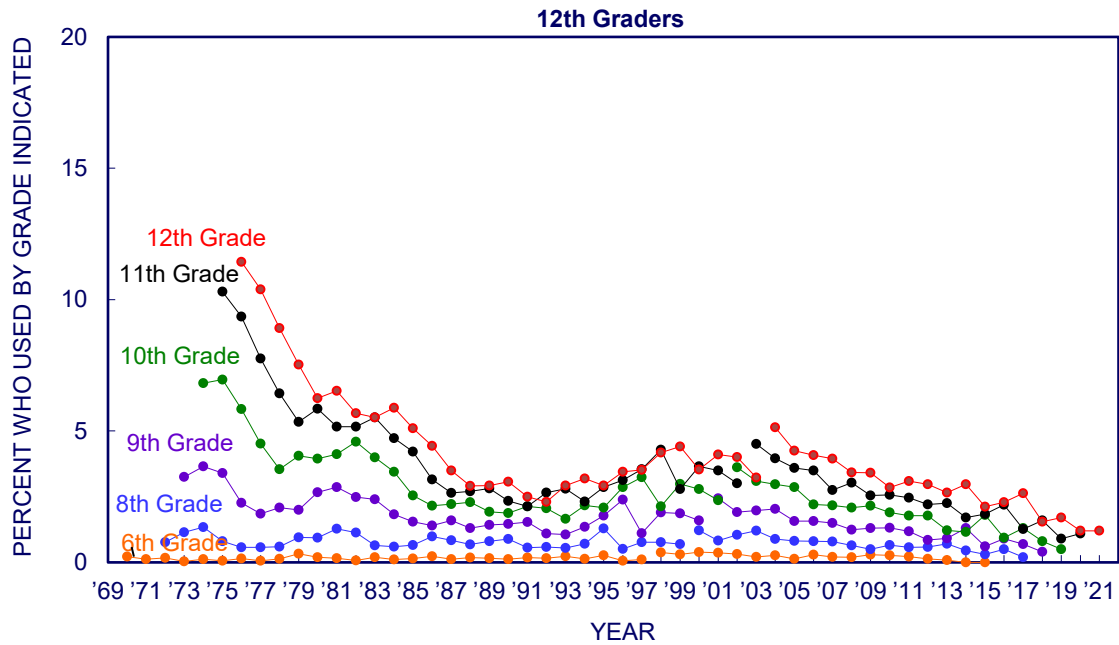
Source. The Monitoring the Future study, the University of Michigan.

Notes. The dashed lines connect percentages that result if nonprescription stimulants are excluded.

Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-16
Sedatives (Barbiturates)
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

Notes. Beginning in 2004, revised sets of questions on use of sedatives (barbiturates) were introduced.

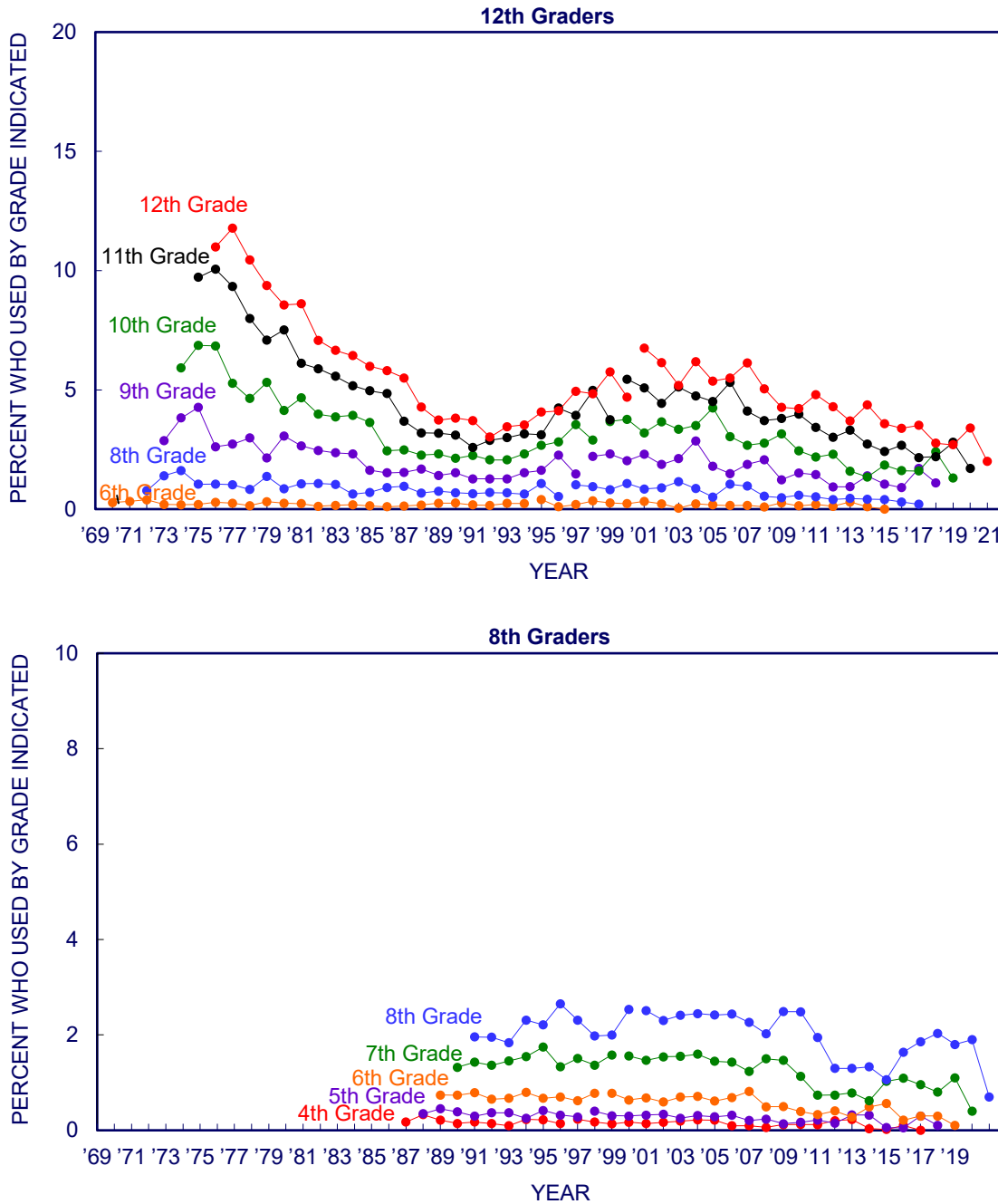
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-17

Tranquilizers

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

Notes. Beginning in 2001, revised sets of questions on tranquilizer use were introduced.

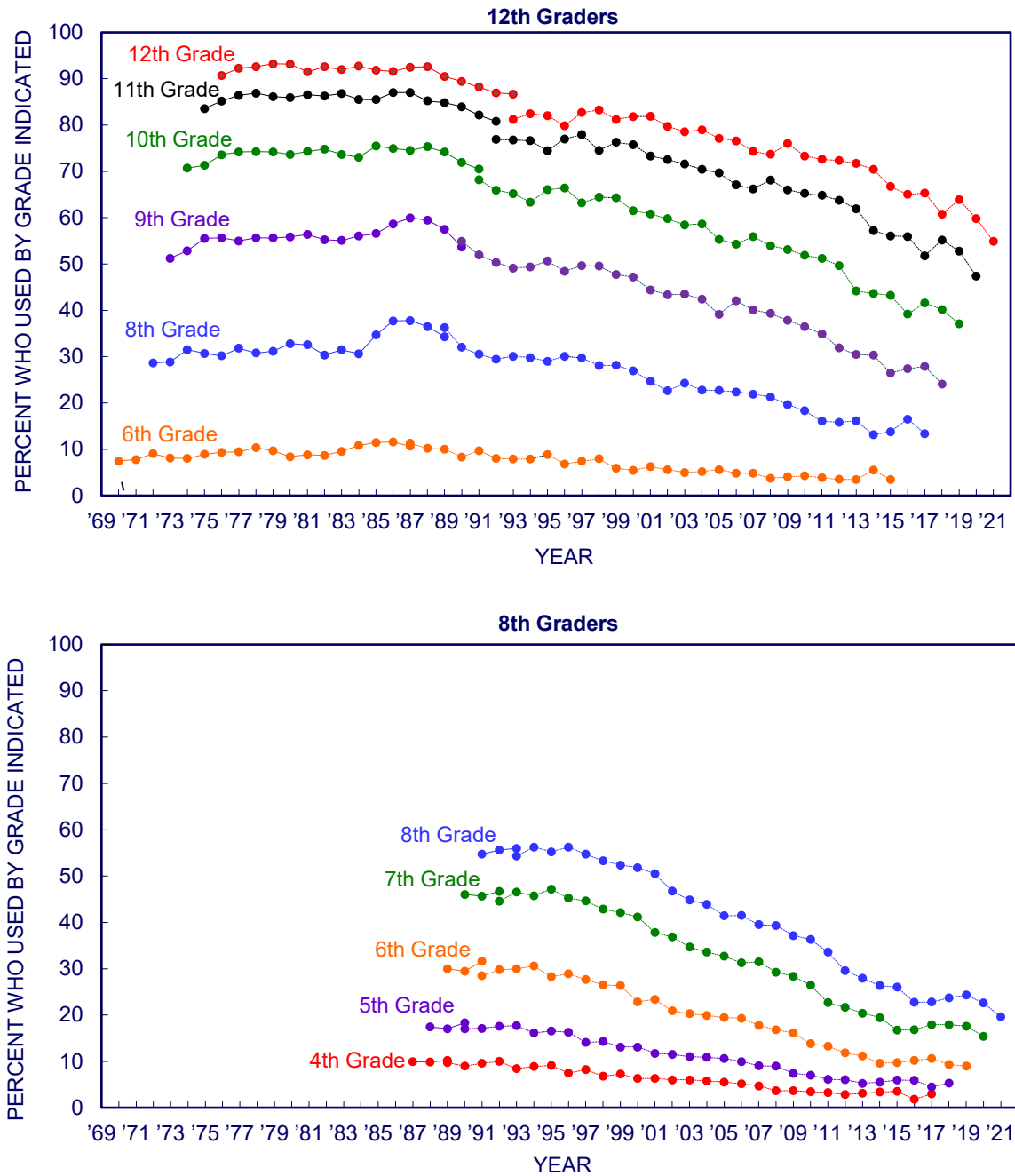
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-18

Alcohol

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

Notes. Beginning in 1993, revised sets of questions on alcohol use were introduced in which respondents were told that an occasion of use meant more than just a few sips. The dashed lines connect percentages that are based on data from the revised questions.

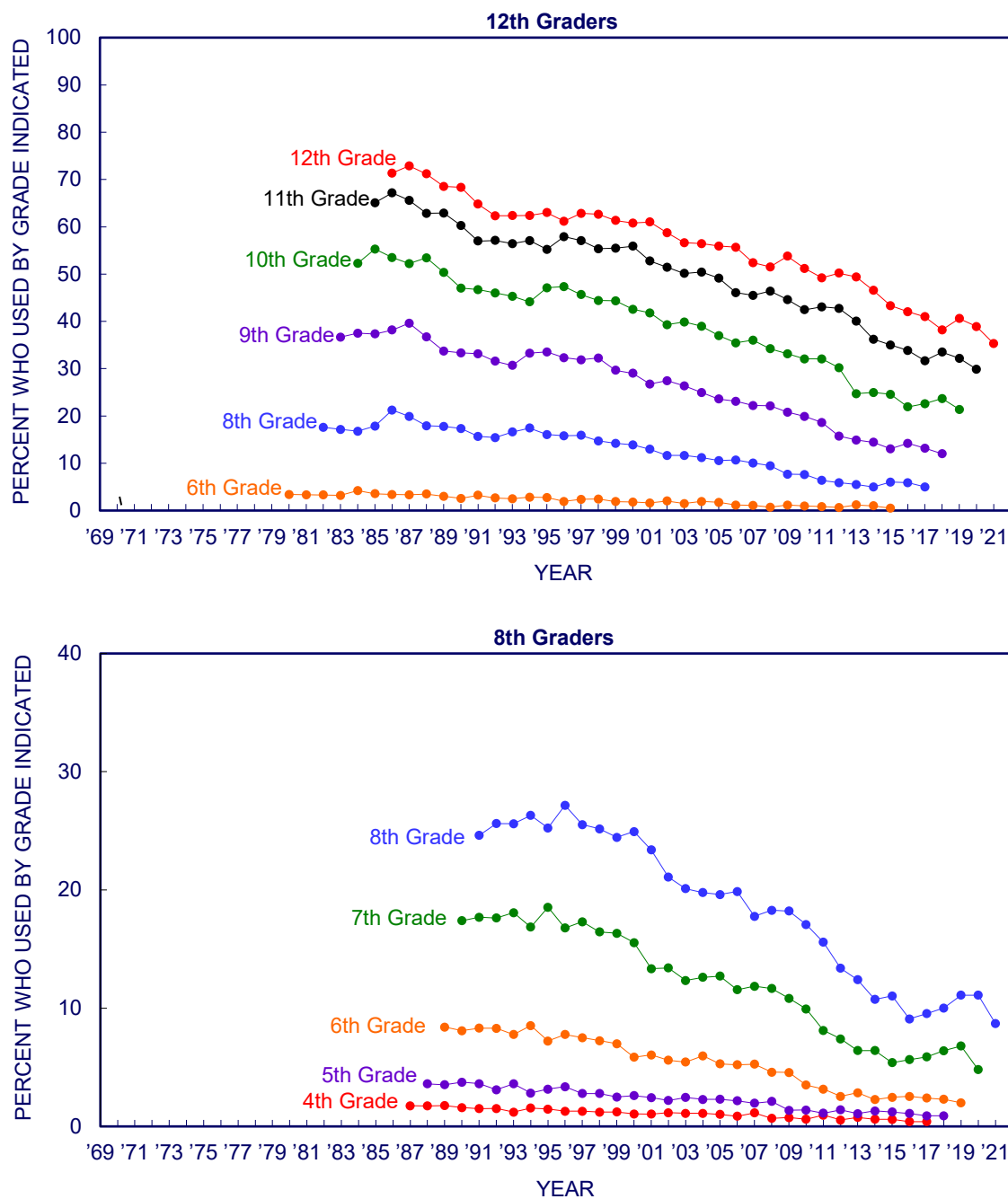
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-19

Been Drunk

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

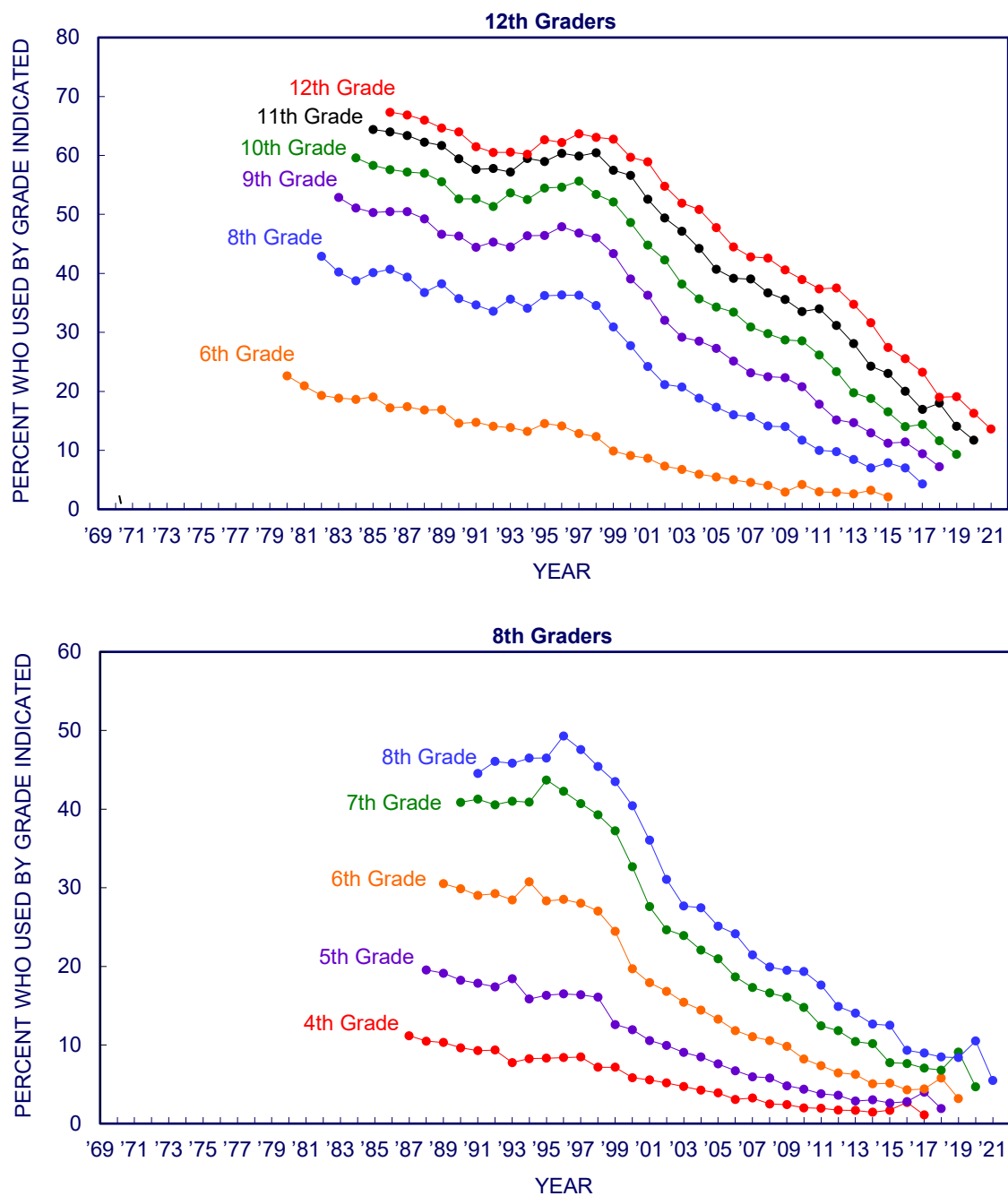
Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-20

Cigarettes

**Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders**

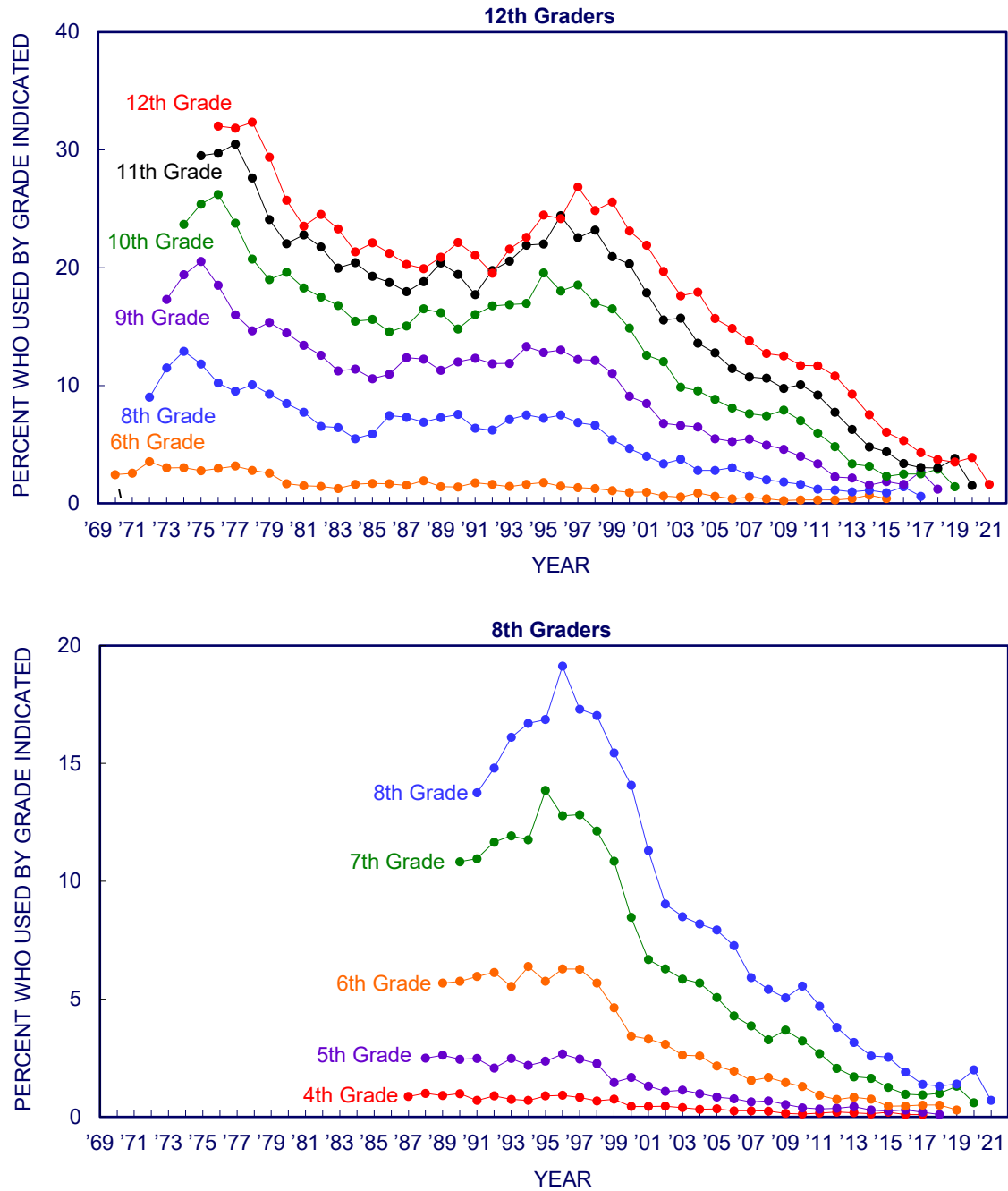


Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-21
Cigarette Smoking on a Daily Basis
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders

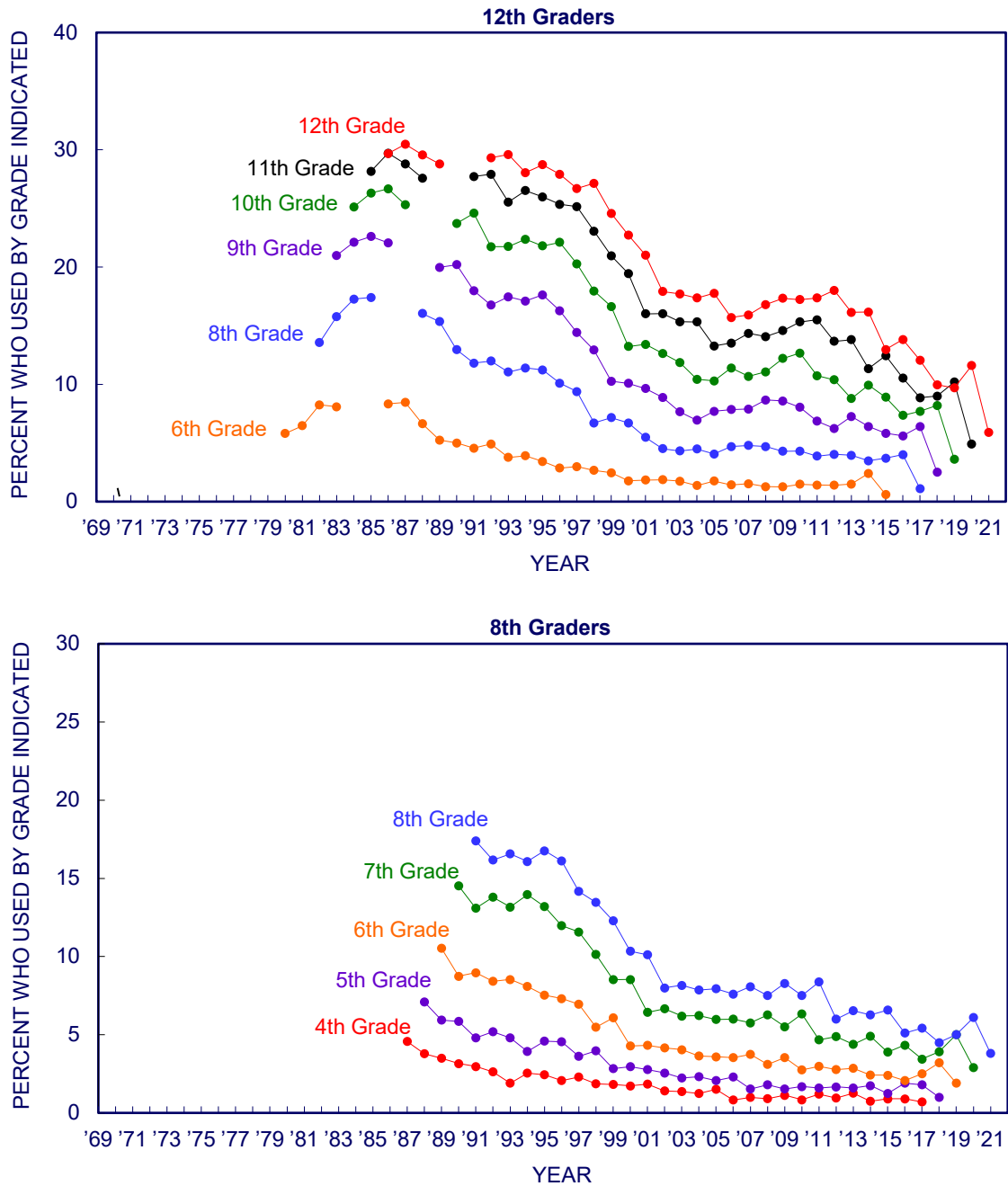


Source. The Monitoring the Future study, the University of Michigan.

Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

FIGURE 6-22
Smokeless Tobacco
Trends in Lifetime Prevalence for Earlier Grade Levels*
based on Retrospective Reports from 12th and 8th Graders



Source. The Monitoring the Future study, the University of Michigan.

Notes. Prevalence of smokeless tobacco was not asked of 12th graders in 1990 or 1991. Prior to 1990, the prevalence question on smokeless tobacco was located near the end of one 12th grade questionnaire form, after 1991 the question was placed earlier and in a different form. This shift could explain any discontinuity between the corresponding lines for each grade.

Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*For 12th graders, the question about grade of initiation of use originally asked about initiation in grade 7 or grade 8 combined. Beginning in 1990, the question asked about each grade separately. For consistency, those 12th graders reporting initiation in 7th or 8th grade are combined on the chapter 6 tables and figures.

Chapter 7

DEGREE AND DURATION OF DRUG HIGHS

Among the reasons given by adolescents for using different drugs,^{1,2,3,4} achieving an altered state of consciousness or "getting high" is a central objective for many. MTF assesses the degree or duration of highs experienced by 12th graders, both as trends at the population level and in terms of variation from drug to drug. Measuring these subjective experiences and monitoring changes in them over time, as MTF has done for many years, can be helpful from epidemiological and policy perspectives. Although these data do not address the many qualitative differences in the experience of being high, they provide a useful description of two important dimensions: degree and duration. Twelfth grade respondents are asked in one of the six questionnaire forms to indicate how high they usually get and how long they usually stay high when using marijuana and when using alcohol. The term "high" is not defined for the respondent, but we assume that people interpret it as the degree to which normal cognitive functioning and affective states are altered by taking the drug.

We present 2021 results only for *marijuana* and *alcohol*. These substances met our requirement of at least 50 respondents for estimates of degree and duration of highs; sample sizes are limited because these survey questions appear on only a randomly-selected one-sixth of the 12th grade questionnaires and only users of a drug in the past 12 months are asked to report on degree and duration of highs associated with using it. This year marks a resumption of our publication of estimates for these two substances; in 2020 they lacked a sufficient number of cases due to the curtailed data collections that resulted from the COVID-19 national lockdown.

DEGREE AND DURATION OF HIGHS AMONG 12th GRADERS IN 2021

Table 7-1 and 7-2 show the percentages of 12th graders who reported getting high to varying degrees and duration from marijuana and alcohol in 2021.

- ***Marijuana*** produces a strong high, with 25% of users reporting that they get "very high" when they used it in 2021. In past years marijuana has ranked near the top of substances that make 12th grade users "very high"—above cocaine, tranquilizers, narcotics other than heroin, amphetamines, and alcohol, but below hallucinogens (including LSD).
- In 2021 only a relatively few of the large proportion of 12th graders who use ***alcohol*** said that they usually get very high when drinking (6%), although nearly half (40%) said they usually get moderately or very high. For a given individual, we would expect more variability in the degree of intoxication achieved with alcohol from occasion to occasion

¹ Patrick, M. E., Evans-Polce, R., Kloska, D. & Maggs, J.L. (2019). [Reasons high school students use marijuana: Prevalence and correlations with use over four decades](#). *Journal of Studies on Alcohol and Drugs*, 80, 15-25.

² Terry-McElrath, Y. M., Stern, S. A., & Patrick, M. E. (2017). [Do alcohol use reasons and contexts differentiate adolescent high-intensity drinking? Data for U.S. high school seniors, 2005-2016](#). *Psychology of Addictive Behaviors*, 31, 775-785.

³ Patrick, M. E., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Bachman, J. G. (2011). [Adolescents' reported reasons for alcohol and marijuana use as predictors of substance use and problems in adulthood](#). *Journal of Studies on Alcohol and Drugs*, 72(1), 106-116.

⁴ Johnston, L. D., & O'Malley, P. M. (1986). [Why do the nation's students use drugs and alcohol? Self-reported reasons from nine national surveys](#). *Journal of Drug Issues*, 16, 29-66.

than with most other drugs. Therefore, many drinkers probably get very high at least sometimes, even if that is not “usually” the case, which is what the question asks. Certainly the high prevalence levels for binge drinking (having five or more drinks in a row in past two weeks) and self-reported drunkenness would suggest that to be the case.

Tables 7-1 and 7-2 present in their lower panels trend data on the *duration* of the highs experienced by the users of the same drugs.

- In 2021 about half of *marijuana* users (52%) said they usually stay high one to two hours. Still, almost two out of five users (37%) reported usually staying high three to six hours, and another 6% usually stayed high for seven hours or more, so there is considerable variability among users in how long they stay high.
- A fair proportion of *alcohol* users—usually between 20% and 30%—said that they usually do not get high when using alcohol (e.g., 28% in 2021).

TRENDS IN THE DEGREE AND DURATION OF DRUG HIGHS

In what follows we interpret trends up to 2019 for marijuana and alcohol. In 2019 MTF conducted an experiment in which students in half the schools provided answers on traditional paper-and-pencil questionnaires and the other half on electronic tablets. Initial analyses indicated a potential difference across the two survey modes. Consequently, in the tables we present 2019 data only for the paper-and-pencil responses, which are directly comparable to all estimates from previous years. With just a half-sample for the 2019 results (for which only 1/6 received questions on degree and duration), only marijuana and alcohol met our requirement of at least 50 respondents for estimates.

For marijuana and alcohol we present 2021 estimates based on responses from web-based questionnaires, but because of potential survey mode effects we do not directly compare them to previous years.

We present trends up to 2018 for users of *hallucinogens other than LSD*, *cocaine*, *narcotics other than heroin*, *amphetamines*, and *tranquilizers*. Students answered questions on degree and duration of these drugs using the same survey mode (paper-and-pencil) in all years up to 2018. In 2019 and later sample sizes were too small to produce reliable estimates.

Results are provided in Tables 7-1 through 7-7. Each of these tables presents trends in two ways. First, the results are shown as a percentage of *past-year users* of each drug in order to indicate any changes in the experiences among fairly recent users and to provide some indication of changes in the quantity of the active ingredient consumed by users. Results are also displayed as a percentage of *all* respondents answering that questionnaire form, thereby indicating experiences of drug-induced highs as proportions of the entire population under study.

- The *degree* of highs usually attained by *marijuana* users remains at high levels first established in the early 2000s, and has not shown any consistent increase or decline since then (Table 7-1). The proportion of marijuana users usually getting “moderately” or “very” high has fluctuated around 74% for the last decade and a half, a level higher than any other

period covered by the survey. Prior to the early 2000s, the degree of highs experienced by adolescents tracked loosely with overall marijuana prevalence, with degree of highs increasing as prevalence increased and vice-versa. During the 1990s drug relapse, the percentage of 12th grade students getting moderately or very high increased from around 65% at the start of the 1990s to 75% at the end, at a time when marijuana prevalence increased. Previous to the relapse, from the late 1970s through the 1980s, the degree of highs obtained showed an overall decline and leveling, as prevalence declined and leveled during this period.

The trend in *duration* of highs from marijuana use is similar to that for degree. The proportion of users saying they stay high three or more hours was roughly level over the past 16 years, fluctuating around 43%. Prior to the early 2000s, duration of highs tracked with overall prevalence of use, with increases in both during the 1990s relapse and decreases in both from the late 1970 through the 1980s. The decreases were likely due in part to the increasing number of 12th graders using marijuana and using it lightly, and in part due to a general shift toward less intense use, even within the segment most prone toward marijuana use.⁵ The proportion of users staying high three or more hours reached a low of 35% in 1988, in contrast to a high of 52% at the very start of the survey in 1975. Importantly, duration of highs from marijuana use in 2019 were not the highest recorded, a distinction that belongs to the mid-1970s.

Both degree and duration of highs from marijuana track only weakly, if at all, with the substantial increase in THC (tetrahydrocannabinol) content of marijuana over the four decades of the survey. The Marijuana Potency Program, sponsored in part by the National Institute on Drug Abuse (NIDA), has analyzed tens of thousands of cannabis preparations confiscated by U.S. law enforcement. In 1975 the average concentration of THC in seized samples was 0.74%, and steadily climbed thereafter to 2.82% in 1985, 3.75% in 1995, 7.2% in 2005, and nearly 13% in 2013.^{6,7,8,9,10} As shown above, no such 15-fold increase is present in the degree and duration of marijuana highs reported by adolescents. Taken as a whole, these results suggest that adolescent marijuana users self-titrate their intake to achieve a degree and duration of high that has changed little over the course of the survey despite substantial changes in marijuana potency over the years.

- For *hallucinogens other than LSD*, 2018 marked the lowest level ever recorded in the percentage of users who reported getting moderately or very high, at 71%. A decline overall in this degree of high is apparent starting around the year 2000 when it was 94%, although year-to-year changes fluctuate considerably due to small sample sizes. Duration of highs also declined: in 2018, 79% of users reported staying high three or more hours,

⁵ For detailed interpretations of the data for these years, please refer to Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1984). *Drugs and American high school students: 1975-1983* (DHHS Publication No. [ADM] 85-1374). Rockville, MD: National Institute on Drug Abuse, pp. 82-83.

⁶ <https://www.drugabuse.gov/publications/research-reports/marijuana/marijuana-addictive>

⁷ ProCon.org. (April 2009). [Average marijuana potency by year, 1975-2003](#).

⁸ Mehmedic, Z., Chandra, S., Slade, D., Denham, H., Foster, S., Patel, A. S., & ElSohly, M. A. (2010). [Potency trends of delta 9-THC and other cannabinoids in confiscated cannabis preparations from 1993 to 2008](#). *Journal of Forensic Sciences*, 55(5), 1209-1217.

⁹ Helleman, C. (2013, August 9). [Is super weed, super bad?](#) CNN.

¹⁰ The Marijuana Potency Program has stopped analyzing samples due to lack of funding but continues to collect samples that it will analyze if funding is renewed.

compared to 88% in 2000. This decline in duration over the prior two decades has also fluctuated considerably year-to-year due to small sample sizes. These declines in both degree and duration could be partly due to the practice of micro-dosing, or taking small amounts, to try to enhance experiences without getting very high.

- Both degree and duration of highs associated with *cocaine* use in 2018 were at the lowest levels ever recorded by the survey (Table 7-3). Nineteen percent of 12th graders who used cocaine in the prior 12 months reported that they usually stayed high three or more hours. This compares with a level of 45% in 2000. The low level in 2018 should be interpreted with caution because of considerable year-to-year variation due to small sample sizes that result from a prevalence of less than 3% over the past decade. Although the trend is somewhat noisy, duration of cocaine highs shows an overall decline from 2000 to 2018, as has overall prevalence. In 2018 about half (49%) of 12th grade students who used cocaine in the prior 12 months reported getting moderately or very high from *cocaine* use, the lowest level recorded for this measure. Levels of degree for highs from cocaine were also a record low in 2018, which may mark the beginning of a downward trend in this outcome if low levels continue in future years. Previous to the mid-1980s, when cocaine was at its height of popularity, the reported degree of the high from cocaine use was greater, and the duration longer. The degree and duration of highs after the mid-1980s may have decreased as growing concerns about the dangers of cocaine use led the declining numbers of users to become more moderate in their use for fear of it leading to addiction.
- The proportion of 12th grade students reporting that they get very high from the use of *narcotics other than heroin* has typically been between 10% and 20% since 2002 and in 2018 was 12% (Table 7-4). Duration over the same time period has not moved in any consistent direction, and the proportion reporting a high lasting seven hours or more was 6% in 2018. Previously, over a 17-year period from 1975 through 1992, a substantial decline occurred in both the degree and duration of highs. In 1975, 39% of past-year users said they usually got “very high” compared to only 12% in 1992. The proportion usually staying high for seven or more hours dropped from 28% in 1975 to 11% in 1992. This shift was due, in part, to a substantial increase in the proportion of users who said they do not take these drugs “to get high” (4% in 1975, increasing to 28% by 1992). Because the actual prevalence of narcotic use dropped only modestly over that interval, these findings suggest that an increase in use for self-medication may have masked a larger decrease in recreational use than is apparent from the prevalence data. During the 1990s, the percent of users of narcotics other than heroin who said that they “usually don’t get high” declined some (from 39% in 1990 to 23% in 2000), while somewhat more said that they get high for three to six hours (29% in 1990, 43% in 2000).
- Degree and duration of highs from *amphetamines* have tracked closely with trends in overall prevalence, and in 2018 both stood at levels in between the lows established in the early 1990s and the highs present at the beginning of the MTF annual surveys in 1975

(Table 7-5).¹¹ The proportion of 12th grade users who reported getting “moderately” or “very” high was about one-third (35%) in 2018. The proportion of users reporting a high lasting seven hours or longer has fluctuated widely around 25% since 2000 (the variability results in part from the small sample sizes of users). As with degree of high, this proportion was lowest in the early 1990s (it was 9.9% in 1993) and highest at the start of the survey in 1975 (when it was 41%).

- Both degree and duration of highs achieved by *tranquilizer* use were at or near the highest levels recorded by the survey in 2018 (Table 7-6). In 2018 the percentage who used tranquilizers outside of a doctor’s orders and reported getting moderately or very high tied the record set in 2009, at 62%. This high estimate is likely a result of random sampling fluctuation, given the absence of any strong upward trend since 2000 and no increase in tranquilizer use over the past ten years. In the past this proportion has varied over time with use levels. It reached a record low of 18% in 1991, when use levels for most drugs were approaching historic lows in the late 1980s. The proportion then increased substantially during the 1990s drug relapse, reaching a level of 59% in 1999. The proportion getting moderately or very high has averaged around 54% since then, with considerable variability from year to year. (Since 2004 there has been a considerable decline in the numbers of cases on which estimates are based. In 2018 the N was 58 cases.)

Duration has followed a similar trend. The percentage of users who reported getting high for one to six hours reached a low of 38% in 1992 when use was low and then reached a record high of 80% in 2000 when use levels were peaking. Since then overall use has decreased and the percentage of users reporting getting high for one to six hours has hovered near 60%, again with substantial variability in the estimates as a result of the relatively small number of users.

- The proportion of 12th grade users who usually stayed high on *alcohol* for seven hours or more was 4.5% in 2021, where it has hovered over the past two decades (Table 7-2). The proportion of all 12th grade alcohol users who reported usually getting very high on alcohol was 5.9% in 2021, which is the lowest level seen to date and slightly below the 7% to 13% range seen throughout the life of the study.
- As mentioned previously, given the low prevalence levels, questions on the degree and duration of highs from *LSD* were discontinued in 2015 to make room for other survey questions. No clearly discernible long-term pattern was present in the degree of highs reported by LSD users—substantial proportions of users every year reported intense highs—but the average duration of highs declined considerably after the late 1990s. After 2001, the prevalence of LSD use declined sharply, which in turn is reflected in the decreased proportion of all respondents saying that they got high at all on LSD. The average duration of LSD highs declined some from the mid-1990s to 2014.

¹¹ In 1982, the questionnaire form containing the questions on degree and duration of highs clarified the amphetamine usage questions in order to eliminate the inappropriate inclusion of nonprescription stimulants, including “look-alikes”. One might have expected this change to have increased the degree and duration of highs being reported, given that real amphetamines would be expected to have greater psychological impact on average, but the trends still continued downward that year.

TABLE 7-1
MARIJUANA
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

→
(Years cont.)

*When you use marijuana or hashish
how high do you usually get? ^a*

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
Not at all high	6.9	5.7	7.5	6.3	6.0	6.3	4.9	4.6	6.6	6.8	7.2	5.1	6.8	6.6	7.6	5.8	7.2	7.8	9.0	7.0	8.1	5.7	5.4
A little high	22.1	20.9	22.5	20.3	22.5	23.5	29.0	26.3	29.4	29.0	27.2	27.6	29.5	30.2	22.8	23.2	21.6	25.9	19.4	21.7	22.3	17.9	18.6
Moderately high	45.5	47.7	43.5	46.8	47.5	47.7	45.7	45.6	41.9	36.9	41.8	43.8	40.9	40.3	44.1	40.8	42.8	39.3	45.9	40.6	40.8	47.5	45.1
Very high	25.5	25.7	26.5	26.6	24.0	22.6	20.4	23.5	22.0	27.4	23.8	23.5	22.9	22.9	25.5	30.3	28.4	27.0	25.8	30.7	28.8	28.9	30.9
Approximate weighted N =	1,142	1,266	1,448	1,873	1,606	1,495	1,607	1,588	1,366	1,264	1,298	1,177	1,174	1,142	782	694	591	605	669	779	916	788	998
% of All Respondents																							
No use in last 12 months	60.0	55.5	52.4	49.8	49.4	52.4	53.2	54.7	58.2	59.9	59.0	61.2	63.5	64.9	71.6	72.7	76.2	76.8	74.8	69.6	64.1	66.5	61.2
Not at all high	2.8	2.5	3.6	3.2	3.0	3.0	2.3	2.1	2.8	2.7	2.9	2.0	2.5	2.3	2.2	1.6	1.7	1.8	2.3	2.1	2.9	1.9	2.1
A little high	8.8	9.3	10.7	10.2	11.4	11.2	13.6	11.9	12.3	11.6	11.2	10.7	10.7	10.6	6.5	6.3	5.1	6.0	4.9	6.6	8.0	6.0	7.2
Moderately high	18.2	21.2	20.7	23.5	24.0	22.7	21.4	20.6	17.5	14.8	17.2	17.0	14.9	14.1	12.5	11.1	10.2	9.1	11.6	12.4	14.7	15.9	17.5
Very high	10.2	11.4	12.6	13.4	12.2	10.8	9.6	10.6	9.2	11.0	9.8	9.1	8.4	8.1	7.2	8.3	6.7	6.3	6.5	9.3	10.4	9.7	12.0
Approximate weighted N =	2,855	2,845	3,042	3,731	3,175	3,143	3,437	3,506	3,268	3,154	3,163	3,033	3,219	3,250	2,755	2,542	2,487	2,614	2,655	2,558	2,549	2,355	2,570

*When you use marijuana or hashish
how long do you usually stay high? ^a*

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
Usually don't get high	8.5	8.0	9.5	8.0	8.4	8.5	7.6	7.0	9.9	9.6	9.3	8.2	11.1	9.6	10.8	7.8	8.5	9.5	10.9	9.5	8.7	6.4	6.1
One to two hours	39.7	43.2	42.6	47.4	48.7	51.7	52.5	53.8	55.6	51.7	52.4	55.0	52.9	56.0	51.9	53.3	49.5	47.2	48.6	47.4	46.0	46.9	49.6
Three to six hours	45.4	43.7	42.7	39.0	37.4	35.0	35.7	34.2	30.4	33.1	34.0	32.9	32.2	30.2	33.3	33.1	34.4	37.7	36.8	36.1	37.6	39.3	37.1
Seven to 24 hours	5.9	4.9	4.7	5.1	5.0	4.1	4.0	4.5	3.5	5.0	3.9	3.3	3.7	3.8	3.3	5.4	6.9	4.9	3.2	5.5	6.7	6.2	6.0
More than 24 hours	0.5	0.2	0.6	0.5	0.5	0.7	0.2	0.5	0.6	0.7	0.4	0.6	0.1	0.4	0.8	0.4	0.8	0.8	0.4	1.4	1.0	1.2	1.1
Approximate weighted N =	1,141	1,261	1,449	1,873	1,619	1,500	1,607	1,593	1,357	1,268	1,295	1,176	1,172	1,147	787	694	589	602	666	774	911	789	996
% of All Respondents																							
No use in last 12 months	60.0	55.5	52.4	49.8	49.2	52.3	53.2	54.6	58.4	59.9	59.0	61.2	63.6	64.8	71.5	72.7	76.3	76.9	74.9	69.7	64.2	66.5	61.2
Usually don't get high	3.4	3.6	4.5	4.0	4.3	4.0	3.6	3.2	4.1	3.8	3.8	3.2	4.0	3.4	3.1	2.1	2.0	2.2	2.7	2.9	3.1	2.1	2.4
One to two hours	15.9	19.2	20.3	23.8	24.7	24.6	24.5	24.4	23.1	20.7	21.5	21.3	19.3	19.7	14.8	14.6	11.7	10.9	12.2	14.4	16.5	15.7	19.3
Three to six hours	18.2	19.4	20.3	19.6	19.0	16.7	16.7	15.5	12.7	13.3	13.9	12.8	11.7	10.7	9.5	9.0	8.1	8.7	9.2	11.0	13.5	13.2	14.4
Seven to 24 hours	2.4	2.2	2.2	2.6	2.5	2.0	1.9	2.0	1.4	2.0	1.6	1.3	1.3	1.3	0.9	1.5	1.6	1.1	0.8	1.7	2.4	2.1	2.3
More than 24 hours	0.2	0.1	0.3	0.3	0.2	0.3	0.1	0.2	0.3	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.2	0.2	0.1	0.4	0.4	0.4	0.4
Approximate weighted N =	2,853	2,834	3,044	3,731	3,188	3,149	3,437	3,511	3,259	3,158	3,160	3,032	3,218	3,255	2,760	2,542	2,485	2,611	2,652	2,553	2,544	2,356	2,568

(Table continued on next page.)

TABLE 7-1 (cont.)
MARIJUANA
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

*When you use marijuana or hashish
how high do you usually get? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Not at all high	6.1	6.8	6.3	5.4	5.4	5.1	5.4	6.4	5.2	5.7	4.6	5.2	4.4	5.0	4.9	5.0	6.4	6.7	6.7	6.2	5.7	6.1	§	3.1
A little high	22.0	19.8	22.6	18.7	23.2	17.7	19.2	21.1	18.8	21.8	20.9	18.5	22.1	18.8	22.3	19.5	21.9	21.8	18.0	18.7	18.8	19.2	§	28.2
Moderately high	43.6	43.7	39.6	42.8	41.7	44.6	42.6	42.7	44.3	42.8	44.7	45.6	43.9	43.4	41.3	43.8	44.6	44.6	48.2	47.7	50.2	47.3	§	43.4
Very high	28.4	29.8	31.4	33.1	29.7	32.7	32.8	29.9	31.8	29.7	29.8	30.7	29.6	32.9	31.5	31.8	27.2	26.9	27.2	27.4	25.4	27.4	§	25.3
Approximate weighted N =	944	812	809	776	713	809	851	811	772	737	740	724	812	860	817	740	698	689	693	766	754	347	§	404
% of All Respondents																								
No use in last 12 months	62.6	63.6	61.8	63.0	66.3	66.6	65.2	66.7	66.9	69.3	67.7	67.9	65.6	63.0	63.7	64.9	66.1	67.5	63.9	63.1	65.7	65.2	§	71.4
Not at all high	2.3	2.5	2.4	2.0	1.8	1.7	1.9	2.1	1.7	1.8	1.5	1.7	1.5	1.8	1.8	1.7	2.2	2.2	2.4	2.3	2.0	2.1	§	0.9
A little high	8.2	7.2	8.6	6.9	7.8	5.9	6.7	7.0	6.2	6.7	6.8	5.9	7.6	7.0	8.1	6.8	7.4	7.1	6.5	6.9	6.4	6.7	§	8.1
Moderately high	16.3	15.9	15.1	15.8	14.1	14.9	14.8	14.2	14.7	13.1	14.4	14.7	15.1	16.1	15.0	15.4	15.2	14.5	17.4	17.6	17.2	16.5	§	12.4
Very high	10.6	10.8	12.0	12.2	10.0	10.9	11.4	9.9	10.5	9.1	9.6	9.9	10.2	12.2	11.4	11.2	9.2	8.7	9.8	10.1	8.7	9.5	§	7.2
Approximate weighted N =	2,526	2,231	2,121	2,098	2,114	2,423	2,447	2,440	2,333	2,403	2,291	2,253	2,362	2,322	2,254	2,109	2,056	2,122	1,920	2,077	2,199	999	§	1,412

*When you use marijuana or hashish
how long do you usually stay high? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	7.4	7.6	8.7	5.8	6.9	6.3	6.1	7.6	6.3	7.3	6.7	6.6	5.5	5.9	7.1	5.5	8.2	8.2	7.9	7.5	7.5	6.6	§	5.0
One to two hours	51.4	51.8	52.0	48.3	55.5	51.2	52.5	52.6	49.2	50.5	48.3	52.4	50.9	49.5	49.7	51.8	46.8	49.9	46.7	41.6	48.2	46.4	§	52.2
Three to six hours	35.7	33.5	34.9	38.2	32.4	37.2	35.3	34.7	37.3	37.3	38.2	35.6	38.2	36.8	35.9	37.9	38.6	36.0	38.7	44.8	37.1	39.8	§	36.8
Seven to 24 hours	5.1	5.9	3.6	6.0	5.1	4.8	4.3	3.7	6.2	4.3	5.7	4.1	4.4	5.6	6.1	2.7	5.7	5.2	5.1	5.0	5.4	5.6	§	5.4
More than 24 hours	0.4	1.2	0.9	1.6	0.1	0.6	1.9	1.3	1.0	0.7	1.1	1.4	1.1	2.2	1.2	2.2	0.9	0.8	1.6	1.2	1.8	1.7	§	0.6
Approximate weighted N =	945	814	807	781	713	812	848	814	772	732	750	721	813	859	807	739	705	691	693	758	753	347	§	404
% of All Respondents																								
No use in last 12 months	62.6	63.6	61.9	62.9	66.3	66.5	65.3	66.7	66.9	69.5	67.4	68.0	65.6	63.0	64.0	65.0	65.8	67.5	63.9	63.4	65.7	65.3	§	71.4
Usually don't get high	2.8	2.8	3.3	2.2	2.3	2.1	2.1	2.5	2.1	2.2	2.2	2.1	1.9	2.2	2.6	1.9	2.8	2.7	2.9	2.7	2.6	2.3	§	1.4
One to two hours	19.2	18.9	19.8	17.9	18.7	17.1	18.2	17.5	16.3	15.4	15.8	16.8	17.5	18.3	17.9	18.1	16.0	16.3	16.9	15.2	16.5	16.1	§	14.9
Three to six hours	13.4	12.2	13.3	14.2	10.9	12.5	12.2	11.6	12.4	11.4	12.5	11.4	13.1	13.6	12.9	13.3	13.2	11.7	14.0	16.4	12.7	13.8	§	10.5
Seven to 24 hours	1.9	2.1	1.4	2.2	1.7	1.6	1.5	1.2	2.1	1.3	1.9	1.3	1.5	2.1	2.1	1.0	1.9	1.7	1.8	1.8	1.9	1.9	§	1.5
More than 24 hours	0.2	0.4	0.3	0.6	0.1	0.2	0.6	0.4	0.3	0.2	0.4	0.4	0.4	0.8	0.4	0.8	0.3	0.3	0.6	0.4	0.6	0.6	§	0.2
Approximate weighted N =	2,527	2,233	2,119	2,103	2,114	2,426	2,444	2,442	2,334	2,398	2,302	2,249	2,364	2,321	2,243	2,107	2,063	2,124	1,920	2,070	2,198	998	§	1,412

Source: The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bResults in following years may not be directly comparable due to survey mode effects; the 2021 survey was administered via a web questionnaire and in 2019 and earlier results are from paper-and-pencil surveys.

TABLE 7-2
HALLUCINOGENS OTHER THAN LSD
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

(Years cont.) →

<i>When you take hallucinogens other than LSD how high do you usually get? ^a</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
Not at all high	2.4	1.2	1.2	1.2	2.1	0.9	2.3	2.5	4.0	4.9	3.2	3.4	5.6	3.1	1.0	2.5	5.0	1.0	7.6	8.8	3.1	4.0	3.1
A little high	7.9	9.6	8.4	8.3	9.6	10.4	12.9	10.3	8.2	10.8	9.5	13.6	13.6	8.8	8.2	5.8	9.9	18.2	10.8	12.6	4.4	7.9	10.7
Moderately high	35.5	39.6	40.8	36.3	37.7	38.9	37.9	35.9	36.6	38.0	36.1	36.8	32.1	28.7	33.4	41.2	41.0	32.0	37.4	25.5	24.5	26.9	20.4
Very high	54.1	49.7	49.6	54.3	50.6	49.9	46.9	51.3	51.2	46.3	51.3	46.3	48.6	59.5	57.4	50.5	44.1	48.8	44.2	53.1	68.1	61.2	65.9
Approximate weighted N =	322	237	246	326	253	255	246	201	170	153	134	114	115	85	53	58	39	47	62	67	86	103	120
% of All Respondents																							
No use in last 12 months	90.4	93.0	93.0	92.7	91.9	91.8	92.8	94.2	94.7	95.1	95.7	96.2	96.4	97.4	98.1	97.7	98.4	98.2	97.6	97.3	96.6	95.6	95.2
Not at all high	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.1	0.2	0.2
A little high	0.8	0.7	0.6	0.6	0.8	0.9	0.9	0.6	0.4	0.5	0.4	0.5	0.5	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.1	0.4	0.5
Moderately high	3.4	2.8	2.9	2.6	3.0	3.2	2.7	2.1	1.9	1.9	1.5	1.4	1.2	0.8	0.6	1.0	0.6	0.6	0.9	0.7	0.8	1.2	1.0
Very high	5.2	3.5	3.5	4.0	4.1	4.1	3.4	3.0	2.7	2.3	2.2	1.8	1.8	1.6	1.1	1.2	0.7	0.9	1.0	1.4	2.3	2.7	3.2
Approximate weighted N =	3,354	3,386	3,514	4,466	3,127	3,098	3,407	3,466	3,235	3,129	3,142	3,004	3,182	3,220	2,734	2,498	2,472	2,591	2,629	2,523	2,515	2,319	2,500
<i>When you take hallucinogens other than LSD how long do you usually stay high? ^a</i>																							
% of Recent Users																							
Usually don't get high	2.0	1.2	1.1	1.3	2.5	1.3	2.8	3.6	4.8	4.0	0.9	5.2	7.2	3.9	4.2	2.5	7.6	6.1	3.6	7.2	3.1	2.4	4.3
One to two hours	8.5	9.4	7.0	8.4	8.3	7.8	8.3	6.6	7.9	8.9	12.9	9.1	9.8	7.8	16.5	13.8	12.3	15.3	6.9	11.5	6.2	8.8	5.3
Three to six hours	41.3	46.1	45.5	47.7	48.2	49.1	47.1	52.6	54.1	48.7	46.7	43.3	46.0	46.2	35.3	46.8	25.9	38.9	51.9	41.5	35.0	55.6	57.9
Seven to 24 hours	45.6	39.9	44.1	41.1	37.2	39.6	38.7	34.4	30.5	36.0	37.1	40.6	35.8	40.5	42.1	25.8	52.4	33.3	37.7	39.8	50.2	29.5	30.6
More than 24 hours	2.7	3.4	2.3	1.5	3.8	2.2	3.1	2.8	2.7	2.5	2.5	1.9	1.3	1.6	1.9	11.2	1.8	6.4	0.0	0.0	5.5	3.6	2.0
Approximate weighted N =	322	238	243	326	249	254	246	203	171	153	132	115	116	84	55	60	40	48	59	68	86	101	118
% of All Respondents																							
No use in last 12 months	90.4	93.0	93.0	92.7	92.0	91.8	92.8	94.1	94.7	95.1	95.8	96.2	96.4	97.4	98.0	97.6	98.4	98.1	97.8	97.3	96.6	95.6	95.3
Usually don't get high	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.0	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
One to two hours	0.8	0.7	0.5	0.6	0.7	0.6	0.6	0.4	0.4	0.4	0.5	0.3	0.4	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.4	0.2
Three to six hours	4.0	3.2	3.2	3.5	3.8	4.0	3.4	3.1	2.9	2.4	2.0	1.7	1.7	1.2	0.7	1.1	0.4	0.7	1.2	1.1	1.2	2.4	2.7
Seven to 24 hours	4.4	2.8	3.1	3.0	3.0	3.2	2.8	2.0	1.6	1.8	1.6	1.6	1.3	1.1	0.8	0.6	0.8	0.6	0.8	1.1	1.7	1.3	1.4
More than 24 hours	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.2	0.2	0.1
Approximate weighted N =	3,354	3,400	3,471	4,466	3,123	3,096	3,407	3,467	3,236	3,129	3,140	3,005	3,183	3,219	2,736	2,499	2,473	2,592	2,626	2,524	2,515	2,317	2,498

(Table continued on next page.)

TABLE 7-2 (cont.)
HALLUCINOGENS OTHER THAN LSD
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

When you take hallucinogens other than LSD how high do you usually get? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Not at all high	1.9	2.8	1.7	5.1	0.6	0.9	5.0	5.2	4.1	2.2	2.0	3.6	5.1	4.3	4.4	0.9	9.3	1.8	4.8	15.2	11.9	§	§	§
A little high	5.3	7.2	4.5	5.6	5.4	2.8	10.0	7.9	5.3	10.9	10.6	1.9	10.0	7.5	2.1	10.5	8.5	8.4	8.8	0.0	16.7	§	§	§
Moderately high	38.0	16.1	26.4	31.3	39.5	25.2	31.7	16.6	22.5	28.9	35.8	34.0	26.8	27.9	24.6	27.9	22.8	21.1	19.6	29.7	18.0	§	§	§
Very high	54.8	73.8	67.5	58.1	54.6	71.0	53.3	70.3	68.2	58.0	51.7	60.5	58.0	60.2	69.0	60.7	59.4	68.7	66.8	55.1	53.4	§	§	§
Approximate weighted N =	110	98	97	126	108	129	151	132	101	121	106	102	110	109	107	67	63	56	52	61	70	§	§	§
% of All Respondents																								
No use in last 12 months	95.6	95.6	95.3	93.9	94.9	94.6	93.7	94.4	95.6	94.9	95.3	95.4	95.2	95.2	95.1	96.7	96.8	97.3	97.3	97.0	96.8	§	§	§
Not at all high	0.1	0.1	0.1	0.3	0.0	0.1	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.3	0.1	0.1	0.5	0.4	§	§	§
A little high	0.2	0.3	0.2	0.3	0.3	0.2	0.6	0.4	0.2	0.6	0.5	0.1	0.5	0.4	0.1	0.3	0.3	0.2	0.2	0.0	0.5	§	§	§
Moderately high	1.7	0.7	1.2	1.9	2.0	1.4	2.0	0.9	1.0	1.5	1.7	1.6	1.3	1.4	1.2	0.9	0.7	0.6	0.5	0.9	0.6	§	§	§
Very high	2.4	3.3	3.2	3.6	2.8	3.9	3.4	3.9	3.0	3.0	2.4	2.8	2.8	2.9	3.4	2.0	1.9	1.8	1.8	1.6	1.7	§	§	§
Approximate weighted N =	2,486	2,213	2,079	2,058	2,116	2,385	2,394	2,374	2,291	2,354	2,242	2,210	2,303	2,259	2,180	2,030	1,957	2,115	1,914	2,067	2,176	§	§	§

When you take hallucinogens other than LSD how long do you usually stay high? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	2.1	2.8	2.1	3.8	2.0	2.1	2.3	5.3	3.6	3.0	5.6	5.4	7.3	8.2	5.6	2.2	12.4	4.2	8.0	12.9	15.0	§	§	§
One to two hours	2.6	7.1	10.0	8.0	7.9	3.8	14.4	3.3	6.9	8.4	16.4	21.0	11.9	5.9	7.5	10.6	19.9	8.3	16.3	6.1	6.0	§	§	§
Three to six hours	56.0	44.9	52.0	49.5	57.2	49.9	54.0	52.7	49.4	53.1	45.5	34.7	46.6	44.0	44.1	54.4	36.5	45.1	33.1	55.1	34.8	§	§	§
Seven to 24 hours	37.3	42.2	32.7	35.5	32.9	42.0	28.4	37.2	36.9	35.4	27.4	34.5	28.2	31.8	40.2	31.1	29.7	34.2	41.1	22.2	37.9	§	§	§
More than 24 hours	1.9	3.1	3.2	3.1	0.0	2.1	1.0	1.6	3.3	0.0	5.1	4.4	5.8	10.1	2.7	1.7	1.5	8.2	1.5	3.7	6.3	§	§	§
Approximate weighted N =	110	98	97	125	108	131	149	131	101	122	104	103	111	109	105	66	61	56	52	61	67	§	§	§
% of All Respondents																								
No use in last 12 months	95.6	95.6	95.3	93.9	94.9	94.5	93.8	94.5	95.6	94.8	95.4	95.3	95.2	95.2	95.2	96.8	96.9	97.4	97.3	97.1	96.9	§	§	§
Usually don't get high	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.1	0.4	0.1	0.2	0.4	0.5	§	§	§
One to two hours	0.1	0.3	0.5	0.5	0.4	0.2	0.9	0.2	0.3	0.4	0.8	1.0	0.6	0.3	0.4	0.3	0.6	0.2	0.4	0.2	0.2	§	§	§
Three to six hours	2.5	2.0	2.4	3.0	2.9	2.7	3.4	2.9	2.2	2.8	2.1	1.6	2.2	2.1	2.1	1.8	1.1	1.2	0.9	1.6	1.1	§	§	§
Seven to 24 hours	1.7	1.9	1.5	2.2	1.7	2.3	1.8	2.1	1.6	1.8	1.3	1.6	1.4	1.5	1.9	1.0	0.9	0.9	1.1	0.7	1.2	§	§	§
More than 24 hours	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.0	0.2	0.2	0.3	0.5	0.1	0.1	0.1	0.2	0.0	0.1	0.3	§	§	§
Approximate weighted N =	2,486	2,213	2,079	2,057	2,117	2,387	2,392	2,373	2,291	2,355	2,240	2,212	2,304	2,259	2,178	2,029	1,955	2,114	1,913	2,067	2,172	§	§	§

Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bNo estimates provided in 2019 because of small sample size (n < 50). All estimates in this chapter based on paper-based responses, the number of which were halved in 2019 due to an experiment in which a randomly assigned half of the students recorded their answers on paper and the other half on electronic tablets.

TABLE 7-3
COCAINE
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

→
(Years cont.)

<i>When you take cocaine how high do you usually get? ^a</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
I don't take it to get high	1.1	0.8	0.3	0.0	2.1	1.9	0.6	2.1	1.9	2.8	3.1	4.1	3.6	4.9	4.6	3.9	2.7	3.1	7.7	2.6	4.6	9.5	4.6
Not at all high	3.5	2.9	4.5	5.5	3.6	3.6	7.4	6.4	10.1	6.0	6.8	4.6	5.9	5.7	7.9	10.2	11.3	6.4	12.1	10.5	8.9	5.1	5.1
A little high	18.8	11.8	17.9	17.6	19.6	22.9	22.1	22.7	25.7	23.5	24.5	24.6	18.8	19.1	12.1	18.1	13.2	22.1	19.7	16.3	12.9	13.2	15.4
Moderately high	40.1	45.1	45.9	38.2	50.6	43.7	42.4	44.5	37.0	39.3	43.1	43.4	44.0	43.3	39.7	36.1	45.1	31.8	33.6	33.0	27.8	46.7	30.6
Very high	36.6	39.5	31.4	38.6	24.2	27.9	27.5	24.3	25.3	28.4	22.5	23.5	27.7	27.0	35.7	31.8	27.8	36.5	27.0	37.5	45.8	25.4	44.3
Approximate weighted N =	124	166	223	335	394	360	434	421	343	362	409	407	329	264	156	109	71	66	89	79	85	76	127
% of All Respondents																							
No use in last 12 months	94.4	94.0	92.8	91.0	87.5	88.4	87.2	87.9	89.4	88.4	87.0	86.4	89.5	91.7	94.2	95.6	97.1	97.4	96.5	96.8	96.5	96.6	94.8
I don't take it to get high	0.1	0.0	0.0	0.0	0.3	0.2	0.1	0.3	0.2	0.3	0.4	0.6	0.4	0.4	0.3	0.2	0.1	0.1	0.3	0.1	0.2	0.3	0.2
Not at all high	0.2	0.2	0.3	0.5	0.5	0.4	0.9	0.8	1.1	0.7	0.9	0.6	0.6	0.5	0.5	0.5	0.3	0.2	0.4	0.3	0.3	0.2	0.3
A little high	1.1	0.7	1.3	1.6	2.5	2.7	2.8	2.7	2.7	2.7	3.2	3.3	2.0	1.6	0.7	0.8	0.4	0.6	0.7	0.5	0.4	0.4	0.8
Moderately high	2.2	2.7	3.3	3.4	6.3	5.1	5.4	5.4	3.9	4.6	5.6	5.9	4.6	3.6	2.3	1.6	1.3	0.8	1.2	1.1	1.0	1.6	1.6
Very high	2.0	2.4	2.3	3.5	3.0	3.2	3.5	2.9	2.7	3.3	2.9	3.2	2.9	2.2	2.1	1.4	0.8	0.9	0.9	1.2	1.6	0.9	2.3
Approximate weighted N =	2,214	2,767	3,097	3,722	3,142	3,105	3,400	3,473	3,235	3,114	3,142	2,992	3,130	3,179	2,685	2,480	2,420	2,560	2,550	2,473	2,463	2,261	2,452
When you take cocaine how long do you usually stay high? ^a																							
% of Recent Users																							
Usually don't get high	3.4	2.8	3.6	5.8	5.8	7.2	8.2	8.2	14.5	9.7	9.2	8.7	9.8	12.8	11.3	11.6	21.5	6.6	16.9	10.4	13.0	6.3	10.5
One to two hours	31.0	27.6	31.9	33.2	43.3	38.2	45.9	43.2	41.3	43.7	48.6	55.2	44.7	49.3	52.6	52.0	34.0	41.8	42.7	52.8	41.4	51.8	51.3
Three to six hours	47.5	46.8	49.4	39.6	36.5	36.0	33.8	34.5	34.1	33.6	31.8	27.7	29.2	25.6	20.9	25.9	32.3	25.0	24.2	20.1	18.7	22.9	24.9
Seven to 24 hours	14.4	19.6	13.1	20.9	14.1	17.3	9.8	13.3	8.7	11.8	8.5	7.1	13.0	10.1	9.8	8.1	10.4	20.2	12.9	12.8	21.1	11.5	13.2
More than 24 hours	3.7	3.1	1.9	0.5	0.3	1.3	2.3	0.8	1.4	1.1	1.9	1.3	3.3	2.3	5.3	2.5	1.7	6.5	3.3	3.9	5.7	7.5	0.0
Approximate weighted N =	125	165	220	331	392	357	432	419	344	360	403	408	329	262	151	108	72	64	92	74	83	69	128
% of All Respondents																							
No use in last 12 months	94.4	94.0	92.8	91.0	87.5	88.5	87.3	87.9	89.4	88.4	87.1	86.4	89.5	91.7	94.4	95.6	97.0	97.5	96.4	97.0	96.6	96.9	94.8
Usually don't get high	0.2	0.2	0.3	0.5	0.7	0.8	1.0	1.0	1.5	1.1	1.2	1.2	1.0	1.1	0.6	0.5	0.6	0.2	0.6	0.3	0.4	0.2	0.5
One to two hours	1.7	1.7	2.3	3.0	5.4	4.4	5.8	5.2	4.4	5.1	6.2	7.5	4.7	4.1	3.0	2.3	1.0	1.0	1.5	1.6	1.4	1.6	2.7
Three to six hours	2.7	2.8	3.6	3.6	4.6	4.2	4.3	4.2	3.6	3.9	4.1	3.8	3.1	2.1	1.2	1.1	1.0	0.6	0.9	0.6	0.6	0.7	1.3
Seven to 24 hours	0.8	1.2	0.9	1.9	1.8	2.0	1.2	1.6	0.9	1.4	1.1	1.0	1.4	0.8	0.6	0.4	0.3	0.5	0.5	0.4	0.7	0.4	0.7
More than 24 hours	0.2	0.2	0.1	0.0	0.0	0.1	0.3	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.0
Approximate weighted N =	2,232	2,750	3,056	3,678	3,140	3,102	3,398	3,471	3,235	3,112	3,137	2,993	3,130	3,178	2,680	2,479	2,420	2,559	2,553	2,468	2,461	2,254	2,453

(Table continued on next page.)

TABLE 7-3 (cont.)

COCAINE

Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

When you take cocaine

how high do you usually get? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
I don't take it to get high	7.6	5.1	5.1	11.7	4.6	2.4	5.1	3.6	3.3	0.0	7.5	6.6	8.3	12.2	3.3	3.5	9.6	9.3	3.9	5.2	2.6	§	§	§
Not at all high	10.8	7.1	8.6	8.9	8.9	12.8	12.2	12.7	4.0	6.3	11.1	8.5	7.6	5.2	6.9	17.3	9.1	10.2	14.8	26.6	29.0	§	§	§
A little high	16.6	12.0	29.1	14.4	14.3	12.6	17.9	14.8	17.4	15.5	14.9	22.4	24.9	18.9	12.7	17.6	14.9	19.8	9.9	14.1	19.0	§	§	§
Moderately high	35.2	45.9	29.0	32.2	42.9	41.8	35.8	33.6	40.3	40.5	32.9	26.9	20.8	33.2	46.9	38.6	36.3	35.7	52.6	40.6	34.1	§	§	§
Very high	29.8	29.9	28.2	32.7	29.3	30.5	29.0	35.3	35.0	37.6	33.7	35.5	38.3	30.5	30.2	23.1	30.1	25.0	18.7	13.4	15.3	§	§	§
Approximate weighted N =	119	126	99	99	90	97	124	119	118	113	107	66	65	67	55	47	49	40	43	58	49	§	§	§
% of All Respondents																								
No use in last 12 months	95.1	94.2	95.1	95.1	95.6	95.8	94.6	94.9	94.8	95.1	95.1	97.0	97.1	97.0	97.4	97.7	97.5	98.0	97.6	97.1	97.6	§	§	§
I don't take it to get high	0.4	0.3	0.3	0.6	0.2	0.1	0.3	0.2	0.2	0.0	0.4	0.2	0.2	0.4	0.1	0.1	0.2	0.2	0.1	0.2	0.1	§	§	§
Not at all high	0.5	0.4	0.4	0.4	0.4	0.5	0.7	0.7	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.4	0.8	0.7	§	§	§
A little high	0.8	0.7	1.4	0.7	0.6	0.5	1.0	0.8	0.9	0.8	0.7	0.7	0.7	0.6	0.3	0.4	0.4	0.4	0.2	0.4	0.5	§	§	§
Moderately high	1.7	2.7	1.4	1.6	1.9	1.8	1.9	1.7	2.1	2.0	1.6	0.8	0.6	1.0	1.2	0.9	0.9	0.7	1.3	1.2	0.5	§	§	§
Very high	1.5	1.7	1.4	1.6	1.3	1.3	1.6	1.8	1.8	1.8	1.6	1.1	1.1	0.9	0.8	0.5	0.8	0.5	0.5	0.4	0.4	§	§	§
Approximate weighted N =	2,424	2,169	2,024	2,020	2,053	2,308	2,318	2,319	2,269	2,311	2,208	2,165	2,225	2,217	2,136	2,006	1,927	2,017	1,789	1,955	2,059	§	§	§

When you take cocaine how

long do you usually stay high? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	14.1	9.8	15.0	12.1	7.3	14.1	16.0	15.8	13.1	8.7	15.1	17.0	18.0	15.4	10.9	13.3	17.3	7.1	18.7	34.7	23.9	§	§	§
One to two hours	44.4	39.7	39.8	40.9	48.9	39.6	50.1	46.7	54.9	51.6	52.6	61.9	41.8	44.3	53.3	44.5	47.3	46.6	47.7	33.1	57.1	§	§	§
Three to six hours	29.6	36.1	28.5	25.0	29.1	32.1	22.3	22.2	22.1	26.1	20.6	15.2	16.5	24.8	22.4	28.2	28.0	30.4	25.4	21.2	16.4	§	§	§
Seven to 24 hours	6.7	12.9	11.4	18.2	10.8	11.0	8.8	13.0	9.1	10.7	8.5	4.5	19.2	12.3	12.2	11.6	5.1	13.1	6.3	11.0	2.6	§	§	§
More than 24 hours	5.2	1.5	5.3	3.9	3.9	3.3	2.9	2.4	0.8	2.9	3.3	1.4	4.4	3.3	1.3	2.4	2.3	2.8	2.0	0.0	0.0	§	§	§
Approximate weighted N =	115	126	98	99	86	93	124	116	114	111	100	67	63	66	57	46	50	42	41	59	49	§	§	§
% of All Respondents																								
No use in last 12 months	95.2	94.2	95.2	95.1	95.8	96.0	94.7	95.0	95.0	95.2	95.5	96.9	97.2	97.0	97.3	97.7	97.4	97.9	97.7	97.0	97.6	§	§	§
Usually don't get high	0.7	0.6	0.7	0.6	0.3	0.6	0.9	0.8	0.7	0.4	0.7	0.5	0.5	0.5	0.3	0.3	0.4	0.2	0.4	1.0	0.6	§	§	§
One to two hours	2.1	2.3	1.9	2.0	2.1	1.6	2.7	2.3	2.8	2.5	2.4	1.9	1.2	1.3	1.4	1.0	1.2	1.0	1.1	1.0	1.4	§	§	§
Three to six hours	1.4	2.1	1.4	1.2	1.2	1.3	1.2	1.1	1.1	1.3	0.9	0.5	0.5	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.4	§	§	§
Seven to 24 hours	0.3	0.7	0.6	0.9	0.5	0.4	0.5	0.7	0.5	0.5	0.4	0.1	0.5	0.4	0.3	0.3	0.1	0.3	0.2	0.3	0.1	§	§	§
More than 24 hours	0.2	0.1	0.3	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	§	§	§
Approximate weighted N =	2,421	2,168	2,022	2,020	2,048	2,305	2,317	2,315	2,266	2,310	2,200	2,166	2,224	2,216	2,138	2,004	1,928	2,019	1,788	1,956	2,059	§	§	§

Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bNo estimates provided in 2019 because of small sample size ($n < 50$). All estimates in this chapter based on paper-based responses, the number of which were halved in 2019 due to an experiment in which a randomly assigned half of the students recorded their answers on paper and the other half on electronic tablets.

TABLE 7-4
NARCOTICS OTHER THAN HEROIN
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

(Years cont.) →

When you take narcotics other than heroin how high do you usually get? ^a

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
I don't take them to get high	4.1	7.6	7.8	10.4	10.0	8.6	14.5	17.8	21.9	22.5	21.3	19.6	28.8	24.5	29.6	36.6	20.5	27.7	25.1	22.7	13.7	23.4	12.8
Not at all high	3.6	6.1	2.8	5.9	8.1	10.5	11.6	3.8	9.9	7.5	12.1	12.1	19.1	7.9	12.2	10.1	9.9	26.7	18.0	10.8	13.0	12.3	5.0
A little high	8.8	18.3	25.9	17.5	24.3	21.6	30.0	26.6	17.9	29.4	28.5	25.2	18.7	19.3	15.1	18.5	20.6	19.2	12.8	22.8	13.9	20.0	27.4
Moderately high	45.0	40.4	37.5	41.4	40.1	41.2	29.4	34.0	34.3	28.1	27.7	24.3	15.5	31.8	27.5	19.5	36.9	14.2	27.9	29.0	34.0	23.4	43.0
Very high	38.5	27.5	26.0	24.8	17.5	18.2	14.5	17.7	16.0	12.5	10.4	18.8	17.8	16.6	15.6	15.3	12.1	12.1	16.3	14.8	25.5	20.9	11.8
Approximate weighted N =	78	130	124	179	156	165	182	116	94	125	126	104	112	84	66	71	46	74	56	58	51	82	96
% of All Respondents																							
No use in last 12 months	94.3	94.3	93.6	94.0	94.9	94.5	94.4	96.5	97.0	95.9	95.9	96.4	96.4	97.3	97.5	97.1	98.1	97.1	97.8	97.7	97.9	96.4	96.0
I don't take them to get high	0.2	0.4	0.5	0.6	0.5	0.5	0.8	0.6	0.7	0.9	0.9	0.7	1.0	0.7	0.7	1.1	0.4	0.8	0.6	0.5	0.3	0.8	0.5
Not at all high	0.2	0.3	0.2	0.4	0.4	0.6	0.6	0.1	0.3	0.3	0.5	0.4	0.7	0.2	0.3	0.3	0.2	0.8	0.4	0.3	0.3	0.4	0.2
A little high	0.5	1.0	1.7	1.1	1.2	1.2	1.7	0.9	0.5	1.2	1.2	0.9	0.7	0.5	0.4	0.5	0.4	0.6	0.3	0.5	0.3	0.7	1.1
Moderately high	2.6	2.3	2.4	2.5	2.1	2.3	1.6	1.2	1.0	1.2	1.1	0.9	0.6	0.8	0.7	0.6	0.7	0.4	0.6	0.7	0.7	0.9	1.7
Very high	2.2	1.6	1.7	1.5	0.9	1.0	0.8	0.6	0.5	0.5	0.4	0.7	0.6	0.4	0.4	0.4	0.2	0.4	0.4	0.3	0.5	0.8	0.5
Approximate weighted N =	1,368	2,281	1,938	2,983	3,045	2,983	3,277	3,353	3,115	3,048	3,065	2,911	3,091	3,144	2,655	2,465	2,410	2,538	2,553	2,492	2,442	2,261	2,407

When you take narcotics other than heroin how long do you usually stay high? ^a

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	
% of Recent Users																								
Usually don't get high	6.8	15.4	7.4	24.6	17.8	15.7	24.2	17.0	23.9	23.2	25.1	24.7	41.4	23.7	38.8	38.5	31.3	36.8	36.3	31.7	22.4	27.8	20.6	
One to two hours	8.8	16.7	32.5	19.3	24.6	29.5	30.4	36.4	26.7	29.3	30.9	30.9	25.9	26.6	18.2	24.0	23.0	26.7	18.1	31.6	23.8	22.7	35.7	
Three to six hours	56.5	44.1	46.2	50.2	44.3	42.1	33.2	34.0	38.6	38.1	29.9	35.3	24.9	41.4	22.6	29.1	38.2	26.0	29.9	35.2	36.2	32.5	36.1	
Seven to 24 hours	24.5	20.5	11.1	15.9	12.1	12.4	9.8	12.0	8.4	8.8	13.3	9.2	5.8	7.5	15.6	5.7	7.5	5.6	13.0	0.7	15.4	14.2	7.6	
More than 24 hours	3.4	3.2	2.8	0.0	1.2	0.2	2.3	0.6	2.4	0.6	0.8	0.0	2.0	0.8	4.8	2.7	0.0	5.0	2.7	0.9	2.3	2.7	0.0	
Approximate weighted N =	78	130	124	173	151	164	180	116	94	121	128	102	112	79	65	69	49	76	57	60	49	82	96	
% of All Respondents																								
No use in last 12 months	94.3	94.3	93.6	94.0	95.0	94.5	94.5	96.5	97.0	96.0	95.8	96.5	96.4	97.5	97.5	97.2	98.0	97.0	97.8	97.6	98.0	96.4	96.0	
Usually don't get high	0.4	0.9	0.5	0.9	0.9	0.9	1.3	0.6	0.7	0.9	1.0	0.9	1.5	0.6	1.0	1.1	0.6	1.1	0.8	0.8	0.5	1.0	0.8	
One to two hours	0.5	1.0	2.1	1.2	1.2	1.6	1.7	1.3	0.8	1.2	1.3	1.1	0.9	0.7	0.4	0.7	0.5	0.8	0.4	0.8	0.5	0.8	1.4	
Three to six hours	3.2	2.5	3.0	3.0	2.2	2.3	1.8	1.2	1.2	1.5	1.2	1.2	0.9	1.0	0.6	0.8	0.8	0.8	0.7	0.8	0.7	1.2	1.4	
Seven to 24 hours	1.4	1.2	0.7	1.0	0.6	0.7	0.5	0.4	0.3	0.3	0.6	0.3	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.3	0.0	0.3	0.5	0.3
More than 24 hours	0.2	0.2	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	
Approximate weighted N =	1,368	2,281	1,938	2,883	3,040	2,982	3,275	3,353	3,116	3,043	3,067	2,908	3,092	3,139	2,654	2,463	2,413	2,540	2,554	2,493	2,441	2,261	2,407	

(Table continued on next page.)

TABLE 7-4 (cont.)
NARCOTICS OTHER THAN HEROIN
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

<i>When you take narcotics other than heroin how high do you usually get? ^a</i>	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
I don't take them to get high	12.6	14.2	19.6	18.6	15.4	19.4	7.4	15.1	10.7	15.0	15.6	17.6	13.3	11.2	12.0	8.5	12.9	21.1	19.3	22.5	16.1	\$	\$	\$
Not at all high	9.8	10.6	9.0	0.0	11.6	4.6	8.9	8.5	7.2	7.7	9.6	6.0	9.9	8.9	12.3	11.6	8.9	8.6	6.1	17.2	10.9	\$	\$	\$
A little high	27.5	14.7	20.8	27.8	23.0	21.2	23.9	28.4	25.9	26.3	24.1	23.7	21.9	25.1	23.2	24.3	30.5	21.6	19.9	11.4	13.5	\$	\$	\$
Moderately high	26.0	38.3	30.2	31.6	35.3	40.3	42.3	34.7	37.0	39.5	37.5	39.1	38.6	37.5	36.7	36.0	31.3	38.4	32.9	33.1	47.4	\$	\$	\$
Very high	24.1	22.3	20.4	21.9	14.8	14.5	17.5	13.3	19.2	11.6	13.1	13.7	16.2	17.4	15.9	19.6	16.4	10.3	21.9	15.8	12.1	\$	\$	\$
Approximate weighted N =	113	89	102	82	133	158	182	168	144	186	174	152	147	143	140	107	110	88	88	61	53	\$	\$	\$
% of All Respondents																								
No use in last 12 months	95.3	95.9	94.9	95.9	93.5	93.1	92.2	92.7	93.6	91.9	92.0	93.0	93.3	93.5	93.5	94.6	94.3	95.8	95.2	96.9	97.5	\$	\$	\$
I don't take them to get high	0.6	0.6	1.0	0.8	1.0	1.3	0.6	1.1	0.7	1.2	1.3	1.2	0.9	0.7	0.8	0.5	0.7	0.9	0.9	0.7	0.4	\$	\$	\$
Not at all high	0.5	0.4	0.5	0.0	0.8	0.3	0.7	0.6	0.5	0.6	0.8	0.4	0.7	0.6	0.8	0.6	0.5	0.4	0.3	0.5	0.3	\$	\$	\$
A little high	1.3	0.6	1.1	1.1	1.5	1.5	1.9	2.1	1.7	2.1	1.9	1.7	1.5	1.6	1.5	1.3	1.7	0.9	1.0	0.4	0.3	\$	\$	\$
Moderately high	1.2	1.6	1.5	1.3	2.3	2.8	3.3	2.5	2.4	3.2	3.0	2.8	2.6	2.4	2.4	1.9	1.8	1.6	1.6	1.0	1.2	\$	\$	\$
Very high	1.1	0.9	1.0	0.9	1.0	1.0	1.4	1.0	1.2	0.9	1.1	1.0	1.1	1.1	1.0	1.1	0.9	0.4	1.1	0.5	0.3	\$	\$	\$
Approximate weighted N =	2,409	2,167	2,001	1,996	2,035	2,299	2,334	2,305	2,258	2,304	2,177	2,162	2,202	2,203	2,141	1,983	1,917	2,066	1,820	1,967	2,067	\$	\$	\$
 <i>When you take narcotics other than heroin how long do you usually stay high? ^a</i>																								
% of Recent Users																								
Usually don't get high	18.8	21.5	23.1	15.2	22.8	17.6	15.1	17.4	12.5	17.8	19.3	18.4	19.7	17.6	20.6	20.4	20.2	22.5	24.2	33.0	26.8	\$	\$	\$
One to two hours	26.1	30.1	25.9	36.7	29.7	34.4	35.4	35.3	36.8	33.1	32.1	37.7	24.0	27.3	29.8	36.5	39.9	19.8	29.8	11.8	18.9	\$	\$	\$
Three to six hours	37.8	29.2	42.9	40.2	33.0	36.8	42.0	33.3	40.1	42.1	37.3	36.1	40.6	48.4	42.1	34.1	26.5	49.2	31.2	45.3	48.6	\$	\$	\$
Seven to 24 hours	14.4	17.4	3.9	7.8	14.5	10.0	6.7	11.5	9.3	6.4	9.0	6.4	14.7	6.7	7.5	7.8	12.4	8.5	14.8	9.9	4.1	\$	\$	\$
More than 24 hours	2.9	1.7	4.2	0.0	0.0	1.2	0.8	2.6	1.3	0.7	2.4	1.6	1.1	0.0	0.0	1.3	1.1	0.0	0.0	0.0	1.6	\$	\$	\$
Approximate weighted N =	111	89	97	84	136	156	182	166	144	185	174	153	150	145	139	108	110	86	85	58	53	\$	\$	\$
% of All Respondents																								
No use in last 12 months	95.4	95.9	95.1	95.8	93.3	93.2	92.2	92.8	93.6	92.0	92.0	92.9	93.2	93.4	93.5	94.6	94.3	95.8	95.3	97.0	97.4	\$	\$	\$
Usually don't get high	0.9	0.9	1.1	0.6	1.5	1.2	1.2	1.3	0.8	1.4	1.5	1.3	1.3	1.2	1.3	1.1	1.2	0.9	1.1	1.0	0.7	\$	\$	\$
One to two hours	1.2	1.2	1.3	1.5	2.0	2.3	2.8	2.5	2.4	2.7	2.6	2.7	1.6	1.8	1.9	2.0	2.0	0.8	1.4	0.4	0.5	\$	\$	\$
Three to six hours	1.7	1.2	2.1	1.7	2.2	2.5	3.3	2.4	2.6	3.4	3.0	2.6	2.8	3.2	2.7	1.9	1.5	2.1	1.5	1.4	1.3	\$	\$	\$
Seven to 24 hours	0.7	0.7	0.2	0.3	1.0	0.7	0.5	0.8	0.6	0.5	0.7	0.5	1.0	0.4	0.5	0.4	0.7	0.4	0.7	0.3	0.1	\$	\$	\$
More than 24 hours	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	\$	\$	\$
Approximate weighted N =	2,406	2,167	1,996	1,998	2,037	2,297	2,334	2,303	2,258	2,302	2,177	2,164	2,205	2,205	2,140	1,985	1,917	2,064	1,816	1,964	2,068	\$	\$	\$

Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bNo estimates provided in 2019 because of small sample size ($n < 50$). All estimates in this chapter based on paper-based responses, the number of which were halved in 2019 due to an experiment in which a randomly assigned half of the students recorded their answers on paper and the other half on electronic tablets.

TABLE 7-5
AMPHETAMINES
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)



*When you take amphetamines
how high do you usually get? ^a*

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
I don't take them to get high	9.3	10.7	15.1	14.7	16.8	17.1	20.2	21.0	24.2	22.8	20.4	18.7	20.7	23.9	19.3	15.8	24.7	15.8	18.6	19.9	16.1	30.6	18.1
Not at all high	4.6	5.0	7.5	6.2	7.7	8.9	11.5	9.1	11.9	9.3	12.8	10.8	12.2	14.2	14.0	18.8	10.8	19.2	20.5	12.0	17.0	9.3	16.0
A little high	26.4	26.1	24.0	25.9	26.5	34.0	31.4	36.8	33.0	34.8	36.7	42.6	40.0	29.1	30.8	30.0	35.5	28.6	30.6	29.1	27.5	25.4	27.3
Moderately high	44.6	43.8	39.2	40.2	36.4	30.8	30.6	28.5	27.0	29.5	24.9	23.3	20.6	24.8	24.4	24.9	16.8	23.0	19.9	26.8	28.1	18.3	23.2
Very high	15.1	14.4	14.1	13.0	12.6	9.3	6.3	4.6	3.9	3.5	5.2	4.6	6.6	8.0	11.5	10.5	12.1	13.4	10.3	12.2	11.3	16.4	15.3
Approximate weighted N =	410	406	449	542	507	575	788	622	463	418	380	305	265	196	153	131	107	105	127	144	145	138	183
% of All Respondents																							
No use in last 12 months	83.8	84.2	83.7	82.9	83.6	81.2	76.5	82.0	85.6	86.7	87.9	89.8	91.7	93.9	94.4	94.8	95.7	96.0	95.2	94.3	94.2	94.0	92.6
I don't take them to get high	1.5	1.7	2.5	2.5	2.8	3.2	4.8	3.8	3.5	3.0	2.5	1.9	1.7	1.5	1.1	0.8	1.1	0.6	0.9	1.1	0.9	1.8	1.3
Not at all high	0.7	0.8	1.2	1.1	1.3	1.7	2.7	1.6	1.7	1.2	1.6	1.1	1.0	0.9	0.8	1.0	0.5	0.8	1.0	0.7	1.0	0.6	1.2
A little high	4.3	4.1	3.9	4.4	4.3	6.4	7.4	6.6	4.8	4.6	4.5	4.3	3.3	1.8	1.7	1.6	1.5	1.1	1.5	1.7	1.6	1.5	2.0
Moderately high	7.2	6.9	6.4	6.9	6.0	5.8	7.2	5.1	3.9	3.9	3.0	2.4	1.7	1.5	1.4	1.3	0.7	0.9	1.0	1.5	1.6	1.1	1.7
Very high	2.4	2.3	2.3	2.2	2.1	1.7	1.5	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.7	0.6	1.0	1.1
Approximate weighted N =	2,531	2,570	2,755	3,170	3,098	3,055	3,354	3,455	3,211	3,129	3,131	2,994	3,170	3,217	2,741	2,513	2,473	2,609	2,634	2,538	2,514	2,300	2,490

*When you take amphetamines
how long do you usually stay high? ^a*

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
% of Recent Users																							
Usually don't get high	10.7	11.2	11.9	14.5	15.4	17.9	24.4	17.5	22.7	25.3	26.1	21.3	24.4	29.3	25.3	30.0	38.8	31.3	33.7	34.6	27.9	32.7	29.0
One to two hours	11.4	12.1	15.3	17.0	18.7	19.9	20.3	25.2	23.2	27.0	31.4	36.8	37.4	30.4	36.9	33.2	23.4	32.2	31.5	28.7	23.8	25.1	26.7
Three to six hours	37.0	48.4	38.4	39.5	40.1	43.4	38.2	45.5	42.6	35.7	31.2	31.0	23.3	26.0	26.5	22.5	19.0	11.0	25.0	20.7	29.7	27.2	29.8
Seven to 24 hours	37.0	26.1	31.6	27.1	23.8	17.7	16.3	11.0	9.7	11.9	10.8	10.1	12.9	13.1	7.2	12.9	12.8	18.1	6.9	10.7	13.6	11.6	12.6
More than 24 hours	3.8	2.1	2.9	1.9	2.0	1.1	0.8	0.8	1.8	0.2	0.6	0.8	2.0	1.1	4.2	1.4	6.0	7.5	3.0	5.3	4.9	3.4	1.9
Approximate weighted N =	412	413	446	546	521	583	810	627	478	424	392	309	267	202	154	131	109	102	125	146	147	136	178
% of All Respondents																							
No use in last 12 months	83.8	84.2	83.7	82.9	83.3	81.0	76.0	81.9	85.2	86.5	87.5	89.7	91.6	93.7	94.4	94.8	95.6	96.1	95.3	94.3	94.2	94.1	92.8
Usually don't get high	1.7	1.8	1.9	2.5	2.6	3.4	5.8	3.2	3.4	3.4	3.3	2.2	2.0	1.8	1.4	1.6	1.7	1.2	1.6	2.0	1.6	1.9	2.1
One to two hours	1.8	1.9	2.5	2.9	3.1	3.8	4.9	4.6	3.4	3.7	3.9	3.8	3.1	1.9	2.1	1.7	1.0	1.3	1.5	1.6	1.4	1.5	1.9
Three to six hours	6.0	7.6	6.3	6.7	6.7	8.3	9.2	8.2	6.3	4.8	3.9	3.2	2.0	1.6	1.5	1.2	0.8	0.4	1.2	1.2	1.7	1.6	2.1
Seven to 24 hours	6.0	4.1	5.1	4.6	4.0	3.4	3.9	2.0	1.4	1.6	1.3	1.0	1.1	0.8	0.4	0.7	0.6	0.7	0.3	0.6	0.8	0.7	0.9
More than 24 hours	0.6	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.3	0.1	0.3	0.3	0.2	0.1
Approximate weighted N =	2,543	2,614	2,736	3,193	3,111	3,063	3,375	3,460	3,227	3,135	3,142	2,998	3,172	3,223	2,742	2,513	2,475	2,607	2,633	2,539	2,516	2,298	2,485

(Table continued on next page.)

TABLE 7-5 (cont.)
AMPHETAMINES
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

*When you take amphetamines
how high do you usually get? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
I don't take them to get high	18.9	19.6	17.3	22.4	27.4	20.3	18.8	18.5	12.7	18.5	18.8	17.2	18.5	25.9	24.6	24.9	28.3	31.7	28.8	26.3	23.8	§	§	§
Not at all high	12.4	12.9	11.4	11.8	15.3	13.7	14.2	11.4	11.4	17.0	14.5	21.2	14.9	10.2	13.9	9.5	9.4	9.8	18.9	18.0	18.0	§	§	§
A little high	27.3	26.9	23.5	15.9	23.9	22.6	29.4	23.7	22.7	18.9	22.0	14.7	23.6	27.6	19.0	19.5	24.8	26.4	16.8	13.8	23.5	§	§	§
Moderately high	25.1	25.9	28.2	27.4	18.6	29.9	24.6	31.5	35.3	33.4	30.7	28.3	24.0	25.3	31.3	26.8	18.6	16.7	20.3	30.6	23.1	§	§	§
Very high	16.3	14.6	19.6	22.5	14.8	13.5	13.1	14.9	17.9	12.2	14.0	18.6	18.9	11.0	11.3	19.3	18.9	15.4	15.3	11.3	11.6	§	§	§
Approximate weighted N =	198	141	126	145	146	177	206	135	147	149	124	122	121	170	121	104	119	95	98	90	88	§	§	§
% of All Respondents																								
No use in last 12 months	92.0	93.7	93.9	92.9	93.0	92.6	91.4	94.3	93.6	93.7	94.5	94.5	94.8	92.6	94.5	94.9	94.0	95.5	94.9	95.6	96.0	§	§	§
I don't take them to get high	1.5	1.2	1.1	1.6	1.9	1.5	1.6	1.1	0.8	1.2	1.0	1.0	1.0	1.9	1.4	1.3	1.7	1.4	1.5	1.2	1.0	§	§	§
Not at all high	1.0	0.8	0.7	0.8	1.1	1.0	1.2	0.7	0.7	1.1	0.8	1.2	0.8	0.8	0.8	0.5	0.6	0.4	1.0	0.8	0.7	§	§	§
A little high	2.2	1.7	1.4	1.1	1.7	1.7	2.5	1.3	1.4	1.2	1.2	0.8	1.2	2.0	1.1	1.0	1.5	1.2	0.9	0.6	1.0	§	§	§
Moderately high	2.0	1.6	1.7	1.9	1.3	2.2	2.1	1.8	2.2	2.1	1.7	1.6	1.3	1.9	1.7	1.4	1.1	0.8	1.0	1.3	0.9	§	§	§
Very high	1.3	0.9	1.2	1.6	1.0	1.0	1.1	0.8	1.1	0.8	0.8	1.0	1.0	0.8	0.6	1.0	1.1	0.7	0.8	0.5	0.5	§	§	§
Approximate weighted N =	2,482	2,233	2,058	2,053	2,101	2,383	2,404	2,381	2,313	2,374	2,253	2,227	2,316	2,293	2,199	2,043	1,980	2,109	1,901	2,042	2,167	§	§	§

*When you take amphetamines
how long do you usually stay high? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	23.1	21.7	24.1	30.1	36.4	27.2	29.5	28.1	20.6	28.0	26.6	30.1	27.4	19.6	30.4	25.5	26.2	31.0	33.9	33.6	28.4	§	§	§
One to two hours	26.5	29.0	26.9	27.8	18.2	25.0	21.8	17.3	14.3	21.6	20.7	12.7	14.8	17.6	15.5	17.0	18.0	17.0	16.1	8.3	18.4	§	§	§
Three to six hours	28.0	37.5	34.2	23.9	22.3	24.5	27.0	24.6	30.9	24.7	33.7	32.5	26.0	34.1	35.1	26.7	34.0	30.4	28.5	34.1	25.7	§	§	§
Seven to 24 hours	16.9	8.6	14.2	17.0	18.1	18.4	21.0	20.1	30.4	18.4	16.3	23.1	24.6	23.9	15.2	25.9	15.4	13.4	20.4	19.1	20.8	§	§	§
More than 24 hours	5.5	3.2	0.6	1.1	5.0	5.0	0.8	9.9	3.8	7.4	2.7	1.7	7.3	4.9	3.7	4.9	6.4	8.2	1.1	4.9	6.8	§	§	§
Approximate weighted N =	195	134	123	143	143	172	206	133	147	148	121	119	117	165	119	105	116	96	99	85	90	§	§	§
% of All Respondents																								
No use in last 12 months	92.1	94.0	94.0	93.0	93.2	92.8	91.4	94.4	93.7	93.8	94.6	94.7	94.9	92.8	94.6	94.9	94.1	95.5	94.8	95.8	95.8	§	§	§
Usually don't get high	1.8	1.3	1.4	2.1	2.5	2.0	2.5	1.6	1.3	1.8	1.4	1.6	1.4	1.4	1.6	1.3	1.5	1.4	1.8	1.4	1.2	§	§	§
One to two hours	2.1	1.7	1.6	1.9	1.2	1.8	1.9	1.0	0.9	1.4	1.1	0.7	0.7	1.3	0.8	0.9	1.1	0.8	0.8	0.3	0.8	§	§	§
Three to six hours	2.2	2.3	2.0	1.7	1.5	1.8	2.3	1.4	2.0	1.5	1.8	1.7	1.3	2.5	1.9	1.4	2.0	1.4	1.5	1.4	1.1	§	§	§
Seven to 24 hours	1.3	0.5	0.9	1.2	1.2	1.3	1.8	1.1	1.9	1.2	0.9	1.2	1.2	1.7	0.8	1.3	0.9	0.6	1.1	0.8	0.9	§	§	§
More than 24 hours	0.4	0.2	0.0	0.1	0.3	0.4	0.1	0.6	0.2	0.5	0.2	0.1	0.4	0.4	0.2	0.3	0.4	0.4	0.1	0.2	0.3	§	§	§
Approximate weighted N =	2,479	2,226	2,055	2,051	2,098	2,378	2,404	2,379	2,313	2,373	2,251	2,223	2,312	2,288	2,197	2,044	1,977	2,109	1,902	2,037	2,169	§	§	§

Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bNo estimates provided in 2019 because of small sample size (n<50). All estimates in this chapter based on paper-based responses, the number of which were halved in 2019 due to an experiment in which a randomly assigned half of the students recorded their answers on paper and the other half on electronic tablets.

TABLE 7-6
TRANQUILIZERS
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

—————→
(Years cont.)

<i>When you take tranquilizers how high do you usually get? ^a</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
<i>% of Recent Users</i>																							
I don't take them to get high	17.9	18.5	23.6	23.0	16.8	14.7	19.1	25.3	20.2	24.3	21.7	30.7	30.4	42.7	34.8	34.5	48.3	31.0	29.0	30.5	26.6	18.3	19.3
Not at all high	11.1	16.2	12.4	14.0	15.0	17.6	17.0	17.3	17.1	16.7	17.6	24.0	20.8	12.9	22.6	11.5	13.9	18.6	29.5	19.2	18.6	9.4	13.4
A little high	30.1	24.1	29.5	27.0	27.0	27.5	28.7	30.0	27.7	29.9	37.5	19.2	18.4	22.4	16.6	26.1	19.7	16.1	19.0	22.0	18.9	34.0	25.2
Moderately high	28.9	31.4	25.8	29.1	30.5	29.8	22.9	18.5	26.0	21.4	19.8	17.3	18.2	14.1	21.5	18.2	17.3	21.2	14.6	24.4	24.0	28.1	23.9
Very high	11.9	9.8	8.7	6.8	10.8	10.5	12.4	8.8	9.0	7.7	3.4	8.9	12.2	7.9	4.5	9.8	0.8	13.2	7.8	4.0	11.8	10.2	18.2
Approximate weighted N =	159	213	243	267	218	205	223	154	128	115	144	122	125	99	68	75	51	57	68	58	67	54	83
<i>% of All Respondents</i>																							
No use in last 12 months	89.4	89.7	89.2	90.1	92.9	93.2	93.3	95.5	96.0	96.3	95.4	95.9	96.0	96.9	97.5	97.0	97.9	97.8	97.4	97.7	97.3	97.6	96.6
I don't take them to get high	1.9	1.9	2.5	2.3	1.2	1.0	1.3	1.1	0.8	0.9	1.0	1.3	1.2	1.3	0.9	1.0	1.0	0.7	0.8	0.7	0.7	0.4	0.6
Not at all high	1.2	1.7	1.3	1.4	1.1	1.2	1.1	0.8	0.7	0.6	0.8	1.0	0.8	0.4	0.6	0.3	0.3	0.4	0.8	0.4	0.5	0.2	0.5
A little high	3.2	2.5	3.2	2.7	1.9	1.9	1.9	1.4	1.1	1.1	1.7	0.8	0.7	0.7	0.4	0.8	0.4	0.4	0.5	0.5	0.5	0.8	0.9
Moderately high	3.1	3.2	2.8	2.9	2.2	2.0	1.5	0.8	1.0	0.8	0.9	0.7	0.7	0.4	0.5	0.6	0.4	0.5	0.4	0.6	0.6	0.7	0.8
Very high	1.3	1.0	0.9	0.7	0.8	0.7	0.8	0.4	0.4	0.3	0.2	0.4	0.5	0.2	0.1	0.3	0.0	0.3	0.2	0.1	0.3	0.2	0.6
Approximate weighted N =	1,500	2,068	2,250	2,697	3,073	3,040	3,330	3,420	3,186	3,074	3,119	2,963	3,141	3,199	2,710	2,509	2,448	2,571	2,598	2,523	2,500	2,292	2,469
<i>When you take tranquilizers how long do you usually stay high? ^a</i>																							
<i>% of Recent Users</i>																							
Usually don't get high	29.9	33.0	31.6	32.7	27.8	27.9	31.1	31.9	38.8	36.9	36.8	46.0	50.4	48.3	45.3	35.8	47.2	48.7	50.2	43.6	34.0	30.6	22.1
One to two hours	17.6	24.1	22.5	26.0	21.3	25.4	27.2	25.0	21.6	25.7	24.7	25.3	20.0	19.3	19.9	20.7	20.5	19.1	19.1	18.7	25.4	22.6	35.2
Three to six hours	42.9	35.6	38.8	32.3	40.2	32.4	32.1	33.3	32.5	27.8	33.5	22.4	21.8	23.7	28.5	31.1	25.0	18.9	19.1	31.3	28.5	32.7	35.7
Seven to 24 hours	9.5	6.5	6.1	8.7	9.4	14.2	9.5	9.8	6.3	9.5	3.5	4.4	7.3	8.0	3.0	9.7	5.6	12.2	11.6	3.0	8.9	11.5	6.1
More than 24 hours	0.0	0.7	1.0	0.4	1.3	0.0	0.0	0.0	0.8	0.0	1.6	1.9	0.4	0.8	3.3	2.8	1.6	1.2	0.0	3.5	3.2	2.6	1.0
Approximate weighted N =	158	214	242	269	221	200	221	151	132	114	134	121	129	95	65	67	48	55	72	51	62	54	79
<i>% of All Respondents</i>																							
No use in last 12 months	89.4	89.7	89.2	90.1	92.8	93.4	93.4	95.6	95.9	96.3	95.7	95.9	95.9	97.0	97.6	97.3	98.0	97.9	97.2	98.0	97.5	97.7	96.8
Usually don't get high	3.2	3.4	3.4	3.2	2.0	1.8	2.1	1.4	1.6	1.4	1.6	1.9	2.1	1.4	1.1	1.0	0.9	1.0	1.4	0.9	0.8	0.7	0.7
One to two hours	1.9	2.5	2.4	2.6	1.5	1.7	1.8	1.1	0.9	1.0	1.1	1.0	0.8	0.6	0.5	0.6	0.4	0.4	0.5	0.4	0.6	0.5	1.1
Three to six hours	4.5	3.7	4.2	3.2	2.9	2.1	2.1	1.5	1.3	1.0	1.4	0.9	0.9	0.7	0.7	0.8	0.5	0.4	0.5	0.6	0.7	0.8	1.1
Seven to 24 hours	1.0	0.7	0.7	0.9	0.7	0.9	0.6	0.4	0.3	0.4	0.1	0.2	0.3	0.2	0.1	0.3	0.1	0.3	0.3	0.1	0.2	0.3	0.2
More than 24 hours	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0
Approximate weighted N =	1,491	2,078	2,241	2,717	3,075	3,034	3,328	3,417	3,190	3,072	3,110	2,962	3,144	3,196	2,707	2,501	2,446	2,570	2,602	2,516	2,495	2,291	2,465

(Table continued on next page.)

**TABLE 7-6 (cont.)
TRANQUILIZERS**

Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

When you take tranquilizers

how high do you usually get? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
I don't take them to get high	19.6	11.3	9.4	20.1	16.6	16.1	14.3	13.4	10.3	11.7	14.1	11.0	15.2	14.0	13.5	18.5	14.9	22.0	15.5	15.7	9.8	§	§	§
Not at all high	8.0	7.9	10.9	11.8	10.4	7.5	13.4	10.3	3.2	7.8	10.4	6.7	8.4	13.6	10.8	11.1	13.5	17.0	9.0	19.3	15.0	§	§	§
A little high	24.9	22.1	35.2	21.4	17.2	23.2	24.1	18.0	31.5	22.3	18.5	19.9	15.0	21.8	18.0	17.5	17.0	15.8	27.0	13.6	12.8	§	§	§
Moderately high	37.9	39.7	33.7	29.4	34.2	32.0	32.3	36.7	39.0	41.5	34.4	34.7	31.5	22.7	32.6	26.2	37.5	29.8	32.2	21.8	39.1	§	§	§
Very high	9.5	19.1	10.9	17.3	21.6	21.2	16.0	21.6	16.0	16.7	22.6	27.7	29.9	27.9	25.2	26.7	17.0	15.3	16.4	29.5	23.3	§	§	§
Approximate weighted N =	80	77	69	95	98	110	126	111	96	119	115	93	103	97	93	70	84	80	66	75	58	§	§	§
% of All Respondents																								
No use in last 12 months	96.8	96.5	96.6	95.3	95.3	95.4	94.7	95.3	95.8	94.9	94.8	95.8	95.4	95.7	95.7	96.5	95.8	96.1	96.5	96.2	97.2	§	§	§
I don't take them to get high	0.6	0.4	0.3	0.9	0.8	0.8	0.8	0.6	0.4	0.6	0.7	0.5	0.7	0.6	0.6	0.6	0.6	0.9	0.6	0.6	0.3	§	§	§
Not at all high	0.3	0.3	0.4	0.6	0.5	0.4	0.7	0.5	0.1	0.4	0.5	0.3	0.4	0.6	0.5	0.4	0.6	0.7	0.3	0.7	0.4	§	§	§
A little high	0.8	0.8	1.2	1.0	0.8	1.1	1.3	0.9	1.3	1.1	1.0	0.8	0.7	0.9	0.8	0.6	0.7	0.6	1.0	0.5	0.4	§	§	§
Moderately high	1.2	1.4	1.1	1.4	1.6	1.5	1.7	1.7	1.6	2.1	1.8	1.5	1.4	1.0	1.4	0.9	1.6	1.2	1.1	0.8	1.1	§	§	§
Very high	0.3	0.7	0.4	0.8	1.0	1.0	0.9	1.0	0.7	0.9	1.2	1.2	1.4	1.2	1.1	0.9	0.7	0.6	0.6	1.1	0.6	§	§	§
Approximate weighted N =	2,468	2,205	2,046	2,033	2,088	2,356	2,363	2,353	2,292	2,334	2,217	2,208	2,255	2,258	2,176	2,033	1,966	2,066	1,859	1,990	2,106	§	§	§

When you take tranquilizers

how long do you usually stay high? ^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	25.1	11.5	13.4	25.2	23.8	22.6	20.9	21.8	7.2	19.0	17.1	16.7	14.8	23.4	19.5	24.0	26.5	28.5	11.6	28.7	21.5	§	§	§
One to two hours	31.4	36.4	34.3	19.0	27.6	27.8	27.8	25.0	28.8	27.0	24.4	20.6	24.1	19.2	13.1	22.3	29.7	32.1	26.8	19.8	15.6	§	§	§
Three to six hours	36.0	41.9	45.8	38.6	35.1	38.1	38.5	40.3	55.2	41.7	40.3	47.4	42.9	40.1	46.4	34.9	29.0	31.0	46.0	28.6	45.2	§	§	§
Seven to 24 hours	4.7	9.0	4.6	11.0	12.6	11.5	10.8	11.8	7.4	10.4	18.3	15.2	15.8	12.2	18.3	17.3	10.4	7.6	10.6	19.1	16.1	§	§	§
More than 24 hours	2.9	1.3	1.9	6.3	1.0	0.0	2.0	1.1	1.4	1.8	0.0	0.0	2.3	5.1	2.7	1.6	4.6	1.0	5.0	3.9	1.6	§	§	§
Approximate weighted N =	81	74	70	95	98	106	128	111	97	118	112	95	99	97	92	70	83	76	66	65	57	§	§	§
% of All Respondents																								
No use in last 12 months	96.7	96.6	96.6	95.3	95.3	95.5	94.6	95.3	95.8	94.9	94.9	95.7	95.6	95.7	95.8	96.6	95.8	96.3	96.5	96.7	97.3	§	§	§
Usually don't get high	0.8	0.4	0.5	1.2	1.1	1.0	1.1	1.0	0.3	1.0	0.9	0.7	0.7	1.0	0.8	0.8	1.1	1.1	0.4	0.9	0.6	§	§	§
One to two hours	1.0	1.2	1.2	0.9	1.3	1.3	1.5	1.2	1.2	1.4	1.2	0.9	1.1	0.8	0.6	0.8	1.3	1.2	1.0	0.7	0.4	§	§	§
Three to six hours	1.2	1.4	1.6	1.8	1.7	1.7	2.1	1.9	2.3	2.1	2.0	2.0	1.9	1.7	2.0	1.2	1.2	1.1	1.6	0.9	1.2	§	§	§
Seven to 24 hours	0.2	0.3	0.2	0.5	0.6	0.5	0.6	0.6	0.3	0.5	0.9	0.7	0.7	0.5	0.8	0.6	0.4	0.3	0.4	0.6	0.4	§	§	§
More than 24 hours	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.0	0.2	0.1	0.0	§	§	§
Approximate weighted N =	2,468	2,202	2,047	2,032	2,088	2,352	2,365	2,353	2,293	2,333	2,214	2,209	2,252	2,258	2,174	2,033	1,965	2,062	1,859	1,980	2,105	§	§	§

Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bNo estimates provided in 2019 because of small sample size ($n < 50$). All estimates in this chapter based on paper-based responses, the number of which were halved in 2019 due to an experiment in which a randomly assigned half of the students recorded their answers on paper and the other half on electronic tablets.

TABLE 7-7
ALCOHOL
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
(Years cont.) →																							
<i>When you drink alcoholic beverages</i>																							
<i>how high do you usually get? ^a</i>																							
<i>% of Recent Users</i>																							
Not at all high	23.6	21.6	20.6	19.1	19.6	20.7	18.9	18.9	18.8	19.0	19.7	18.5	18.8	20.0	22.1	23.0	20.6	24.2	23.8	19.7	20.7	23.2	22.0
A little high	33.8	32.3	32.8	33.9	33.6	32.6	33.8	32.6	35.8	34.0	34.8	34.7	34.4	34.2	34.4	32.3	36.8	32.5	32.2	32.7	32.6	29.9	28.9
Moderately high	35.9	38.0	39.6	39.9	38.7	39.7	41.4	40.9	38.8	39.2	38.5	39.8	38.8	38.2	35.9	36.2	34.0	35.6	36.5	38.3	36.5	35.5	37.5
Very high	6.6	8.1	7.0	7.1	8.1	7.0	5.8	7.5	6.7	7.8	7.1	7.1	8.0	7.6	7.6	8.5	8.6	7.7	7.5	9.2	10.1	11.4	11.6
<i>Approximate weighted N =</i>	<i>2,419</i>	<i>2,368</i>	<i>2,578</i>	<i>3,124</i>	<i>2,764</i>	<i>2,709</i>	<i>2,912</i>	<i>2,958</i>	<i>2,808</i>	<i>2,601</i>	<i>2,618</i>	<i>2,531</i>	<i>2,718</i>	<i>2,755</i>	<i>2,211</i>	<i>1,965</i>	<i>1,898</i>	<i>1,965</i>	<i>1,960</i>	<i>1,866</i>	<i>1,867</i>	<i>1,664</i>	<i>1,915</i>
<i>% of All Respondents</i>																							
No use in last 12 months	15.2	14.3	13.0	12.3	12.5	13.2	14.7	14.1	14.1	17.1	16.1	16.0	14.6	14.8	18.8	21.2	22.7	23.6	25.4	26.4	25.7	28.2	24.7
Not at all high	20.0	18.5	17.9	16.8	17.2	18.0	16.2	16.2	16.2	15.8	16.5	15.5	16.0	17.0	18.0	18.1	15.9	18.5	17.8	14.5	15.4	16.6	16.6
A little high	28.7	27.7	28.5	29.7	29.4	28.3	28.9	28.0	30.7	28.2	29.2	29.1	29.4	29.2	28.0	25.5	28.5	24.8	24.0	24.1	24.2	21.5	21.8
Moderately high	30.4	32.6	34.5	35.0	33.8	34.4	35.3	35.2	33.3	32.5	32.3	33.4	33.1	32.6	29.2	28.5	26.3	27.2	27.2	28.2	27.1	25.5	28.2
Very high	5.6	6.9	6.1	6.2	7.1	6.1	5.0	6.5	5.7	6.5	5.9	6.0	6.8	6.5	6.1	6.7	6.7	5.9	5.6	6.8	7.5	8.2	8.7
<i>Approximate weighted N =</i>	<i>2,853</i>	<i>2,763</i>	<i>2,963</i>	<i>3,562</i>	<i>3,159</i>	<i>3,122</i>	<i>3,413</i>	<i>3,443</i>	<i>3,268</i>	<i>3,137</i>	<i>3,120</i>	<i>3,011</i>	<i>3,183</i>	<i>3,232</i>	<i>2,721</i>	<i>2,493</i>	<i>2,454</i>	<i>2,572</i>	<i>2,627</i>	<i>2,533</i>	<i>2,514</i>	<i>2,318</i>	<i>2,542</i>
<i>When you drink alcoholic beverages</i>																							
<i>how long do you usually stay high? ^a</i>																							
<i>% of Recent Users</i>																							
Usually don't get high	25.7	24.6	22.6	21.3	21.7	22.7	20.9	20.5	21.4	20.3	21.5	20.9	20.8	22.9	24.2	24.7	23.0	27.0	26.1	22.5	23.2	25.3	23.5
One to two hours	40.5	38.5	38.8	39.8	41.9	39.5	40.3	41.3	40.8	42.2	41.5	40.6	43.8	42.0	41.3	39.4	40.1	37.3	38.8	40.5	36.7	33.1	33.6
Three to six hours	30.1	33.8	34.8	35.7	32.7	33.8	35.6	34.4	33.7	33.1	33.5	34.9	31.5	32.1	31.6	31.7	31.7	30.7	30.4	32.2	34.2	35.7	36.9
Seven to 24 hours	3.4	3.0	3.5	3.1	3.4	3.8	3.1	3.4	3.9	4.0	3.1	3.2	3.7	2.9	2.8	4.0	4.6	4.7	4.3	4.2	5.4	5.3	5.2
More than 24 hours	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.4	0.3	0.3	0.4	0.4	0.2	0.1	0.2	0.3	0.6	0.3	0.3	0.6	0.6	0.5	0.9
<i>Approximate weighted N =</i>	<i>2,403</i>	<i>2,358</i>	<i>2,547</i>	<i>3,098</i>	<i>2,746</i>	<i>2,697</i>	<i>2,892</i>	<i>2,947</i>	<i>2,792</i>	<i>2,588</i>	<i>2,608</i>	<i>2,509</i>	<i>2,711</i>	<i>2,748</i>	<i>2,202</i>	<i>1,949</i>	<i>1,884</i>	<i>1,951</i>	<i>1,950</i>	<i>1,857</i>	<i>1,849</i>	<i>1,657</i>	<i>1,897</i>
<i>% of All Respondents</i>																							
No use in last 12 months	15.2	14.3	13.0	12.3	12.6	13.3	14.8	14.1	14.1	17.1	16.1	16.1	14.7	14.8	18.8	21.3	22.8	23.7	25.5	26.4	25.9	28.3	24.8
Usually don't get high	21.8	21.1	19.7	18.7	19.0	19.7	17.8	17.6	18.3	16.9	18.0	17.5	17.8	19.5	19.6	19.4	17.8	20.6	19.5	16.5	17.2	18.2	17.6
One to two hours	34.3	33.0	33.8	34.9	36.6	34.2	34.3	35.5	35.0	35.0	34.8	34.1	37.4	35.8	33.5	31.0	31.0	28.5	28.9	29.8	27.2	23.7	25.3
Three to six hours	25.5	29.0	30.3	31.3	28.6	29.3	30.4	29.6	28.9	27.4	28.1	29.3	26.9	27.3	25.6	24.9	24.4	23.4	22.7	23.7	25.3	25.6	27.7
Seven to 24 hours	2.9	2.6	3.0	2.7	3.0	3.3	2.7	2.9	3.3	3.4	2.6	2.7	3.2	2.5	2.2	3.2	3.5	3.6	3.2	3.1	4.0	3.8	3.9
More than 24 hours	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.5	0.2	0.2	0.4	0.4	0.4	0.7
<i>Approximate weighted N =</i>	<i>2,834</i>	<i>2,751</i>	<i>2,928</i>	<i>3,532</i>	<i>3,142</i>	<i>3,109</i>	<i>3,393</i>	<i>3,431</i>	<i>3,252</i>	<i>3,124</i>	<i>3,110</i>	<i>2,990</i>	<i>3,177</i>	<i>3,226</i>	<i>2,712</i>	<i>2,477</i>	<i>2,441</i>	<i>2,558</i>	<i>2,616</i>	<i>2,525</i>	<i>2,496</i>	<i>2,311</i>	<i>2,524</i>

(Table continued on next page.)

TABLE 7-7 (cont.)
ALCOHOL
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

*When you drink alcoholic beverages
how high do you usually get? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Not at all high	20.6	21.1	22.4	20.5	23.2	21.0	23.5	23.6	25.0	28.0	29.7	26.0	31.4	30.0	31.2	27.5	27.3	30.6	26.7	29.0	28.4	27.2	§	26.6
A little high	29.8	27.3	26.1	26.7	30.1	28.6	25.8	25.3	27.6	26.9	27.7	30.3	26.0	26.8	26.3	23.5	27.4	26.9	31.0	29.8	29.8	26.3	§	33.3
Moderately high	37.5	41.7	38.8	40.9	35.1	37.6	37.6	38.7	35.2	33.9	32.8	33.6	32.1	34.3	33.1	38.6	36.6	33.2	34.3	32.7	32.0	36.7	§	34.2
Very high	12.1	10.0	12.7	11.8	11.7	12.9	13.1	12.4	12.2	11.2	9.8	10.0	10.4	9.0	9.5	10.4	8.7	9.4	8.0	8.4	9.8	9.8	§	5.9
<i>Approximate weighted N =</i>	1,874	1,619	1,567	1,591	1,530	1,691	1,785	1,712	1,629	1,676	1,608	1,565	1,617	1,546	1,502	1,365	1,308	1,291	1,183	1,221	1,313	548	§	698
% of All Respondents																								
No use in last 12 months	25.6	27.0	26.2	24.2	28.7	30.1	26.5	29.9	30.0	30.1	30.4	30.5	31.9	33.7	33.1	35.3	36.6	39.8	39.3	40.9	40.7	43.7	§	50.9
Not at all high	15.3	15.4	16.6	15.6	16.5	14.7	17.3	16.5	17.5	19.6	20.7	18.1	21.4	19.9	20.9	17.8	17.3	18.4	16.2	17.2	16.8	15.3	§	13.1
A little high	22.2	19.9	19.3	20.2	21.4	20.0	18.9	17.8	19.3	18.8	19.3	21.1	17.7	17.7	17.6	15.2	17.4	16.2	18.8	17.6	17.7	14.8	§	16.4
Moderately high	27.9	30.5	28.6	31.0	25.1	26.3	27.7	27.1	24.6	23.7	22.8	23.4	21.9	22.7	22.2	25.0	23.2	20.0	20.8	19.3	19.0	20.7	§	16.8
Very high	9.0	7.3	9.4	9.0	8.3	9.0	9.7	8.7	8.6	7.8	6.8	7.0	7.1	6.0	6.3	6.7	5.5	5.6	4.9	5.0	5.8	5.5	§	2.9
<i>Approximate weighted N =</i>	2,517	2,217	2,123	2,099	2,145	2,418	2,427	2,441	2,328	2,399	2,311	2,252	2,373	2,331	2,244	2,109	2,064	2,145	1,948	2,065	2,216	973	§	1,420

*When you drink alcoholic beverages
how long do you usually stay high? ^a*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
% of Recent Users																								
Usually don't get high	22.6	22.5	24.6	21.5	24.9	22.3	24.6	25.2	27.0	30.2	32.3	28.0	31.2	32.0	31.7	26.6	27.6	30.4	29.3	30.0	31.9	29.5	§	27.9
One to two hours	36.8	32.3	32.2	33.7	33.7	32.7	31.5	31.0	32.1	28.9	27.4	33.4	28.4	28.5	31.3	28.7	33.4	31.0	31.8	34.6	28.1	33.6	§	37.7
Three to six hours	34.5	39.6	37.0	38.5	35.7	39.1	36.5	37.4	34.7	34.3	33.9	32.9	33.6	33.7	31.9	38.0	33.9	34.7	35.1	30.2	34.5	32.9	§	29.9
Seven to 24 hours	5.7	5.1	5.4	5.6	5.1	5.4	6.7	5.5	5.7	5.8	6.0	4.9	5.8	5.0	4.5	6.0	4.6	3.1	3.4	4.5	4.5	3.3	§	4.3
More than 24 hours	0.5	0.5	0.9	0.7	0.6	0.6	0.6	0.9	0.5	0.8	0.4	0.8	1.0	0.9	0.7	0.7	0.6	0.8	0.4	0.7	1.0	0.7	§	0.2
<i>Approximate weighted N =</i>	1,853	1,614	1,552	1,586	1,523	1,681	1,775	1,698	1,625	1,664	1,601	1,561	1,606	1,535	1,498	1,361	1,304	1,286	1,176	1,213	1,315	547	§	692
% of All Respondents																								
No use in last 12 months	25.8	27.0	26.4	24.3	28.8	30.2	26.6	30.1	30.1	30.3	30.5	30.6	32.0	33.8	33.1	35.3	36.7	39.9	39.4	41.0	40.7	43.7	§	51.1
Usually don't get high	16.8	16.4	18.1	16.3	17.7	15.5	18.1	17.7	18.8	21.0	22.5	19.4	21.2	21.4	21.2	17.2	17.5	18.3	17.8	17.7	18.9	16.6	§	13.7
One to two hours	27.3	23.6	23.7	25.5	24.0	22.8	23.2	21.7	22.5	20.2	19.0	23.2	19.3	18.8	20.9	18.6	21.1	18.6	19.3	20.4	16.7	18.9	§	18.5
Three to six hours	25.6	28.9	27.2	29.2	25.5	27.3	26.8	26.2	24.2	23.9	23.6	22.9	22.8	22.3	21.3	24.6	21.5	20.9	21.2	17.8	20.5	18.5	§	14.6
Seven to 24 hours	4.2	3.7	3.9	4.2	3.6	3.8	4.9	3.8	4.0	4.1	4.2	3.4	3.9	3.3	3.0	3.9	2.9	1.9	2.1	2.7	2.7	1.9	§	2.1
More than 24 hours	0.4	0.4	0.7	0.5	0.4	0.4	0.5	0.6	0.4	0.6	0.3	0.5	0.7	0.6	0.5	0.5	0.4	0.5	0.3	0.4	0.6	0.4	§	0.1
<i>Approximate weighted N =</i>	2,497	2,211	2,108	2,095	2,138	2,408	2,418	2,427	2,324	2,387	2,304	2,248	2,362	2,320	2,241	2,105	2,060	2,140	1,941	2,058	2,218	972	§	1,414

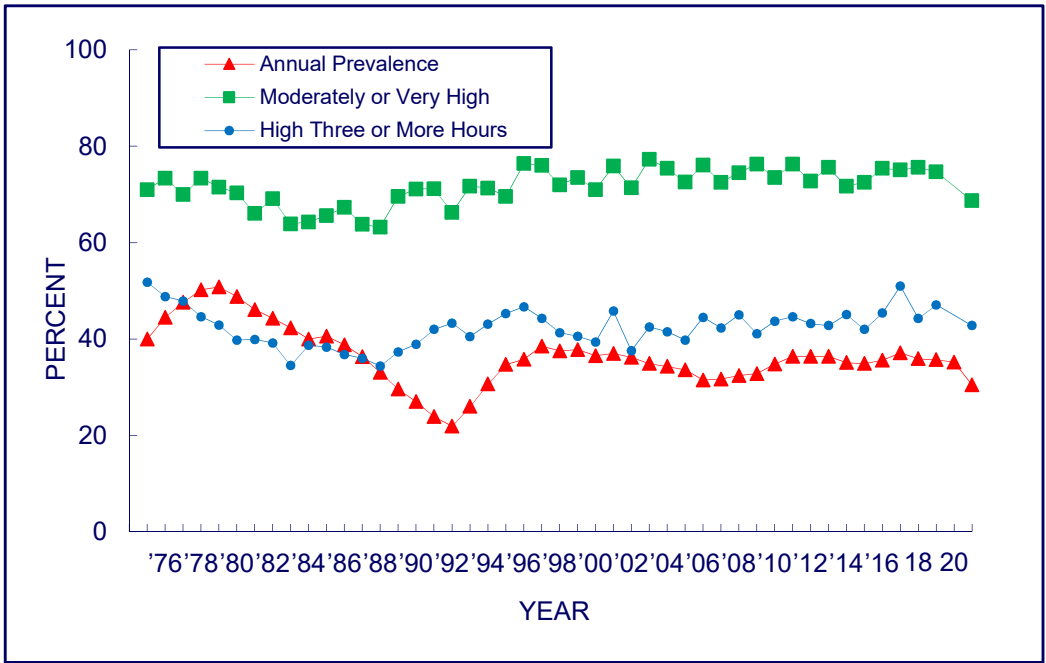
Source. The Monitoring the Future study, the University of Michigan.

§ Insufficient data for estimate.

^aThese questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., recent users).

^bResults in following years may not be directly comparable due to survey mode effects; the 2021 survey was administered via a web questionnaire and in 2019 and earlier results are from paper-and-pencil surveys.

FIGURE 7-1
Marijuana: Trends in Annual Prevalence, Percent of Recent Users Getting Moderately or Very High ^a, and Percent of Recent Users Staying High ^a 3 or More Hours in Grade 12



Source. The Monitoring the Future study, the University of Michigan.
 Note. Recent users is defined as respondents reporting any use of marijuana in the prior 12 months.
^aEstimates not presented in 2020 due to insufficient data.

Chapter 8

ATTITUDES AND BELIEFS ABOUT DRUG USE

Guided by its theoretical framework regarding historical variation in substance use behaviors, attitudes and beliefs, MTF measures key factors that have proved to be central to the explanation of historical differences and changes in drug use.¹ These factors include perceived risk of harm and personal disapproval. Indeed, one of MTF's most important theoretical and empirical contributions to the general understanding of young people's drug use has been to demonstrate that changes in beliefs and attitudes about drugs are important determinants of historical trends, both upward and downward, in the use of many drugs.

The 2021 results for attitudes and beliefs may be subject to survey mode effects. For the first time in 2021 MTF administered surveys to 8th, 10th, and 12th graders using a web-based questionnaire. The student experience of completing the survey was similar to the previous year, in which all students answered the questionnaire in class using internet-connected electronic tablets, which MTF brought to the schools. A main difference in 2021 is that students used their own electronic devices. In addition, students who were schooling remotely took the survey in their homes rather than in their school building. The transition to a web-based survey model in 2021 was a response to the COVID-19 pandemic, and allowed MTF to conduct its annual survey among students whose school building had closed.

It is possible that students answered questions on attitudes and beliefs differently for the web-based survey in comparison to how they would have answered on tablets or pencil-and-paper questionnaires. Such survey mode effects were present in the 2019 MTF survey, as indicated by estimates that significantly differed for the randomly-selected half of students who answered these survey questions by paper-and-pencil in comparison to the randomly-selected half that answered the question with electronic tablets. Because the pandemic came on suddenly and unexpectedly MTF was not able to conduct a randomized-controlled experiment to evaluate the magnitude of survey mode effects by survey question for the 2021 web-based survey.

In what follows we present 2021 results for attitudes and beliefs and refrain from tests of statistical significance when comparing these results to previous years, for which MTF results may not be directly comparable. We note that our cautiousness in comparing to previous years does not necessarily mean that the results are not comparable, but only that comparability is not known at this point.

The cross-time results for three important sets of attitude and belief measures are provided in this chapter: (a) 8th, 10th, and 12th grade students' beliefs about how *harmful* the various kinds of drug use are for the user, (b) the degree to which students personally *disapprove* of the use of various drugs, and (c) 12th graders' attitudes about various forms of *legal prohibitions* to using drugs. In the next chapter, we present results on the closely related topics of parents' and friends' attitudes about drugs, as students perceive them, as well as on various other aspects of the social context,

¹ Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2016). [*The objectives and theoretical foundation of the Monitoring the Future study*](#) (Monitoring the Future Occasional Paper No. 84). Ann Arbor, MI: Institute for Social Research, University of Michigan.

including perceived availability and the extent of the respondent's exposure to people using various drugs.

The data presented in this chapter show many inverse relationships at the aggregate level between the level of reported use of a drug and the levels of perceived risk and disapproval of using that drug. For example, among 10th and 12th graders, marijuana is the illicit drug with the highest level of use and one of the lowest levels of perceived risk and disapproval. These relationships suggest that individuals who believe that the use of a particular drug involves risk of harm, and/or who disapprove of its use, are less likely to use that drug; indeed, strong correlations also exist at the individual level between use of a drug and attitudes and beliefs about that drug.^{2,3} Students who use a given drug are less likely to disapprove of its use or to see its use as dangerous.

Many attitudes and beliefs about specific drugs have changed dramatically during the life of the study, as have actual drug-using behaviors. Beginning in 1979, scientists, policymakers, and the media gave considerable attention to young people's increasing level of regular marijuana use as reported by this study and to the potential hazards associated with such use. As discussed later in this chapter, 12th graders' attitudes and beliefs about the regular use of marijuana shifted in a more conservative direction after 1979—a shift that coincided with a reversal in the previous, rapid rise of daily use and that very likely reflected the impact of the increased public attention and a greater focus on adverse consequences. Between 1986 and 1987, a similar and even more dramatic shift occurred for cocaine use and continued for some years. During much of the 1990s, however, there was an important turnaround or “relapse” in these attitudes, accompanied by an increased use of numerous illicit drugs, in particular marijuana. In the early 2000s, increased recognition of the hazards of ecstasy use appeared to contribute to a sharp downturn in use of that particular drug, as we had predicted. More recently, nicotine vaping ranks near the bottom of all substances, having low levels of perceived risk and disapproval, and it has rapidly become one of the most commonly used substances among teens.

PERCEIVED HARMFULNESS OF DRUG USE IN 2021

Beliefs about Harmfulness among 12th Graders

For many drugs, the level of risk attributed to use varies considerably with the intensity of use being considered. Expecting this to be the case, we structured the questions about illicit drugs to differentiate among experimental, occasional, and regular use. (Questions about the harmfulness of alcohol and tobacco use also specify different levels of use appropriate to those substances.) The respondent is asked, “How much do you think people risk harming themselves (physically or in other ways), if they . . .?” The sentence is completed with a series of phrases asking about increasing levels of drug use, such as the series “. . . try marijuana once or twice,” “. . . smoke marijuana occasionally,” and “. . . smoke marijuana regularly.”

² Johnston, L. D. (2003). [Alcohol and illicit drugs: The role of risk perceptions](#). In D. Romer (Ed.), *Reducing adolescent risk: Toward an integrated approach* (pp. 56–74). Thousand Oaks, CA: Sage.

³ Miech, R. A., Johnston, L. D., & O'Malley P. M. (2017). [Prevalence and attitudes regarding marijuana use among adolescents over the past decade](#). *Pediatrics*, 140(6).

Risk from Regular use

- A substantial majority of 12th graders perceive that regular use of many illicit drugs entails a great risk of harm for the user. In 2021, as Table 8-3 shows, 82% of 12th graders perceive a great risk of harm from regular use of [heroin](#), and 72% for [cocaine](#). More than half (55%) of 12th graders attribute great risk to regular use of [LSD](#), and about half (46%) do so for regular use of [amphetamines](#). Half of all 12th graders think that regular use of [sedatives \(barbiturates\)](#) (50%) involves a great risk of harm to the user. Among the illicit drugs, [marijuana](#) has the lowest perceived risk, with a little more than 1 in 5 12th graders (22%) ascribing great risk to regular use.
- Two thirds of 12th graders (66%) judge smoking one or more packs of [cigarettes](#) per day as entailing a great risk of harm for the user in 2021. This level of perceived risk is not much lower than the same perceived risk level for regular use of cocaine (72%).
- Levels of perceived risk for regular [vaping nicotine](#) are substantially less than the levels for regular cigarette use of one or more packs a day. In 2021, 44% of 12th graders perceived a great risk from regular nicotine vaping, compared to 66% for regular cigarette use.
- The levels of perceived risk for regular [JUUL](#) use (37%) are about the same as they are for nicotine vaping (43%). The similar levels suggest that most teens are aware that JUUL products contain nicotine. These relatively low levels of perceived risk suggest that teens do not consider nicotine a particularly harmful chemical.
- Regular use of [alcohol](#) is more explicitly defined in several questions providing specificity on the amount and frequency of use. About one in five 12th graders (22%) associate great risk of harm with having one or two drinks nearly every day, about 1 in 3 (34%) think there is great risk involved in having five or more drinks once or twice each weekend, and about 2 in 3 (64%) think the user takes a great risk in having four or five drinks nearly every day. Still, it is noteworthy that about 1 in 3 (36%) do *not* view having four or five drinks nearly every day as entailing great risk.

Risk from Experimental use

- Far fewer respondents believe that a person runs a great risk of harm by trying a drug once or twice, which we refer to here as *experimental use*. Still, substantial proportions of 12th graders view even experimenting with most of the illicit drugs as risky. The 2021 percentages associating great risk with experimental use rank as follows:

<i>Heroin without using a needle</i>	65%
<i>Crystal methamphetamine (ice)</i>	64%
<i>Heroin</i>	61%
<i>Cocaine</i>	52%
<i>Steroids</i>	46%
<i>Narcotics other than heroin</i>	44%
<i>PCP</i>	43%
<i>MDMA (ecstasy, Molly)</i>	41%

<i>Amphetamines</i>	39%
<i>Sedatives (barbiturates)</i>	31%
<i>Adderall</i>	30%
<i>LSD</i>	28%
<i>Synthetic marijuana</i>	23%
<i>Alcohol</i>	10%
<i>Marijuana</i>	10%
<i>Salvia</i>	10%

Note that the **prescription-type drugs** (e.g., Adderall, amphetamines, sedatives, narcotics other than heroin) tend to have lower levels of risk than most of the illicit drugs. That may help explain the relatively high levels of use of the prescription-type drugs. (Perceived risk of tranquilizers, another prescription-type drug, is not asked.)

- Only 10% of 12th graders see experimenting with [marijuana](#) as entailing great risk.
- Just 10% of 12th graders believe there is great risk involved in trying one or two drinks of an [alcoholic beverage](#) (Table 8-3).

Beliefs about Harmfulness among 8th and 10th Graders

An abbreviated set of the same questions on perceived harmfulness has been asked of 8th and 10th graders since they were first surveyed by MTF in 1991. Perceived harmfulness of [inhalant](#) use is not asked of 12th graders but is included in the 8th and 10th grade questionnaires. In general, the findings for 8th and 10th graders are similar to those for 12th graders in 2021, but some interesting differences emerge:

- In all three grades the perceived risk of [regular cigarette smoking](#) ranks among the top three most dangerous drug behaviors, behind only occasional or regular heroin and cocaine use.
- Less than half of 8th and 10th grade students see great risk in [smoking one to five cigarettes per day](#) (40% of 8th graders and 46% of 10th graders). (Twelfth graders are not asked this question.) These low proportions seeing great risk suggest that many students are not taking into account that this level of use places smokers at substantial risk of becoming heavy, dependent users.
- Regular use of [smokeless tobacco](#) is viewed as entailing great risk by 38% of 8th graders and 44% of 10th graders, meaning that over half do not see great risk of harm. Again, because this behavior is often initiated at early ages, these figures are disturbingly low.
- Perceived risk levels of [vaping nicotine](#) regularly are lowest in 12th grade, at 55% in 8th grade, 53% in 10th grade, and 44% in 12th grade. These levels of perceived risk are substantially below those for regular cigarette use.
- Younger students, particularly 8th graders, are more likely than 12th graders to see [marijuana](#) use as dangerous. In 2021, 8th graders (28%) were considerably more likely

than 12th graders (13%) to see occasional marijuana use as entailing great risk of harm. Tenth graders fall in between at 23%.

- Eighth and 10th graders are more likely than 12th graders to see [weekend binge drinking](#) as dangerous: 52% for 8th graders, 54% for 10th graders, and 34% for 12th graders in 2021.
- Perceived risk of trying [MDMA](#) (ecstasy, Molly) does not systematically vary across the three grades, at 33% in 8th grade, 53% in 10th grade, and 41% 12th grade.
- Experimentation with [inhalants](#) is seen as dangerous by relatively low proportions of 8th and 10th graders (18% and 30%, respectively); these younger students are the ones most likely to use. (The question about risk of inhalant use is not asked of 12th graders.)
- Despite considerable media coverage of young people having severe, adverse reactions after using what they believed to be [synthetic marijuana](#), relatively few students in 2021 see experimenting with it as dangerous: 24% in 8th grade, 25% in 10th grade, and 23% in grade 12. While marketed as “synthetic” marijuana, these products can contain many dangerous chemicals that have seriously injured users.

TRENDS IN PERCEIVED HARMFULNESS OF DRUG USE THROUGH 2019

Trends in Perceived Harmfulness among 12th Graders

In what follows we present trends in perceived harmfulness up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced a survey mode effects and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

Several very important trends in student beliefs about the dangers associated with using various drugs have occurred over the life of the study. (See the upper panels of the “a” versions of Figures 8-1 through 8-3 and Figures 8-7 through 8-13, e.g., Figure 8-1a. See also Table 8-3 for tabular data on 12th graders.) For most of the drugs discussed here, the [Overview of Key Findings](#) monograph for the 2019 survey results has trends in use, risk, disapproval, and perceived availability all graphed on the same page, making it easier to see the connection between use and these other variables.

Perceived Risk and Marijuana Use

Some of the most important trends in perceived risk have involved [marijuana](#) (see Figures 8-1a and 8-4). In 2019 the proportion of 12th graders who perceived great risk of harm from regular use was near the lowest level ever recorded by the survey. It stood at 31%, a nonsignificant increase from 2018’s level of 27%, which was the lowest ever recorded. In general, it has been in a steady decline for more than a decade.

This finding is concerning in light of the fact that declines in perceived risk in the past have predicted future increases in use, a pattern that we interpret as reflecting a causal connection.⁴ The trend line for the *perceived availability* of marijuana is included in Figure 8-4 to show its relative stability (particularly from 1975 to 1992) and, thus, its inability to explain the substantial fluctuations in usage levels over that time period.

From the beginning of the study in 1975 through 1978, the degree of harmfulness perceived to be associated with all levels of marijuana use declined as use increased sharply (see Figure 8-4). In 1979, for the first time, the proportion of 12th graders seeing risk to the user increased. This increase in perceived risk *preceded* an appreciable downturn in use (which began a year later in 1980) and continued fairly steadily through 1991, as use fell dramatically. However, in 1992 perceived risk began to drop again, which presaged a sharp increase in use beginning in 1993. As Figures 8-1a and 8-4 illustrate, perceived risk continued to drop and use continued to rise until 1997. This clear and consistent concordance in trends supports our contention that changes in beliefs about the harmfulness of marijuana use played a critical role in causing both the downturn and the subsequent upturn in use. In both cases, the reversal in perceived risk preceded the reversal in actual use by a year. This pattern became evident again in 2003, as perceived risk for marijuana increased until 2006 while use declined, and between 2006 and 2012, when perceived risk of regular use declined while use rose a year later.

For two time periods this inverse association did not hold, in part because of a confounding influence of cigarette smoking. Specifically, from 1997 to 2002 and during the current period (since 2011) perceived risk declined but an increase in use did not take place (see Figure 8-4). In both these periods a substantial decline occurred in the percentage of adolescents who had ever smoked a cigarette, from 64% in 1997 to 57% in 2002, and from 40% in 2011 to 22% in 2019. Marijuana use is much higher among youth who have tried a cigarette, in part because these youth have overcome the psychological barriers involved in inhaling smoke into the lungs. As increasing numbers of 12th graders fall into the category of youth who have never smoked a cigarette in their life, they move into a category that has historically had a very low level of marijuana use. If adolescent cigarette smoking had not declined during these periods then we believe the expected increase in marijuana use would likely have been observed; in fact, if cigarette use had not declined since 2011 we project marijuana use levels today would be at or near record highs.⁵

What accounts for changes in perceived risk of marijuana use, given the key role this factor plays in marijuana use? In the earlier years of MTF, the largest increase (in absolute terms) in perceived risk occurred for regular marijuana use. The proportion of 12th graders who viewed regular marijuana use as involving a great risk doubled in just seven years from 35% to 70% between 1978

⁴ Some time ago we addressed an alternate hypothesis—that a general shift toward a more conservative lifestyle might have accounted for the shifts in both attitudes and behaviors. The empirical evidence tended to contradict that hypothesis. See Bachman, J. G., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Johnston, L. D., O'Malley, P. M., & Humphrey, R. H. (1988). [Explaining the recent decline in marijuana use: Differentiating the effects of perceived risks, disapproval, and general lifestyle factors](#). *Journal of Health and Social Behavior*, 29, 92–112. Johnston also showed that an increasing proportion of the quitters of and abstainers from marijuana use reported concern over the physical and psychological consequences of use as reasons for their non-use. See Johnston, L. D. (1982). [A review and analysis of recent changes in marijuana use by American young people](#). In *Marijuana: The national impact on education* (pp. 8–13). New York: American Council on Marijuana. The role of perceived risk in the period of increased marijuana use in the 1990s is addressed in Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1998). [Explaining the recent increases in students' marijuana use: The impacts of perceived risks and disapproval from 1976 through 1996](#). *American Journal of Public Health*, 88, 887–892.

⁵ Miech, R. A., Johnston, L. D., & O'Malley P. M. (2017). [Prevalence and attitudes regarding marijuana use among adolescent over the past decade](#). *Pediatrics*, 140(6).

and 1985. Subsequently, the proportion increased more slowly, reaching 79% by 1991. This dramatic change occurred during a period when a substantial amount of scientific and media attention was devoted to the potential dangers of heavy marijuana use. Young people also had ample opportunity for vicarious learning about the effects of heavy use through observation, because such use was widespread among their peers. (In 1978, one in nine 12th graders was an active, daily marijuana user.) Concerns about the harmfulness of occasional and experimental use also increased, and those increases were even larger in proportional terms, though not in absolute terms. For example, the proportion of 12th graders seeing great risk in [trying marijuana](#) rose from 8% in 1978 to 27% in 1991, and for [occasional marijuana use](#) perceived risk rose from 12% to 41% over the same interval.

There are several possible and interconnected explanations for the turnaround and decline in perceived risk of marijuana use during the early 1990s. First, some of the forces that gave rise to the earlier increases in perceived risk became less influential: (a) because of lower use levels overall, fewer students had opportunities for vicarious learning by observing firsthand the effects of heavy marijuana use among their peers; (b) media coverage of the harmful effects of drug use, as well as of incidents resulting from drug use (particularly marijuana), decreased substantially in the early 1990s (as has been documented by media surveys of national news programs); (c) media coverage of the antidrug advertising campaign of the Partnership for a Drug-Free America also declined appreciably (as documented by both the Partnership and our own data from 12th graders on their levels of recalled exposure to such ads)⁶; (d) congressional funding for drug abuse prevention programs and curricula in the schools was cut appreciably in the early 1990s; and (e) the first Gulf War in 1990–1991 diverted attention from domestic concerns, including drug use, among both policy makers and the media. In addition, forces encouraging use became more visible; in particular, a number of rap, grunge, and rock groups started to sing the praises of using marijuana (and sometimes other drugs), perhaps influencing young people to think that using drugs might not be so dangerous after all. Finally, the drug experiences of many parents may have inhibited them from discussing drugs with their children, and may have caused them uncertainty in knowing how to handle the apparent hypocrisy of telling their children not to do what they themselves had done as teens. We believe that all of these factors may have contributed to the resurgence of marijuana use in the 1990s.

By the mid-1990s, many of these sources of influence had reversed direction, laying the groundwork for an end to the rise in marijuana use (and illicit drug use more generally). First, because there was considerably more use among young people and among many of their public role-model groups, the opportunity for vicarious learning by observing the consequences of use began to increase. And as MTF and other studies began to call the public's attention to the resurgence of the drug epidemic among youth, news stories on the subject increased substantially. Other institutions also changed their ways. The recording industry appeared to be producing fewer pro-drug lyrics and messages, in large part because of growing concern about overdose deaths among their own artists. (A similar dynamic seems to have occurred in the fashion industry with the resulting demise of "heroin chic.") Various government initiatives to prevent drug use by young people were launched, including the Department of Health and Human Services (DHHS) Secretary's Marijuana Use Prevention Initiative, which was launched at the 1994 annual national

⁶ Terry-McElrath, Y. M., Emery, S., Szczycka, G., & Johnston, L. D. (2011). [Potential exposure to anti-drug advertising and drug-related attitudes, beliefs, and behaviors among United States youth, 1995-2006](#). *Addictive Behaviors*, 36, 116-124.

press conference reporting the MTF results. Federal funding for drug prevention in schools also increased appreciably.

In addition, parents were repeatedly exhorted to talk to their children about drugs, and it appears from other surveys that more of them did so. In the late 1990s, a federally sponsored media campaign involving paid advertising was initiated. MTF data indicate that the campaign reached increasing numbers of young people over a period of several years.⁷

Since 2012, perceived risk of marijuana use has fallen substantially as the movement to legalize recreational marijuana use has attained both substantial media coverage as well as success in increasing numbers of states legalizing it. A key message of this movement is that marijuana use is safe and does not pose much danger to health, a message that appears to be gaining traction with today's youth. This recent decline in perceived risk, which in the past has played a substantial role in reversing declines in use, has not yet been accompanied by an increase in marijuana use, in part because of the decline in youth cigarette use (discussed above).

Perceived Risk for Substances Other than Marijuana

- Despite all that is known today about the health consequences of [cigarette smoking](#), one fourth (24%) of 12th graders in 2019 still did not believe that there is a great risk in smoking a pack or more of cigarettes per day (see Figure 8-12a). Historically, the number of 12th graders who thought [smoking a pack or more a day](#) involved great risk to the user increased from 51% in 1975 to 64% in 1980. This shift corresponded to, and to some degree preceded, the downturn in current smoking found in this age group (compare Figures 5-4q and 8-12a). Between 1980 and 1984, both perceived risk and use leveled. Then, from 1984 to 1993 perceived risk inched up from 64% to 70% while use remained quite stable. Perceived risk then declined a bit in 1994 and 1995 (as it did in the lower grades) and use rose through 1997. Between 1995 and 1998, perceived risk rose about five percentage points, presaging a decline in smoking that began in 1998. Overall, in the 13-year interval between 1984 and 1997, the percentage of 12th graders perceiving great risk in regular smoking rose only about five percentage points, whereas use actually rose by seven percentage points. Clearly, influences other than perceived risk were at work during this period. Between 1997 and 2006, perceived risk rose by another nine percentage points from 69% to 78%, while use fell by 15 percentage points (from 37% in 1997 to 22% in 2006). Thus, changes in perceived risk may well have contributed to the decline in use during this period. Perceived risk of smoking one or more packs per day among 12th graders has held steady since 2006 and stood at 76% in 2019. In contrast, the 30-day prevalence of use continued to decline and was at 6% in 2019—the lowest level in the life of the study. It seems likely that increases in cigarette prices played an important role in the decline during this period, including the increase in the federal tobacco tax passed in 2009.
- Perceived risk in regular use of [smokeless tobacco](#) (see Figure 8-13a) has been at about 43% since 1998 and was at 40% in 2019. It increased from 26% in 1986, when it was first measured, to 39% in 1993. From 1993 to 1995 such concern decreased a bit, declining to

⁷ For example, see Johnston, L. D. (2002, June 19). Written and oral testimony presented at hearings on the National Youth Anti-Drug Media Campaign, held by the Treasury and General Government Subcommittee on Appropriations of the U.S. Senate Appropriations Committee. Published in [The Congressional Record](#).

33% by 1995; but then it rose again to reach 45% by 2001, with a slight overall decline thereafter. As perceived risk rose, 30-day prevalence of smokeless tobacco use declined appreciably from 12% in 1995 to 7% in 2002. It was at 4% in 2019.

- The percentage of 12th grade students who perceived great harm in [vaping nicotine](#) increased by 7.4 percentage points to 35% in 2019. This increase corresponds with media campaigns by the [FDA](#) and the [Truth Initiative](#) targeted at teens to highlight the potential dangers of nicotine vaping, along with school-based anti-vaping programs throughout the country and a considerable amount of media coverage of adverse outcomes among teens.

Despite this increase in perceived risk, regular nicotine vaping continues to rank near the lowest of all substances in perceived risk.

- Like marijuana, [cocaine](#) has shown a pattern of closely corresponding trends between perceived risk and actual use among 12th graders (see Figure 8-5). In 2019, the proportion of 12th graders who perceive great risk in trying cocaine once or twice was 48%, about where it has hovered for the past two decades. Use levels have also changed little during this period. The tight, mirror-image correspondence between perceived risk and levels of use is illustrated most clearly in the 1970s and 1980s. First, the percentage who perceived great risk in [trying cocaine](#) once or twice dropped steadily from 43% to 31% between 1975 and 1980, corresponding to a period of rapidly increasing annual prevalence of use. However, rather than reversing sharply, as did perceived risk for marijuana use, perceived risk for experimental cocaine use moved rather little from 1980 to 1986, corresponding to a fairly stable period in actual use. Then, from 1986 to 1987, perceived risk for experimenting with cocaine jumped abruptly from 34% to 48% in a single year, and in that year the first significant decline in use took place. From 1987 to 1990, perceived risk continued to rise sharply as use fell sharply.

Correspondence between perceived risk of trying cocaine and levels of actual use can also be seen in the 1990s, although the changes are smaller. An increase in perceived risk of cocaine use ended in 1991, similar to the trend for marijuana. Perceived risk began to fall in 1992, and a year later actual use began rising among 12th graders (see Figure 8-5). The significant reversal of trends in beliefs set the stage for a resurgence in use, particularly when combined with the fact that the proportions of students using two of the so-called “gateway drugs”—cigarettes and marijuana—had also been rising. From 1992 to 1999, the proportion of 12th graders using cocaine in the prior 12 months rose steadily from 3.1% to 6.2% before decreasing significantly to 5.0% in 2000, with little change for some years after that.

Levels of actual cocaine use track more closely with trends in perceived risk of experimental cocaine use than they with perceived risk of regular cocaine use. As we had predicted earlier, it was not until 12th graders’ attitudes about behaviors they saw as relevant

to themselves began to change (i.e., attitudes about experimental and occasional cocaine use) that the behaviors also began to shift.^{8,9}

We believe the large changes in both perceived risk of experimental and occasional use as well in changes in actual levels of use from 1986 to 1991 resulted from three factors: (a) the greatly increased media coverage of cocaine use and its dangers that occurred in that interval (particularly in 1986); (b) an increasing number of anti-drug, and specifically, anti-cocaine media campaigns; and (c) the widely publicized 1986 deaths, publicly attributed to cocaine use, of sports stars Len Bias and Don Rogers. The deaths of the sports stars, we believe, helped to bring home the notions, first, that no one—regardless of age or physical condition—is invulnerable to being killed by cocaine, and second, that one does not have to be an addict or regular user to suffer such adverse consequences. In the media coverage that occurred during that period, the addictive potential of cocaine was heavily emphasized.

- Trends in attitudes toward regular use of [*crack*](#) and [*cocaine powder*](#) have not varied much since they were first tracked by Monitoring the Future in 1987. The proportion of 12th graders seeing great risk in regular use of crack has been between 79% and 92% in all years of the survey up to 2019, and for cocaine powder, the proportions have been between 77% and 88%. For occasional and experimental use of both drugs, perceived risk was highest at the start of the 1990s, declined until the mid-2000s, and then turned upward in the following years. In 2019, six out of nine measures of perceived risk of cocaine use declined, continuing the trend from the previous year when all of them declined (although no changes in two consecutive years reached statistical significance). These declines warrant attention in future years to determine if they signal future increases in cocaine use.
- The proportion of 12th grade students perceiving great harm in regular use of [*amphetamines*](#) remained between 60% and 70% throughout most of the survey, but since 2009 has shown a considerable drop, and was 48% in 2019 (Figure 8-7a). Part of this drop is attributable to a change in question wording that took place in 2011 and is thus a methodological artifact (see Figure 8-7a footnotes for details). The proportion of students perceiving harm in experimental use has also declined since 2011 and in 2019 was 30%, which is near the lowest level recorded since the question change in 2011.
- The proportion of 12th graders perceiving harm from regular use of [*sedatives \(barbiturates\)*](#) has declined overall over the course of the survey (from 69% in 1975 to 45% in 2019), while the proportion perceiving harm from experimental use stayed more steady at between 35% in 1975 and 25% in 2019 (Figure 8-7a). Most of the decline in perceived risk for regular use took place between 1992 and 2002 during, but continuing on beyond, the relapse phase in drug use generally.

⁸ See Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). [Explaining the recent decline in cocaine use among young adults: Further evidence that perceived risks and disapproval lead to reduced drug use](#). *Journal of Health and Social Behavior*, *31*, 173–184. For a discussion of perceived risk in the larger set of factors influencing trends, and for a consideration of the forces likely to influence perceived risk, see Johnston, L. D. (1991). [Toward a theory of drug epidemics](#). In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–131). Hillsdale, NJ: Lawrence Erlbaum.

⁹ Our belief in the importance of perceived risk of experimental and occasional cocaine use led us to include in 1986 for the first time the question about the dangers of occasional cocaine use. The very next year proved to have a sharp rise on this measure.

- [Heroin](#) has consistently been seen as one of the most dangerous drugs – in particular regular heroin use, which no doubt accounts at least in part for the low prevalence levels observed throughout the life of the study. But there has been some variation in levels of perceived risk related to experimental or occasional use (Figure 8-9a). Perceived risk of experimental use declined gradually between 1975 and 1986 (perhaps as the result of generational forgetting of the dangers of heroin), even though use dropped and then stabilized in that interval. There was then an upward shift in perceived risk in 1987 (the same year in which there was a dramatic rise in perceived risk for cocaine) to a new level, where it held for four years. In 1992 risk dropped to a lower plateau again, a year or two before use started to rise. As perceived risk fell in the early 1990s, heroin use by 12th graders rose, with annual prevalence of use nearly tripling from 0.4% in 1991 to 1.1% by 1995. (Use also rose in the lower grades.) From 1995 through 1998, there was some increase in perceived risk (an increase that was also observed in the lower grades; see Tables 8-1 and 8-2 and Figure 8-9a). Usage levels then generally stabilized. Perhaps not entirely coincidentally, the Partnership for a Drug-Free America launched a media campaign aimed at deglamorizing heroin in 1996. While the target audience was young adults, many secondary school students undoubtedly saw the ads as well. Annual use of heroin by 12th graders decreased from 1.5% in 2000 to 0.8% by 2003 subsequent to the upturn in perceived risk between 1995 and 1998. Neither perceived risk nor use of heroin changed a great deal since. In 2019, 81% of 12th grade students perceived great risk in regular heroin use, which is the lower bound for the range of 80% to 90% where it has fluctuated throughout the study.
- The proportion of 12th graders who see great risk in regular use of [LSD](#) increased slightly to 58% in 2019, after a decades-long decline led to a record low the previous year (2018) of 55% (Figure 8-8a). This increase is not associated with a decline in past 30-day LSD use in 2019, because at a 30-day prevalence of 0.4% there is little room for it to fall further.

Perceived risk of regular LSD use has been in a slight, overall decline since the early 1990s. Perceived risk of experimental use also declined during the 1990s to about 35% in 2000; it remained at that level until about 2014 but has since dropped to the lowest level ever recorded—28% in 2019. The sharp decline in 12th graders' perceived risk of LSD use between 1991 and 1997 was particularly noteworthy, confirming our concerns about generational forgetting—that attitudes and beliefs of the newer generation of young people were not influenced by the direct and vicarious learning experiences that helped to make their predecessors more cautious about using LSD (see Figure 8-8a). In the late 1960s and early 1970s, young people became aware of the risks of bad trips, uncontrollable flashbacks, dangerous behaviors under the influence, etc. Since then, those who have come into their teens likely know much less about such risks.

Despite the fact that perceived risk of LSD use declined some prior to 2001 (while disapproval was fairly steady), use had been falling. Obviously, this decline in use cannot be explained by a change in attitudes, and thus raises the question of whether there was any substitution by another drug. As it happens, another drug popular in the club scene and also used for its hallucinogenic properties, [MDMA](#) (ecstasy, and more recently Molly), had been in ascent and may have had some substitution effect. From 1998 to 2001, MDMA use

more than doubled as LSD use was in decline. However, after 2001 both drugs declined, suggesting that there may no longer have been a displacement effect. Indeed, after 2001 there was a sharp decline in availability of LSD, which may well have played a key role in its further sharp drop in use. The historically low levels of perceived risk for LSD reached in recent years suggest that young people today are not well prepared to resist resurgences in the popularity and availability of that drug, should those occur.

- Perceived risk for the use of [MDMA](#) (also known as ecstasy or Molly) was first assessed for 12th graders in 1997 (Figure 8-6). The proportion of 12th graders who saw potential harm in trying MDMA “once or twice” has been in a long, uneven decline since 2005 and in 2019 it stood at 46%. It is important to note that the question was updated in 2014 to include the street name “Molly.” While this update precludes direct comparison of risk levels today with those before 2014, it is still informative to compare the direction of change in the measure before and after the update. It appears that the explicit addition of Molly to the question stem increased perceived risk, particularly in the lower grades.

As documented in the next chapter and in Figure 8-6, there was a dramatic rise in the availability of MDMA (ecstasy and, later, Molly) to American teens up to 2001, which may well help to explain its spread (Figure 8-6). The significant increases in perceived risk (for all three grades) in 2000 through 2003 were encouraging. We stated in the 2001 report in this series that we believed the use of this drug would not decline until more young people came to see its use as dangerous. In 2002, use of MDMA decreased some for all three grades, and in 2003 use decreased significantly for all three grades, presumably driven by the sharp increases in the perceptions of risk already underway.

We believe that the unusually rapid changes in perceptions of risk about MDMA reflect the effects of several factors: much media coverage of adverse events associated with ecstasy use; the substantial efforts of the National Institute on Drug Abuse to gather and disseminate information about the adverse consequences associated with ecstasy use; and efforts by the Partnership for a Drug-Free America and the Office of National Drug Control Policy to discourage ecstasy use through an ad campaign, begun in 2002, that addressed the hazards of use. Despite the dramatic increase in perceived risk up through 2005, the gradual erosion in the level of perceived risk since 2005 raises the possibility that a process of generational forgetting of the hazards of MDMA use had been taking place. Declining levels of perceived risk for MDMA are especially concerning because some manufacturers mix MDMA with dangerous adulterants, such as stimulants found in “bath salts,” as well as cocaine and heroin.¹⁰

- The proportion of 12th grade students associating great risk with experimental use of [crystal methamphetamine \(ice\)](#) reached the highest level recorded by the survey in 2013, at 72%, and has declined slightly since then, to 67% by 2019 (Figure 8-10a; Table 8-3). This current level of perceived risk is higher than risk of experimental use of any other drug including heroin, which stood at 63%. Consistent with the high levels of perceived risk, levels of use are extremely low, and in 2019 the prevalence of past-year use was 0.6%. A drop in

¹⁰ Campo-Flores, A. & Elinson, Z. (September 24, 2013). [Club drug takes deadly toll; billed as pure ecstasy, “Molly” often gets laced with more dangerous substances](#). *The Wall Street Journal*.

prevalence occurred after increases in perceived risk, consistent with perceived risk being a leading indicator and cause of changes in drug use.

- The proportion of 12th graders who perceived a great risk of harm in trying [PCP](#) (phencyclidine) was 53% in 2019, about where it has been since 2010 (Table 8-3). Actual use has remained low since about 2003, at about 1%.
- In 2019, 51% of 12th grade students saw a great risk in taking anabolic [steroids](#), near the lowest level recorded since the survey began tracking steroids in 1989. Nevertheless use is low, with a past-year prevalence of 1% in 2019, which ties with 2016 as the lowest ever recorded by the survey up to 2019 (Table 8-3). These results suggest factors other than perceived harmfulness are driving the prevalence of steroids; availability likely plays a role because in recent years availability is at the lowest levels ever recorded by the survey in all three grades (see Chapter 9). The scheduling of many steroids by the DEA in 1990, with updates in 2004 making their use and possession illegal, has likely contributed heavily to both to the decline in perceived availability and in use.

The history of perceived risk of steroids and adolescent use of them bears some resemblance to the situation regarding cocaine use. A noteworthy change in steroids occurred in 1992, when perceived risk rose by five percentage points (from 66% to 71%) among 12th graders. (Similar changes occurred for 8th and 10th graders.) This change suggested that the widely publicized experience of professional football player Lyle Alzado, who died of a brain tumor in 1992 that he believed resulted from his steroid use, had an important effect on young people's beliefs regarding the harmfulness of this drug. The effect of this "unfortunate role model" was similar to the effect of Len Bias' death on beliefs about the dangers of cocaine use, except that in Lyle Alzado's case he intentionally set about making his experience an object lesson for young people.¹¹ Unfortunately, levels of perceived risk of steroids have since declined.

This decline accelerated in 1999, with an unusually sharp drop of six percentage points in 12th graders' perceived risk of steroid use; this coincided with a slight rise in use among 12th graders and a sharp rise in use among 8th and 10th graders. (Since 1995 perceived risk has been measured only among 12th graders, so their answers serve as the best estimate we have of how this belief was changing among secondary school students more generally. For this reason, we comment in this section on 8th and 10th graders as well as 12th graders.) We believe it likely that a highly visible baseball player (Mark McGwire), whose use of the steroid precursor androstenedione in the year that he hit a new home run record was widely reported in 1998, served unwittingly as a role model that year, this time associating the use of steroids with athletic success and physical prowess. In 2000 there was a continued sharp decline in perceived risk of steroid use among 12th graders. After 2000 perceived risk did not change a great deal until there was a significant drop in 2013, a leveling, and another significant drop in 2017.

¹¹ The July 8, 1991, issue of *Sports Illustrated* magazine had an article by Lyle Alzado entitled "I Lied." For a discussion of the importance of vicarious learning from unfortunate role models, see Johnston, L. D. (1991). [Toward a theory of drug epidemics](#). In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–131). Hillsdale, NJ: Lawrence Erlbaum.

A cohort effect is suggested by the pattern of declining steroid use across the grades since 1999; 8th graders were first to show a downturn beginning in about 2001, followed by 10th graders in 2003, and then by 12th graders in about 2005. Those staggered decreases followed somewhat staggered increases in the prior years, though both 8th and 10th graders began to increase in the same year (1999). In 2004 perceived risk began to rise in 12th grade (again, the only grade in which it is measured), and use continued to decline in all grades. Some might ask why use has not increased in the past few years as stories of widespread steroid use in professional baseball have hit the headlines. The answer may lie in the amount of negative publicity and negative outcomes that have emerged for some of these players. Mark McGwire eventually admitted in 2010 that he had used steroids and that he regretted their use. Baseball player Roger Clemens had denied using steroids, but in 2010 he was indicted by a grand jury, charged with lying to Congress about his use of these drugs. He was tried on six felony counts and, following a long and damaging trial process, was found not guilty.

- The proportion perceiving great risk of harm in having [*one or two drinks nearly every day*](#) was 21.0% in 2019 among 12th graders, about the same level as it had been during the first year of the survey in 1975, when it was 21.5% (Figure 8-11a). In the intervening years it gradually increased to a peak of 33% in 1991, when use of many drugs reached a nadir, and subsequently leveled at about 21–22%. The earlier decline in perceived risk may have been due in part to publicity about the possible value of moderate alcohol consumption in protecting against cardiovascular disease.
- The proportion of 12th graders perceiving great risk in having [*four or five drinks nearly every day*](#) was 60% in 2019 (Figure 8-11a), close to where it was during the first year of the survey in 1975, when it was 64%. It rose to a peak in the early 1990s (of 71%), and subsequently declined some to its 2019 level.
- The trend for perceived risk of [*binge drinking*](#) (having five or more drinks in a row in a single occasion) shows an overall increase over the course of the survey to 46% in 2019 from 38% in 1975 (Figure 8-11a). This overall increase consisted of a gradual rise from 1975 to 1992, when risk reached 49%, followed by a slight decline through 1997, to 43%, where it leveled. The increase in perceived risk tended to be followed by some decline in the actual behaviors—while the decrease in perceived risk tended to be followed by some increases in those behaviors—once again suggesting the importance of these beliefs in influencing use, even the use of licit drugs. Actual prevalence of binge drinking declined appreciably between 1981 and 1993, from 41% to 28%, after which it rose slightly during the relapse phase in drug use and reached 32% by 1998. The increase in perceived risk during the 1980s may have been due in large part to the many efforts aimed at discouraging drunk driving—a point discussed in more detail elsewhere.¹² Since 1998, perceived risk has increased only slightly overall while binge drinking has declined to historic lows in recent years (14% in 2019), suggesting the influence of factors other than perceived risk in recent years.

¹² O'Malley, P. M. & Johnston, L. D. (1999). [Drinking and driving among American high school seniors: 1984–1997](#). *American Journal of Public Health*, 89, 678–684.

Trends in Perceived Harmfulness among 8th and 10th Graders

The 8th and 10th grade surveys ask about perceived risk for fewer drugs than the 12th grade surveys. (See the lower panels of the “a” versions of Figures 8-1, 8-2, 8-3, 8-8, and 8-11. See also Table 8-3 for the tabular data.)

- The proportions of 8th and 10th grade students who see great risk in pack-a-day cigarette smoking were at the highest levels recorded by the survey up to 2019, at 63% and 73%, respectively (see Figure 8-12a). After 1995, perceived risk rose in all three grade levels, including significant increases for 8th and 10th graders in 2000. Levels of smoking began to drop in 1997 for grades 8 and 10, and a year later among 12th graders; thus, an increase in perceived risk presaged, and very likely helped to drive, this important decline. Since 2000 perceived risk of smoking has increased somewhat further while actual cigarette use has declined precipitously. The increases in perceived risk since 2000 are not large enough to account for the dramatic decline in cigarette smoking in the following years, suggesting that other forces are at work.

A number of factors in the late 1990s may well have contributed to the decline in teen smoking. A series of public events, such as highly visible lawsuits against the tobacco industry, brought considerable adverse publicity to the product and the industry, eventually leading to the widely publicized Tobacco Master Settlement Agreement in November 1998 between the states’ Attorneys General and the major tobacco companies. Additional deterrents included increased cigarette prices, increased tobacco taxes, substantial tobacco prevention efforts in several large states, a nationwide antismoking ad campaign funded by the American Legacy Foundation (an entity created and funded under the tobacco settlement), the withdrawal of advertising from billboards, and the elimination of the Joe Camel ads. Monitoring the Future called widespread national attention in the early 1990s to sharp increases in smoking among teens, which may have played a role in instigating many of these efforts.

- The proportions of students who see great risk in regular use of smokeless tobacco have hovered around 35–38% for 8th graders and around 40–45% for 10th graders for the past few years, following a few years of decline in perceived risk (Figure 8-13a).

Level of risk had small, long-term increases in 1995 that lasted for a decade and resulted in increases of about 10 percentage points for 10th graders and 5 percentage points for 8th graders. During the period of substantial increase in perceived risk between 1995 and 2000, a considerable decline in the use of smokeless tobacco took place. The gains in perceived risk lasted through about 2011 before receding and then leveling.

- The proportions of 8th and 10th grade students who perceived great risk in vaping nicotine significantly increased in 2019 (Table 8-3). In both 8th and 10th grade the risk of vaping nicotine *occasionally* significantly increased by 5 points, to 22% in 8th grade and to 23% in 10th grade. Even after these increases, the perceived risk of occasional nicotine vaping still ranks among the lowest of all substances. Risk of *regular* nicotine vaping in 8th grade increased significantly by 8 points to 40% and in 10th grade by 9 points to 41%. Despite these increases, the prevalence of nicotine vaping increased significantly and substantially

in 2019, indicating that forces other than perceived risk are driving changes in this outcome.

- For 8th and 10th grade students, the proportion who see great risk in experimental use of [marijuana](#) is at the lowest level ever recorded by the survey by 2019, at 20% and 14%, respectively (Tables 8-1 and 8-2, also Figure 8-1a). Most likely, youth throughout the country interpret the recent trends permitting medical marijuana in many states and legalization of recreational marijuana for adult use in some states as signals that the drug is not dangerous and does not pose great risk of harm. Perceived risk has been in a steady decline since the mid-2000s. We had expected that a larger increase in marijuana use would have occurred by now in light of the decrease in perceived risk, but this increase was likely offset as a consequence of the decline in cigarette smoking (discussed above).¹³

Before the late 2000s, the trend in perceived risk resembled a U curve, in which it was at its highest level during the first two years when the survey measured it in 1991-92 (40% for 8th graders and 32% for 10th graders), declined during the 1990s relapse, and then rebounded until the mid-2000s. In both 8th and 10th grades, marijuana prevalence followed a mirror image of these trends, with prevalence increasing during the 1990s (when perceived risk decreased), decreasing from the late 1990s through the mid-2000s (when perceived risk increased), and then increasing through 2010 (when perceived risk decreased).

Perceived harm of [regular marijuana use](#) follows the same trends, although overall levels of perceived risk are higher. In 2019 the proportions of 8th and 10th graders who saw great risk in regular use of marijuana were near the lowest levels ever recorded by the survey at 51% and 40%, respectively.

- The percentage of 8th and 10th grade students perceiving great risk of harm in [experimental cocaine](#) use declined between 1991 and 1995, and has been relatively stable since then. For 8th graders, the percentages were 56% in 1991, 45% in 1995, and 43% in 2019. For 10th graders the corresponding percentages were 59%, 54%, and 54% (Tables 8-1 and 8-2, and Figure 8-2a). The 1991 levels are the highest ever recorded. Trends in the risk of [occasional cocaine use](#) follow the same pattern, although of course the overall level of perceived risk is higher than for experimental use. Annual prevalence of cocaine use among 8th and 10th grade students has been less than 5% in all years it has been measured, providing little variation for perceived risk to explain; nevertheless, the largest change in perceived risk—the drop through the 1990s—corresponds with an increase in cocaine prevalence in both grades.
- Perceived risk for [LSD](#) use among 8th and 10th grade students has changed little in the past decade. In 2019 perceived risk of experimental use in 8th grade was 22%, the same level as in 2008. In 10th grade the levels were 28% in 2021 also the lowest ever recorded. Before the 2000s perceived risk had been substantially higher, with a peak in 8th grade of 38% in 1994 and a peak in 10th grade of 49% in 1993. As we pointed out earlier, the substantial

¹³ Miech, R. A., Johnston, L. D., & O'Malley P. M. (2017). [Prevalence and attitudes regarding marijuana use among adolescents over the past decade](#). *Pediatrics*, 140(6).

decrease in LSD use over the course of the survey cannot be explained by parallel changes in perceived risk, because perceived risk was itself falling, not rising. As discussed in the next chapter, the drop in LSD prevalence may be better explained by the decline in the reported availability of LSD since the mid-1990s.

Despite the low levels of LSD use at present, we note that the overall drop in perceived risk for LSD over the history of the survey leaves today's cohorts of teens potentially vulnerable to resurgence in LSD use, should the drug become widely available again. Likely today's youth are less aware of the consequences of using this drug—due to a process we have called “generational forgetting.”

- Questions about the dangers of *inhalant* use have been asked only of 8th and 10th graders, where use is most concentrated (Tables 8-1 and 8-2). In 8th grade perceived risk of trying inhalants, unfortunately, was at the lowest level recorded by the survey in 2019. Perceived risk of *regular* inhalant use is also at the lowest level recorded by the survey in both grades. A long-term decline has been ongoing since the early 2000s. Prior to the 2000s, levels of perceived risk jumped in 1996, after the Partnership for a Drug-Free America launched a media campaign in 1995 to increase adolescents' awareness of the dangers associated with inhalant use. The data here are consistent with the notion that their efforts were successful, because the increase in perceived risk occurred during the years of this intervention; most of the other drugs had not yet begun to show an increase in perceived risk at that point, and actual prevalence of inhalant use declined in all grades. In 2001, perceived risk of inhalant use again jumped significantly in both grades, and use declined some. During the period of declining perceived risk, since 2001, there were some small changes in use, but by 2009 use was very close to 2002 levels. After a decrease in use for both grades after 2011, use is now (in 2019) at or near its lowest level in all three grades. The declines in perceived risk imply that generational forgetting of the dangers of inhalant use may have been taking place, which suggests that it may be time for another advertising and public information campaign on the subject (among other potential interventions) should there be any indication of an increase in the prevalence of youth inhalant use.
- The proportions of 8th and 10th graders who perceive great risk in having five or more drinks of *alcohol* once or twice each weekend (“weekend binge drinking”) have stayed within the narrow range of 51%–59% in all years measured up to 2019 for both 8th and 10th graders. Proportions dropped from 59% in 1991 to 52% in 1996 for 8th graders, and from 56% in 1992 to 51% in 1996 for 10th graders. During the same interval, self-reported *binge drinking* rose gradually. Since that time, levels of perceived risk have slightly increased and then decreased in both grades, with a peak in 2012 for 8th graders (58%) and a peak in 2008 for 10th grade students (57%), while actual use has steadily declined, quite possibly driven down by other factors in the past few years.

PERSONAL DISAPPROVAL OF DRUG USE IN 2021

Since the beginning of the MTF study, we have included a set of questions to measure the judgement students attach to various types of drug use among 12th graders. The question wording is, “Do you disapprove of people (who are 18 or older) doing each of the following?” The answer alternatives are “don't disapprove,” “disapprove,” and “strongly disapprove.” For 8th and 10th

grades, a fourth response, “can’t say, drug unfamiliar,” is included, and the parenthetical phrase “who are 18 or older” is omitted from the question stem. Responses of “disapprove” or “strongly disapprove” are combined and reported here as “disapproval.” For 8th and 10th graders, “can’t say, drug unfamiliar” is included in calculating the percentages, so that what is represented (in all three grades) is the proportion of *all* respondents who hold a disapproving attitude. Each question specifies a level of drug involvement, such as “trying marijuana,” “using marijuana occasionally,” or “using marijuana regularly,” similar to the questions about perceived risk.

Extent of Disapproval among 12th Graders

- The majority of 12th graders disapprove of *regular use* of any of the illicit drugs (see Table 8-6). Among 12th graders in 2021, 58% disapprove (including strongly disapprove) of *regular [marijuana](#) use* and between 90% and 97% disapprove of regular use of each of the other illicit drugs.
- For each of the drugs included in this set of questions, fewer respondents indicate disapproval of experimental or occasional use than of regular use, as might be expected. However, the differences are not great for the use of illicit drugs other than marijuana, because nearly all 12th graders disapprove of even experimenting with them. For example, in 2021 the proportions disapproving of experimental use are 93% for [heroin](#), 82% for [cocaine](#), 69% for [LSD](#), and 86% for [MDMA](#) (ecstasy, Molly). The extent of disapproval of illicit drug use by peers is no doubt underestimated by adolescents and, as we have written for some time, the extent of disapproval that actually does exist could be widely publicized and provide the basis for some potentially powerful prevention messages in the form of normative education.¹⁴
- Disapproval of [marijuana](#) by 12th graders increases substantially for higher levels of use. In 2021 the percentage who disapprove of marijuana use is 31% for trying it once or twice, 39% for occasional use, and 58% for regular use. Looked at another way, more than four out of ten 12th graders (42%) say they do not disapprove of regular marijuana use.
- Smoking a pack (or more) of [cigarettes](#) per day now meets with disapproval by about eight out of nine (87%) 12th grade students—a level comparable to the level of disapproval for many of the illicit drugs and substantially higher than disapproval of regular marijuana use.
- [Vaping nicotine](#) has the second lowest disapproval level for regular use for any drug among 12th grade students. Its level of 73% is second lowest only to regular marijuana use (at 58%). The use of nicotine vaping as a smoking cessation aid among some adults likely lowers levels of disapproval among 12th graders.

Levels of disapproval for [JUUL](#) use are similar to those for nicotine vaping, suggesting that 12th grade students see the two as synonymous.

¹⁴ Johnston, L. D. (1991). Contributions of drug epidemiology to the field of drug abuse prevention. In C. Leukefeld & W. Bukoski (Eds.), [Drug abuse prevention research: Methodological issues](#) (pp. 57–80) (NIDA Research Monograph No. 107). Washington, DC: National Institute on Drug Abuse.

- Having [*one or two drinks nearly every day*](#) meets with the disapproval of 67% of 12th graders in 2021. Curiously, fewer 12th graders (58%) disapprove of [*weekend binge drinking*](#) (five or more drinks once or twice each weekend), despite the fact that more of them see a great risk in weekend binge drinking (34%) than in having one or two drinks nearly every day (22%).

One explanation for these seemingly anomalous findings may be that a greater proportion of this age group are themselves (and have friends who are) weekend binge drinkers rather than moderate daily drinkers. Therefore, some of their disapproval attitudes may be consistent with their own behavior, even though such attitudes are somewhat inconsistent with their beliefs about possible consequences. Perhaps the ubiquitous advertising of alcohol use in partying situations has also managed to increase social acceptability. In any case, this divergence between the perceived risk associated with the two behaviors and the corresponding levels of disapproval helps to illustrate the point that, while perceived risk may influence disapproval (as we have consistently hypothesized), other factors also play a role. As is mentioned above, the [*Overview of Key Findings*](#) for the 2021 results shows use and disapproval for 12th graders for each drug in graphs on the same page.

Extent of Disapproval among 8th and 10th Graders

- Attitudes about [*inhalant*](#) use have been asked only of 8th and 10th graders, and in 2021 the great majority (64% and 75%, respectively) said they disapprove of even trying inhalants.
- [*Marijuana*](#) use shows the greatest grade-related difference in disapproval—the lower the grade, the higher the level of disapproval. Specifically, in 2021, 60% of the 8th graders said they disapprove of trying marijuana compared to 48% of 10th graders and 31% of 12th graders (see Tables 8-4 through 8-6). There is now considerable evidence that these attitudes do shift with age—that there is an age effect common to all cohorts. For example, the 8th graders of 1991 for the most part constituted the 10th graders of 1993 and the 12th graders of 1995, and their disapproval of trying marijuana fell from 85% in 8th grade in 1991, to 70% by 10th grade (in 1993), and to 57% by 12th grade (in 1995). This age-related drop far exceeds the secular trend at any given grade level, and would likely be even more pronounced were it not for the loss of dropouts between 8th and 12th grades. (It is also possible that, in addition to any age effects, there are also cohort effects—i.e., lasting differences between class cohorts.)

Another possible explanation for this decrease in disapproval with age is that secondary school students' attitudes about use are age-graded—that is, they may disapprove more of an 8th grader using marijuana, less so for a 10th grader, and still less for a 12th grader. The question stem used at the lower grades does not specify the age of the person about whom they are answering, and the respondents may simply assume that the question is about people their age. The question asked of 12th graders over the years specifies people “who are 18 or older,” and that lower limit corresponds closely to their current age.

- Disapproval of [*alcohol*](#) use is also somewhat higher at the lower grade levels than among 12th graders. For example, in 2021, 81% of 8th graders, 78% of 10th graders, and 58% of 12th graders said they disapprove of [*weekend binge drinking*](#).

- For [cigarette](#) use, the differences between grades are negligible at present: 86% of 8th graders, 87% of 10th graders, and 87% of 12th graders said they disapprove of someone smoking one or more packs per day in 2021. Oddly enough, the 8th graders, who are least likely to see regular smoking as dangerous (as summarized earlier in this chapter), are just as likely as students in the other grades to disapprove of it. This disparity may help to explain why many do begin to smoke. In the absence of an underlying belief that smoking really represents a hazard to them, many may not be deterred by the predominant peer norms alone.
- In 2019 the levels of disapproval for trying [crack](#) and [cocaine powder](#) once or twice were similar for all three grades, with between 86% and 90% disapproving (see Tables 8-4 through 8-6).
- Disapproval of [vaping nicotine](#) is similar in 8th and 10th grade. The proportion disapproving of occasional use is 71% in 8th and 66% in 10th grade; for regular use the levels are 79% and 77% in 2021. In both grades the parallel disapproval levels for [JUUL](#) use are slightly lower, indicating that some younger adolescents are not aware that these products contain high levels of nicotine.

TRENDS IN DISAPPROVAL OF DRUG USE THROUGH 2019

As illustrated in a separate section below, while the perceived risk associated with a drug often reverses course a year *prior* to a change in the actual use of that drug, disapproval tends to move in a way more synchronous with use. In other words, disapproval tends to rise in the same year that use falls, and tends to fall in the same year that use rises. We have hypothesized that this is due in part to both disapproval and use being influenced by perceived risk, for which the inflection point often occurs a year earlier. For the long-term trends in 12th graders disapproval see the upper panel in the “b” versions of Figures 8-1 through 8-3 and Figures 8-7 through 8-13 (e.g., the upper panel in Figure 8-1b). See also Table 8-6, which provides the underlying tabular data.

In what follows we present trends in disapproval of drug use up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced survey mode effects and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

Trends in Disapproval among 12th Graders

- In 2019, 12th graders’ disapproval of regular [marijuana](#) use fell 3 percentage points (not significant) to 63% from 2018, which is the lowest level ever recorded by MTF up to 2019 (see Figure 8-1b and Table 8-6). Disapproval of experimental use declined precipitously in 2019 by 7 percentage points to 34%, and occasional use also fell dramatically by 8 percentage points to 41% (both significant). These low levels of disapproval set the stage for a potentially substantial increase in marijuana use in the years to come.

Today's low levels are similar to those that occurred near the beginning of the MTF study in 1977, when disapproval of regular use was 66%. This was undoubtedly a continuation of longer-term trends that began in the late 1960s, as the norms of American young people against illicit drug use seriously eroded. Between 1977 and 1990, however, there was a substantial reversal of that trend as disapproval of regular use increased by 26 percentage points and reached the highest level recorded by the study in the early 1990s. While disapproval increased to this historic high, annual prevalence of marijuana hit a historic low. Since that time disapproval slipped during the 1990s drug relapse, while marijuana prevalence increased. Note that a sharp drop in disapproval is first apparent in 1993, a year *after* perceived risk began to decline. Changes in disapproval paused from 1995 to 2005, as did prevalence, and then disapproval continued its decline until it reached its current level. Trends in disapproval of occasional and experimental use follow a similar pattern, although at lower levels.

- Despite the large changes that were taking place in adult use of cigarettes and presumably in adult attitudes about smoking, young people's disapproval of [*regular cigarette smoking*](#) (a pack or more per day) changed surprisingly little throughout much of the early and middle life of this study. Levels in 2019 are close to the highest ever recorded by the survey, and 88% of 12th graders disapprove of smoking a pack or more per day (Figure 8-12b). The overall trend has been a very gradual increase from a level of 68% during the first year of the survey in 1975. The one exception is a sustained decline in disapproval during the 1990s drug relapse, from 1992 to 1997. Since 1997 disapproval has increased fairly steadily and prevalence of cigarette smoking has declined. The earlier lack of appreciable change in students' disapproval of smoking is surprising because many antismoking laws and policies had been enacted during the 1980s and 1990s. Very likely, the tobacco industry's promotion and advertising efforts helped to account for this lack of change in disapproval, as did the widespread portrayal of smoking by characters—often the lead characters—in movies and on television. But by the mid- to late-1990s the tobacco industry's advertising efforts were curtailed and its product received so much adverse publicity that disapproval finally rose substantially.
- Disapproval of [*vaping nicotine*](#) regularly changed little between 2017 and 2019 (Table 8-6), and has hovered between 72% and 70%.
- The proportion of 12th graders who disapproved of experimental use of [*amphetamines*](#) has gradually, but only slightly, increased over the course of the study (see Figure 8-7b and Table 8-6). Overall levels of disapproval of experimental use increased from 75% at the start of the study in 1975 to 88% in 2010, before dropping to 80% in 2019. Most of the increase in this measure occurred during the 1980s. Prevalence tracks with these changes in disapproval and decreased or levelled over the course of the survey, with the exception of increases at the start of the 1980s and the start of the 1990s. A revision of the amphetamine question in 2011 that updated the list of examples of specific amphetamines led to a slight, artifactual drop in the disapproval measure that year and thereafter, indicating that levels of disapproval today would be slightly higher were it not for this change. Levels of disapproval of regular use of amphetamines have bumped up against the ceiling of the measure and have been at 92% or higher in all years.

- Disapproval of experimental use of [sedatives \(barbiturates\)](#) is high and stood at 86% in 2019 (Figure 8-7b and Table 8-6). Overall, disapproval has increased over the life of the study from a low of 78% in the first year in 1975, with the one exception of a slight drop during the 1990s drug relapse. As was true of amphetamines, most of the increase in disapproval occurred during the 1980s. Annual prevalence has tracked with these changes and has overall decreased over the course of the survey (including a sharp decline in prevalence in the 1980s), with the exception of an increase during the 1990s drug relapse. Disapproval of *regular use* of sedatives has always been above 93% in all 45 years of the survey.
- The proportion of 12th grade students who disapprove of experimental [cocaine](#) use was 89% in 2019, where it has hovered for the past three decades (Figure 8-2b and Table 8-6). It reached a nadir in the early 1980s, when cocaine use was more popular and experimental use was not considered as dangerous as it is today. This is the same period when prevalence was near its highest levels recorded. There was a sharp rise in disapproval of experimental use between 1986 and 1987, the same interval in which perceived risk rose dramatically (closing the gap between the percent disapproving of experimental use and regular use). This jump in disapproval was accompanied by a sharp drop in use that has persisted ever since. Disapproval of *regular* cocaine use has always been 91% or higher throughout the life of the survey. Disapproval of [crack cocaine](#) use, whether experimental, occasional, or regular, has always been higher than 85% (see Figure 8-3b), and in 2019 it was 89% or higher for each level of use.

We believe that the parallel or slightly lagged trends between perceived risk and disapproval—particularly for marijuana and cocaine use – are no accident. We have hypothesized for a long time that perceived risk is an important influence on a person’s level of disapproval of a drug-using behavior, although there are surely other influences as well. As levels of personal disapproval change, these individually held attitudes are communicated among friends and acquaintances, and thus perceived norms change as well (as is illustrated in the next chapter). It is noteworthy that, as the rise in perceived risk for use of most of the illicit drugs began to reverse course after 1991 or 1992, personal disapproval began to drop for use of nearly all of the illicit drugs (see Table 8-6), and it continued to fall for use of many of these substances through 1997. Since 2001, disapproval for a number of drugs has been increasing some. This time lag is consistent with the notion that perceived risk influences disapproval, which, in turn, changes peer norms and use.

- The proportion of 12th grade students who disapprove of trying [MDMA](#) (ecstasy, and more recently Molly) significantly increased 4.3 points in 2019 to 90% (Table 8-6). This is the highest level of disapproval since 2014, when the question was modified to include “Molly” as an example street name for MDMA. This change appears to have had only a slight influence on overall levels of disapproval (in 2014 disapproval was 1.8 percentage points lower than the previous year when the question was not yet changed). Since MDMA was first tracked in 1997 disapproval levels gradually increased to a high of 89% in 2006, a level to which it returned in 2019 after a slight drop in the intervening years with a nadir of 83% in 2014. It is worth noting that in 2002 disapproval increased significantly to 84%,

at the same time that use decreased and perceived risk continued its increase. Increases in perceived risk may have contributed to the subsequent increase in personal disapproval, albeit with a fair amount of lag.

- There have been some important changes in levels of disapproval related to [alcohol](#) use. Figure 8-11b tracks disapproval rates among 12th graders for several different levels of use (upper panel). The proportion of 12th graders who disapprove of the more frequent levels of alcohol use, such as daily drinking (either 4–5 drinks a day or 1–2 drinks per day) has stayed fairly high throughout the surveys. More change is apparent in the episodic drinking levels of (a) five or more drinks once or twice a weekend, and (b) one or two drinks ever. Disapproval of both these levels has increased over the course of the survey with a pause during the 1990s drug relapse. Corresponding to this trend, prevalence of past-year alcohol use has gradually declined over the course of the survey, with a pause in the decline during the 1990s drug relapse. The prevalence trends track more closely with the disapproval of the episodic alcohol use levels, most likely because they are closer to the levels that adolescents see as relevant to their own alcohol use behaviors.
- With regard to abstinence, the proportions of 12th graders who disapproved of even [trying one or two drinks of alcohol](#) have varied between 25% and 31% from 1989 to 2019. A substantial increase took place between 1981 and 1989, when disapproval gradually increased from a survey-low of 16% in 1981. It seems likely that the increased minimum drinking age in many states between 1981 and 1987 contributed to these changes in attitude about abstinence, because all subsequent senior classes grew up under the higher minimum drinking age.¹⁵ If so, this illustrates the considerable capacity of laws to influence informal norms. It also seems likely that the activities of Mothers Against Drunk Driving (MADD), which peaked in 1984, and of the designated driver effort, which occurred mostly from 1989 to 1992, helped to influence these attitudes.¹⁶ While these ad campaigns dealt specifically with drinking and driving, we believe the negative connotations may well have generalized to heavy drinking under any circumstance, and contributed to the appreciable decline in weekend binge drinking.

Trends in Disapproval among 8th and 10th Graders

The lower panels in most of the ‘b’ figures in this chapter, starting with Figure 8-1b, show trends in disapproval graphically with regard to using each of the individual drugs. Tables 8-4 and 8-5 provide the tabular data for the trends in disapproval by 8th and 10th graders since 1991 (when the survey first started tracking these grades).

- The proportions of 8th and 10th graders who disapprove of experimental [marijuana](#) use were at the lowest levels recorded by the survey up to 2019, at 62% and 46% respectively (Figure 8-1b). As with 12th grade students, levels of disapproval fell during the 1990s relapse, to lows of 68% and 54% in 1997 among 8th and 10th graders, respectively.

¹⁵ O’Malley, P. M. & Wagenaar, A. C. (1991). [Effects of minimum drinking age laws on alcohol use, related behaviors, and traffic crash involvement among American youth: 1976–1987](#). *Journal of Studies on Alcohol*, 52, 478–491.

¹⁶ O’Malley, P. M., & Johnston, L. D. (2013). [Driving after drug or alcohol use by American high school seniors, 2001–2011](#). *American Journal of Public Health*, 102(11), 2027–34. See also O’Malley, P. M., & Johnston, L. D. (1999). [Drinking and driving among U.S. high school seniors, 1984–1997](#). *American Journal of Public Health*, 89, 678–684.

Thereafter disapproval steadily increased for a decade and then steadily declined in the next decade to return to the low levels set in the late 1990s. In all years 8th grade students report the highest levels of disapproval, followed by 10th graders and then 12th graders. Trends in annual marijuana prevalence track inversely with levels of disapproval (that is, use is higher when disapproval is lower), with use levels lowest among 8th grade students, higher among 10th graders, and highest among 12th graders.

- Trends in disapproval of [vaping nicotine](#) differed substantially in the lower grades compared to 12th grade. In both 8th and 10th grade disapproval significantly increased by 5 to 8 points for both occasional and regular use in 2019 (Table 8-4 through 8-6). This contrasts with 12th grade in which disapproval levels did not change for regular use and significantly *declined* since 2017 for occasional use.

Neither trends in disapproval nor trends in perceived risk of nicotine vaping correspond well with the very large prevalence increases in all grades since 2017. These findings suggest that other factors currently exert a relatively stronger influence on population prevalence. One candidate is the flavors currently available to teen vapers, such as mint, fruit, and candy varieties. No other drug we study comes in such flavors, which are very popular among youth.¹⁷ Another candidate is social media, which allows vaping companies to reach youth and shape their behaviors and attitudes in unprecedented ways. Still a third might be modeling by peers, including their being able to use in school without detection.

- In 2019 the proportion of 8th grade students who disapprove of experimental use of [inhalants](#) significantly declined to the lowest level ever recorded by the survey, at 75% (Table 8-4). However, this disapproval level is still relatively high and only twelve points lower than the recorded high of 87% (in 2001). Disapproval levels among 10th grade students have varied little, between 80% and 89%, and in 2019 stood at 82%. Disapproval by 8th graders has fallen somewhat more than by 10th graders, as did their perceived risk for that drug. This would be consistent with a generational forgetting of the dangers of inhalant use.
- The proportions of 8th and 10th grade students who disapprove of experimental [LSD](#) use have hovered over the past decade at levels lower than 12th grade students (Figure 8-8b and Tables 8-4 and 8-5). In 2019 the disapproval levels for 8th and 10th graders are 57% and 69%, respectively, which are lower than the 76% for 12th graders. In 1991, when disapproval of LSD was first asked for the lower grades, all three grades had about the same levels of disapproval. From 1991 to about 2005 these levels then diverged, declining considerably among 8th graders, declining less among 10th graders, and actually increasing some among 12th graders until recently. Note, however, that the percentages of 8th and 10th graders who respond with “can’t say, drug unfamiliar” increased through 2008 (a finding consistent with the notion that generational forgetting has been occurring); thus the base for disapproval has shrunk, suggesting that the real decline of disapproval among the younger students who know what LSD is, may be less than what appears here for the total

¹⁷ Leventhal, A.M., Miech, R.A., Barrington-Trimis, J., Johnston, L.D., O’Malley, P. M., Patrick, M.E. (2019). [Flavors of e-cigarettes used by youths in the United States](#). *JAMA*, 322, 2132-2134.

samples. Still, the divergence among the three grades in their disapproval of LSD, as can be seen in Figure 8-8b, is noteworthy

- In 2019, disapproval of [MDMA](#) (ecstasy, Molly) use plateaued after a long, gradual decline that dates back to around 2003 or 2004 in both grades. This decline was interrupted in 2015 by an update in the survey question that introduced “Molly” as an example street name of MDMA, an update that led to a one-year increase in disapproval (Figure 8-10b). Before 2008 disapproval levels steadily fell from the highest levels ever recorded, at 78% (in 2003) for 8th grade students, and 84% (in 2004) for 10th grade students. Overall, trends in disapproval of ecstasy are similar to those for disapproval of LSD, to the extent that disapproval levels were almost equal across the three grades when first measured in all of them (in 2001), and then diverged considerably, with the disapproval level now lowest in the 8th grade, higher in the 10th grade, and highest in the 12th grade. This divergence may reflect the effects of generational forgetting in the younger grades.
- The proportions of 8th and 10th grade students who disapprove of experimental use of [crack](#) and of [cocaine powder](#) have hovered between 84% and 93% over the course of the study (Figure 8-3b and Tables 8-4 and 8-5). Disapproval levels fell somewhat during the 1990s drug relapse, but they have since rebounded and in 2019 stand at or above 86%. The softening in attitudes about using crack and cocaine powder in the early 1990s eventually translated into changes in usage levels. For example, crack use rose from 1991 through 1998 in 8th grade, from 1992 through 1998 in 10th grade, and from 1993 through 1999 in 12th grade. Since those peaks in use, there has been some falloff at all grades in the use of both crack (including a significant drop in crack use among 12th graders in 2011 and among 8th graders in 2012) and powder cocaine. The recent general decline in use of cocaine powder since 1999 occurred without any significant covariation with perceived risk or disapproval. However, the decline in crack use did co-vary with modest increases in perceived risk and disapproval. The lack of covariation with perceived risk until recently suggests the possibility that there was some substitution by another drug occurring. Ecstasy would seem a possible candidate; however, its use does not co-vary with use of either crack or powder cocaine. One variable that does co-vary strongly is perceived availability of crack or cocaine powder, but that may be due to the fact that as use declines, a given drug becomes less available because there are fewer user peers who might be sources of the drug.
- The proportion of 8th grade students who disapprove of [weekend binge drinking](#) held steady at 85% in 2019, where it was when first measured in 1991, and it has changed little since then (Figure 8-11b). In 10th grade, the disapproval level continued its gradual ascent after 1996 that has lasted more than two decades and is now at 82%. In general, levels of self-reported binge drinking have moved inversely with disapproval over time.
- Disapproval of [smoking one or more packs of cigarettes per day](#) is at or near the highest levels ever recorded by the survey, with the proportions disapproving at 88% in 8th grade and 90% in 10th grade in 2019 (Figure 8-12b). With the exception of a decline in disapproval during the 1990s drug relapse, disapproval has overall increased throughout the life of the survey. During the long period of increasing disapproval since the mid-1990s,

and an even longer period of increase in perceived risk, actual smoking levels fell appreciably. These changes in attitudes may well have been brought about by the Tobacco Master Settlement Agreement of 1998, which resulted in extremely adverse publicity for the tobacco industry, the end of the Joe Camel advertising campaign, a prohibition on billboard advertising of cigarettes, and the initiation of antismoking campaigns aimed at youth that continue today.

ATTITUDES REGARDING THE LEGALITY OF DRUG USE

At the beginning of the study in 1975, legal restraints on drug use appeared likely to be in a state of flux for some time. Therefore, we decided to measure attitudes about legal sanctions. As it turns out, there have been some dramatic changes in these attitudes as well as in related policies, particularly in recent years. Table 8-7 presents a set of questions on this subject, along with the answers provided by each 12th grade class. The set lists a sampling of illicit and licit drugs and asks respondents whether the use of each should be prohibited by law. A distinction was made between use in public and use in private—a distinction that has proven quite important. (These questions have not been asked of 8th and 10th grade respondents.) The answer alternatives are “no,” “yes,” and “not sure.” This section includes marijuana along with the other illicit drugs, and a subsequent section deals specifically with the legal status of marijuana.

Attitudes about Legality of Drug Use among 12th Graders in 2021

- In 2021 a majority of 12th grade students—58%—did not favor legally prohibiting marijuana use by those age 18 and older in public places. Likewise, the percentage favoring legal prohibitions against use in private was 17% in 2021, down dramatically from 82% in 1990.
- The majority of 12th graders agree that people should be prohibited by law from using *illicit drugs other than marijuana* in public. (The questions specified people age 18 or older; presumably proportions would be even higher for those under 18.) For example, in 2021 the percentages agreeing to prohibition are 61% for [amphetamines](#) or [sedatives \(barbiturates\)](#), 64% for [LSD](#), and 75% for [heroin](#). Even use in private is opposed by substantial proportions; for example, 42% believe that nonmedical use in private of amphetamines or sedatives (barbiturates) should be illegal, while 40% believe the same for [LSD](#), and 65% believe it about [heroin](#) use.
- In 2021, 35% of 12th graders believe that [cigarette smoking](#) in “certain specified public places” should be prohibited by law. Were the question more specific as to the types of public places in which smoking might be prohibited (e.g., restaurants or hospitals), quite different results might have emerged.
- Less than half (38%) of 12th graders in 2021 think that [getting drunk](#) in public should be prohibited.
- For *all drugs* included in the question, fewer 12th graders believe that use in private settings should be illegal, as compared with use in public settings. This is particularly true for [getting drunk](#) in private (which only 17% think should be illegal vs. 38% for getting drunk

in public) and for smoking [marijuana](#) in private (which only 17% think should be illegal vs. 42% for smoking marijuana in public places). So, this distinction is important in assessing attitudes about legalization of drugs.

Trends in Attitudes about Legality of Drug Use among 12th Graders through 2019

In what follows we present trends in attitudes on legality of drug use up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced survey mode effects and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

- Support for laws prohibiting consumption of [marijuana](#) *in private* has been in substantial decline since 1990 and has fallen by more than half from a high of 56% (in 1990) to 21% in 2019, the lowest level recorded by the survey. This trend is almost a mirror image of the pattern before 1990, when the proportion who believed private marijuana use should be prohibited more than doubled, from 25% in 1978 to its level of 56% in 1990—also a dramatic shift.

The trend for prohibition of marijuana use in *public* follows very closely the same overall pattern seen for private use, with support for prohibition of public use running about 30 percentage points higher than support for use in private in every year. In 2019 it was 49%, the second lowest level ever recorded by the survey up to 2019 (the lowest was in 2018 at 48%).

- In 2019 the proportions of 12th grade students agreeing that use of [LSD](#), [heroin](#), and [amphetamines](#) in private should be prohibited by law continued their long declines and were near historic lows (Table 8-7). The decline has been weakest for heroin, which seems to have maintained its reputation as a very dangerous drug, and support for legal prohibitions against its use in private stood at 68% in 2019. Steeper declines have been apparent for LSD and amphetamines.

For all three drugs, the trends for support of legal prohibitions against public use are similar to their trends for private use, although levels of support of legal prohibitions against public use are higher and are 60% or above in all years. Specifically, in 2019 all three drugs—LSD, heroin, and amphetamines—were at or near the lowest levels recorded by the survey.

- The proportion of 12th graders who said [smoking cigarettes](#) “in certain specified public places” should be prohibited by law was 36% in 2019, a historic low. The proportion has dipped below the 40% level where it had hovered since 2013. In earlier years level of support hovered at around 45% since the 1980s and showed surprisingly little change given the steady decline in smoking prevalence over the course of the survey. Given recent widespread prohibitions of smoking in many public and private places, it is possible that the assumed definition of “certain specified public places” has expanded in the minds of many 12th graders.

- Attitudes about the legality of *drunkenness* in public significantly declined in 2019 to 41%, a historic low. In the past decade the percentage of 12th grade students favoring prohibition of public drunkenness had varied within the narrow range of 46% to 50%. This historic low in 2019 joins historic lows in attitudes toward both smoking cigarettes and marijuana use in public, suggesting a growing, general opposition to legal prohibition of public drug use, at least for the most commonly used substances.

For private drunkenness, support for a prohibition ranged from 19% to 23% over the past decade, and in 2019 registered at 21%.

THE LEGAL STATUS OF MARIJUANA

Another set of questions asks with more specificity what legal sanctions, if any, 12th graders think should be attached to the use and sale of marijuana. (These questions have not been asked of 8th and 10th grade respondents.) Respondents are also asked how they would be likely to react to the legalized use and sale of the drug. The answers to such a hypothetical question must be interpreted with considerable caution, of course.

Attitudes and Predicted Responses to Legalization of Marijuana in 2021

- Table 8-8 lists the proportions of 12th graders in 2021 who favor various legal consequences for marijuana use. About half (51%) believe it should be entirely legal. The percentage believing marijuana use should be a crime in 2021 was 7%, which compares to 53% in 1990.
- Asked whether they thought it should be legal to sell marijuana *if* it were legal to use it, about two in three (69%) said “yes.” Of these respondents 86% (which is 59% of all respondents) would permit sale only to adults. A small minority (9%) favored the sale to anyone, regardless of age, while 18% said that sale should not be legal even if use were made legal, and 13% said they “don’t know.” Thus, while the majority now subscribe to the idea of legal sale, if use is allowed, the great majority agree with the notion that sale to underage people should not be legal.
- Most 12th graders felt that they would be little affected personally by the legalization of either the sale or the use of marijuana. Forty-six percent of the 2021 respondents said that they would not use the drug even if it were legal to buy and use, while others indicated that they would use it about as often as they do now (14%) or less often (1%). Only 7% said they would use it more often than they do at present, while 16% thought they would try it. Another 17% said they did not know how their behavior would be affected if marijuana were legalized. Still, this amounts to 23% of all 12th graders, or about one in four, who thought that they would try marijuana, or that their use would increase, if marijuana were legalized.
- A study of the effects of *decriminalization* by several states during the late 1970s, based on MTF data, found no evidence of any impact on the use of marijuana among young

people, nor on attitudes and beliefs concerning its use.¹⁸ However, it should be noted that decriminalization falls well short of the full *legalization* posited in the questions here. Moreover, the situation today is very different from the one in the late 1970s, with more peer disapproval and more rigorous enforcement of drug laws, at least until recently. Some more recent studies suggest that there might be an impact of decriminalization, because “youths living in decriminalized states are significantly more likely to report currently using marijuana.”¹⁹ One study using MTF data shows that prevalence of marijuana use among 12th grade Californian students significantly increased in the two years after decriminalization went into effect in 2011, and youth attitudes also became significantly more permissive.²⁰ As more states approve full legalization of recreational use for adults, it is possible that attitudes about, and use of, marijuana will change. Declines in perceived risk and disapproval of marijuana would seem the most likely attitudinal changes, and such changes may well lead to increased use among youth.

Trends in Attitudes and Predicted Responses to Legalization of Marijuana through 2019

In what follows we present trends in attitudes on legality of marijuana use up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced survey mode effects and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

- In 2019 the proportion of 12th graders who favor *legalization* of marijuana was 51%, the first time in 45 years of measurement that it was supported by a majority (Table 8-8). Support for legalization has been steadily and rapidly increasing since 2008, when it was near 30%. Prior to 2008, support followed a U-shape curve, in which support levels near 30% were present at the beginning of the survey, in 1975, then dipped by half to a nadir of 15% in 1986–88, only to redouble and return to around 30% by 1995, where it hovered for a decade before rising considerably.
- The proportion of 12th grade students who favor treating *marijuana use as a crime* was at the lowest level ever recorded by the survey up to 2019 (9%), and its trend is a mirror image of the pattern seen for support of marijuana legalization. Back around 1990 as many as 50% thought its use should be a crime.
- Given higher levels of support for legalization among adults,²¹ tolerance for legalization appears to increase after the high school years.

¹⁸ See Johnston, L. D., O’Malley, P. M., & Bachman, J. G. (1981). *Marijuana decriminalization: The impact on youth, 1975–1980* (Monitoring the Future Occasional Paper No. 13). Ann Arbor, MI: Institute for Social Research.

¹⁹ Chaloupka, F. J., Pacula, R. L., Farrelly, M. C., Johnston, L. D., O’Malley, P. M., & Bray, J. W. (February 1999). *Do higher cigarette prices encourage youth to use marijuana?* (NBER Working Paper No. 6939). Cambridge, MA: National Bureau of Economic Research.

²⁰ Miech, R. A., Johnston, L. D., O’Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2015). *Trends in use of marijuana and attitudes toward marijuana among youth before and after decriminalization: The case of California 2007–2013*. *International Journal of Drug Policy*, 26, 336–344.

²¹ Daniller (2019, November 14) *Two-Thirds of American Support Marijuana Legalization*. Washington, DC: Pew Research Center

- The recent trend toward greater tolerance of marijuana use is also seen in the proportion of 12th grade students who support the *sale of marijuana* to adults, conditional on its use being legalized. In 2019 this proportion was 58%, the highest level ever recorded by the study up to that point (Table 8-8). In past years, support had reached a nadir of 38% in 1989, and then gradually increased to present levels, with a decade-long plateau between 1995 and 2005.
- It is likely that the growing number of states that have legalized recreational marijuana use for adults plays a role in the increasing tolerance of marijuana use among 12th grade students, who may interpret increasing legalization as a sign that marijuana use is safe and state-sanctioned.
- In 2019, 10% of 12th graders *predicted they would use marijuana more often than they do now if it were legally available* (Table 8-8). The percentage who predicted they would try marijuana if it were legal reached a historic high in 2019, at 17%. The percentage who reported they would not use marijuana even if it were legal significantly declined to 43%, a record low. Previous to 2019 these outcomes had been fairly similar for all graduating classes. The slight shifts that did occur were attributable mostly to the changing proportions of 12th graders who had actually used marijuana.

TABLE 8-1
Trends in Harmfulness of Drugs as Perceived by 8th Graders

<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	Percentage saying great risk ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice ^b	40.4	39.1	36.2	31.6	28.9	27.9	25.3	28.1	28.0	29.0	27.7	28.2	30.2	31.9	31.4	32.2
Use marijuana occasionally ^b	57.9	56.3	53.8	48.6	45.9	44.3	43.1	45.0	45.7	47.4	46.3	46.0	48.6	50.5	48.9	48.9
Use marijuana regularly ^b	83.8	82.0	79.6	74.3	73.0	70.9	72.7	73.0	73.3	74.8	72.2	71.7	74.2	76.2	73.9	73.2
Try synthetic marijuana once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take synthetic marijuana occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try inhalants once or twice ^d	35.9	37.0	36.5	37.9	36.4	40.8	40.1	38.9	40.8	41.2	45.6	42.8	40.3	38.7	37.5	35.8
Take inhalants regularly ^d	65.6	64.4	64.6	65.5	64.8	68.2	68.7	67.2	68.8	69.9	71.6	69.9	67.4	66.4	64.1	62.1
Take LSD once or twice ^e	—	—	42.1	38.3	36.7	36.5	37.0	34.9	34.1	34.0	31.6	29.6	27.9	26.8	25.8	23.8
Take LSD regularly ^e	—	—	68.3	65.8	64.4	63.6	64.1	59.6	58.8	57.5	52.9	49.3	48.2	45.2	44.0	40.0
Try ecstasy (MDMA, Molly) once or twice ^f	—	—	—	—	—	—	—	—	—	—	35.8	38.9	41.9	42.5	40.0	32.8
Take ecstasy (MDMA, Molly) occasionally ^f	—	—	—	—	—	—	—	—	—	—	55.5	61.8	65.8	65.1	60.8	52.0
Try salvia once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try crack once or twice ^d	62.8	61.2	57.2	54.4	50.8	51.0	49.9	49.3	48.7	48.5	48.6	47.4	48.7	49.0	49.6	47.6
Take crack occasionally ^d	82.2	79.6	76.8	74.4	72.1	71.6	71.2	70.6	70.6	70.1	70.0	69.7	70.3	70.4	69.4	68.7
Try cocaine once or twice ^{d,o}	55.5	54.1	50.7	48.4	44.9	45.2	45.0	44.0	43.3	43.3	43.9	43.2	43.7	44.4	44.2	43.5
Take cocaine occasionally ^{d,o}	77.0	74.3	71.8	69.1	66.4	65.7	65.8	65.2	65.4	65.5	65.8	64.9	65.8	66.0	65.3	64.0
Try heroin once or twice without using a needle ^e	—	—	—	—	60.1	61.3	63.0	62.8	63.0	62.0	61.1	62.6	62.7	61.6	61.4	60.4
Take heroin occasionally without using a needle ^e	—	—	—	—	76.8	76.6	79.2	79.0	78.9	78.6	78.5	78.5	77.8	77.5	76.8	75.3
Try OxyContin once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take OxyContin occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Vicodin once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take Vicodin occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Adderall once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take Adderall occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 8-1 (cont.)
Trends in Harmfulness of Drugs as Perceived by 8th Graders

<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	Percentage saying great risk ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Try bath salts (synthetic stimulants) once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take bath salts (synthetic stimulants) occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try cough/cold medicine once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cough/cold medicine occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	11.0	12.1	12.4	11.6	11.6	11.8	10.4	12.1	11.6	11.9	12.2	12.5	12.6	13.7	13.9	14.2
Take one or two drinks nearly every day ^b	31.8	32.4	32.6	29.9	30.5	28.6	29.1	30.3	29.7	30.4	30.0	29.6	29.9	31.0	31.4	31.3
Have five or more drinks once or twice each weekend ^b	59.1	58.0	57.7	54.7	54.1	51.8	55.6	56.0	55.3	55.9	56.1	56.4	56.5	56.9	57.2	56.4
Smoke one to five cigarettes per day ^c	—	—	—	—	—	—	—	—	26.9	28.9	30.5	32.8	33.4	37.0	37.5	37.0
Smoke one or more packs of cigarettes per day ^g	51.6	50.8	52.7	50.8	49.8	50.4	52.6	54.3	54.8	58.8	57.1	57.5	57.7	62.4	61.5	59.4
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{c,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^{c,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly	35.1	35.1	36.9	35.5	33.5	34.0	35.2	36.5	37.1	39.0	38.2	39.4	39.7	41.3	40.8	39.5
Take dissolvable tobacco regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take snus regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take steroids ⁱ	64.2	69.5	70.2	67.6	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>																
	17,400	18,700	18,400	17,400	17,500	17,900	18,800	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500

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TABLE 8-1 (cont.)
Trends in Harmfulness of Drugs as Perceived by 8th Graders

<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	Percentage saying great risk ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^l	2020	2021 ⁿ
Use marijuana once or twice ^b	32.8	31.1	29.5	29.5	28.2	26.0	24.1	23.0	23.0	22.8	22.0	20.3	19.6	§	18.8*
Use marijuana occasionally ^b	50.2	48.1	44.8	44.1	43.4	41.7	37.2	36.7	36.8	36.8	34.0	32.1	28.8	§	28.2*
Use marijuana regularly ^b	74.3	72.0	69.8	68.0	68.3	66.9	61.0	58.9	58.0	57.5	54.8	52.9	51.4	§	51.6*
Try synthetic marijuana once or twice ^c	—	—	—	—	—	24.4	24.2	23.9	26.0	27.5	23.0	22.2	20.4	§	24.2*
Take synthetic marijuana occasionally ^c	—	—	—	—	—	36.8	36.2	32.4	33.5	35.4	30.4	28.8	28.5	§	31.4*
Try inhalants once or twice ^d	35.9	33.9	34.1	35.5	34.7	34.2	33.7	34.5	33.7	32.0	31.5	29.6	27.9	§	18.2*
Take inhalants regularly ^d	61.9	59.2	58.1	60.6	59.0	59.0	56.7	55.3	54.1	52.1	50.0	46.8	45.5	§	37.1*
Take LSD once or twice ^e	22.8	21.9	21.4	23.6	21.7	19.9	19.6	20.0	22.2	22.6	23.1	20.8	21.8	§	16.1*
Take LSD regularly ^e	38.5	36.9	37.0	38.6	37.8	35.0	34.5	33.7	37.0	36.8	37.9	36.4	38.1	§	36.7*
Try ecstasy (MDMA, Molly) once or twice ^f	30.4	28.6	26.0	27.0	25.4	23.6	24.1‡	46.1	45.5	42.5	43.3	41.9	39.0	§	33.2*
Take ecstasy (MDMA, Molly) occasionally ^f	48.6	46.8	43.9	45.0	43.7	41.0	42.1‡	59.7	58.5	54.0	54.6	53.6	50.2	§	48.0*
Try salvia once or twice ^c	—	—	—	—	—	9.5	8.5	—	—	—	—	—	—	—	—
Take salvia occasionally ^c	—	—	—	—	—	16.1	14.6	—	—	—	—	—	—	—	—
Try crack once or twice ^d	47.3	47.1	46.6	49.6	48.1	47.0	47.1	48.3	49.6	48.9	49.3	47.7	49.1	—	—
Take crack occasionally ^d	68.3	67.9	66.6	68.4	67.7	67.8	66.5	65.5	65.7	65.7	66.9	65.3	64.7	—	—
Try cocaine once or twice ^{d,o}	43.5	42.7	42.3	45.7	43.3	42.8	43.5	43.9	44.3	44.3	44.5	42.6	43.4‡	§	43.8*
Take cocaine occasionally ^{d,o}	64.2	62.7	62.3	64.2	63.5	63.3	62.7	61.8	61.6	62.4	62.7	61.0	60.8‡	§	63.9*
Try heroin once or twice without using a needle ^e	60.3	60.8	60.0	62.3	61.7	59.1	59.8	60.9	61.4	59.2	62.9	59.5	59.0	§	53.4*
Take heroin occasionally without using a needle ^e	76.4	75.5	74.0	76.7	75.9	75.1	73.4	73.2	72.7	70.3	74.7	72.1	69.1	§	67.8*
Try OxyContin once or twice ^c	—	—	—	—	—	21.9	19.9	22.1	20.2	21.3	21.0	20.8	19.2	§	17.7*
Take OxyContin occasionally ^c	—	—	—	—	—	35.3	32.6	34.4	32.5	33.5	32.6	32.5	31.0	§	29.6*
Try Vicodin once or twice ^c	—	—	—	—	—	17.5	15.0	18.4	16.9	18.3	17.1	16.1	16.0	§	18.0*
Take Vicodin occasionally ^c	—	—	—	—	—	29.4	26.2	28.2	26.7	28.8	26.7	25.9	25.3	§	23.9*
Try Adderall once or twice ^c	—	—	—	—	—	17.6	16.5	20.7	19.2	21.4	20.4	20.1	20.6	§	20.9*
Take Adderall occasionally ^c	—	—	—	—	—	29.9	28.3	32.5	32.0	35.9	33.8	34.0	35.2	§	30.0*

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TABLE 8-1 (cont.)
Trends in Harmfulness of Drugs as Perceived by 8th Graders

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying great risk ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^l	2020	2021 ⁿ
Try bath salts (synthetic stimulants) once or twice ^c	—	—	—	—	—	24.9	39.3	36.8	33.9	31.8	32.0	30.1	—	—	—
Take bath salts (synthetic stimulants) occasionally ^c	—	—	—	—	—	38.8	51.9	49.1	45.5	42.5	43.1	41.2	—	—	—
Try cough/cold medicine once or twice ^c	—	—	—	—	—	21.2	20.1	22.9	20.9	23.5	21.2	19.5	20.7	§	22.8*
Take cough/cold medicine occasionally ^c	—	—	—	—	—	38.8	37.3	37.9	37.3	38.6	35.2	34.5	37.8	§	34.1*
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	14.9	13.5	14.4	14.9	14.5	13.9	13.7	14.8	15.3	14.7	14.2	13.6	13.4	§	10.1*
Take one or two drinks nearly every day ^b	32.6	31.5	31.5	32.3	31.8	31.4	30.6	31.0	30.9	30.7	30.0	28.7	26.9	§	27.2*
Have five or more drinks once or twice each weekend ^b	57.9	57.0	55.8	57.2	58.4	58.2	55.7	54.3	53.9	53.4	53.7	52.3	50.7	§	51.8*
Smoke one to five cigarettes per day ^c	38.6	38.6	38.6	38.2	37.4	40.4	42.8	41.9	41.7	43.2	41.9	40.8	39.8	§	39.5*
Smoke one or more packs of cigarettes per day ^g	61.1	59.8	59.1	60.9	62.5	62.6	62.4	62.1	63.0	61.2	62.1	61.3	63.3	§	64.0*
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	14.5	18.5	21.3	20.3	22.1	—	—	—
Vape marijuana occasionally ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	§	33.8*
Vape marijuana regularly ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	§	52.7*
Vape an e-liquid with nicotine occasionally ^{c, j}	—	—	—	—	—	—	—	—	—	—	18.3	16.9	21.7	§	23.2*
Vape an e-liquid with nicotine regularly ^{c, j}	—	—	—	—	—	—	—	—	—	—	32.7	32.4	40.2	§	55.1*
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	22.6	§	27.1*
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	36.2	§	48.8*
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	28.8	31.0	32.5	30.8	30.5	35.9	§	42.8*
Use smokeless tobacco regularly	41.8	41.0	40.8	41.8	40.8	37.8	36.2	34.5	36.6	35.1	34.8	34.3	37.1	§	37.6*
Take dissolvable tobacco regularly ^c	—	—	—	—	—	34.8	32.2	33.5	33.0	34.3	31.9	31.3	32.0	§	36.7*
Take snus regularly ^c	—	—	—	—	—	42.2	38.9	38.3	37.7	37.9	36.4	34.2	36.0	§	36.4*
Take steroids ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N =															
	16,100	15,700	15,000	15,300	16,000	15,100	14,600	14,600	14,400	16,900	15,300	14,000	6,800	§	10,700

Table continued on next page.

TABLE 8-1 (cont.)
Trends in Harmfulness of Drugs as Perceived by 8th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. "‡" indicates that the question changed the following year.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

^bBeginning in 2012 data based on two thirds of N indicated.

^cData based on one third of N indicated.

^dBeginning in 1997, data based on two thirds of N indicated.

^eData based on one of two forms in 1993–1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

^fBeginning in 2014 data are based on the revised question which included "Molly," N is one third of N indicated in 2014 and two thirds of N indicated in 2015. 2014 and 2015 data are not comparable to earlier years due to the revision of the question text.

^gBeginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

^hE-cigarette data based on two thirds of N indicated. Little cigars or cigarillos data based on one third N indicated.

ⁱData based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

^jPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

^kData based on two thirds of N indicated.

^lThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^mData based on one half of N indicated.

ⁿSample is decreased by as much as 50% for the following drugs due to survey question experiments: alcohol, inhalants, heroin, LSD, OxyContin, Vicodin, and cough/cold medicine.

^oIn 2019 and previous years the survey question asked about 'cocaine powder' and in 2020 forward it asked about 'cocaine'.

TABLE 8-2
Trends in Harmfulness of Drugs as Perceived by 10th Graders

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying great risk ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice ^b	30.0	31.9	29.7	24.4	21.5	20.0	18.8	19.6	19.2	18.5	17.9	19.9	21.1	22.0	22.3	22.2
Use marijuana occasionally ^b	48.6	48.9	46.1	38.9	35.4	32.8	31.9	32.5	33.5	32.4	31.2	32.0	34.9	36.2	36.6	35.6
Use marijuana regularly ^b	82.1	81.1	78.5	71.3	67.9	65.9	65.9	65.8	65.9	64.7	62.8	60.8	63.9	65.6	65.5	64.9
Try synthetic marijuana once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take synthetic marijuana occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try inhalants once or twice ^d	37.8	38.7	40.9	42.7	41.6	47.2	47.5	45.8	48.2	46.6	49.9	48.7	47.7	46.7	45.7	43.9
Take inhalants regularly ^d	69.8	67.9	69.6	71.5	71.8	75.8	74.5	73.3	76.3	75.0	76.4	73.4	72.2	73.0	71.2	70.2
Take LSD once or twice ^e	—	—	48.7	46.5	44.7	45.1	44.5	43.5	45.0	43.0	41.3	40.1	40.8	40.6	40.3	38.8
Take LSD regularly ^e	—	—	78.9	75.9	75.5	75.3	73.8	72.3	73.9	72.0	68.8	64.9	63.0	63.1	60.8	60.7
Try ecstasy (MDMA, Molly) once or twice ^f	—	—	—	—	—	—	—	—	—	—	39.4	43.5	49.7	52.0	51.4	48.4
Take ecstasy (MDMA, Molly) occasionally ^f	—	—	—	—	—	—	—	—	—	—	64.8	67.3	71.7	74.6	72.8	71.3
Try salvia once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try crack once or twice ^d	70.4	69.6	66.6	64.7	60.9	60.9	59.2	58.0	57.8	56.1	57.1	57.4	57.6	56.7	57.0	56.6
Take crack occasionally ^d	87.4	86.4	84.4	83.1	81.2	80.3	78.7	77.5	79.1	76.9	77.3	75.7	76.4	76.7	76.9	76.2
Try cocaine once or twice ^{d,o}	59.1	59.2	57.5	56.4	53.5	53.6	52.2	50.9	51.6	48.8	50.6	51.3	51.8	50.7	51.3	50.2
Take cocaine occasionally ^{d,o}	82.2	80.1	79.1	77.8	75.6	75.0	73.9	71.8	73.6	70.9	72.3	71.0	71.4	72.2	72.4	71.3
Try heroin once or twice without using a needle ^e	—	—	—	—	70.7	72.1	73.1	71.7	73.7	71.7	72.0	72.2	70.6	72.0	72.4	70.0
Take heroin occasionally without using a needle ^e	—	—	—	—	85.1	85.8	86.5	84.9	86.5	85.2	85.4	83.4	83.5	85.4	85.2	83.6
Try OxyContin once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take OxyContin occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Vicodin once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take Vicodin occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Adderall once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take Adderall occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 8-2 (cont.)
Trends in Harmfulness of Drugs as Perceived by 10th Graders

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying great risk ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Try bath salts (synthetic stimulants) once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take bath salts (synthetic stimulants) occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try cough/cold medicine once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cough/cold medicine occasionally ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	9.0	10.1	10.9	9.4	9.3	8.9	9.0	10.1	10.5	9.6	9.8	11.5	11.5	10.8	11.5	11.1
Take one or two drinks nearly every day ^b	36.1	36.8	35.9	32.5	31.7	31.2	31.8	31.9	32.9	32.3	31.5	31.0	30.9	31.3	32.6	31.7
Have five or more drinks once or twice each weekend ^u	54.7	55.9	54.9	52.9	52.0	50.9	51.8	52.5	51.9	51.0	50.7	51.7	51.6	51.7	53.3	52.4
Smoke one to five cigarettes per day ^c	—	—	—	—	—	—	—	—	28.4	30.2	32.4	35.1	38.1	39.7	41.0	41.3
Smoke one or more packs of cigarettes per day ^g	60.3	59.3	60.7	59.0	57.0	57.9	59.9	61.9	62.7	65.9	64.7	64.3	65.7	68.4	68.1	67.7
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{c,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^{c,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly	40.3	39.6	44.2	42.2	38.2	41.0	42.2	42.8	44.2	46.7	46.2	46.9	48.0	47.8	46.1	45.9
Take dissolvable tobacco regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take snus regularly ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take steroids ⁱ	67.1	72.7	73.4	72.5	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	14,700	14,800	15,300	15,900	17,000	15,700	15,600	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200

Table continued on next page.

TABLE 8-2 (cont.)
Trends in Harmfulness of Drugs as Perceived by 10th Graders

<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	Percentage saying great risk ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^l	2020	2021 ⁿ
Use marijuana once or twice ^b	22.2	23.1	20.5	19.9	19.3	17.2	15.7	15.2	15.8	16.4	14.8	13.9	14.1	§	16.9*
Use marijuana occasionally ^b	36.0	37.0	32.9	30.9	30.1	26.8	25.1	23.9	24.7	24.4	21.9	21.4	20.6	§	22.6*
Use marijuana regularly ^b	64.5	64.8	59.5	57.2	55.2	50.9	46.5	45.4	43.2	44.0	40.6	38.1	39.5	§	41.0*
Try synthetic marijuana once or twice ^c	—	—	—	—	—	24.6	24.1	25.0	26.3	26.8	25.1	24.3	22.4	§	24.7*
Take synthetic marijuana occasionally ^c	—	—	—	—	—	34.9	32.8	30.7	31.7	31.8	29.2	28.8	27.2	§	28.3*
Try inhalants once or twice ^d	43.0	41.2	42.0	42.5	42.4	42.4	43.0	43.1	43.1	40.7	37.9	38.6	39.7	§	30.4*
Take inhalants regularly ^d	68.6	66.8	66.8	67.1	66.2	66.1	65.9	64.7	63.1	59.7	57.7	57.6	57.5	§	52.3*
Take LSD once or twice ^e	35.4	34.6	34.9	33.9	34.2	34.7	34.7	34.5	36.4	34.4	31.6	33.8	32.9	§	27.6*
Take LSD regularly ^e	56.8	55.7	56.7	56.1	54.9	56.4	55.9	54.8	58.3	55.2	53.0	54.1	52.4	§	55.2*
Try ecstasy (MDMA, Molly) once or twice ^f	45.3	43.2	38.9	36.3	37.2	36.2	36.0‡	53.2	54.8	54.2	55.4	54.5	53.0	§	53.0*
Take ecstasy (MDMA, Molly) occasionally ^f	68.2	66.4	62.1	59.2	60.8	59.8	58.6‡	69.0	70.1	69.3	68.6	67.6	66.1	§	66.5*
Try salvia once or twice ^c	—	—	—	—	—	12.2	10.7	—	—	—	—	—	—	—	—
Take salvia occasionally ^c	—	—	—	—	—	20.3	17.1	—	—	—	—	—	—	—	—
Try crack once or twice ^d	56.4	56.5	57.7	58.1	59.5	59.0	60.2	61.4	62.5	61.3	60.7	60.4	62.5	—	—
Take crack occasionally ^d	76.0	76.5	75.9	76.2	76.5	76.7	77.8	76.4	77.5	75.2	75.1	75.0	76.0	—	—
Try cocaine once or twice ^{d,o}	49.5	49.8	50.8	52.9	53.0	53.4	54.5	54.1	54.8	54.6	52.5	52.6	53.7‡	§	55.3*
Take cocaine occasionally ^{d,o}	70.9	71.1	71.0	72.2	72.0	72.6	72.8	71.7	72.6	70.9	70.4	70.2	71.0‡	§	74.0*
Try heroin once or twice without using a needle ^e	70.5	70.8	72.2	73.0	72.9	72.6	73.2	72.6	74.1	73.3	72.2	71.4	73.6	§	73.2*
Take heroin occasionally without using a needle ^e	84.2	83.1	83.3	84.8	83.4	84.4	84.0	82.5	83.3	82.2	81.4	81.0	82.6	§	81.8*
Try OxyContin once or twice ^c	—	—	—	—	—	30.9	29.4	29.7	29.9	28.7	27.8	29.6	25.0	§	27.6*
Take OxyContin occasionally ^c	—	—	—	—	—	48.3	44.7	44.4	43.7	41.4	41.3	43.9	41.5	§	41.3*
Try Vicodin once or twice ^c	—	—	—	—	—	23.2	21.0	22.5	24.1	21.8	22.1	23.2	19.7	§	26.1*
Take Vicodin occasionally ^c	—	—	—	—	—	40.3	36.0	36.4	35.4	32.6	32.0	34.8	30.5	§	32.6*
Try Adderall once or twice ^c	—	—	—	—	—	19.7	17.6	22.2	22.9	22.5	21.6	23.2	22.3	§	25.9*
Take Adderall occasionally ^c	—	—	—	—	—	34.3	30.5	37.0	37.0	35.8	36.4	39.8	39.1	§	38.1*

Table continued on next page.

TABLE 8-2 (cont.)
Trends in Harmfulness of Drugs as Perceived by 10th Graders

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying great risk ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^l	2020	2021 ⁿ
Try bath salts (synthetic stimulants) once or twice ^c	—	—	—	—	—	32.3	50.1	49.6	49.1	42.7	42.5	41.1	—	—	—
Take bath salts (synthetic stimulants) occasionally ^c	—	—	—	—	—	44.9	61.8	61.1	60.4	53.0	51.5	51.4	—	—	—
Try cough/cold medicine once or twice ^c	—	—	—	—	—	23.6	21.6	22.9	24.0	24.0	21.8	22.1	22.3	§	27.9*
Take cough/cold medicine occasionally ^c	—	—	—	—	—	40.4	37.3	38.3	38.2	37.6	36.4	37.2	37.9	§	37.0*
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	11.6	12.6	11.9	11.9	12.3	11.3	11.3	11.6	12.4	13.3	12.5	13.0	13.6	§	13.2*
Take one or two drinks nearly every day ^b	33.3	35.0	33.8	33.1	32.9	31.8	30.6	31.3	31.2	32.2	30.9	30.3	31.0	§	34.7*
Have five or more drinks once or twice each weekend ^b	54.1	56.6	54.2	54.6	55.5	52.8	52.3	54.0	54.5	54.5	52.0	51.8	52.6	§	54.2*
Smoke one to five cigarettes per day ^c	41.7	43.5	42.8	41.4	44.8	49.1	47.7	52.0	52.9	53.0	50.0	49.9	50.0	§	45.8*
Smoke one or more packs of cigarettes per day ^g	68.2	69.1	67.3	67.2	69.8	71.6	70.8	72.0	72.9	71.5	69.8	69.6	73.2	§	72.7*
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	14.1	17.0	19.1	19.4	22.8	—	—	—
Vape marijuana occasionally ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	§	28.7*
Vape marijuana regularly ^m	—	—	—	—	—	—	—	—	—	—	—	—	—	§	42.9*
Vape an e-liquid with nicotine occasionally ^{c,j}	—	—	—	—	—	—	—	—	—	—	17.0	17.9	22.7	§	22.8*
Vape an e-liquid with nicotine regularly ^{c,j}	—	—	—	—	—	—	—	—	—	—	30.0	31.3	40.7	§	52.6*
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	22.8	§	27.4*
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	35.6	§	49.2*
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	31.0	34.9	35.3	34.0	34.9	39.1	§	45.6*
Use smokeless tobacco regularly	46.7	48.0	44.7	43.7	45.7	42.9	40.0	39.9	42.5	43.0	40.7	41.0	44.5	§	43.8*
Take dissolvable tobacco regularly ^c	—	—	—	—	—	33.3	31.3	32.0	35.6	34.2	32.7	33.2	32.9	§	38.6*
Take snus regularly ^c	—	—	—	—	—	41.0	38.9	38.8	41.8	39.9	38.1	39.8	39.0	§	38.8*
Take steroids ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N =															
	16,100	15,100	15,900	15,200	14,900	15,000	12,900	13,000	15,600	14,700	13,500	14,300	7,000	§	11,000

Table continued on next page.

TABLE 8-2 (cont.)
Trends in Harmfulness of Drugs as Perceived by 10th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. † indicates that the question changed the following year.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

^bBeginning in 2012 data based on two thirds of N indicated.

^cData based on one third of N indicated.

^dBeginning in 1997, data based on two thirds of N indicated.

^eData based on one of two forms in 1993–1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

^fBeginning in 2014 data are based on the revised question which included "Molly," N is one third of N indicated in 2014 and two thirds of N indicated in 2015. 2014 and 2015 data are not comparable to earlier years due to the revision of the question text.

^gBeginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

^hE-cigarette data based on two thirds of N indicated. Little cigars or cigarillos data based on one third N indicated.

ⁱData based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

^jPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

^kData based on two thirds of N indicated.

^lThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^mData based on one half of N indicated.

ⁿSample is decreased by as much as 50% for the following drugs due to survey question experiments: alcohol, inhalants, heroin, LSD, OxyContin, Vicodin, and cough/cold medicine.

^oIn 2019 and previous years the survey question asked about 'cocaine powder' and in 2020 forward it asked about 'cocaine'.

TABLE 8-3
Trends in Harmfulness of Drugs as Perceived by 12th Graders

	Percentage saying great risk ^a															
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Use marijuana once or twice	15.1	11.4	9.5	8.1	9.4	10.0	13.0	11.5	12.7	14.7	14.8	15.1	18.4	19.0	23.6	23.1
Use marijuana occasionally	18.1	15.0	13.4	12.4	13.5	14.7	19.1	18.3	20.6	22.6	24.5	25.0	30.4	31.7	36.5	36.9
Use marijuana regularly	43.3	38.6	36.4	34.9	42.0	50.4	57.6	60.4	62.8	66.9	70.4	71.3	73.5	77.0	77.5	77.8
Try synthetic marijuana once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take synthetic marijuana occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try LSD once or twice	49.4	45.7	43.2	42.7	41.6	43.9	45.5	44.9	44.7	45.4	43.5	42.0	44.9	45.7	46.0	44.7
Take LSD regularly	81.4	80.8	79.1	81.1	82.4	83.0	83.5	83.5	83.2	83.8	82.9	82.6	83.8	84.2	84.3	84.5
Try PCP once or twice	—	—	—	—	—	—	—	—	—	—	—	—	55.6	58.8	56.6	55.2
Try ecstasy (MDMA, Molly) once or twice ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try salvia once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try cocaine once or twice	42.6	39.1	35.6	33.2	31.5	31.3	32.1	32.8	33.0	35.7	34.0	33.5	47.9	51.2	54.9	59.4
Take cocaine occasionally	—	—	—	—	—	—	—	—	—	—	—	54.2	66.8	69.2	71.8	73.9
Take cocaine regularly	73.1	72.3	68.2	68.2	69.5	69.2	71.2	73.0	74.3	78.8	79.0	82.2	88.5	89.2	90.2	91.1
Try crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	57.0	62.1	62.9	64.3
Take crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	70.4	73.2	75.3	80.4
Take crack regularly	—	—	—	—	—	—	—	—	—	—	—	—	84.6	84.8	85.6	91.6
Try cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	45.3	51.7	53.8	53.9
Take cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	56.8	61.9	65.8	71.1
Take cocaine powder regularly	—	—	—	—	—	—	—	—	—	—	—	—	81.4	82.9	83.9	90.2
Try heroin once or twice	60.1	58.9	55.8	52.9	50.4	52.1	52.9	51.1	50.8	49.8	47.3	45.8	53.6	54.0	53.8	55.4
Take heroin occasionally	75.6	75.6	71.9	71.4	70.9	70.9	72.2	69.8	71.8	70.7	69.8	68.2	74.6	73.8	75.5	76.6
Take heroin regularly	87.2	88.6	86.1	86.6	87.5	86.2	87.5	86.0	86.1	87.2	86.0	87.1	88.7	88.8	89.5	90.2
Try heroin once or twice without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take heroin occasionally without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try any narcotic other than heroin (codeine, Vicodin, OxyContin, Percocet, etc.) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take any narcotic other than heroin occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take any narcotic other than heroin regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

	Percentage saying great risk ^a															
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Try amphetamines once or twice ^d	35.4	33.4	30.8	29.9	29.7	29.7	26.4	25.3	24.7	25.4	25.2	25.1	29.1	29.6	32.8	32.2
Take amphetamines regularly ^d	69.0	67.3	66.6	67.1	69.9	69.1	66.1	64.7	64.8	67.1	67.2	67.3	69.4	69.8	71.2	71.2
Try Adderall once or twice ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Adderall occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try crystal methamphetamine (ice) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try bath salts (synthetic stimulants) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take bath salts (synthetic stimulants) occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try sedatives (barbiturates) once or twice ^f	34.8	32.5	31.2	31.3	30.7	30.9	28.4	27.5	27.0	27.4	26.1	25.4	30.9	29.7	32.2	32.4
Take sedatives (barbiturates) regularly ^f	69.1	67.7	68.6	68.4	71.6	72.2	69.9	67.6	67.7	68.5	68.3	67.2	69.4	69.6	70.5	70.2
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	5.3	4.8	4.1	3.4	4.1	3.8	4.6	3.5	4.2	4.6	5.0	4.6	6.2	6.0	6.0	8.3
Take one or two drinks nearly every day	21.5	21.2	18.5	19.6	22.6	20.3	21.6	21.6	21.6	23.0	24.4	25.1	26.2	27.3	28.5	31.3
Take four or five drinks nearly every day	63.5	61.0	62.9	63.1	66.2	65.7	64.5	65.5	66.8	68.4	69.8	66.5	69.7	68.5	69.8	70.9
Have five or more drinks once or twice each weekend	37.8	37.0	34.7	34.5	34.9	35.9	36.3	36.0	38.6	41.7	43.0	39.1	41.9	42.6	44.0	47.1
Smoke one or more packs of cigarettes per day	51.3	56.4	58.4	59.0	63.0	63.7	63.3	60.5	61.2	63.8	66.5	66.0	68.6	68.0	67.2	68.2
Use electronic cigarettes (e-cigarettes) regularly ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smoke little cigars or cigarillos regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly	—	—	—	—	—	—	—	—	—	—	—	25.8	30.0	33.2	32.9	34.2
Take steroids	—	—	—	—	—	—	—	—	—	—	—	—	—	—	63.8	69.9
<i>Approximate weighted N =</i>	2,804	2,918	3,052	3,770	3,250	3,234	3,604	3,557	3,305	3,262	3,250	3,020	3,315	3,276	2,796	2,553

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

	Percentage saying great risk ^a															
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice	27.1	24.5	21.9	19.5	16.3	15.6	14.9	16.7	15.7	13.7	15.3	16.1	16.1	15.9	16.1	17.8
Use marijuana occasionally	40.6	39.6	35.6	30.1	25.6	25.9	24.7	24.4	23.9	23.4	23.5	23.2	26.6	25.4	25.8	25.9
Use marijuana regularly	78.6	76.5	72.5	65.0	60.8	59.9	58.1	58.5	57.4	58.3	57.4	53.0	54.9	54.6	58.0	57.9
Try synthetic marijuana once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take synthetic marijuana occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try LSD once or twice	46.6	42.3	39.5	38.8	36.4	36.2	34.7	37.4	34.9	34.3	33.2	36.7	36.2	36.2	36.5	36.1
Take LSD regularly	84.3	81.8	79.4	79.1	78.1	77.8	76.6	76.5	76.1	75.9	74.1	73.9	72.3	70.2	69.9	69.3
Try PCP once or twice	51.7	54.8	50.8	51.5	49.1	51.0	48.8	46.8	44.8	45.0	46.2	48.3	45.2	47.1	46.6	47.0
Try ecstasy (MDMA, Molly) once or twice ^b	—	—	—	—	—	—	33.8	34.5	35.0	37.9	45.7	52.2	56.3	57.7	60.1	59.3
Try salvia once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try cocaine once or twice	59.4	56.8	57.6	57.2	53.7	54.2	53.6	54.6	52.1	51.1	50.7	51.2	51.0	50.7	50.5	52.5
Take cocaine occasionally	75.5	75.1	73.3	73.7	70.8	72.1	72.4	70.1	70.1	69.5	69.9	68.3	69.1	67.2	66.7	69.8
Take cocaine regularly	90.4	90.2	90.1	89.3	87.9	88.3	87.1	86.3	85.8	86.2	84.1	84.5	83.0	82.2	82.8	84.6
Try crack once or twice	60.6	62.4	57.6	58.4	54.6	56.0	54.0	52.2	48.2	48.4	49.4	50.8	47.3	47.8	48.4	47.8
Take crack occasionally	76.5	76.3	73.9	73.8	72.8	71.4	70.3	68.7	67.3	65.8	65.4	65.6	64.0	64.5	63.8	64.8
Take crack regularly	90.1	89.3	87.5	89.6	88.6	88.0	86.2	85.3	85.4	85.3	85.8	84.1	83.2	83.5	83.3	82.8
Try cocaine powder once or twice	53.6	57.1	53.2	55.4	52.0	53.2	51.4	48.5	46.1	47.0	49.0	49.5	46.2	45.4	46.2	45.8
Take cocaine powder occasionally	69.8	70.8	68.6	70.6	69.1	68.8	67.7	65.4	64.2	64.7	63.2	64.4	61.4	61.6	60.8	61.9
Take cocaine powder regularly	88.9	88.4	87.0	88.6	87.8	86.8	86.0	84.1	84.6	85.5	84.4	84.2	82.3	81.7	82.7	82.1
Try heroin once or twice	55.2	50.9	50.7	52.8	50.9	52.5	56.7	57.8	56.0	54.2	55.6	56.0	58.0	56.6	55.2	59.1
Take heroin occasionally	74.9	74.2	72.0	72.1	71.0	74.8	76.3	76.9	77.3	74.6	75.9	76.6	78.5	75.7	76.0	79.1
Take heroin regularly	89.6	89.2	88.3	88.0	87.2	89.5	88.9	89.1	89.9	89.2	88.3	88.5	89.3	86.8	87.5	89.7
Try heroin once or twice without using a needle	—	—	—	—	55.6	58.6	60.5	59.6	58.5	61.6	60.7	60.6	58.9	61.2	60.5	62.6
Take heroin occasionally without using a needle	—	—	—	—	71.2	71.0	74.3	73.4	73.6	74.7	74.4	74.7	73.0	76.1	73.3	76.2
Try any narcotic other than heroin (codeine, Vicodin, OxyContin, Percocet, etc.) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take any narcotic other than heroin occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take any narcotic other than heroin regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

	Percentage saying great risk ^a															
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Try amphetamines once or twice ^d	36.3	32.6	31.3	31.4	28.8	30.8	31.0	35.3	32.2	32.6	34.7	34.4	36.8	35.7	37.7	39.5
Take amphetamines regularly ^d	74.1	72.4	69.9	67.0	65.9	66.8	66.0	67.7	66.4	66.3	67.1	64.8	65.6	63.9	67.1	68.1
Try Adderall once or twice ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Adderall occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try crystal methamphetamine (ice) once or twice	61.6	61.9	57.5	58.3	54.4	55.3	54.4	52.7	51.2	51.3	52.7	53.8	51.2	52.4	54.6	59.1
Try bath salts (synthetic stimulants) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take bath salts (synthetic stimulants) occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try sedatives (barbiturates) once or twice ^f	35.1	32.2	29.2	29.9	26.3	29.1	26.9	29.0	26.1	25.0	25.7	26.2	27.9†	24.9	24.7	28.0
Take sedatives (barbiturates) regularly ^f	70.5	70.2	66.1	63.3	61.6	60.4	56.8	56.3	54.1	52.3	50.3	49.3	49.6†	54.0	54.1	56.8
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	9.1	8.6	8.2	7.6	5.9	7.3	6.7	8.0	8.3	6.4	8.7	7.6	8.4	8.6	8.5	9.3
Take one or two drinks nearly every day	32.7	30.6	28.2	27.0	24.8	25.1	24.8	24.3	21.8	21.7	23.4	21.0	20.1	23.0	23.7	25.3
Take four or five drinks nearly every day	69.5	70.5	67.8	66.2	62.8	65.6	63.0	62.1	61.1	59.9	60.7	58.8	57.8	59.2	61.8	63.4
Have five or more drinks once or twice each weekend	48.6	49.0	48.3	46.5	45.2	49.5	43.0	42.8	43.1	42.7	43.6	42.2	43.5	43.6	45.0	47.6
Smoke one or more packs of cigarettes per day	69.4	69.2	69.5	67.6	65.6	68.2	68.7	70.8	70.8	73.1	73.3	74.2	72.1	74.0	76.5	77.6
Use electronic cigarettes (e-cigarettes) regularly ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smoke little cigars or cigarillos regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly	37.4	35.5	38.9	36.6	33.2	37.4	38.6	40.9	41.1	42.2	45.4	42.6	43.3	45.0	43.6	45.9
Take steroids	65.6	70.7	69.1	66.1	66.4	67.6	67.2	68.1	62.1	57.9	58.9	57.1	55.0	55.7	56.8	60.2
<i>Approximate weighted N =</i>	<i>2,549</i>	<i>2,684</i>	<i>2,759</i>	<i>2,591</i>	<i>2,603</i>	<i>2,449</i>	<i>2,579</i>	<i>2,564</i>	<i>2,306</i>	<i>2,130</i>	<i>2,173</i>	<i>2,198</i>	<i>2,466</i>	<i>2,491</i>	<i>2,512</i>	<i>2,407</i>

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

Percentage saying great risk ^a

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021
Use marijuana once or twice	18.6	17.4	18.5	17.1	15.6	14.8	14.5	12.5	12.3	12.9	11.9	12.1	10.7	§	10.0*
Use marijuana occasionally	27.1	25.8	27.4	24.5	22.7	20.6	19.5	16.4	15.8	17.1	14.1	14.3	13.5	§	12.7*
Use marijuana regularly	54.8	51.7	52.4	46.8	45.7	44.1	39.5	36.1	31.9	31.1	29.0	26.7	30.5	§	21.6*
Try synthetic marijuana once or twice	—	—	—	—	—	23.5	25.9	32.5	33.0	35.6	33.0	30.4	28.4	§	23.0*
Take synthetic marijuana occasionally	—	—	—	—	—	32.7	36.2	39.4	40.9	43.9	40.0	37.1	35.4	§	28.7*
Try LSD once or twice	37.0	33.9	37.1	35.6	34.7	33.1	34.9	35.5	33.2	31.7	30.0	29.0	28.3	§	28.2*
Take LSD regularly	67.3	63.6	67.8	65.3	65.5	66.8	66.8	62.7	60.7	58.2	56.1	55.2	57.9	§	54.7*
Try PCP once or twice	48.0	47.4	49.7	52.4	53.9	51.6	53.9	53.8	54.4	55.1	53.6	51.7	52.6	§	42.9*
Try ecstasy (MDMA, Molly) once or twice ^b	58.1	57.0	53.3	50.6	49.0	49.4	47.5‡	47.8	49.5	48.8	49.1	48.2	46.3	§	40.6*
Try salvia once or twice ^c	—	—	—	39.8	36.7‡	13.8	12.9	14.1	13.1	13.0	10.2	9.8	10.0	§	10.3*
Take salvia occasionally	—	—	—	—	—	23.1	21.3	20.0	17.6	16.3	13.8	12.0	12.7	§	14.3*
Try cocaine once or twice	51.3	50.3	53.1	52.8	54.0	51.6	54.4	53.7	51.1	52.7	49.5	47.9	47.7	§	52.0*
Take cocaine occasionally	68.8	67.1	71.4	67.8	69.7	69.0	70.2	68.1	66.3	68.6	64.6	62.1	64.2	§	60.2*
Take cocaine regularly	83.3	80.7	84.4	81.7	83.8	82.6	83.3	80.6	79.1	78.3	74.9	75.2	74.7	§	72.2*
Try crack once or twice	47.3	47.5	48.4	50.2	51.7	52.0	55.6	54.5	53.6	53.9	51.6	51.3	50.2	—	—
Take crack occasionally	63.6	65.2	64.7	64.3	66.2	66.5	69.5	68.5	67.8	66.2	65.3	64.4	62.7	—	—
Take crack regularly	82.6	83.4	84.0	83.8	83.9	84.0	85.4	82.0	81.2	81.9	79.8	79.8	79.0	—	—
Try cocaine powder once or twice	45.1	45.1	46.5	48.2	48.0	48.1	49.9	49.9	49.0	49.3	45.1	44.9	45.4	—	—
Take cocaine powder occasionally	59.9	61.6	62.6	62.6	64.2	62.6	65.4	64.8	62.8	62.9	60.1	59.8	59.9	—	—
Take cocaine powder regularly	81.5	82.5	83.4	81.8	83.3	83.3	83.9	81.5	80.1	80.7	78.8	77.6	77.4	—	—
Try heroin once or twice	58.4	55.5	59.3	58.3	59.1	59.4	61.7	62.8	64.0	64.5	63.0	61.8	62.6	§	60.9*
Take heroin occasionally	76.2	75.3	79.7	74.8	77.2	78.0	78.2	77.9	78.0	78.7	74.6	75.0	75.7	§	74.4*
Take heroin regularly	87.8	86.4	89.9	85.5	87.9	88.6	87.6	85.7	84.8	85.4	83.3	81.4	81.2	§	82.4*
Try heroin once or twice without using a needle	60.2	60.8	61.5	63.8	61.1	63.3	64.5	65.3	62.5	66.1	64.6	63.1	60.5	§	64.7*
Take heroin occasionally without using a needle	73.9	73.2	74.8	76.2	74.7	76.1	76.4	73.6	71.1	74.6	72.7	69.6	69.4	§	73.8*
Try any narcotic other than heroin (codeine, Vicodin, OxyContin, Percocet, etc.) once or twice	—	—	—	40.4	39.9	38.4	43.1	42.7	44.1	43.6	42.0	43.2	45.0	§	44.0*
Take any narcotic other than heroin occasionally	—	—	—	54.3	54.8	53.8	57.3	59.0	58.5	55.7	55.5	56.7	56.7	§	53.8*
Take any narcotic other than heroin regularly	—	—	—	74.9	75.5	73.9	75.8	72.7	73.9	72.4	70.8	71.6	73.1	§	62.8*

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

Percentage saying great risk ^a

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021
Try amphetamines once or twice ^d	41.3	39.2	41.9	40.6‡	34.8	34.3	36.3	34.1	34.0	31.1	31.9	29.2	29.7	§	38.7*
Take amphetamines regularly ^d	68.1	65.4	69.0	63.6‡	58.7	60.0	59.5	55.1	54.3	51.3	50.0	51.1	48.4	§	45.9*
Try Adderall once or twice ^e	—	—	—	33.3	31.2	27.2	31.8	33.6	34.3	32.5	32.0	34.0	34.3	§	30.2*
Try Adderall occasionally ^e	—	—	—	41.6	40.8	35.3	38.8	41.5	41.6	40.9	40.6	40.1	41.8	§	41.7*
Try crystal methamphetamine (ice) once or twice	60.2	62.2	63.4	64.9	66.5	67.8	72.2	70.2	70.0	70.0	69.3	67.1	67.1	§	64.3*
Try bath salts (synthetic stimulants) once or twice	—	—	—	—	—	33.2	59.5	59.2	57.5	54.9	51.3	50.7	—	—	—
Take bath salts (synthetic stimulants) occasionally	—	—	—	—	—	45.0	69.9	68.8	67.4	64.2	61.5	60.7	—	—	—
Try sedatives (barbiturates) once or twice ^f	27.9	25.9	29.6	28.0	27.8	27.8	29.4	29.6	28.9	27.4	26.9	26.3	25.2	§	30.9*
Take sedatives (barbiturates) regularly ^f	55.1	50.2	54.7	52.1	52.4	53.9	53.3	50.5	50.6	47.0	44.0	45.1	45.0	§	49.6*
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	10.5	10.0	9.4	10.8	9.4	8.7	9.9	8.6	10.3	9.5	9.3	10.2	9.7	§	9.7*
Take one or two drinks nearly every day	25.1	24.2	23.7	25.4	24.6	23.7	23.1	21.1	21.5	21.6	21.6	22.8	21.0	§	21.9*
Take four or five drinks nearly every day	61.8	60.8	62.4	61.1	62.3	63.6	62.4	61.2	59.1	59.1	58.7	59.1	59.7	§	64.3*
Have five or more drinks once or twice each weekend	45.8	46.3	48.0	46.3	47.6	48.8	45.8	45.4	46.9	48.4	45.7	44.7	46.4	§	34.4*
Smoke one or more packs of cigarettes per day	77.3	74.0	74.9	75.0	77.7	78.2	78.2	78.0	75.9	76.5	74.9	73.9	75.6	§	66.0*
Use electronic cigarettes (e-cigarettes) regularly ^g	—	—	—	—	—	—	—	14.2	16.2	18.2	16.1	18.0	—	—	—
Vape marijuana occasionally ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	§	16.0*
Vape marijuana regularly ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	§	30.9*
Vape an e-liquid with nicotine occasionally ^g	—	—	—	—	—	—	—	—	—	—	16.4	15.8	17.7	§	22.7*
Vape an e-liquid with nicotine regularly ^g	—	—	—	—	—	—	—	—	—	—	27.0	27.7	35.2	§	43.7*
Use JUUL occasionally	—	—	—	—	—	—	—	—	—	—	—	—	16.8	§	18.4*
Use JUUL regularly	—	—	—	—	—	—	—	—	—	—	—	—	32.9	§	37.1*
Smoke little cigars or cigarillos regularly	—	—	—	—	—	—	—	38.3	39.7	39.5	38.2	42.5	41.3	—	—
Use smokeless tobacco regularly	44.0	42.9	40.8	41.2	42.6	44.3	41.6	40.7	38.5	38.1	38.4	40.2	39.9	—	—
Take steroids	57.4	60.8	60.2	59.2	61.1	58.6	54.2	54.6	54.4	54.5	49.1	50.1	50.8	§	45.8*
<i>Approximate weighted N =</i>	2,450	2,389	2,290	2,440	2,408	2,331	2,098	2,067	2,174	1,988	1,919	1,976	891	§	580

Table continued on next page.

TABLE 8-3 (cont.)
Trends in Harmfulness of Drugs as Perceived by 12th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available. '±' indicates that the question changed the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

^bBeginning in 2014 data are based on the revised question which included "Molly." 2014 and 2015 data are not comparable to earlier years due to the revision of the question text.

^cIn 2011 the question on perceived risk of using salvia once or twice appeared at the end of a form. In 2012 the question was moved to an earlier section of the same form. A question on perceived risk of using salvia occasionally was also added following the question on perceived risk of trying salvia once or twice. These changes likely explain the discontinuity in the 2012 results.

^dIn 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^eIn 2014 "(without a doctor's orders)" added to the questions on perceived risk of using Adderall.

^fIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^gBased on two of six forms in 2017 and 2018; N is two times the N indicated. Beginning in 2019, data based on three of six forms; N is three times the N indicated.

^hThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

ⁱBased on two of six forms; N is two times the N indicated.

TABLE 8-4
Trends in Disapproval of Drug Use in Grade 8

Do you disapprove of people who . . .	Percentage who disapprove or strongly disapprove ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice ^b	84.6	82.1	79.2	72.9	70.7	67.5	67.6	69.0	70.7	72.5	72.4	73.3	73.8	75.9	75.3	76.0
Use marijuana occasionally ^b	89.5	88.1	85.7	80.9	79.7	76.5	78.1	78.4	79.3	80.6	80.6	80.9	81.5	83.1	82.4	82.2
Use marijuana regularly ^b	92.1	90.8	88.9	85.3	85.1	82.8	84.6	84.5	84.5	85.3	84.5	85.3	85.7	86.8	86.3	86.1
Try inhalants once or twice ^c	84.9	84.0	82.5	81.6	81.8	82.9	84.1	83.0	85.2	85.4	86.6	86.1	85.1	85.1	84.6	83.4
Take inhalants regularly ^c	90.6	90.0	88.9	88.1	88.8	89.3	90.3	89.5	90.3	90.2	90.5	90.4	89.8	90.1	89.8	89.0
Take LSD once or twice ^d	—	—	77.1	75.2	71.6	70.9	72.1	69.1	69.4	66.7	64.6	62.6	61.0	58.1	58.5	53.9
Take LSD regularly ^d	—	—	79.8	78.4	75.8	75.3	76.3	72.5	72.5	69.3	67.0	65.5	63.5	60.5	60.7	55.8
Try ecstasy (MDMA, Molly) once or twice ^e	—	—	—	—	—	—	—	—	—	—	69.0	74.3	77.7	76.3	75.0	66.7
Take ecstasy (MDMA, Molly) occasionally ^e	—	—	—	—	—	—	—	—	—	—	73.6	78.6	81.3	79.4	77.9	69.8
Try crack once or twice ^c	91.7	90.7	89.1	86.9	85.9	85.0	85.7	85.4	86.0	85.4	86.0	86.2	86.4	87.4	87.6	87.2
Take crack occasionally ^c	93.3	92.5	91.7	89.9	89.8	89.3	90.3	89.5	89.9	88.8	89.8	89.6	89.8	90.3	90.5	90.0
Try cocaine once or twice ^{c,n}	91.2	89.6	88.5	86.1	85.3	83.9	85.1	84.5	85.2	84.8	85.6	85.8	85.6	86.8	87.0	86.5
Take cocaine occasionally ^{c,n}	93.1	92.4	91.6	89.7	89.7	88.7	90.1	89.3	89.9	88.8	89.6	89.9	89.8	90.3	90.7	90.2
Try heroin once or twice without using a needle ^d	—	—	—	—	85.8	85.0	87.7	87.3	88.0	87.2	87.2	87.8	86.9	86.6	86.9	87.2
Take heroin occasionally without using a needle ^d	—	—	—	—	88.5	87.7	90.1	89.7	90.2	88.9	88.9	89.6	89.0	88.6	88.5	88.5
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	51.7	52.2	50.9	47.8	48.0	45.5	45.7	47.5	48.3	48.7	49.8	51.1	49.7	51.1	51.2	51.3
Take one or two drinks nearly every day ^b	82.2	81.0	79.6	76.7	75.9	74.1	76.6	76.9	77.0	77.8	77.4	78.3	77.1	78.6	78.7	78.7
Have five or more drinks once or twice each weekend ^b	85.2	83.9	83.3	80.7	80.7	79.1	81.3	81.0	80.3	81.2	81.6	81.9	81.9	82.3	82.9	82.0
Smoke one to five cigarettes per day ^e	—	—	—	—	—	—	—	—	75.1	79.1	80.4	81.1	81.4	83.1	82.9	83.5
Smoke one or more packs of cigarettes per day ^f	82.8	82.3	80.6	78.4	78.6	77.3	80.3	80.0	81.4	81.9	83.5	84.6	84.6	85.7	85.3	85.6
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly ^b	79.1	77.2	77.1	75.1	74.0	74.1	76.5	76.3	78.0	79.2	79.4	80.6	80.7	81.0	82.0	81.0
Take steroids ^g	89.8	90.3	89.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N = 17,400 18,500 18,400 17,400 17,600 18,000 18,800 18,100 16,700 16,700 16,200 15,100 16,500 17,000 16,800 16,500																

Table continued on next page.

TABLE 8-4 (cont.)
Trends in Disapproval of Drug Use in Grade 8

Percentage who disapprove or strongly disapprove^a

<i>Do you disapprove of people who . . .</i>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	2020	2021 ^m
Use marijuana once or twice ^b	78.7	76.6	75.3	73.5	74.4	75.1	72.0	70.5	70.3	70.1	67.3	64.5	62.3	§	60.3*
Use marijuana occasionally ^b	84.5	82.6	81.9	79.9	81.1	81.6	78.8	77.7	77.5	77.5	75.5	73.1	70.9	§	69.0*
Use marijuana regularly ^b	87.7	86.8	85.9	84.3	85.7	85.6	83.8	82.2	82.2	82.3	81.2	79.3	77.5	§	75.8*
Try inhalants once or twice ^c	84.1	82.3	83.1	83.1	82.9	83.1	81.6	80.7	80.6	78.3	77.4	75.0	75.0	§	63.8*
Take inhalants regularly ^c	89.5	88.5	88.4	88.9	88.5	88.6	86.8	85.5	85.4	83.3	82.8	81.3	81.9	§	74.9*
Take LSD once or twice ^d	53.5	52.6	53.2	53.7	55.4	51.8	52.0	52.8	56.0	55.2	56.1	55.9	56.7	§	52.6*
Take LSD regularly ^d	55.6	54.7	55.7	55.8	57.6	54.1	53.6	54.8	58.1	57.6	58.2	59.4	60.4	§	58.9*
Try ecstasy (MDMA, Molly) once or twice ^e	65.7	63.5	62.3	62.4	64.2	60.2	60.9	61.0‡	68.2	64.8	63.0	63.7	65.1	§	59.1*
Take ecstasy (MDMA, Molly) occasionally ^e	68.3	66.5	65.7	65.9	67.5	63.2	63.4	64.1‡	71.7	67.5	65.8	67.1	68.3	§	64.9*
Try crack once or twice ^c	88.6	87.2	88.4	89.1	88.5	89.0	88.1	88.0	87.5	87.0	87.5	86.1	87.2	—	—
Take crack occasionally ^c	91.2	90.3	91.0	91.5	91.0	91.2	90.3	89.8	89.8	88.8	89.6	88.4	88.8	—	—
Try cocaine once or twice ^{c,n}	88.2	86.8	88.1	88.4	88.3	88.6	88.0	87.7	87.5	86.8	86.8	85.6	86.4‡	§	82.8*
Take cocaine occasionally ^{c,n}	91.0	90.1	90.7	91.4	91.3	91.5	90.6	90.1	90.1	89.3	90.0	88.9	89.3‡	§	87.2*
Try heroin once or twice without using a needle ^d	88.4	86.9	88.6	89.5	87.5	86.8	87.2	87.1	87.1	85.6	87.9	85.5	86.7	§	82.4*
Take heroin occasionally without using a needle ^d	89.7	88.2	90.1	90.6	89.0	87.7	88.2	88.1	88.0	86.7	88.7	86.8	87.1	§	84.0*
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	54.0	52.5	52.7	54.2	54.0	54.1	53.3	53.3	53.7	52.6	51.0	47.4	46.2	§	40.9*
Take one or two drinks nearly every day ^b	80.4	79.2	78.5	79.5	80.7	81.3	80.2	79.6	79.7	79.1	79.5	77.9	77.3	§	76.0*
Have five or more drinks once or twice each weekend ^b	83.8	83.2	83.2	83.6	84.8	86.0	85.0	84.9	85.4	84.9	84.7	83.7	84.6	§	81.1*
Smoke one to five cigarettes per day ^e	85.3	85.0	83.6	84.7	86.8	—	—	—	—	—	—	—	—	—	—
Smoke one or more packs of cigarettes per day ^f	87.0	86.7	87.1	87.0	88.0	88.8	88.0	87.5	88.8	88.1	88.8	87.6	87.8	§	85.6*
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	58.4	65.0	66.6	—	—	—	—	—
Vape marijuana occasionally ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	§	71.7*
Vape marijuana regularly ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	§	78.1*
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	63.2	60.8	65.6	§	70.7*
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	69.9	68.9	74.7	§	79.0*
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	61.1	§	68.2*
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	69.9	§	75.2*
Use smokeless tobacco regularly ^b	82.3	82.1	81.5	81.2	82.6	82.7	81.5	80.2	82.5	81.1	81.3	79.9	81.3	§	78.5*
Take steroids ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	16,100	15,700	15,000	15,300	16,000	15,100	14,600	14,600	14,400	16,900	15,300	14,000	6,800	§	10,700

Table continued on next page.

TABLE 8-4 (cont.)
Trends in Disapproval of Drug Use in Grade 8

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. '‡' indicates that the question changed the following year.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Don't disapprove, (2) Disapprove, (3) Strongly disapprove, and (4) Can't say, drug unfamiliar. Percentages are shown for categories (2) and (3) combined.

^bBeginning in 2012, data based on two thirds of N indicated.

^cBeginning in 1997, data based on two thirds of N indicated.

^dData based on one of two forms in 1993–1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

^eData based on one third of N indicated. For MDMA "Molly" was added to the question text in 2015; 2014 and 2015 data are not comparable due to this change.

^fBeginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

^gData based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

^hPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

ⁱThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^mSample is decreased by as much as 50% for the following drugs due to survey question experiments: alcohol, inhalants, heroin, JUUL, LSD, and ecstasy (MDMA, molly).

ⁿIn 2019 and previous years the survey question asked about 'cocaine powder' and in 2020 forward it asked about 'cocaine'.

TABLE 8-5
Trends in Disapproval of Drug Use in Grade 10

Do you disapprove of people who . . .	Percentage who disapprove or strongly disapprove ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice ^b	74.6	74.8	70.3	62.4	59.8	55.5	54.1	56.0	56.2	54.9	54.8	57.8	58.1	60.4	61.3	62.5
Use marijuana occasionally ^b	83.7	83.6	79.4	72.3	70.0	66.9	66.2	67.3	68.2	67.2	66.2	68.3	68.4	70.8	71.9	72.6
Use marijuana regularly ^b	90.4	90.0	87.4	82.2	81.1	79.7	79.7	80.1	79.8	79.1	78.0	78.6	78.8	81.3	82.0	82.5
Try inhalants once or twice ^c	85.2	85.6	84.8	84.9	84.5	86.0	86.9	85.6	88.4	87.5	87.8	88.6	87.7	88.5	88.1	88.1
Take inhalants regularly ^c	91.0	91.5	90.9	91.0	90.9	91.7	91.7	91.1	92.4	91.8	91.3	91.8	91.0	92.3	91.9	92.2
Take LSD once or twice ^d	—	—	82.1	79.3	77.9	76.8	76.6	76.7	77.8	77.0	75.4	74.6	74.4	72.4	71.8	71.2
Take LSD regularly ^d	—	—	86.8	85.6	84.8	84.5	83.4	82.9	84.3	82.1	80.8	79.4	77.6	75.9	75.0	74.9
Try ecstasy (MDMA, Molly) once or twice ^e	—	—	—	—	—	—	—	—	—	—	72.6	77.4	81.0	83.7	83.1	81.6
Take ecstasy (MDMA, Molly) occasionally ^e	—	—	—	—	—	—	—	—	—	—	81.0	84.6	86.3	88.0	87.4	86.0
Try crack once or twice ^c	92.5	92.5	91.4	89.9	88.7	88.2	87.4	87.1	87.8	87.1	86.9	88.0	87.6	88.6	88.8	89.5
Take crack occasionally ^c	94.3	94.4	93.6	92.5	91.7	91.9	91.0	90.6	91.5	90.9	90.6	91.0	91.0	91.8	91.8	92.0
Try cocaine once or twice ^{c,n}	90.8	91.1	90.0	88.1	86.8	86.1	85.1	84.9	86.0	84.8	85.3	86.4	85.9	86.8	86.9	87.3
Take cocaine occasionally ^{c,n}	94.0	94.0	93.2	92.1	91.4	91.1	90.4	89.7	90.7	89.9	90.2	89.9	90.4	91.2	91.2	91.4
Try heroin once or twice without using a needle ^d	—	—	—	—	89.7	89.5	89.1	88.6	90.1	90.1	89.1	89.2	89.3	90.1	90.3	91.1
Take heroin occasionally without using a needle ^d	—	—	—	—	91.6	91.7	91.4	90.5	91.8	92.3	90.8	90.7	90.6	91.8	92.0	92.5
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	37.6	39.9	38.5	36.5	36.1	34.2	33.7	34.7	35.1	33.4	34.7	37.7	36.8	37.6	38.5	37.8
Take one or two drinks nearly every day ^b	81.7	81.7	78.6	75.2	75.4	73.8	75.4	74.6	75.4	73.8	73.8	74.9	74.2	75.1	76.9	76.4
Have five or more drinks once or twice each weekend ^b	76.7	77.6	74.7	72.3	72.2	70.7	70.2	70.5	69.9	68.2	69.2	71.5	71.6	71.8	73.7	72.9
Smoke one to five cigarettes per day ^e	—	—	—	—	—	—	—	—	67.8	69.1	71.2	74.3	76.2	77.5	79.3	80.2
Smoke one or more packs of cigarettes per day ^f	79.4	77.8	76.5	73.9	73.2	71.6	73.8	75.3	76.1	76.7	78.2	80.6	81.4	82.7	84.3	83.2
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana occasionally ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly ^b	75.4	74.6	73.8	71.2	71.0	71.0	72.3	73.2	75.1	75.8	76.1	78.7	79.4	80.2	80.5	80.5
Take steroids ^g	90.0	91.0	91.2	90.8	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i> 14,800 14,800 15,300 15,900 17,000 15,700 15,600 15,000 13,600 14,300 14,000 14,300 15,800 16,400 16,200 16,200																

Table continued on next page.

TABLE 8-5 (cont.)
Trends in Disapproval of Drug Use in Grade 10

Do you disapprove of people who . . .	Percentage who disapprove or strongly disapprove ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	2020	2021 ^m
Use marijuana once or twice ^b	63.9	64.5	60.1	59.2	58.5	56.2	53.2	53.8	52.7	52.6	48.1	47.9	46.0	§	47.8*
Use marijuana occasionally ^b	73.3	73.6	69.2	68.0	67.9	65.7	62.1	62.9	62.6	61.9	58.1	57.4	55.0	§	56.6*
Use marijuana regularly ^b	82.4	83.0	79.9	78.7	78.8	77.3	73.8	74.6	74.3	73.5	70.2	69.7	67.4	§	70.2*
Try inhalants once or twice ^c	87.6	87.1	87.0	86.5	86.9	85.7	86.1	85.9	84.1	83.3	80.7	81.8	81.8	§	74.5*
Take inhalants regularly ^c	91.8	91.6	91.1	90.8	90.9	90.0	89.7	89.7	88.3	87.1	85.4	86.9	86.6	§	83.4*
Take LSD once or twice ^d	67.7	66.3	67.8	68.2	68.5	68.3	69.1	67.8	70.3	69.5	66.9	70.5	69.2	§	63.3*
Take LSD regularly ^d	71.5	69.8	72.2	72.9	72.5	73.0	74.2	73.3	76.5	74.9	74.5	76.5	75.7	§	75.3*
Try ecstasy (MDMA, Molly) once or twice ^e	80.0	78.1	76.5	75.5	76.1	75.3	75.4	74.4‡	78.0	76.8	74.7	75.3	76.4	§	68.6*
Take ecstasy (MDMA, Molly) occasionally ^e	84.3	83.0	81.3	81.3	82.2	81.2	81.3	80.4‡	84.0	81.7	80.0	79.5	81.8	§	75.8*
Try crack once or twice ^c	89.5	90.8	90.4	90.3	90.9	91.0	90.6	90.6	90.1	89.7	88.4	89.5	89.4	—	—
Take crack occasionally ^c	92.7	92.9	92.8	92.4	93.0	93.0	92.4	92.4	92.1	91.1	90.0	91.2	91.0	—	—
Try cocaine once or twice ^{c,n}	87.7	88.6	88.4	89.0	89.4	89.3	88.7	88.9	87.9	87.9	86.1	87.6	87.4‡	§	84.7*
Take cocaine occasionally ^{c,n}	92.0	92.1	92.1	92.2	92.5	92.4	91.8	91.9	91.8	90.8	89.9	90.9	90.9‡	§	89.0*
Try heroin once or twice without using a needle ^d	90.7	91.4	91.6	91.4	91.6	91.9	91.3	91.9	91.7	90.2	89.7	90.6	91.5	§	89.5*
Take heroin occasionally without using a needle ^d	92.5	92.5	93.0	92.4	92.4	92.9	92.3	92.7	92.7	90.9	90.5	91.2	92.1	§	90.3*
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) ^b	39.5	41.8	39.7	40.3	41.5	39.6	38.5	40.7	40.0	41.8	39.3	39.6	40.4	§	36.7*
Take one or two drinks nearly every day ^b	77.1	79.1	77.6	77.6	80.0	78.0	77.1	77.9	78.2	78.6	77.7	77.9	79.4	§	77.1*
Have five or more drinks once or twice each weekend ^b	74.1	77.2	75.1	75.9	77.3	77.5	77.8	79.5	79.6	80.8	80.1	80.4	82.4	§	78.4*
Smoke one to five cigarettes per day ^e	79.7	82.5	80.0	80.6	82.1	—	—	—	—	—	—	—	—	—	—
Smoke one or more packs of cigarettes per day ^f	84.7	85.2	84.5	83.9	85.8	86.0	86.1	88.0	88.3	88.5	87.8	88.5	89.5	§	86.5*
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	54.6	59.9	65.0	—	—	—	—	—
Vape marijuana occasionally ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	§	65.3*
Vape marijuana regularly ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	§	74.8*
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	59.3	58.0	65.4	§	65.8*
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	68.3	67.8	75.5	§	76.7*
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	61.1	§	71.4*
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	69.9	§	79.2*
Use smokeless tobacco regularly ^b	80.9	81.8	79.5	78.5	79.5	79.5	77.7	78.7	80.1	81.2	80.7	80.7	83.2	§	79.6*
Take steroids ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N = 16,100 15,100 15,900 15,200 14,900 15,000 12,900 13,000 15,600 14,700 13,500 14,300 7,000 § 11,000															

Table continued on next page.

TABLE 8-5 (cont.)
Trends in Disapproval of Drug Use in Grade 10

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. '‡' indicates that the question changed the following year.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Don't disapprove, (2) Disapprove, (3) Strongly disapprove, and (4) Can't say, drug unfamiliar. Percentages are shown for categories (2) and (3) combined.

^bBeginning in 2012, data based on two thirds of N indicated.

^cBeginning in 1997, data based on two thirds of N indicated due to changes in questionnaire forms.

^dData based on one of two forms in 1993–1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

^eData based on one third of N indicated. For MDMA "Molly" was added to the question text in 2015; 2014 and 2015 data are not comparable due to this change.

^fBeginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

^gData based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

^hPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

ⁱThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^mSample is decreased by as much as 50% for the following drugs due to survey question experiments: alcohol, inhalants, heroin, JUUL, LSD, and ecstasy (MDMA, molly).

ⁿIn 2019 and previous years the survey question asked about 'cocaine powder' and in 2020 forward it asked about 'cocaine'.

TABLE 8-6
Trends in Disapproval of Drug Use in Grade 12

Percentage who disapprove or strongly disapprove ^b

<i>Do you disapprove of people (who are 18 or older) doing each of the following?^a</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Use marijuana once or twice	47.0	38.4	33.4	33.4	34.2	39.0	40.0	45.5	46.3	49.3	51.4	54.6	56.6	60.8	64.6	67.8
Use marijuana occasionally	54.8	47.8	44.3	43.5	45.3	49.7	52.6	59.1	60.7	63.5	65.8	69.0	71.6	74.0	77.2	80.5
Use marijuana regularly	71.9	69.5	65.5	67.5	69.2	74.6	77.4	80.6	82.5	84.7	85.5	86.6	89.2	89.3	89.8	91.0
Trying LSD once or twice	82.8	84.6	83.9	85.4	86.6	87.3	86.4	88.8	89.1	88.9	89.5	89.2	91.6	89.8	89.7	89.8
Taking LSD regularly	94.1	95.3	95.8	96.4	96.9	96.7	96.8	96.7	97.0	96.8	97.0	96.6	97.8	96.4	96.4	96.3
Trying ecstasy (MDMA, Molly) once or twice ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trying cocaine once or twice	81.3	82.4	79.1	77.0	74.7	76.3	74.6	76.6	77.0	79.7	79.3	80.2	87.3	89.1	90.5	91.5
Taking cocaine regularly	93.3	93.9	92.1	91.9	90.8	91.1	90.7	91.5	93.2	94.5	93.8	94.3	96.7	96.2	96.4	96.7
Trying crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92.3
Taking crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.3
Taking crack regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.9
Trying cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	87.9
Taking cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92.1
Taking cocaine powder regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.7
Trying heroin once or twice	91.5	92.6	92.5	92.0	93.4	93.5	93.5	94.6	94.3	94.0	94.0	93.3	96.2	95.0	95.4	95.1
Taking heroin occasionally	94.8	96.0	96.0	96.4	96.8	96.7	97.2	96.9	96.9	97.1	96.8	96.6	97.9	96.9	97.2	96.7
Taking heroin regularly	96.7	97.5	97.2	97.8	97.9	97.6	97.8	97.5	97.7	98.0	97.6	97.6	98.1	97.2	97.4	97.5
Trying heroin once or twice without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taking heroin occasionally without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trying amphetamines once or twice ^d	74.8	75.1	74.2	74.8	75.1	75.4	71.1	72.6	72.3	72.8	74.9	76.5	80.7	82.5	83.3	85.3
Taking amphetamines regularly ^d	92.1	92.8	92.5	93.5	94.4	93.0	91.7	92.0	92.6	93.6	93.3	93.5	95.4	94.2	94.2	95.5
Trying sedatives (barbiturates) once or twice ^e	77.7	81.3	81.1	82.4	84.0	83.9	82.4	84.4	83.1	84.1	84.9	86.8	89.6	89.4	89.3	90.5
Taking sedatives (barbiturates) regularly ^e	93.3	93.6	93.0	94.3	95.2	95.4	94.2	94.4	95.1	95.1	95.5	94.9	96.4	95.3	95.3	96.4
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor)	21.6	18.2	15.6	15.6	15.8	16.0	17.2	18.2	18.4	17.4	20.3	20.9	21.4	22.6	27.3	29.4
Taking one or two drinks nearly every day	67.6	68.9	66.8	67.7	68.3	69.0	69.1	69.9	68.9	72.9	70.9	72.8	74.2	75.0	76.5	77.9
Taking four or five drinks nearly every day	88.7	90.7	88.4	90.2	91.7	90.8	91.8	90.9	90.0	91.0	92.0	91.4	92.2	92.8	91.6	91.9
Having five or more drinks once or twice each weekend	60.3	58.6	57.4	56.2	56.7	55.6	55.5	58.8	56.6	59.6	60.4	62.4	62.0	65.3	66.5	68.9
Smoking one or more packs of cigarettes per day	67.5	65.9	66.4	67.0	70.3	70.8	69.9	69.4	70.8	73.0	72.3	75.4	74.3	73.1	72.4	72.8
Vape marijuana occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taking steroids	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	90.8
<i>Approximate weighted N =</i>	2,677	2,957	3,085	3,686	3,221	3,261	3,610	3,651	3,341	3,254	3,265	3,113	3,302	3,311	2,799	2,566

Table continued on next page.

TABLE 8-6 (cont.)
Trends in Disapproval of Drug Use in Grade 12

Percentage who disapprove or strongly disapprove ^b

<i>Do you disapprove of people (who are 18 or older) doing each of the following?^a</i>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Use marijuana once or twice	68.7	69.9	63.3	57.6	56.7	52.5	51.0	51.6	48.8	52.5	49.1	51.6	53.4	52.7	55.0	55.6
Use marijuana occasionally	79.4	79.7	75.5	68.9	66.7	62.9	63.2	64.4	62.5	65.8	63.2	63.4	64.2	65.4	67.8	69.3
Use marijuana regularly	89.3	90.1	87.6	82.3	81.9	80.0	78.8	81.2	78.6	79.7	79.3	78.3	78.7	80.7	82.0	82.2
Trying LSD once or twice	90.1	88.1	85.9	82.5	81.1	79.6	80.5	82.1	83.0	82.4	81.8	84.6	85.5	87.9	87.9	88.0
Taking LSD regularly	96.4	95.5	95.8	94.3	92.5	93.2	92.9	93.5	94.3	94.2	94.0	94.0	94.4	94.6	95.6	95.9
Trying ecstasy (MDMA, Molly) once or twice ^c	—	—	—	—	—	—	82.2	82.5	82.1	81.0	79.5	83.6	84.7	87.7	88.4	89.0
Trying cocaine once or twice	93.6	93.0	92.7	91.6	90.3	90.0	88.0	89.5	89.1	88.2	88.1	89.0	89.3	88.6	88.9	89.1
Taking cocaine regularly	97.3	96.9	97.5	96.6	96.1	95.6	96.0	95.6	94.9	95.5	94.9	95.0	95.8	95.4	96.0	96.1
Trying crack once or twice	92.1	93.1	89.9	89.5	91.4	87.4	87.0	86.7	87.6	87.5	87.0	87.8	86.6	86.9	86.7	88.8
Taking crack occasionally	94.2	95.0	92.8	92.8	94.0	91.2	91.3	90.9	92.3	91.9	91.6	91.5	90.8	92.1	91.9	92.9
Taking crack regularly	95.0	95.5	93.4	93.1	94.1	93.0	92.3	91.9	93.2	92.8	92.2	92.4	91.2	93.1	92.1	93.8
Trying cocaine powder once or twice	88.0	89.4	86.6	87.1	88.3	83.1	83.0	83.1	84.3	84.1	83.3	83.8	83.6	82.2	83.2	84.1
Taking cocaine powder occasionally	93.0	93.4	91.2	91.0	92.7	89.7	89.3	88.7	90.0	90.3	89.8	90.2	88.9	90.0	89.4	90.4
Taking cocaine powder regularly	94.4	94.3	93.0	92.5	93.8	92.9	91.5	91.1	92.3	92.6	92.5	92.2	90.7	92.6	92.0	93.2
Trying heroin once or twice	96.0	94.9	94.4	93.2	92.8	92.1	92.3	93.7	93.5	93.0	93.1	94.1	94.1	94.2	94.3	93.8
Taking heroin occasionally	97.3	96.8	97.0	96.2	95.7	95.0	95.4	96.1	95.7	96.0	95.4	95.6	95.9	96.4	96.3	96.2
Taking heroin regularly	97.8	97.2	97.5	97.1	96.4	96.3	96.4	96.6	96.4	96.6	96.2	96.2	97.1	97.1	96.7	96.9
Trying heroin once or twice without using a needle	—	—	—	—	92.9	90.8	92.3	93.0	92.6	94.0	91.7	93.1	92.2	93.1	93.2	93.7
Taking heroin occasionally without using a needle	—	—	—	—	94.7	93.2	94.4	94.3	93.8	95.2	93.5	94.4	93.5	94.4	95.0	94.5
Trying amphetamines once or twice ^d	86.5	86.9	84.2	81.3	82.2	79.9	81.3	82.5	81.9	82.1	82.3	83.8	85.8	84.1	86.1	86.3
Taking amphetamines regularly ^d	96.0	95.6	96.0	94.1	94.3	93.5	94.3	94.0	93.7	94.1	93.4	93.5	94.0	93.9	94.8	95.3
Trying sedatives (barbiturates) once or twice ^e	90.6	90.3	89.7	87.5	87.3	84.9	86.4	86.0	86.6	85.9	85.9	86.6	87.8‡	83.7	85.4	85.3
Taking sedatives (barbiturates) regularly ^e	97.1	96.5	97.0	96.1	95.2	94.8	95.3	94.6	94.7	95.2	94.5	94.7	94.4‡	94.2	95.2	95.1
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor)	29.8	33.0	30.1	28.4	27.3	26.5	26.1	24.5	24.6	25.2	26.6	26.3	27.2	26.0	26.4	29.0
Taking one or two drinks nearly every day	76.5	75.9	77.8	73.1	73.3	70.8	70.0	69.4	67.2	70.0	69.2	69.1	68.9	69.5	70.8	72.8
Taking four or five drinks nearly every day	90.6	90.8	90.6	89.8	88.8	89.4	88.6	86.7	86.9	88.4	86.4	87.5	86.3	87.8	89.4	90.6
Having five or more drinks once or twice each weekend	67.4	70.7	70.1	65.1	66.7	64.7	65.0	63.8	62.7	65.2	62.9	64.7	64.2	65.7	66.5	68.5
Smoking one or more packs of cigarettes per day	71.4	73.5	70.6	69.8	68.2	67.2	67.1	68.8	69.5	70.1	71.6	73.6	74.8	76.2	79.8	81.5
Vape marijuana occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape marijuana regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use JUUL regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taking steroids	90.5	92.1	92.1	91.9	91.0	91.7	91.4	90.8	88.9	88.8	86.4	86.8	86.0	87.9	88.8	89.4
<i>Approximate weighted N =</i>	2,547	2,645	2,723	2,588	2,603	2,399	2,601	2,545	2,310	2,150	2,144	2,160	2,442	2,455	2,460	2,377

Table continued on next page.

TABLE 8-6 (cont.)
Trends in Disapproval of Drug Use in Grade 12

Percentage who disapprove or strongly disapprove ^b

<i>Do you disapprove of people (who are 18 or older) doing each of the following?^a</i>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^g	2020	2021 ^h
Use marijuana once or twice	58.6	55.5	54.8	51.6	51.3	48.8	49.1	48.0	45.5	43.1	39.0	41.1	34.1	§	31.2*
Use marijuana occasionally	70.2	67.3	65.6	62.0	60.9	59.1	58.9	56.7	52.9	50.5	46.7	49.2	41.4	§	38.6*
Use marijuana regularly	83.3	79.6	80.3	77.7	77.5	77.8	74.5	73.4	70.7	68.5	64.7	66.7	63.4	§	58.0*
Trying LSD once or twice	87.8	85.5	88.2	86.5	86.3	87.2	86.6	85.0	81.7	82.4	78.0	80.5	76.1	§	68.7*
Taking LSD regularly	94.9	93.5	95.3	94.3	94.9	95.2	95.3	94.7	92.5	92.4	92.7	93.4	93.8	§	90.3*
Trying ecstasy (MDMA, Molly) once or twice ^c	87.8	88.2	88.2	86.3	83.9	87.1	84.9‡	83.1	84.5	84.0	85.1	85.6	89.8	§	85.5*
Trying cocaine once or twice	89.6	89.2	90.8	90.5	91.1	91.0	92.3	90.0	89.0	88.4	88.0	88.9	88.5	§	81.7*
Taking cocaine regularly	96.2	94.8	96.5	96.0	96.0	96.8	96.7	96.3	95.2	94.8	94.8	95.8	96.5	§	92.6*
Trying crack once or twice	88.8	89.6	90.9	89.8	91.4	92.8	91.4	89.3	90.2	90.1	89.7	90.4	88.7	—	—
Taking crack occasionally	92.4	93.3	94.0	92.6	93.9	95.0	93.6	91.9	92.5	92.0	91.8	92.2	91.1	—	—
Taking crack regularly	93.6	93.5	94.3	93.1	94.4	95.4	94.1	92.4	92.8	92.6	92.5	92.5	91.5	—	—
Trying cocaine powder once or twice	83.5	85.7	87.3	87.0	88.1	88.7	88.2	85.5	86.4	86.6	85.5	86.5	85.7	—	—
Taking cocaine powder occasionally	90.6	91.7	92.3	91.0	92.2	93.0	91.7	90.4	91.3	90.6	90.3	91.3	90.1	—	—
Taking cocaine powder regularly	92.6	92.8	93.9	92.6	93.8	95.0	94.1	91.7	92.4	92.0	92.2	92.0	91.2	—	—
Trying heroin once or twice	94.8	93.3	94.7	93.9	94.3	95.8	95.6	94.7	94.2	94.1	93.7	95.0	95.7	§	92.8*
Taking heroin occasionally	96.8	95.3	96.9	96.2	96.3	97.0	96.9	96.6	95.3	95.5	95.5	96.4	96.7	§	94.9*
Taking heroin regularly	97.1	95.9	97.4	96.4	96.7	97.4	97.4	97.1	96.4	95.7	95.9	96.8	97.3	§	96.3*
Trying heroin once or twice without using a needle	93.6	94.2	94.7	93.2	92.6	95.2	93.7	92.5	92.6	93.8	93.3	93.0	95.2	§	93.4*
Taking heroin occasionally without using a needle	94.9	95.3	95.5	94.5	94.1	95.9	94.6	93.5	92.8	94.0	93.8	93.4	95.4	§	93.9*
Trying amphetamines once or twice ^d	87.3	87.2	88.2	88.1‡	84.1	83.9	84.9	83.1	81.4	82.1	81.9	81.0	80.3	§	78.5*
Taking amphetamines regularly ^d	95.4	94.2	95.6	94.9‡	92.9	93.9	93.2	93.0	92.2	92.2	92.0	92.8	94.4	§	88.3*
Trying sedatives (barbiturates) once or twice ^e	86.5	86.1	87.7	87.6	87.3	88.2	88.9	88.5	87.4	86.5	85.9	86.9	85.6	—	—
Taking sedatives (barbiturates) regularly ^e	94.6	94.3	95.8	94.7	95.1	96.1	95.8	95.0	94.7	94.8	94.4	95.3	95.1	—	—
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor)	31.0	29.8	30.6	30.7	28.7	25.4	27.3	29.2	28.9	28.8	27.2	31.3	26.3	§	22.3*
Taking one or two drinks nearly every day	73.3	74.5	70.5	71.5	72.8	70.8	71.9	71.7	71.1	71.8	70.8	74.7	73.4	§	67.4*
Taking four or five drinks nearly every day	90.5	89.8	89.7	88.8	90.8	90.1	90.6	91.9	89.7	91.1	90.7	91.7	91.5	§	91.8*
Having five or more drinks once or twice each weekend	68.8	68.9	67.6	68.8	70.0	70.1	71.6	72.6	71.9	74.2	72.5	75.8	75.0	§	57.8*
Smoking one or more packs of cigarettes per day	80.7	80.5	81.8	81.0	83.0	83.7	82.6	85.0	84.1	85.3	86.6	89.0	87.9	§	86.5*
Vape marijuana occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	§	48.0*
Vape marijuana regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	—	§	64.5*
Vape an e-liquid with nicotine occasionally ^f	—	—	—	—	—	—	—	—	—	—	62.0	59.2	56.6	§	60.3*
Vape an e-liquid with nicotine regularly ^f	—	—	—	—	—	—	—	—	—	—	71.8	70.9	70.1	§	73.2*
Use JUUL occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	58.2	§	59.6*
Use JUUL regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	69.1	§	71.7*
Taking steroids	89.2	90.9	90.3	89.8	89.7	90.4	88.2	87.5	87.8	86.7	88.5	87.4	88.7	§	80.9*
<i>Approximate weighted N =</i>	2,450	2,314	2,233	2,449	2,384	2,301	2,147	2,078	2,193	2,000	1,870	1,918	876	§	1,441

Table continued on next page.

TABLE 8-6 (cont.)
Trends in Disapproval of Drug Use in Grade 12

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. '‡' indicates that the question changed the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aThe 1975 question asked about people who are 20 or older.

^bAnswer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

^cBeginning in 2014 "molly" was added to the question on disapproval of using MDMA once or twice. 2014 and 2015 data are not comparable to earlier years due to this change.

^dIn 2011 the list of examples was changed from upper, pep pill, bennie, speed to upper, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^eIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^fBased on two of six forms; N is two times the N indicated.

^gThe *N* for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^hSample is decreased by approximately 50% for the following drugs due to survey question experiments: amphetamines, cocaine, alcohol, vaping nicotine, vaping marijuana, heroin without using a needle, Ecstasy (MDMA, molly), and JUUL.

TABLE 8-7
Trends in 12th Graders' Attitudes Regarding Legality of Drug Use

<i>Do you think that people (who are 18 or older)^b should be prohibited by law from doing each of the following?</i>	Percentage saying "yes" ^a															
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Smoking marijuana in private	32.8	27.5	26.8	25.4	28.0	28.9	35.4	36.6	37.8	41.6	44.7	43.8	47.6	51.8	51.5	56.0
Smoking marijuana in public places	63.1	59.1	58.7	59.5	61.8	66.1	67.4	72.8	73.6	75.2	78.2	78.9	79.7	81.3	80.0	81.9
Taking LSD in private	67.2	65.1	63.3	62.7	62.4	65.8	62.6	67.1	66.7	67.9	70.6	69.0	70.8	71.5	71.6	72.9
Taking LSD in public places	85.8	81.9	79.3	80.7	81.5	82.8	80.7	82.1	82.8	82.4	84.8	84.9	85.2	86.0	84.4	84.9
Taking heroin in private	76.3	72.4	69.2	68.8	68.5	70.3	68.8	69.3	69.7	69.8	73.3	71.7	75.0	74.2	74.4	76.4
Taking heroin in public places	90.1	84.8	81.0	82.5	84.0	83.8	82.4	82.5	83.7	83.4	85.8	85.0	86.2	86.6	85.2	86.7
Taking amphetamines or sedatives in private ^c	57.2	53.5	52.8	52.2	53.4	54.1	52.0	53.5	52.8	54.4	56.3	56.8	59.1	60.2	61.1	64.5
Taking amphetamines or sedatives in public places ^c	79.6	76.1	73.7	75.8	77.3	76.1	74.2	75.5	76.7	76.8	78.3	79.1	79.8	80.2	79.2	81.6
Getting drunk in private	14.1	15.6	18.6	17.4	16.8	16.7	19.6	19.4	19.9	19.7	19.8	18.5	18.6	19.2	20.2	23.0
Getting drunk in public places	55.7	50.7	49.0	50.3	50.4	48.3	49.1	50.7	52.2	51.1	53.1	52.2	53.2	53.8	52.6	54.6
Smoking cigarettes in certain specified public places	—	—	42.0	42.2	43.1	42.8	43.0	42.0	40.5	39.2	42.8	45.1	44.4	48.4	44.5	47.3
<i>Approximate weighted N =</i>	2,620	2,959	3,113	3,783	3,288	3,224	3,611	3,627	3,315	3,236	3,254	3,074	3,332	3,288	2,813	2,571

Table continued on next page.

TABLE 8-7 (cont.)
Trends in 12th Graders' Attitudes Regarding Legality of Drug Use

<i>Do you think that people (who are 18 or older)^b should be prohibited by law from doing each of the following?</i>	Percentage saying "yes" ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Smoking marijuana in private	51.6	52.4	48.0	42.9	44.0	40.4	38.8	39.8	39.3	38.8	39.1	38.4	40.3	41.4	40.7	42.3
Smoking marijuana in public places	79.8	78.3	77.3	72.5	72.9	70.0	69.4	72.2	71.5	72.1	68.3	67.6	68.6	69.2	69.6	68.5
Taking LSD in private	68.1	67.2	63.5	63.2	64.3	62.0	61.2	64.7	62.6	62.9	63.1	64.2	64.2	64.4	63.7	62.3
Taking LSD in public places	83.9	82.2	82.1	80.5	81.5	79.2	80.3	82.7	80.4	80.4	78.8	79.9	79.1	77.0	77.4	75.0
Taking heroin in private	72.8	71.4	70.7	70.1	72.2	70.8	70.6	73.9	72.9	71.1	70.6	73.6	73.1	72.0	71.3	71.6
Taking heroin in public places	85.4	83.3	84.5	82.9	84.8	82.3	84.3	86.4	84.2	83.9	81.7	83.7	83.2	80.9	82.0	80.1
Taking amphetamines or sedatives in private ^c	59.7	60.5	57.4	55.7	57.5	54.6	54.6	58.5	55.1	56.0	55.9	56.0	55.8‡	52.2	53.6	51.5
Taking amphetamines or sedatives in public places ^c	79.7	78.5	78.0	76.4	77.6	74.3	76.5	77.4	76.1	75.4	74.5	73.6	74.4‡	69.9	72.0	69.5
Getting drunk in private	22.0	24.4	22.1	21.0	21.6	21.4	20.5	20.2	20.5	21.5	22.6	21.0	21.4	22.0	22.5	23.4
Getting drunk in public places	54.3	54.1	53.6	54.3	54.5	52.8	51.7	51.2	52.8	51.9	50.6	48.6	50.1	47.7	48.2	47.3
Smoking cigarettes in certain specified public places	44.9	47.6	45.9	47.3	45.1	43.4	41.3	41.1	43.2	45.1	44.2	43.8	45.5	44.3	46.8	47.0
<i>Approximate weighted N =</i>	2,512	2,671	2,759	2,603	2,578	2,422	2,587	2,563	2,283	2,146	2,161	2,162	2,450	2,450	2,461	2,381

Table continued on next page.

TABLE 8-7 (cont.)
Trends in 12th Graders' Attitudes Regarding Legality of Drug Use

Percentage saying "yes"^a

Do you think that people (who are 18 or older) ^b should be prohibited by law from doing each of the following?	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	2021
Smoking marijuana in private	38.7	39.3	36.7	32.8	34.2	33.0	32.0	28.5	26.5	23.8	22.9	21.7	20.5	§	16.9*
Smoking marijuana in public places	69.4	70.2	67.1	62.4	63.8	64.4	61.3	57.0	55.7	57.0	50.3	47.9	49.1	§	42.0*
Taking LSD in private	63.6	60.9	60.2	56.2	57.0	56.4	57.6	54.0	47.6	50.6	48.3	44.3	46.1	§	39.8*
Taking LSD in public places	76.9	74.2	74.8	72.3	73.3	72.8	73.9	71.9	66.9	71.9	68.6	65.4	68.5	§	63.7*
Taking heroin in private	72.5	72.0	71.3	70.1	68.8	68.9	71.0	68.4	64.1	69.6	68.5	66.4	67.9	§	65.2*
Taking heroin in public places	81.7	80.6	80.5	80.0	79.1	80.6	80.6	78.7	74.1	79.2	77.3	74.8	77.2	§	74.8*
Taking amphetamines or sedatives in private ^c	54.3	53.0	51.1	50.8	50.2	48.7	48.9	46.2	43.0	45.3	44.2	42.4	40.3	§	42.2*
Taking amphetamines or sedatives in public places ^c	72.8	71.6	71.1	70.7	68.5	69.8	68.5	67.0	61.5	66.1	63.3	60.2	62.4	§	61.1*
Getting drunk in private	21.3	23.2	22.1	20.3	21.4	21.6	21.8	19.5	22.0	18.8	20.3	19.7	17.1	§	16.6*
Getting drunk in public places	47.8	49.6	49.7	47.3	49.3	48.8	47.5	47.9	46.2	48.2	43.4	41.9	41.0	§	37.7*
Smoking cigarettes in certain specified public places	46.4	45.1	45.4	41.3	42.6	43.0	40.8	39.2	39.7	41.9	38.4	37.9	35.5	§	34.6*
<i>Approximate weighted N =</i>	<i>2,459</i>	<i>2,356</i>	<i>2,306</i>	<i>2,410</i>	<i>2,339</i>	<i>2,304</i>	<i>2,101</i>	<i>2,070</i>	<i>2,170</i>	<i>1,976</i>	<i>2,117</i>	<i>2,234</i>	<i>1,133</i>	§	<i>1,411</i>

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' — ' indicates data not available. ' ‡ ' indicates that the question changed the following year. See relevant footnote. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) No, (2) Not sure, and (3) Yes.

^bThe 1975 question asked about people who are 20 or older.

^cIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^dThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

TABLE 8-8
Trends in 12th Graders' Attitudes Regarding Marijuana Laws

(Entries are percentages.)

There has been a great deal of public debate about whether marijuana use should be legal. Which of the following policies would you favor?

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Using marijuana should be entirely legal	27.3	32.6	33.6	32.9	32.1	26.3	23.1	20.0	18.9	18.6	16.6	14.9	15.4	15.1	16.6	15.9
It should be a minor violation like a parking ticket, but not a crime	25.3	29.0	31.4	30.2	30.1	30.9	29.3	28.2	26.3	23.6	25.7	25.9	24.6	21.9	18.9	17.4
It should be a crime	30.5	25.4	21.7	22.2	24.0	26.4	32.1	34.7	36.7	40.6	40.8	42.5	45.3	49.2	50.0	53.2
Don't know	16.8	13.0	13.4	14.6	13.8	16.4	15.4	17.1	18.1	17.2	16.9	16.7	14.8	13.9	14.6	13.6

If it were legal for people to USE marijuana, should it also be legal to SELL marijuana?

No	27.8	23.0	22.5	21.8	22.9	25.0	27.7	29.3	27.4	30.9	32.6	33.0	36.0	36.8	38.8	40.1
Yes, but only to adults	37.1	49.8	52.1	53.6	53.2	51.8	48.6	46.2	47.6	45.8	43.2	42.2	41.2	39.9	37.9	38.8
Yes, to anyone	16.2	13.3	12.7	12.0	11.3	9.6	10.5	10.7	10.5	10.6	11.2	10.4	9.2	10.5	9.2	9.6
Don't know	18.9	13.9	12.7	12.6	12.6	13.6	13.2	13.8	14.6	12.8	13.1	14.4	13.6	12.8	14.1	11.6

Table continued on next page.

If marijuana were legal to use and legally available, which of the following would you be most likely to do?

Not use it, even if it were legal and available	53.2	50.4	50.6	46.4	50.2	53.3	55.2	60.0	60.1	62.0	63.0	62.4	64.9	69.0	70.1	72.9
Try it	8.2	8.1	7.0	7.1	6.1	6.8	6.0	6.3	7.2	6.6	7.5	7.6	7.3	7.1	6.7	7.0
Use it about as often as I do now	22.7	24.7	26.8	30.9	29.1	27.3	24.8	21.7	19.8	19.1	17.7	16.8	16.2	13.1	13.0	10.1
Use it more often than I do now	6.0	7.1	7.4	6.3	6.0	4.2	4.7	3.8	4.9	4.7	3.7	5.0	4.1	4.3	2.4	2.7
Use it less often than I do now	1.3	1.5	1.5	2.7	2.5	2.6	2.5	2.2	1.5	1.6	1.6	2.0	1.3	1.5	2.1	1.1
Don't know	8.5	8.1	6.6	6.7	6.1	5.9	6.9	6.0	6.4	6.0	6.5	6.1	6.3	5.0	5.7	6.1

Approximate weighted N = 2,600 2,970 3,110 3,710 3,280 3,210 3,600 3,620 3,300 3,220 3,230 3,080 3,330 3,277 2,812 2,570

TABLE 8-8
Trends in 12th Graders' Attitudes Regarding Marijuana Laws

(Entries are percentages.)

There has been a great deal of public debate about whether marijuana use should be legal. Which of the following policies would you favor?

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Using marijuana should be entirely legal	18.0	18.7	22.8	26.8	30.4	31.2	30.8	27.9	27.3	31.2	29.2	30.8	29.5	30.5	27.6	27.1
It should be a minor violation like a parking ticket, but not a crime	19.2	18.0	18.7	19.0	18.0	21.0	20.7	24.3	23.7	23.4	24.5	24.2	25.8	26.5	27.7	27.6
It should be a crime	48.6	47.6	43.4	39.4	37.3	33.8	34.0	32.6	32.5	30.2	31.1	29.1	29.8	28.5	29.7	31.7
Don't know	14.3	15.7	15.1	14.8	14.4	13.9	14.5	15.2	16.5	15.2	15.3	15.9	14.9	14.5	15.1	13.6

If it were legal for people to USE marijuana, should it also be legal to SELL marijuana?

No	36.8	37.8	36.7	33.1	32.3	29.4	29.1	30.2	30.2	27.4	30.0	29.1	30.5	28.4	32.3	32.9
Yes, but only to adults	41.4	39.5	40.7	41.7	43.4	46.7	44.8	42.4	42.9	45.5	43.6	43.6	43.2	45.2	43.0	42.5
Yes, to anyone	9.4	9.6	10.1	11.6	11.7	11.1	12.5	11.9	12.1	13.4	12.0	13.6	11.6	12.2	11.2	10.8
Don't know	12.5	13.1	12.5	13.7	12.6	12.8	13.7	15.5	14.7	13.6	14.3	13.7	14.7	14.3	13.5	13.9

Table continued on next page.

If marijuana were legal to use and legally available, which of the following would you be most likely to do?

Not use it, even if it were legal and available	70.7	72.5	69.0	64.6	60.2	59.9	56.4	58.3	59.0	60.3	58.1	58.6	57.9	56.4	60.1	62.5
Try it	6.3	7.4	7.3	7.6	8.8	8.8	9.1	8.1	9.3	7.3	9.3	8.4	10.6	10.6	8.9	9.7
Use it about as often as I do now	11.7	10.2	11.9	14.3	17.1	17.3	18.4	17.9	15.2	18.5	16.8	17.2	15.6	17.4	15.2	13.8
Use it more often than I do now	3.3	3.2	3.5	4.7	4.9	4.8	6.1	5.9	6.5	5.4	6.3	7.1	7.1	6.0	6.1	5.6
Use it less often than I do now	1.6	1.0	1.4	1.5	1.6	1.6	2.0	2.0	1.9	1.6	2.2	1.7	1.6	1.6	1.8	1.1
Don't know	6.4	5.7	7.0	7.3	7.4	7.7	7.9	7.8	8.1	7.0	7.3	7.0	7.2	8.0	8.0	7.3

<i>Approximate weighted N =</i>	2,515	2,672	2,768	2,597	2,574	2,426	2,585	2,566	2,285	2,143	2,160	2,150	2,444	2,461	2,466	2,383
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TABLE 8-8 (cont.)
Trends in 12th Graders' Attitudes Regarding Marijuana Laws

(Entries are percentages.)

There has been a great deal of public debate about whether marijuana use should be legal. Which of the following policies would you favor?

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^a	2020	2021
Using marijuana should be entirely legal	29.3	29.4	31.8	36.2	39.2	39.3	41.5	43.4	42.4	44.7	48.9	48.2	50.7	§	51.1*
It should be a minor violation like a parking ticket, but not a crime	27.8	30.0	28.9	28.6	26.9	26.8	25.0	24.6	27.4	28.5	25.9	27.0	24.9	§	24.6*
It should be a crime	30.2	27.5	26.0	21.8	21.3	21.7	20.8	17.1	15.4	13.8	12.4	10.5	9.4	§	7.1*
Don't know	12.8	13.1	13.3	13.4	12.6	12.2	12.7	14.9	14.8	13.1	12.7	14.2	15.0	§	17.1*

If it were legal for people to USE marijuana, should it also be legal to SELL marijuana?

No	29.9	30.5	28.7	28.1	28.1	30.9	28.8	26.8	22.8	24.4	21.3	19.2	19.7	§	18.1*
Yes, but only to adults	45.9	45.9	47.9	48.9	51.0	47.2	51.6	51.3	54.9	53.5	55.4	54.9	58.4	§	59.2*
Yes, to anyone	11.0	10.3	10.5	9.9	10.5	10.3	9.4	8.8	9.1	9.3	11.2	11.0	9.4	§	9.5*
Don't know	13.2	13.3	12.9	13.1	10.3	11.6	10.3	13.0	13.2	12.8	12.2	14.9	12.5	§	13.2*

If marijuana were legal to use and legally available, which of the following would you be most likely to do?

Not use it, even if it were legal and available	61.5	60.5	59.9	55.4	54.9	55.8	56.3	52.7	52.6	51.0	46.5	45.0	42.9	§	45.5*
Try it	8.8	8.9	9.8	10.7	9.6	10.6	10.3	10.7	12.9	13.9	15.2	15.9	17.1	§	16.1*
Use it about as often as I do now	15.1	14.8	14.7	16.1	17.6	16.8	15.0	16.7	14.0	16.1	16.7	15.5	16.5	§	13.9*
Use it more often than I do now	5.5	5.5	5.7	7.3	7.3	8.3	8.5	7.7	8.6	7.8	10.1	9.2	10.4	§	7.3*
Use it less often than I do now	1.5	1.4	1.1	1.8	1.7	1.6	1.5	1.0	1.4	0.8	1.3	1.3	0.9	§	0.5*
Don't know	7.6	9.0	8.8	8.8	8.9	7.1	8.5	11.2	10.5	10.4	10.1	13.0	12.3	§	16.7*

Approximate weighted N = 2,450 2,366 2,311 2,425 2,349 2,303 2,106 2,079 2,165 1,962 2,119 2,246 1,126 § 1,411

Source. The Monitoring the Future study, the University of Michigan.

§Estimates not presented due to insufficient data this year.

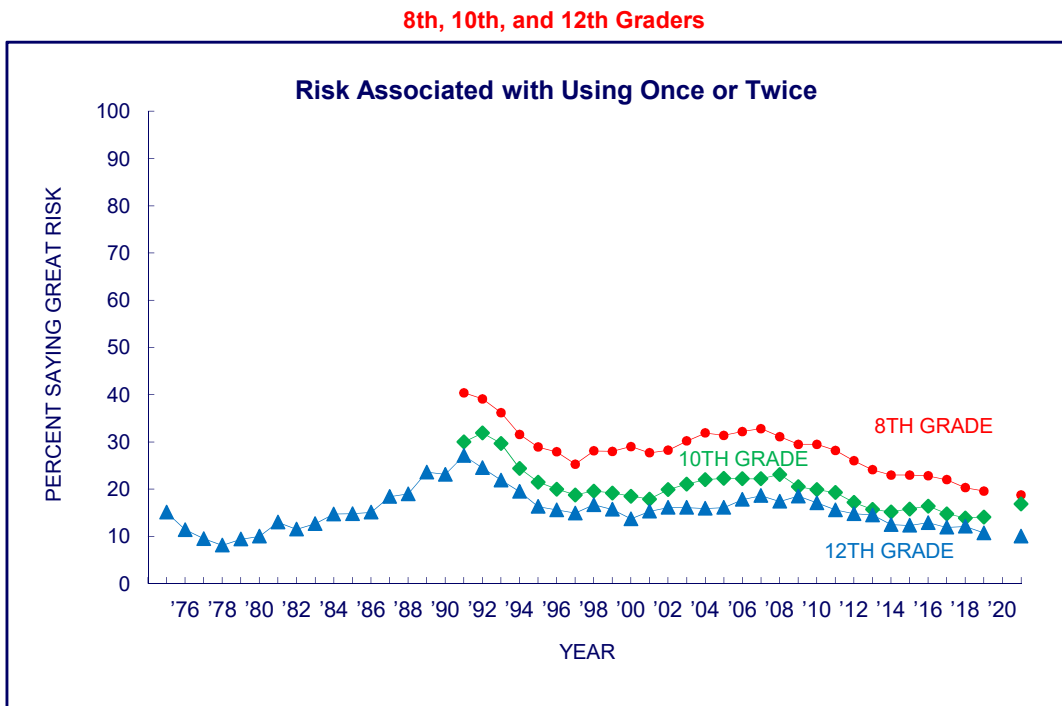
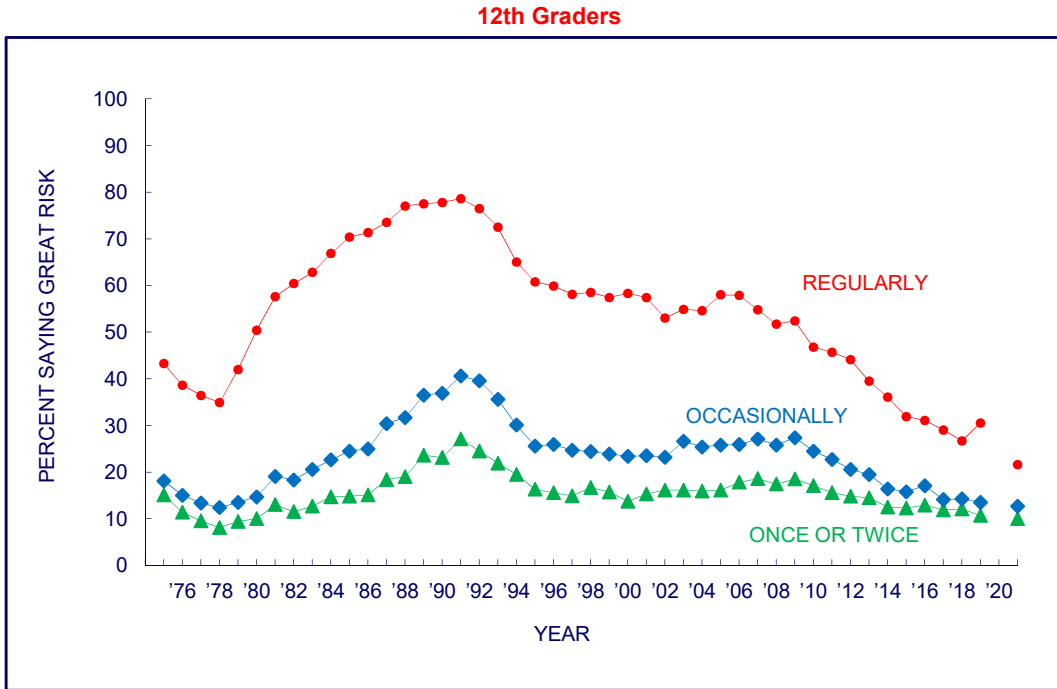
*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

FIGURE 8-1a

MARIJUANA

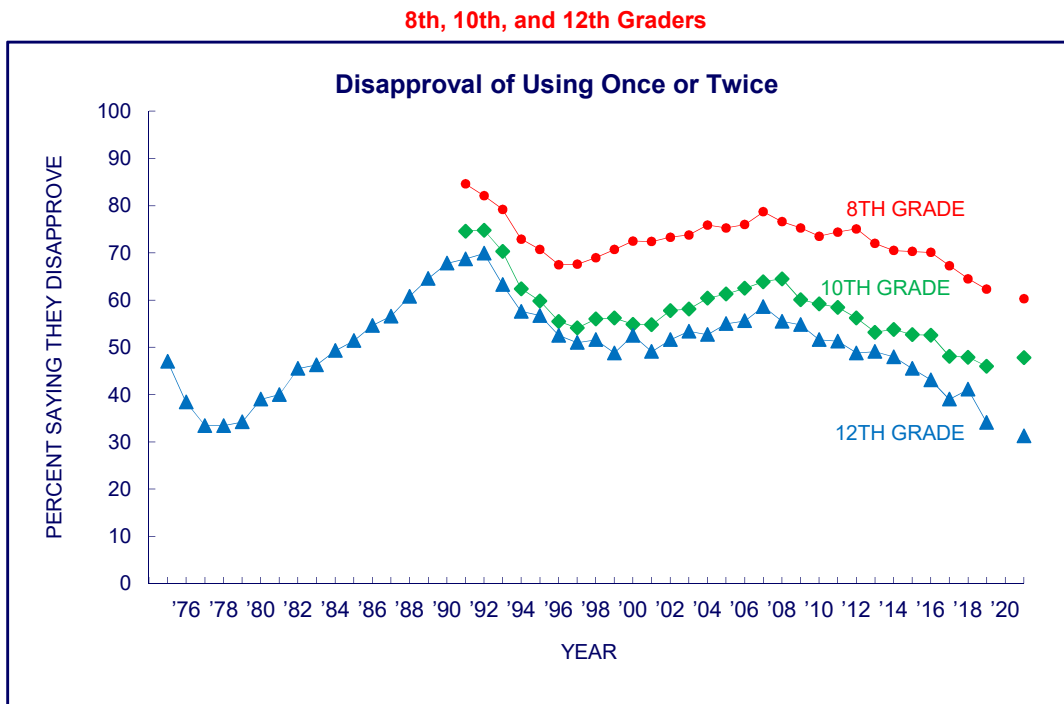
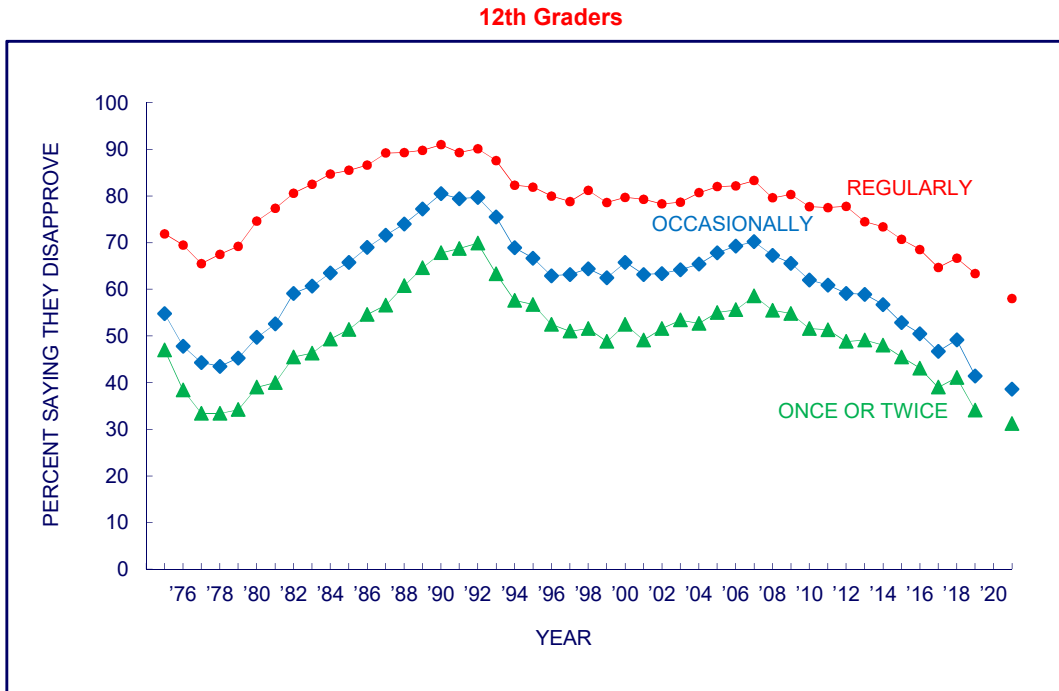
Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-1b
MARIJUANA
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

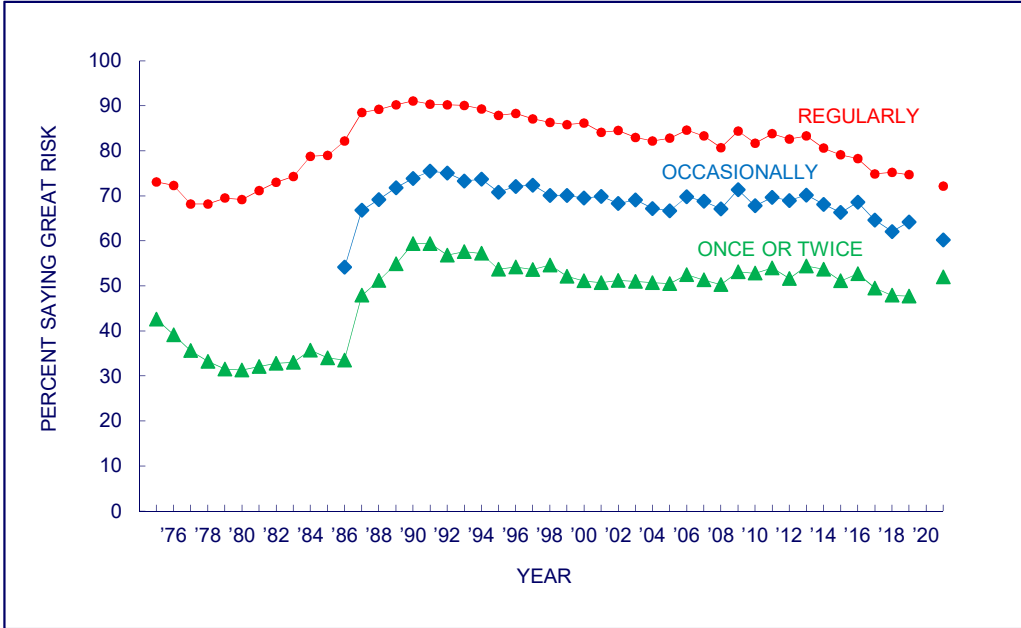
Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-2a

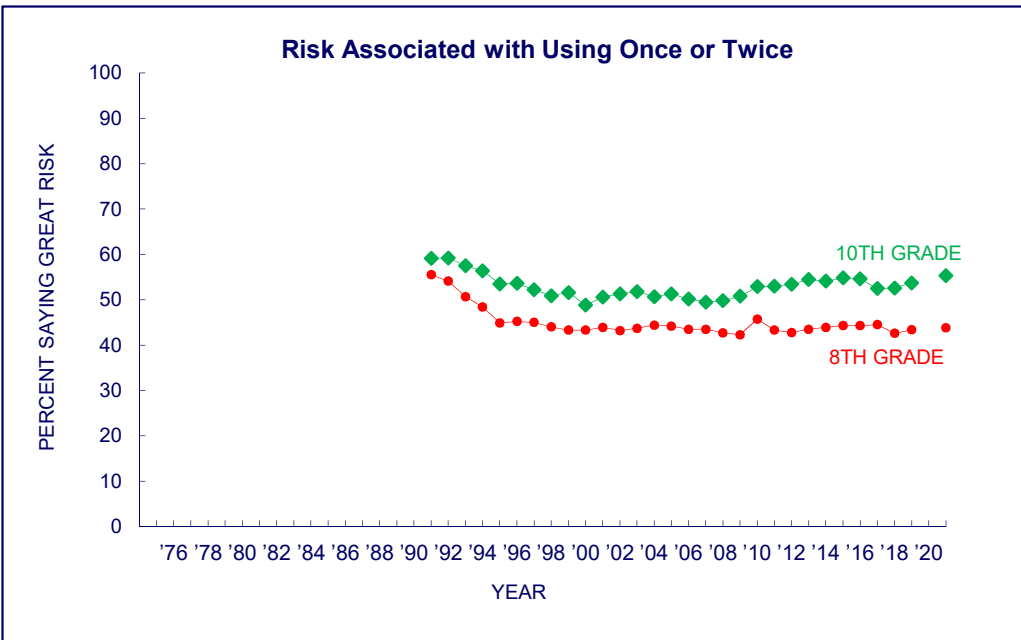
COCAINE

Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12

12th Graders



8th and 10th Graders

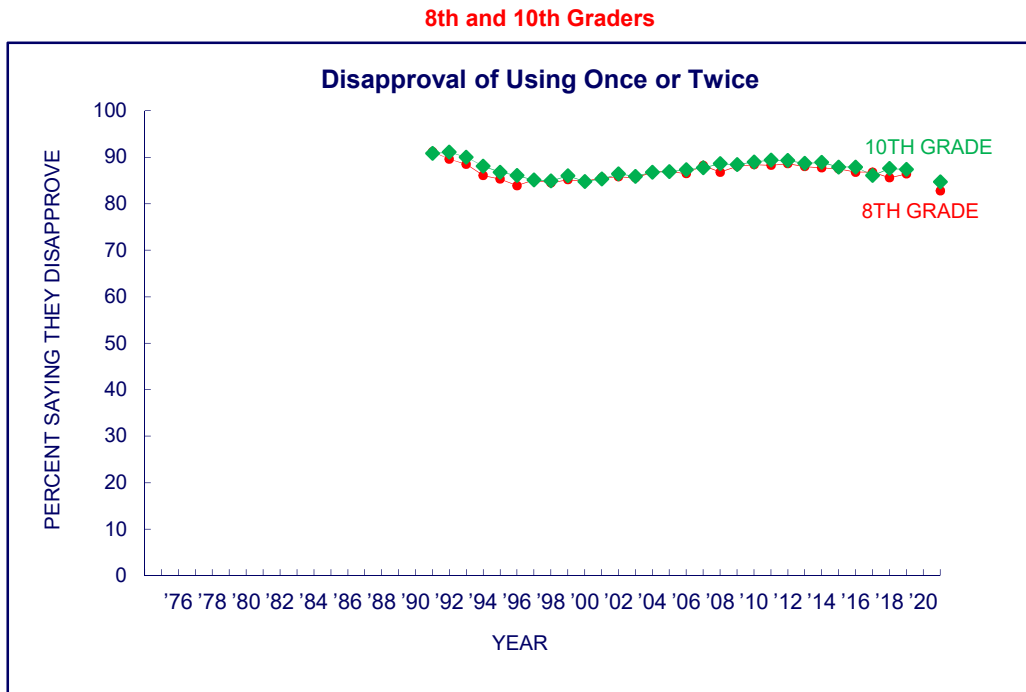
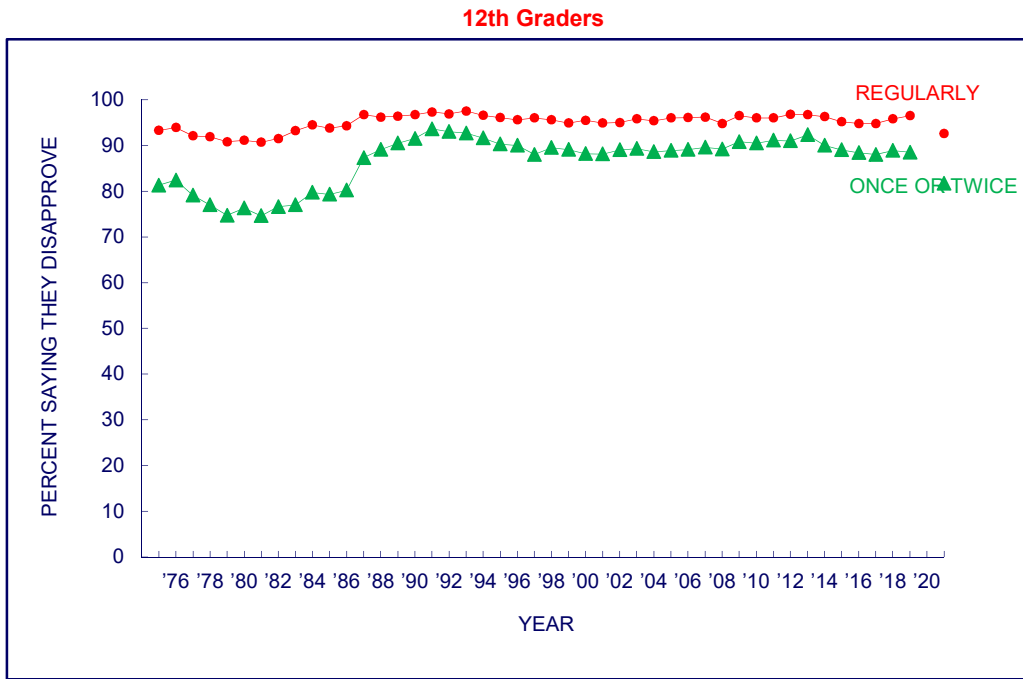


Source. The Monitoring the Future study, the University of Michigan.

Notes. Data presented above for 12th graders pertains to cocaine in general, while the data for 8th and 10th graders pertains specifically to cocaine in powder form until 2021. From 2021-forward, data presented for 8th and 10th graders also pertains to cocaine in general.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-2b
COCAINE
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

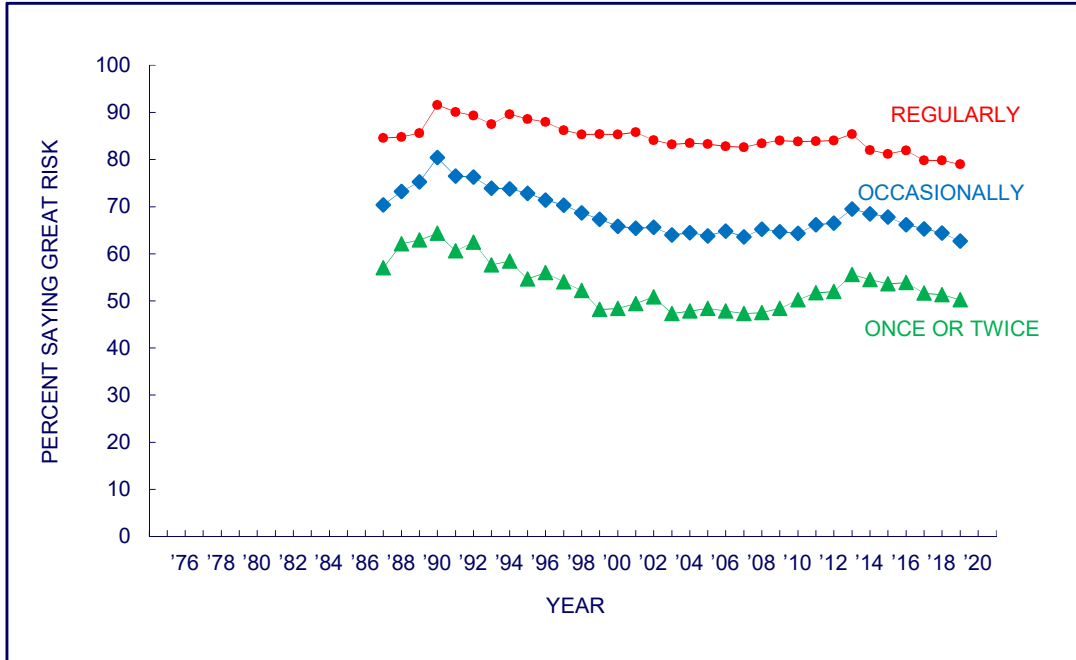
Notes. Data presented above for 12th graders pertains to cocaine in general, while the data for 8th and 10th graders pertains specifically to cocaine in powder form until 2021. From 2021-forward, data presented for 8th and 10th graders also pertains to cocaine in general. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-3a

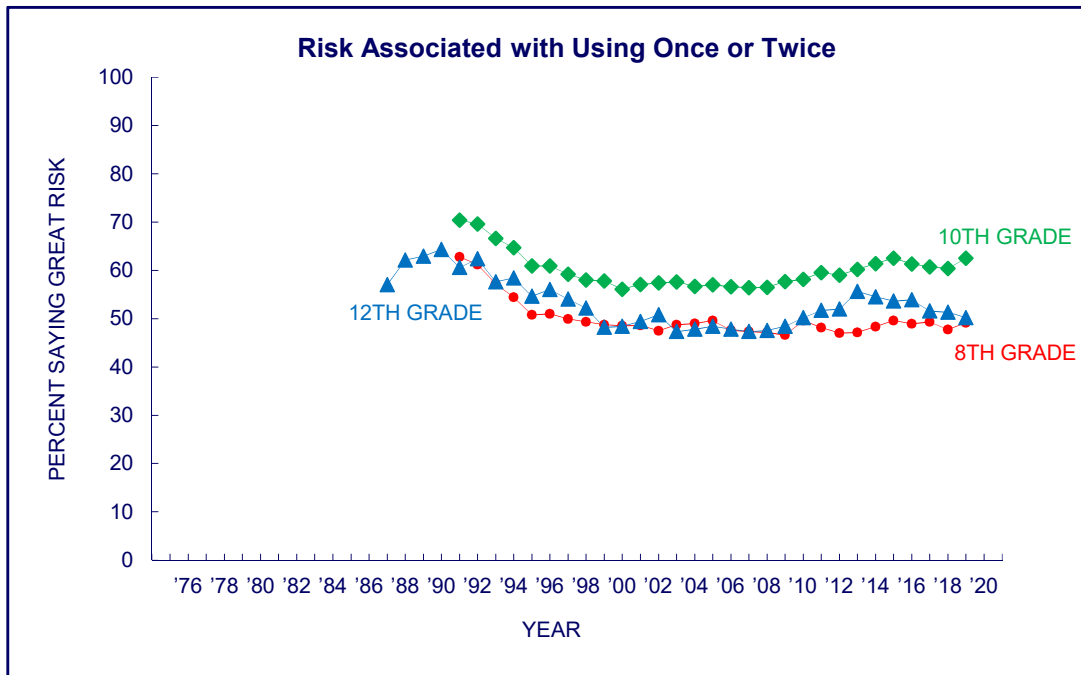
CRACK

**Trends in Perceived Harmfulness^a for Different Levels of Use
in Grades 8, 10, and 12**

12th Graders



8th, 10th, and 12th Graders

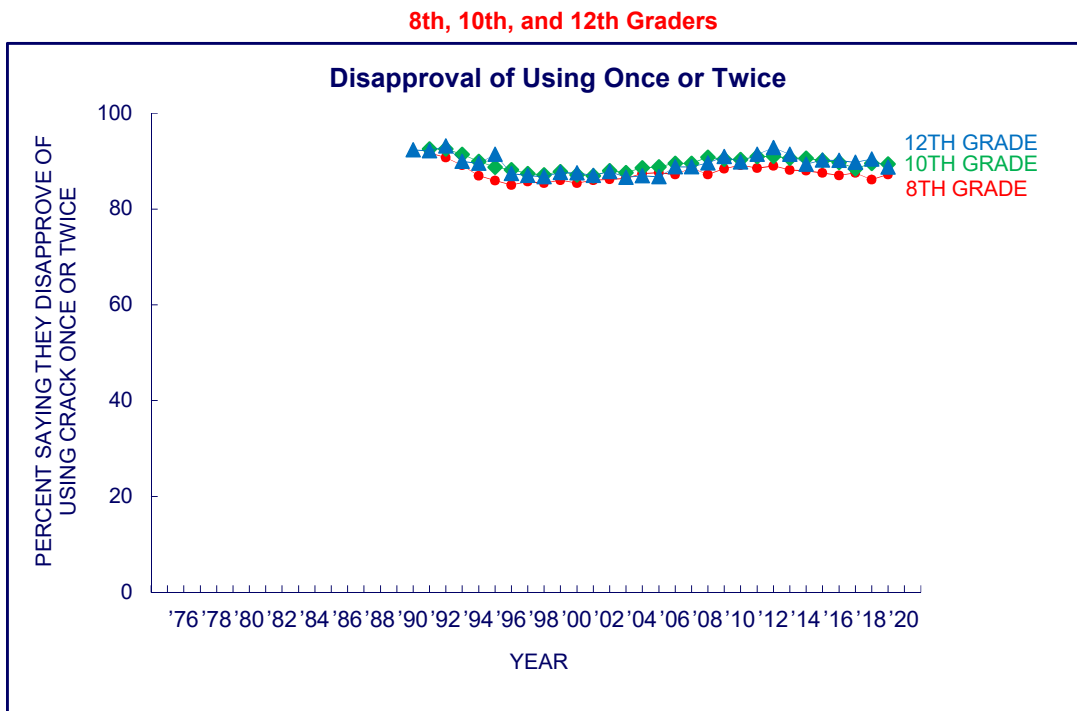
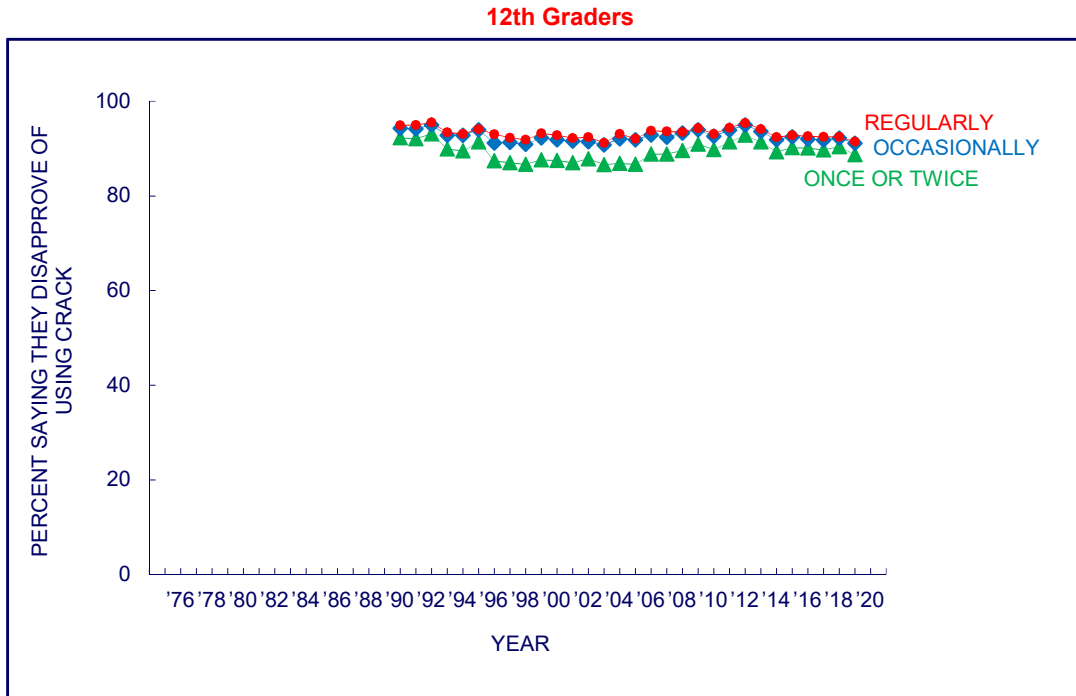


Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aQuestion discontinued in 8th, 10th, and 12th grade surveys in 2020.

FIGURE 8-3b
CRACK
Trends in Disapproval^a of Different Levels of Use
in Grades 8, 10, and 12

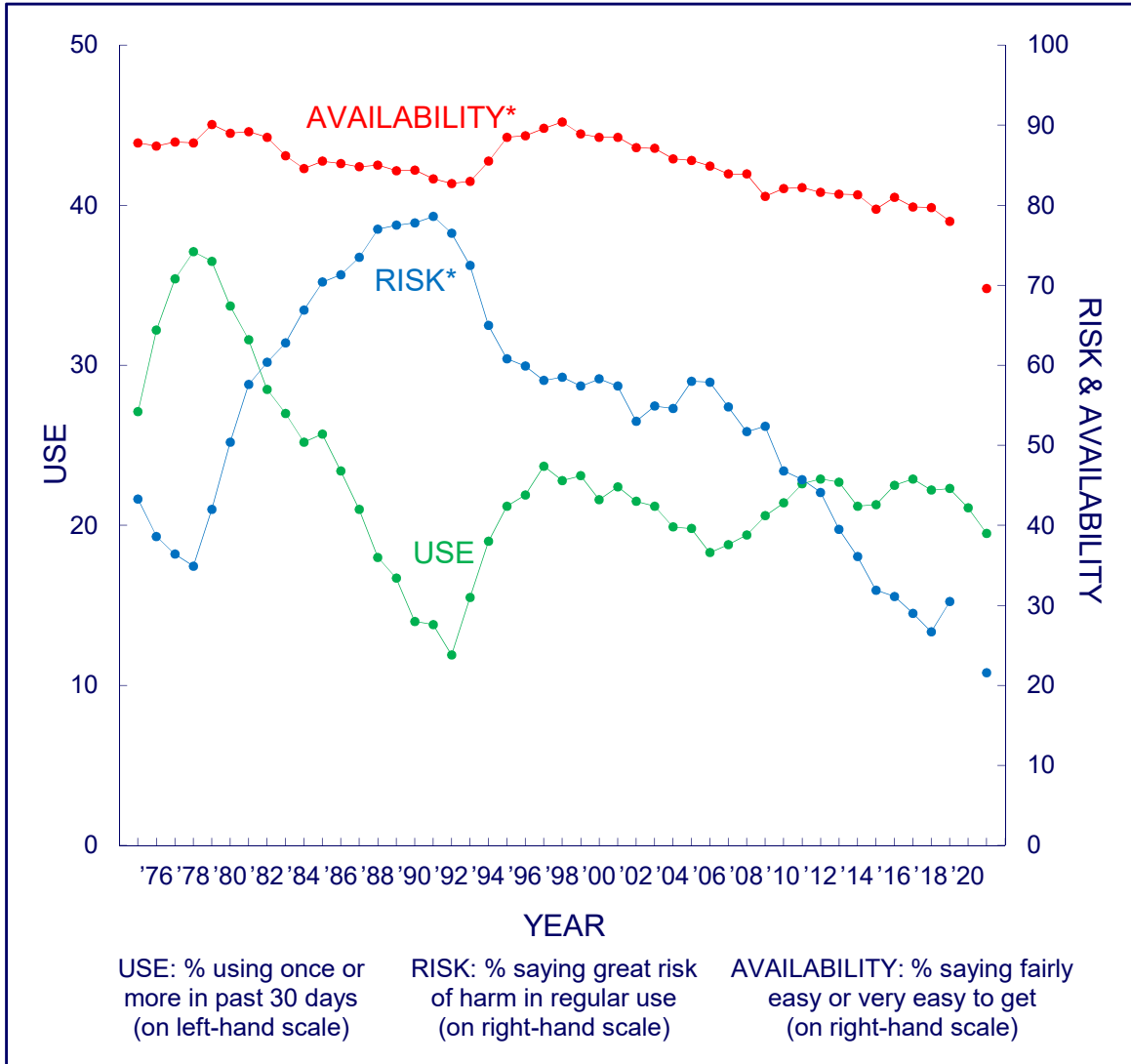


Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aQuestion discontinued in 8th, 10th, and 12th grade surveys in 2020.

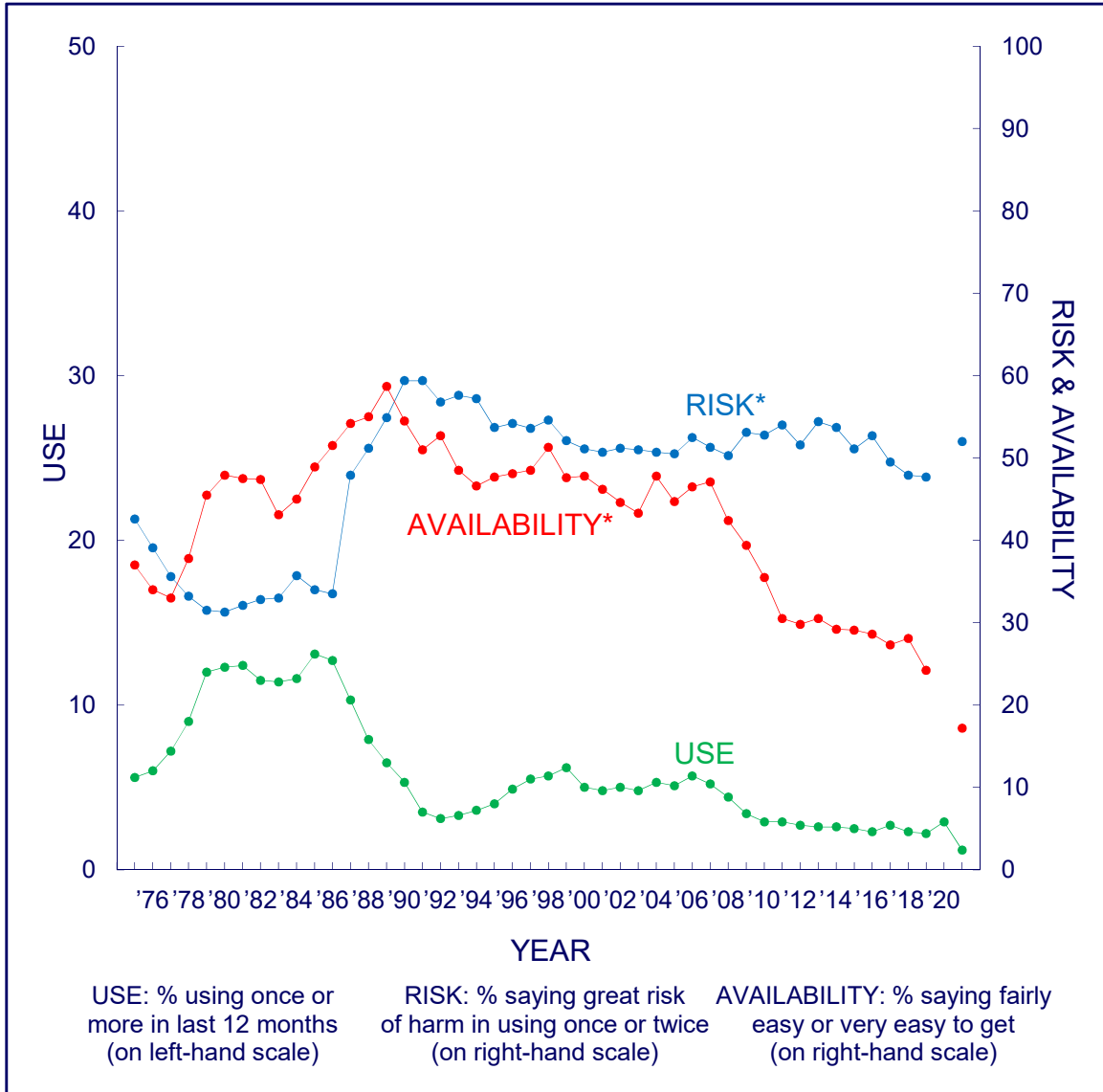
FIGURE 8-4
MARIJUANA
Trends in Perceived Availability,
Perceived Risk of Regular Use, and
Prevalence of Use in Past 30 Days in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

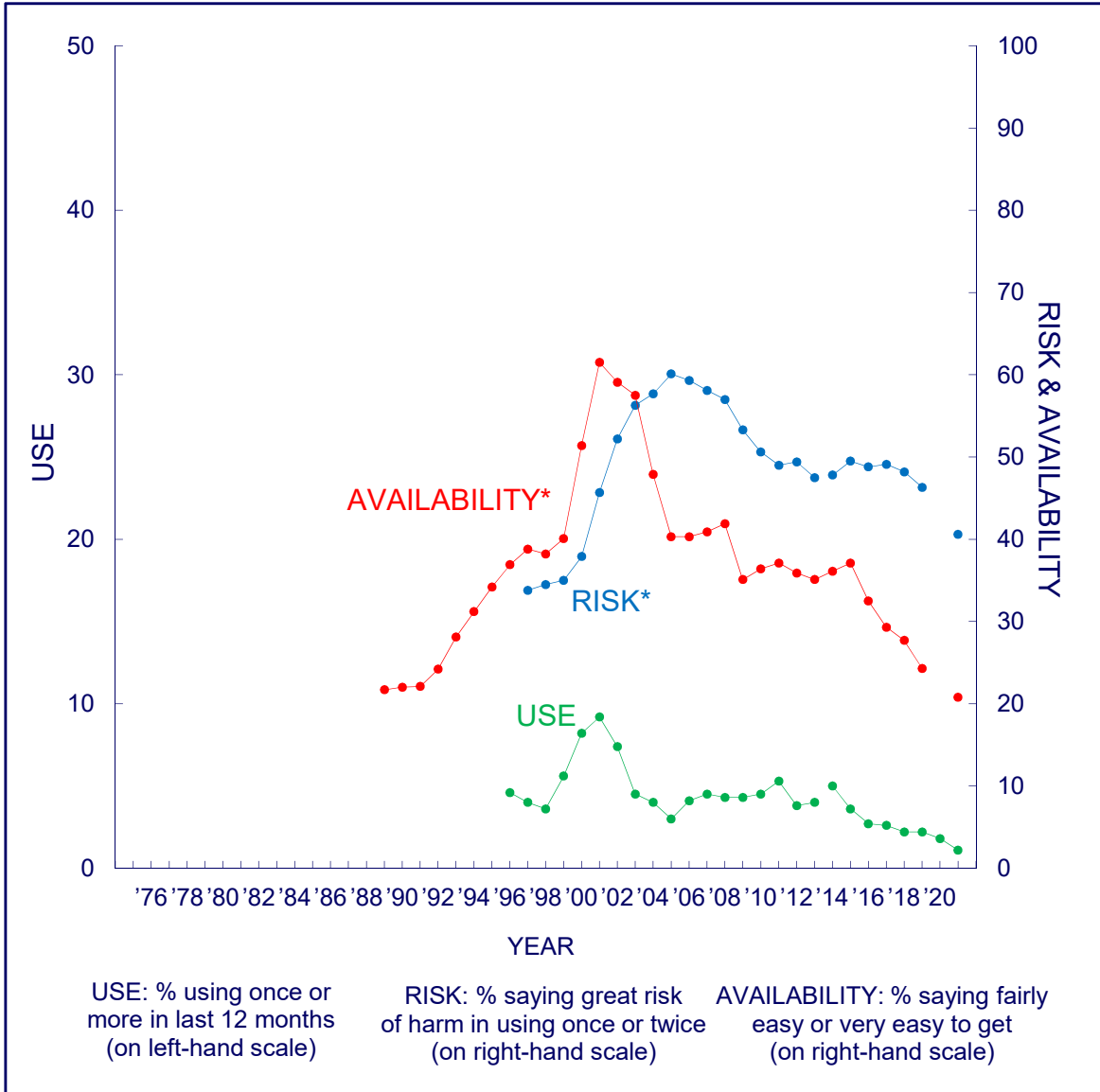
FIGURE 8-5
COCAINE
Trends in Perceived Availability,
Perceived Risk of Trying, and
Prevalence of Use in Last 12 Months in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-6
ECSTASY (MDMA)
Trends in Perceived Availability,
Perceived Risk of Trying, and
Prevalence of Use in Last 12 Months in Grade 12

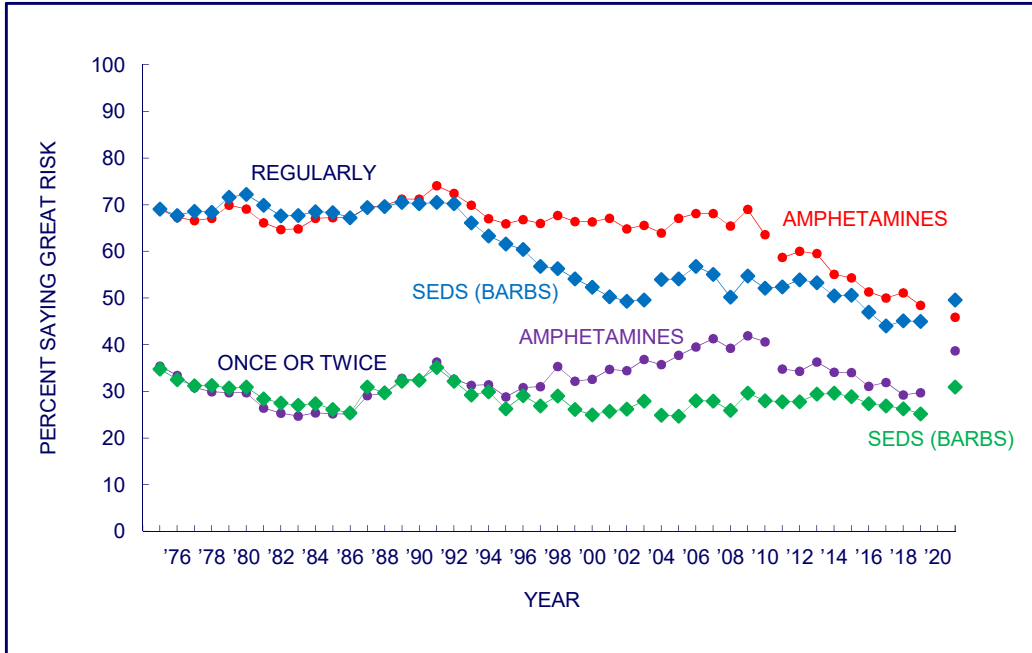


Source. The Monitoring the Future study, the University of Michigan.

Notes. In 2014, the text was changed on one of the questionnaire forms to include "molly" in the description of the question on annual use. The remaining forms were changed in 2015. Data for both versions of the question are presented here. In 2014, the same change was made to the question on perceived risk. Data from 2014 on are based on the new version of the question.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-7a
AMPHETAMINES^a AND SEDATIVES (BARBITURATES)^b
Trends in Perceived Harmfulness for Different Levels of Use
in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

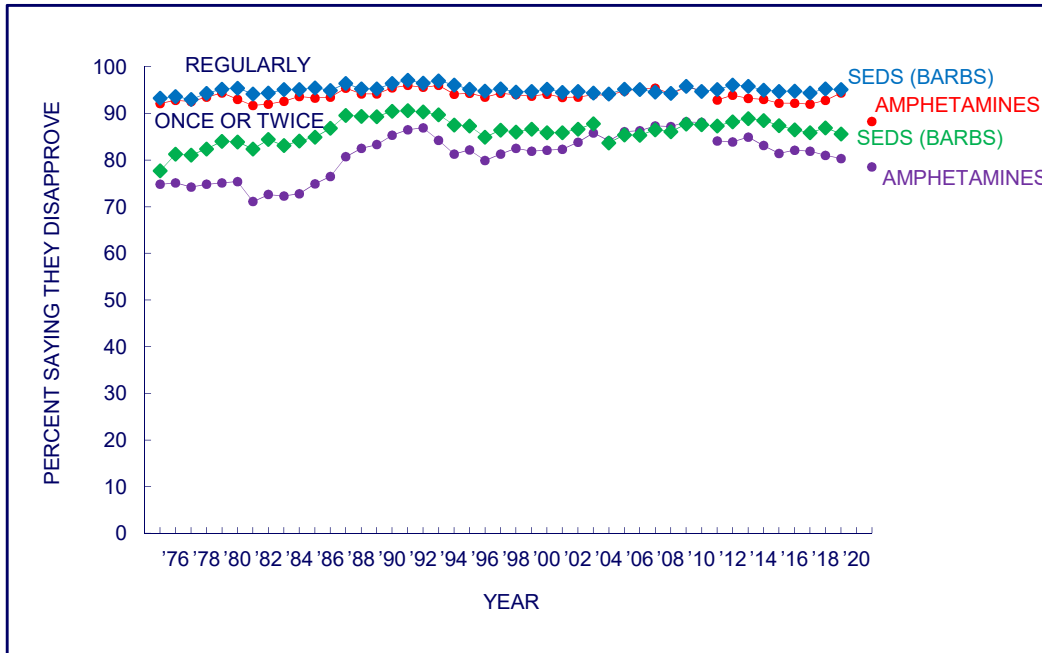
Notes. Data not available for 8th and 10th graders.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 8-7b
AMPHETAMINES^a AND SEDATIVES (BARBITURATES)^b
Trends in Disapproval of Different Levels of Use
in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

Notes. Data not available for 8th and 10th graders.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

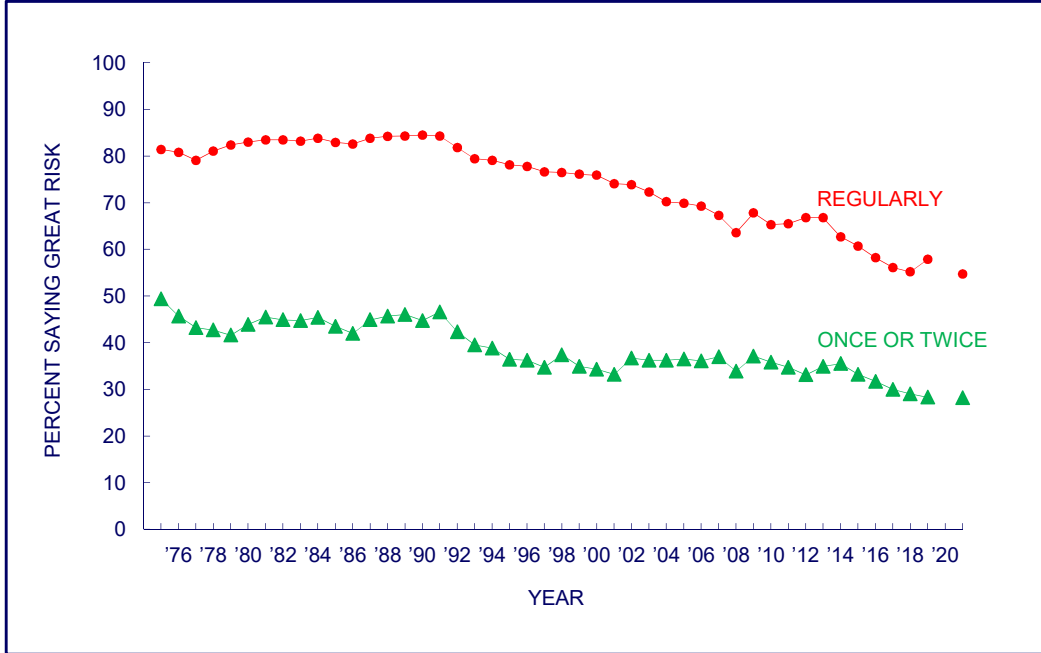
^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results. Questions on disapproval of sedatives (barbiturates) were dropped from the surveys in 2020.

FIGURE 8-8a

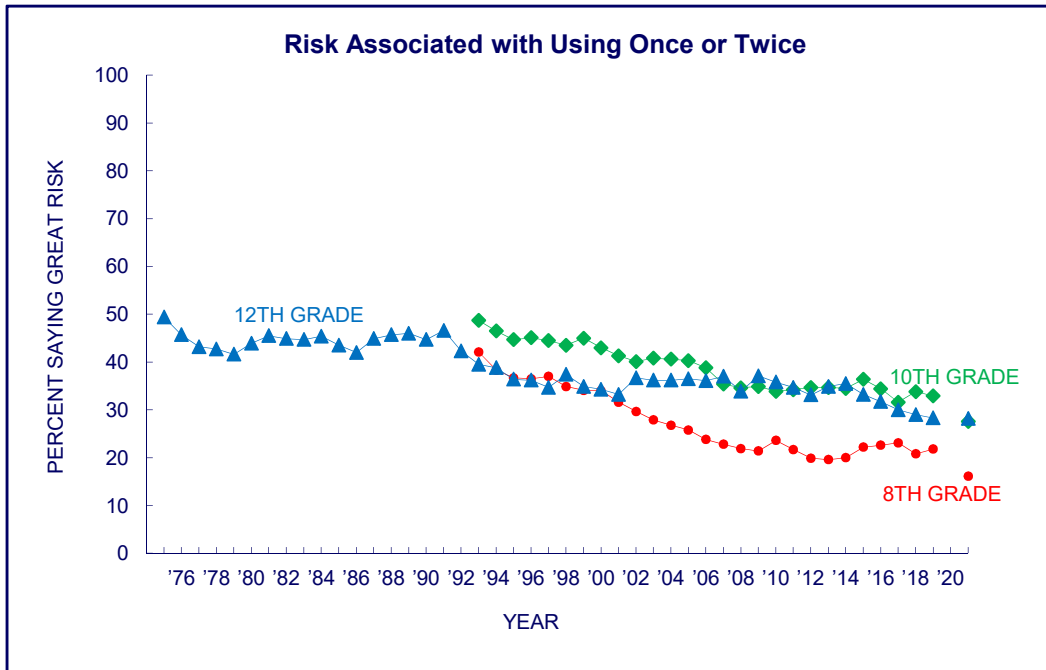
LSD

Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12

12th Graders



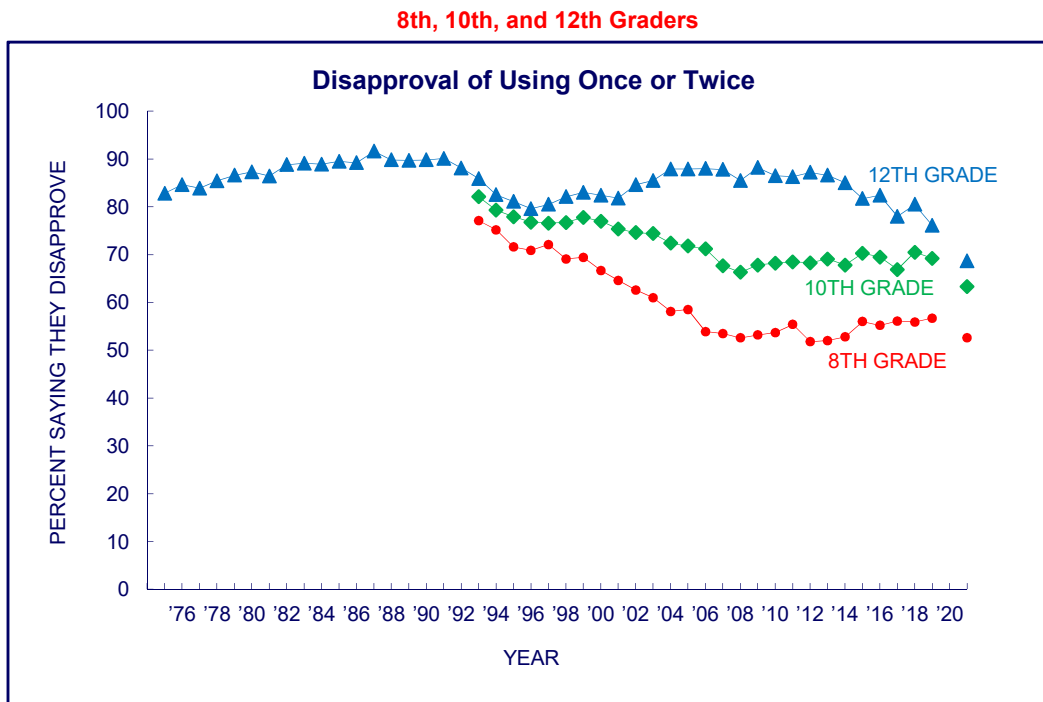
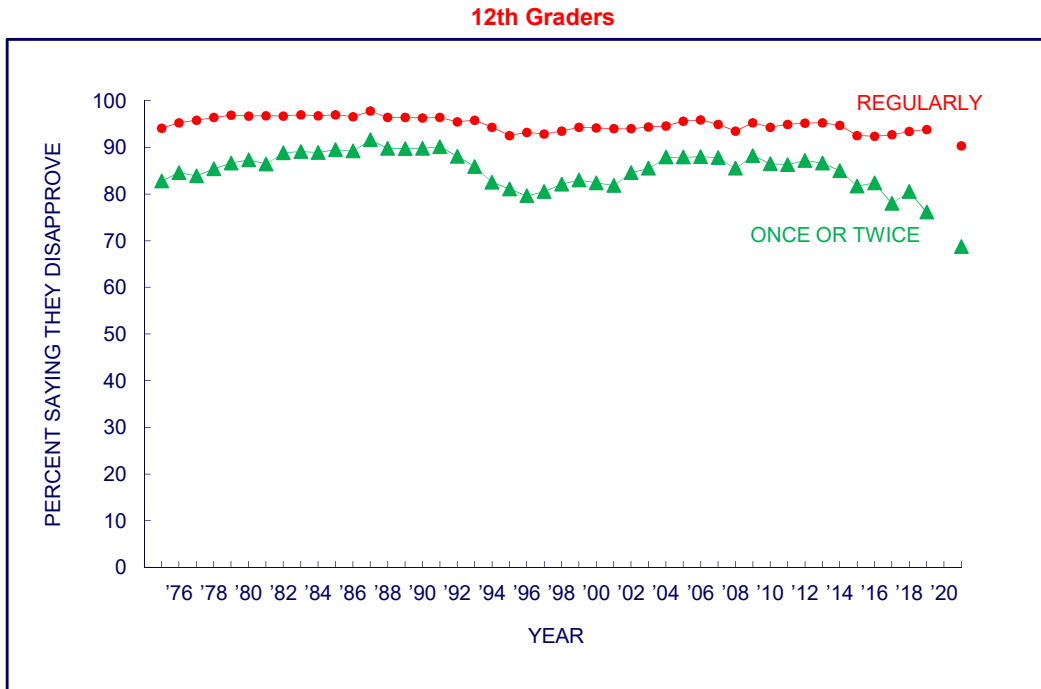
8th, 10th, and 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

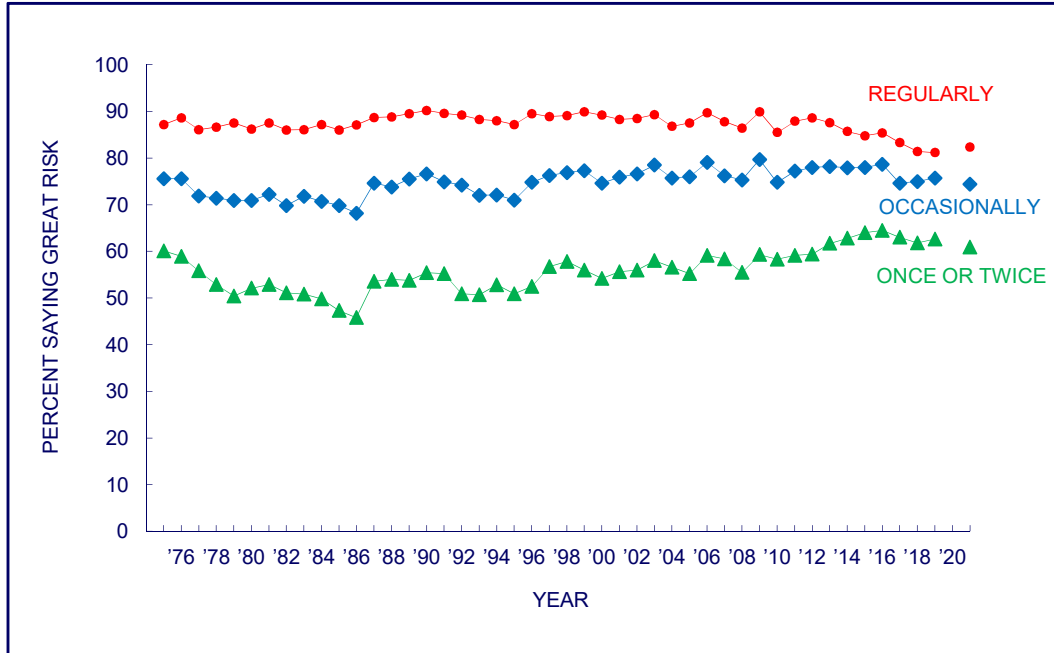
FIGURE 8-8b
LSD
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-9a
HEROIN
Trends in Perceived Harmfulness for Different Levels of Use
in Grade 12

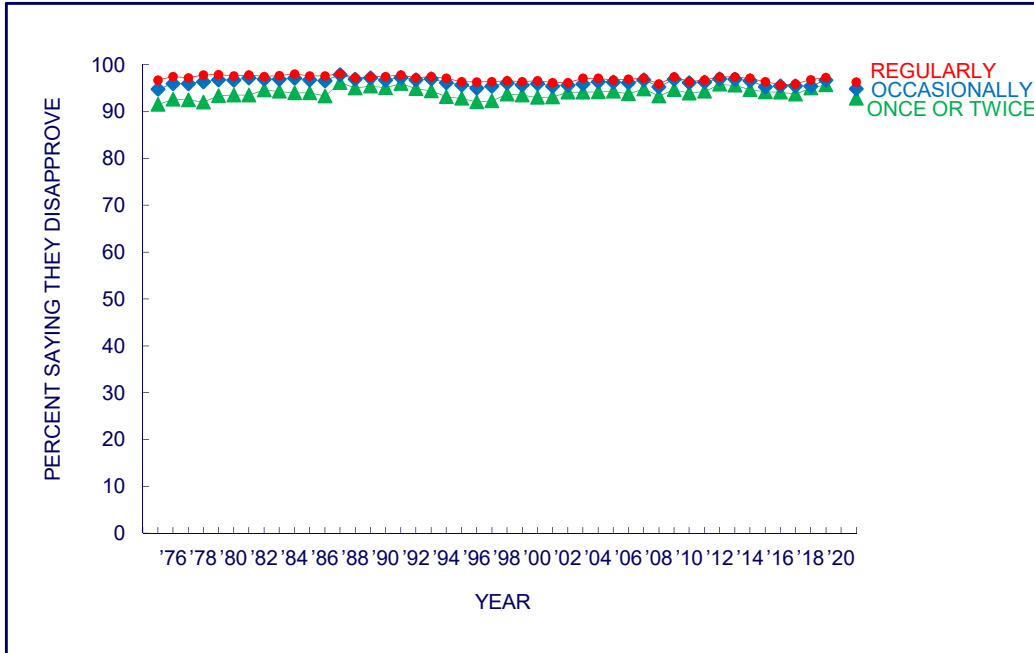


Source. The Monitoring the Future study, the University of Michigan.

Notes. Data not available for 8th and 10th graders.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-9b
HEROIN
Trends in Disapproval of Different Levels of Use
in Grade 12

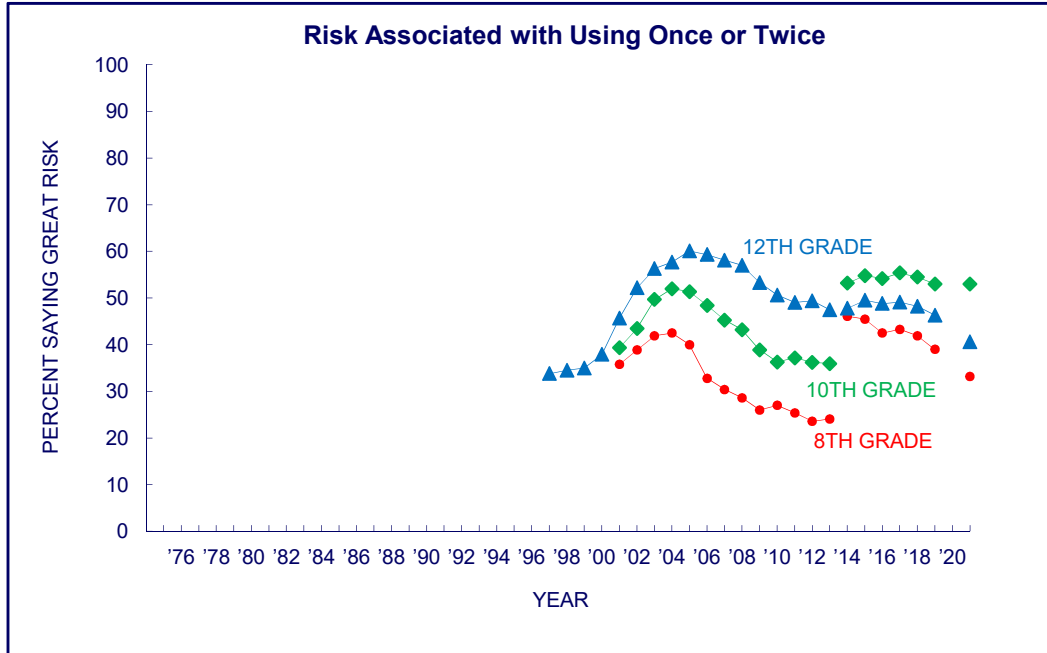


Source. The Monitoring the Future study, the University of Michigan.

Notes. Data not available for 8th and 10th graders.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-10a
MDMA (Ecstasy, Molly)
Trends in Perceived Harmfulness for Experimental Use
in Grades 8, 10, and 12

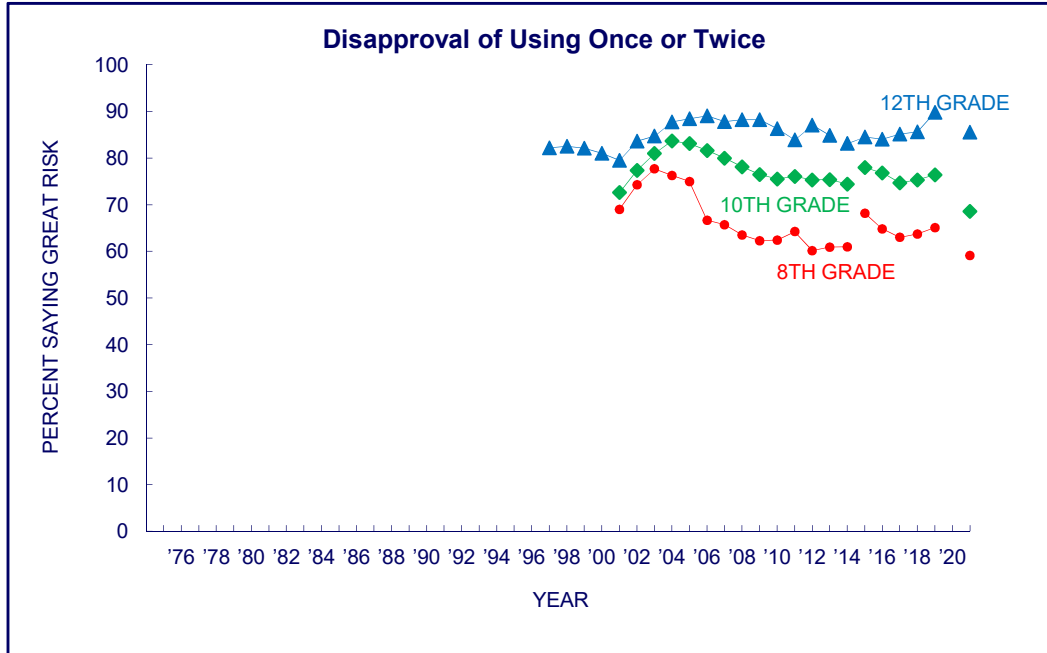


Source. The Monitoring the Future study, the University of Michigan.

Notes. In 2014, the text was changed to include "molly" in the description. Data from 2014 on are based on the new version of the question.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-10b
MDMA (Ecstasy, Molly)
Trends in Disapproval of Experimental Use
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Notes. In 2014 for 12th graders and 2015 for 8th and 10th graders, the text was changed to include "molly" in the description. Data from 2014 on are based on the new version of the question.

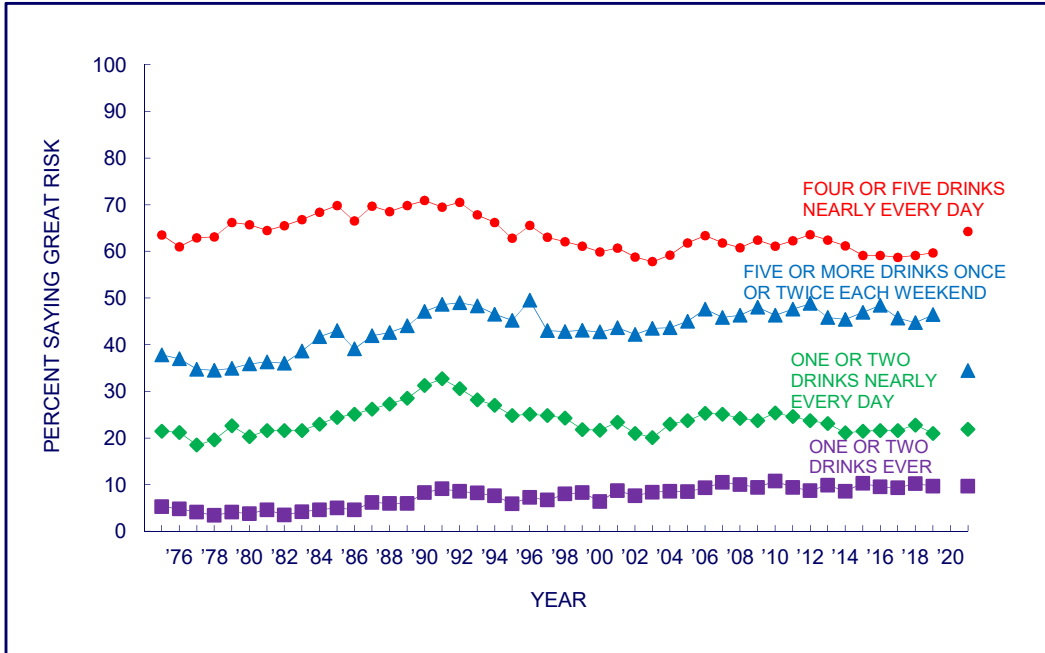
Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-11a

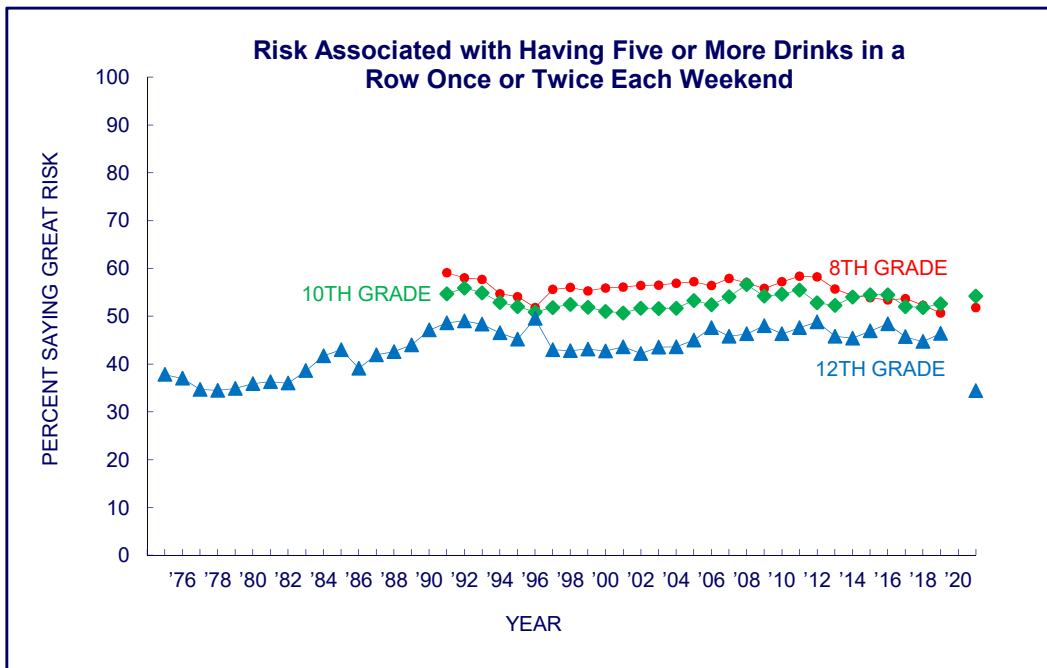
ALCOHOL

Trends in Perceived Harmfulness for Different Levels of Use in Grades 8, 10, and 12

12th Graders



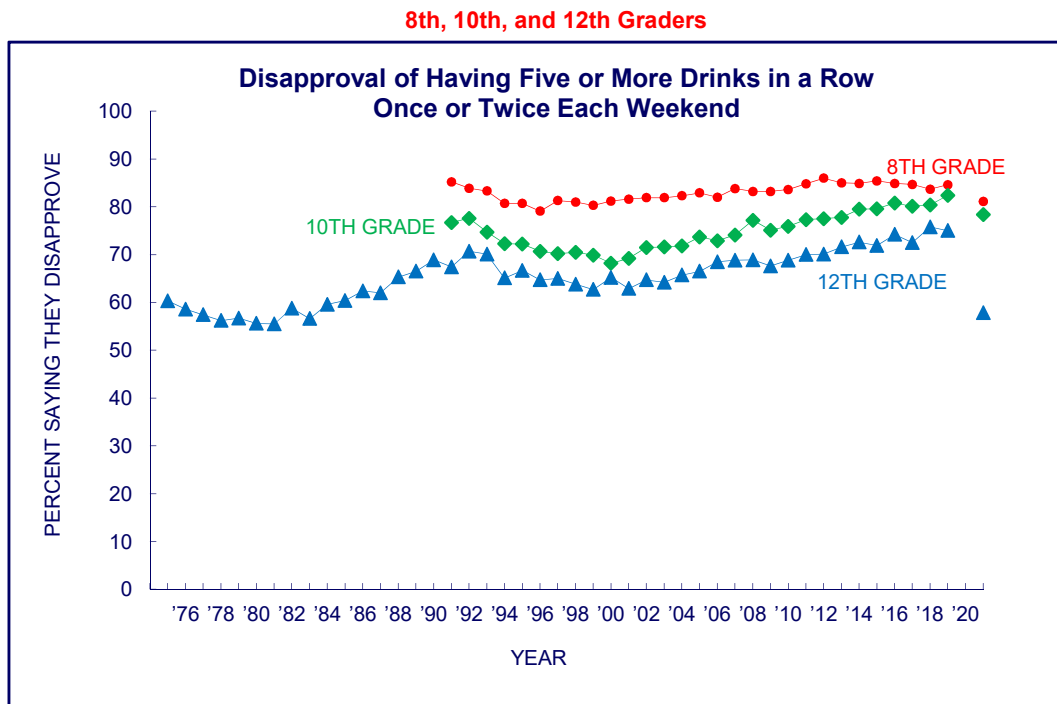
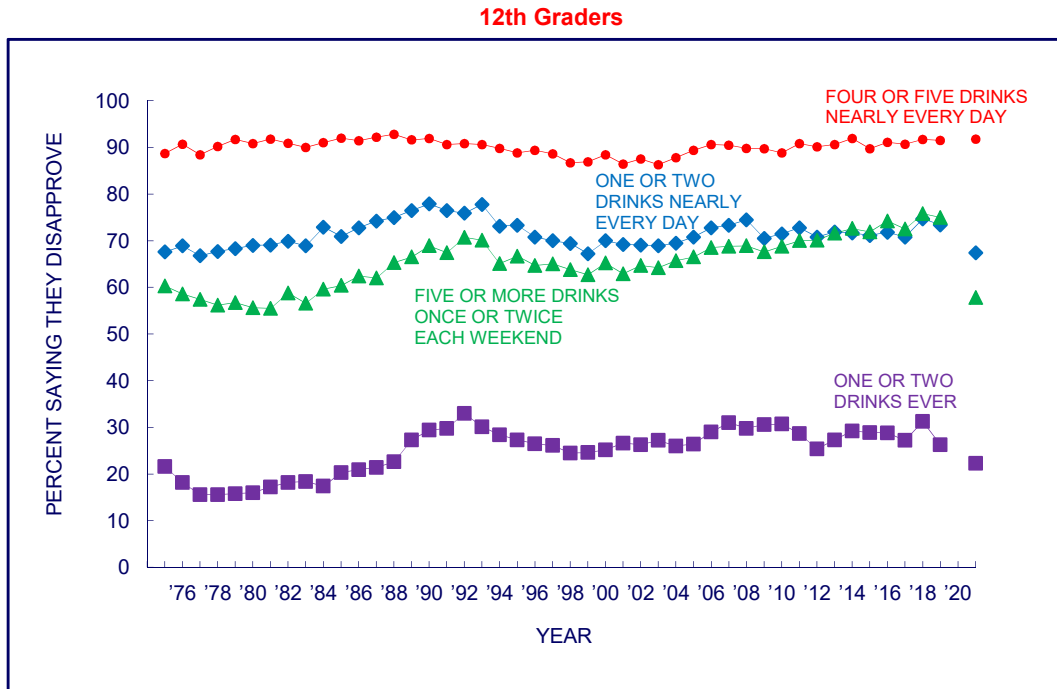
8th, 10th, and 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-11b
ALCOHOL
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12



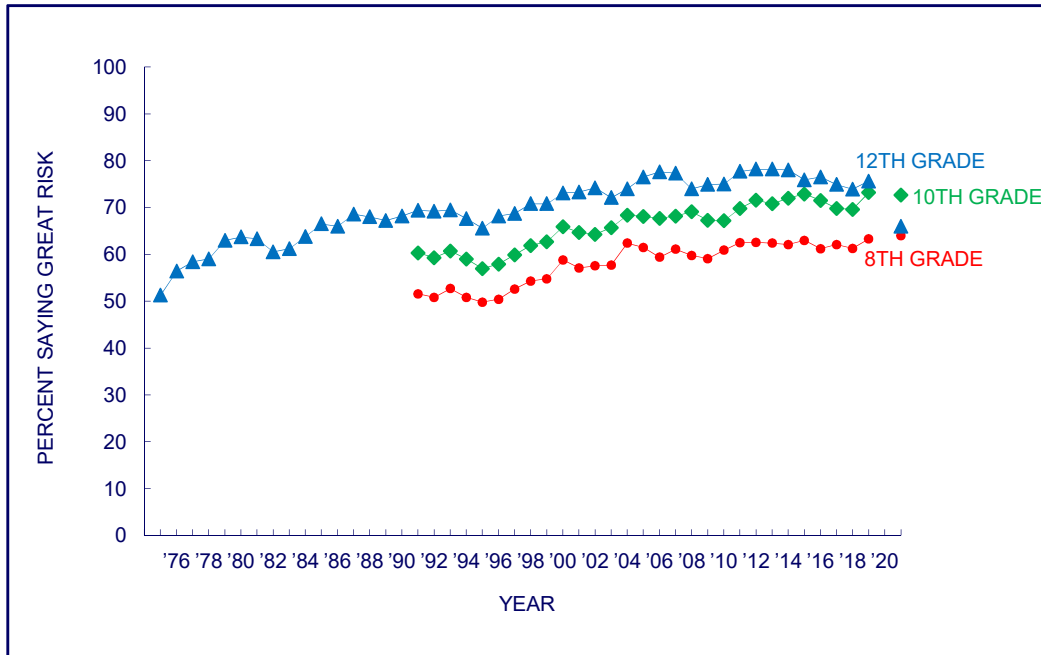
Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-12a

CIGARETTES

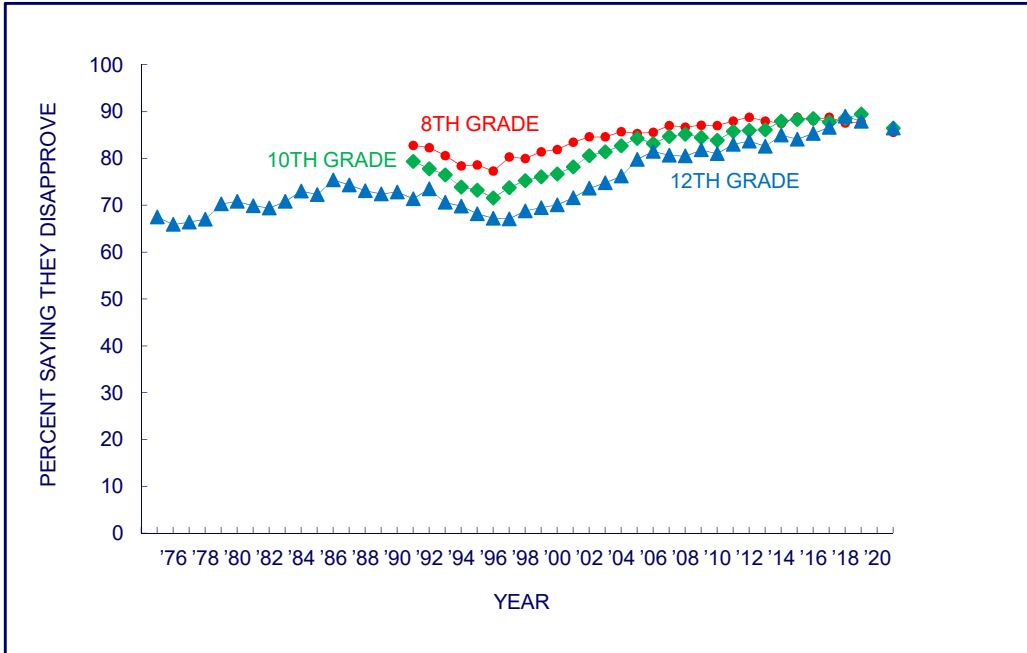
Trends in Perceived Harmfulness of Smoking 1 or More Packs per Day in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

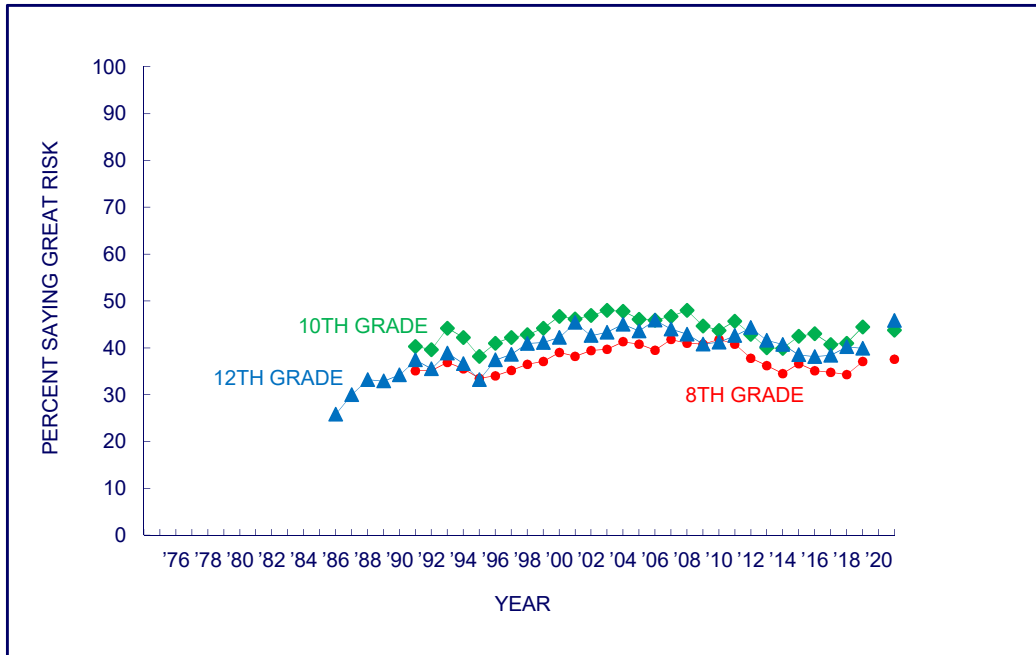
FIGURE 8-12b
CIGARETTES
Trends in Disapproval of Smoking 1 or More Packs per Day
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

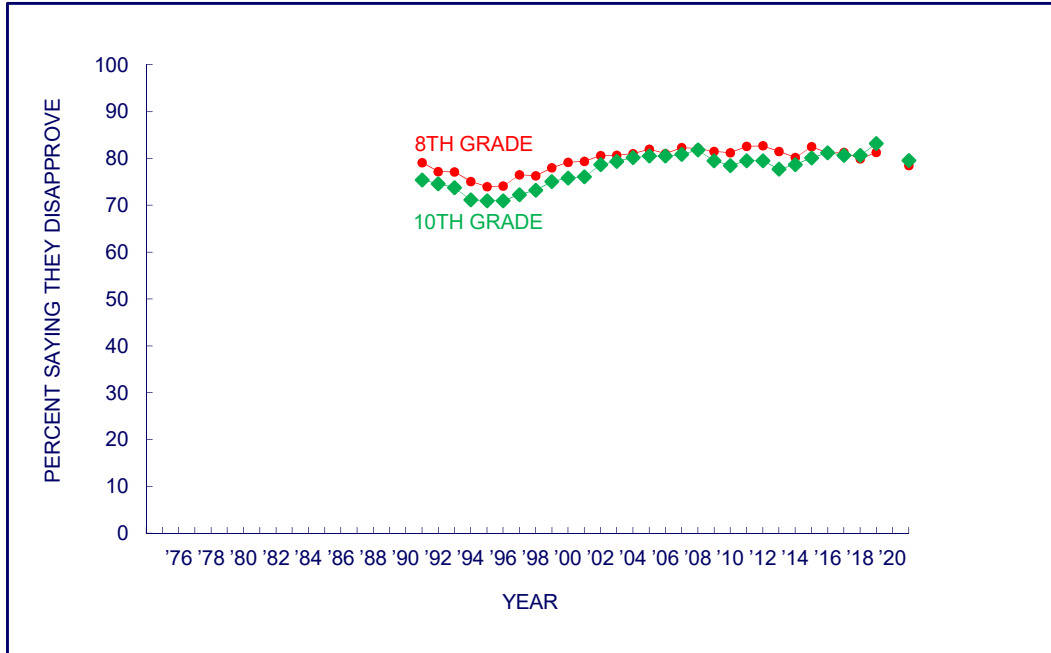
FIGURE 8-13a
SMOKELESS TOBACCO
Trends in Perceived Harmfulness of Regular Use
in Grades 8, 10, and 12



Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 8-13b
SMOKELESS TOBACCO
Trends in Disapproval of Regular Use
in Grades 8 and 10



Source. The Monitoring the Future study, the University of Michigan.

Notes. Data not available for 12th graders.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

Chapter 9

THE SOCIAL CONTEXT

Substance misuse is an individual behavior, but it occurs within a social context. In this chapter we consider some of the forces in the social context that may influence attitudes and beliefs about drugs as well as use. For 8th, 10th, and 12th graders, we report the proportions of their friends who use various drugs and the perceived availability of these drugs. In addition, for 12th graders only, we report measures of perceived parents' and friends' disapproval of drug use, the extent of direct exposure to people using drugs, as well as sources from which respondents say they got prescription drugs.

The 2021 results for attitudes and beliefs may be subject to survey mode effects. For the first time in 2021 MTF administered surveys to 8th, 10th, and 12th graders using a web-based questionnaire. The student experience of completing the survey was similar to, though not exactly the same as, the previous year, in which all students answered the questionnaire in class using internet-connected electronic tablets, which MTF brought to the schools. A main difference in 2021 is that students used their own electronic devices. In addition, students who were schooling remotely took the survey in their homes rather than in their school building. The transition to a web-based survey model in 2021 was a response to the COVID-19 pandemic and allowed MTF to conduct its annual survey among students whose school building had closed.

Because the pandemic came on suddenly and unexpectedly, MTF was not able to conduct a randomized-controlled experiment to evaluate the magnitude of survey mode effects by survey question for the 2021 web-based survey. It is possible that students answered questions on attitudes and beliefs differently for the web-based survey in comparison to how they would have answered on tablets or pencil-and-paper questionnaires. Such survey mode effects were present in the 2019 MTF survey, as indicated by estimates that in some cases significantly differed for the randomly-selected half of students who answered these survey questions by paper-and-pencil in comparison to the randomly-selected half that answered the question with electronic tablets.

In what follows we present 2021 results for attitudes and beliefs and refrain from tests of statistical significance when comparing these results to previous years, for which MTF results may not be directly comparable. We note that our caution in comparing to previous years does not necessarily mean that the results are not comparable, but only that comparability is not known at this point.

PERCEIVED ATTITUDES OF FRIENDS AND PARENTS: 12th GRADERS

Perceptions of Friends' Attitudes

Since the beginning of the study, a set of questions has asked 12th graders to estimate their friends' attitudes about drug use (see Table 9-2). These questions ask, "*How do you think your close friends feel (or would feel) about you [using the specified drug at the specified level]?*" The questions parallel the questions asked of students about their own attitudes, which are discussed in Chapter 8. Disapproval is defined here as the percentage of respondents indicating that their close friends would either "disapprove" or "strongly disapprove" of their using each drug at the specified level. Highlights of the 2021 findings include the following:

- In 2021 the percentage of 12th grade students who believe their close friends would disapprove of them trying marijuana once or twice (45%), or using marijuana occasionally (48%), was less than the majority. A substantially larger percentage of 62% believe their close friends would disapprove of smoking marijuana regularly (Table 9-2). However, the converse is that almost two out of five 12th grade students do not believe their close friends would disapprove of regular marijuana use.
- In 2021, overwhelming majorities of 12th graders reported that their friends would disapprove of their even experimenting with (“trying once or twice”) cocaine (87%). Nearly as many indicated that their friends would disapprove of their trying LSD (76%), or amphetamines (83%). Presumably, if *heroin*, *PCP*, or *crystal methamphetamine (ice)* were on the list, they too would show very high peer disapproval.
- More than eight out of ten (84%) 12th graders in 2021 thought their close friends would disapprove of their smoking a pack or more of cigarettes a day. This is substantially higher than disapproval levels of regular marijuana use.
- The proportion of 2021 12th graders who perceived disapproval from friends for alcohol use varied with level of consumption: 63% for binge drinking on weekends, 75% for consuming one or two drinks nearly every day, and 85% for having four or five drinks nearly every day.

In sum, peer norms among 12th grade students differ considerably for various drugs and also for varying degrees of involvement with those drugs, but overall they tend to be quite conservative. The majority of 12th graders have close friends who they think would disapprove of their using illicit drugs. The one exception is marijuana, for which use by 12th graders has met with less perceived disapproval by close friends in recent years.

Although these questions are not included in the 8th and 10th grade questionnaires, there seems little doubt that these students would report peer norms at least as restrictive as the 12th graders, and quite likely more restrictive ones, based on the cross-grade comparisons in levels of personal disapproval (discussed in Chapter 8). Cigarette smoking might be an exception, because there is less personal disapproval of cigarette smoking at lower grades.

A Comparison of the Attitudes of Parents, Friends, and 12th Graders

Measures of perceived *parental* disapproval of drug use were asked of 12th grade students from 1975 to 1979, were discontinued because high levels of disapproval showed no trending, and were then reintroduced in 2017 to assess possible change during the 39 year hiatus.¹ Today’s parents of 12th graders have more experience with drug use than did parents in the late 1970s, which may have changed their levels of disapproval for marijuana use. Similarly, the growing number of states

¹ The context of the parental disapproval questions on the survey was not the same when they were reintroduced in 2017 and later. In 1975–1979 the questions were preceded by questions on perceived parental attitudes on a host of topics as well as a brief preamble transitioning from these questions to items on parental disapproval of drug use. These preceding survey questions and the preamble were not included in the 2017 and later surveys. The finding that the parental disapproval results for 2017 in comparison to 1975–1979 were higher for some substances and lower for others works against the idea that changes in question context created a general bias that affected responses for all substances.

that are legalizing recreational marijuana use suggests a historical period effect in which population attitudes toward marijuana use across all ages are becoming more lenient.

In 2021 a large majority of 12th grade students reported that their parents would disapprove of their marijuana use (Table 9-1 and Figure 9-1a). In 2021 the proportion of 12th graders who believed their parents disapproved of using marijuana once or twice was 70%, of occasional marijuana use was 76%, and for regular marijuana use was 85%. These levels of perceived disapproval are considerably higher than the perceived disapproval levels of close friends.

Perceived parental disapproval of vaping nicotine regularly was added to the survey in 2019. At a disapproval level of 90% in 2021 and 87% in 2019 it falls within the range seen for other substances. We note that this high perceived parental disapproval level is not enough in itself to prevent teens from vaping, which increased at a record rate from 2017 to 2019.

Almost all twelfth grade students reported that their parents would disapprove of their smoking one or more packs of cigarettes per day (92%) and weekend binge drinking (84%).

A comparison of 12th graders' perceptions of drug use disapproval by their friends versus their parents shows several other relevant findings.

- First, students' perceptions of their *parents'* attitudes shows much less variability than their perceptions of *peer* norms across drugs and across years. As mentioned previously, the great majority of 12th graders in each year indicated that their parents would disapprove of any of the drug behaviors listed. However, *peer* norms varied considerably from drug to drug and also across time, consistent with the variability in the respondents' own attitudes and use. While parental norms did not show much variance, we emphasize that this is quite different from saying that parental attitudes do not matter, or even that they matter less than peer attitudes.
- Despite differences in how students characterized parents' versus friends' disapproval of drug use, the rankings of relative degree of disapproval of specific drugs were similar for the two groups.
- A comparison with 12th graders' own attitudes regarding drug use reveals that, on average, they were much more in accord with peers than parents (see Figures 9-1a through 9-2b). The differences between 12th graders' own disapproval ratings and those attributed to their parents tended to be large, with parents seen as far more conservative overall in relation to *every drug*, licit or illicit despite the fact that today's parents have had considerably more personal experience with drugs than parents from an earlier era. The largest difference between parents and peers occurred in the case of marijuana experimentation, of which only 31% of 12th graders in 2021 said they disapproved, versus 70% who indicated that their parents would disapprove.

Trends in Perceptions of Friends' Attitudes up to 2019

In what follows we present trends in perceptions of friends' attitudes up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have

introduced a survey mode effect and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

A number of important changes in 12th graders' perceptions of peer attitudes have taken place over the life of the study. These shifts are presented graphically in Figures 9-1a through 9-2b along with data on the respondents' own attitudes and perceived parental attitudes.²

- Friends' perceived disapproval for each level of [*marijuana*](#) use—trying once or twice, occasional use, and regular use—has declined considerably since the early 1990s. Peer disapproval of using marijuana once or twice, for example, declined from a high of 73% in 1992 to 41% in 2019. Clearly, social norms regarding marijuana use among adolescents have been relaxing. Or, at least, in recent years adolescents perceive relaxing social norms, a perception that in itself can have an impact on individuals' marijuana attitudes and behaviors.
- In general, throughout the years of the study adolescents' perceptions of disapproval from their peers have tracked closely with their own personal levels of disapproval. This close tracking is consistent with the general principle that peers exert a substantial influence on adolescent attitudes and beliefs. Looking back from the latest years to earlier ones, personal and peers' disapproval both show a decline in recent years, a small overall increase from the late 1990s until the late 2000s, a marked decline during the 1990s relapse, and a substantial increase from the late 1970s to the early 1990s.
- Peer disapproval of [*cocaine*](#) use has been high and has changed little since 1988 (Figure 9-1b). The proportion of 12th graders who report that their friends disapprove of trying cocaine “once or twice” has been 87% or higher since 1988, and the proportion disapproving of “occasional” cocaine use has been above 90% during the same period. Questions on friends' attitudes about cocaine use were added to the study in 1986. Between 1986 and 1992, the proportion of students saying that their close friends would disapprove of their experimenting with cocaine rose from 80% to 92%. This corresponds to an even larger increase in perceived risk and also a precipitous drop in actual use, suggesting that

² Adjusted trend lines have been used for data on friends' attitudes collected before 1980 for the following reason. We discovered that the deletion in 1980 of the parental attitude questions, which were located immediately preceding the questions about friends' attitudes, removed what we judged to be an artefactual depression of the ratings of friends' attitudes, a phenomenon known as a *question-context effect*. This effect was particularly evident in the trend lines dealing with friends' disapproval of alcohol use, where otherwise smooth trend lines for peer disapproval showed abrupt upward shifts in 1980. It appears that when questions about parents' attitudes were present, respondents tended to understate peer disapproval in order to emphasize the *difference* between their parents' attitudes and their peers' attitudes. In the adjusted lines, we have attempted to correct for that artefactual depression in the 1975, 1977, and 1979 scores and provide a more accurate picture of the change that took place then. Note that the question-context effect seems to have had more influence on the questions dealing with cigarettes and alcohol than on those dealing with illicit drugs.

The correction evolved as follows: We assumed that a more accurate estimate of the true change between 1979 and 1980 could be obtained by taking an average of the changes observed in the year prior and the year subsequent, rather than by taking the observed change (which we knew to contain the effect of a change in question context). We thus calculated an *adjusted* 1979–1980 change score by taking an average of one half the 1977–1979 change score (our best estimate of the 1978–1979 change) plus one half the 1980–1981 change score. This estimated change score was then subtracted from the observed change score for 1979–1980, the difference being our estimate of the amount by which peer disapproval of the behavior in question was being understated due to question context prior to 1980. The 1975, 1977, and 1979 observations were then adjusted upward by the amount of that correction factor.

fears of potential harm caused cocaine use to become less acceptable,^{3,4} and low levels of acceptability have persisted over the past three decades. (The perception of friends' disapproval of [crack cocaine](#), first asked about in 1989, closely parallels the findings for cocaine in general, but at slightly higher levels of perceived disapproval.)

- Perceived peer disapproval of trying [LSD](#) once or twice has historically been high and stood at 81% in 2019 (Figure 9-1b). Over the course of the study the level of disapproval has been steady, with the exception of a decline during the 1990s drug relapse, when it dipped down to a nadir of 79% in 1997. It then rebounded, and from 1998 through 2006 perceived peer disapproval increased to 90% while use decreased substantially during that interval. As with most drugs, levels of peer disapproval and personal disapproval track closely over the course of the study.
- As is true for most of the illicit drugs other than marijuana, perceived peer disapproval of trying [amphetamines](#) once or twice has been quite high for the entire life of the study, though there have been some important fluctuations (Figure 9-1c). The level of disapproval in 2019 was 85%, a slight decline since the peak in 2007, when it was 87%. In previous years peer disapproval followed the common pattern of a decline during the 1990s drug relapse and an increase beforehand and afterwards. Once again, peer disapproval and personal disapproval tracked very closely over the life of the study.
- [Alcohol](#) is depicted with three charts in Figure 9-2a: one for daily use, one for 4–5 drinks nearly every day, and one for weekend binge drinking. Perceived peer disapproval differs considerably for these three behavior patterns. In 2019 the perceived proportion of peers who disapproved of [weekend binge drinking](#) reached 71%, near the previous year's high of 72%, and corresponds with historical low levels of self-reported binge drinking in recent years. Perceived disapproval increased to this level from lows of 51% in the early 1980s. This increase was interrupted by a pause and slight decline in levels of disapproval during the 1990s relapse in drug use. Prior to the relapse, during the 1983–1992 period, laws mandating an increase in the drinking age were enacted in a number of states, ad campaigns were launched aimed at deterring drinking and driving, and subsequent ad campaigns encouraged the use of designated drivers. Some divergence occurred when 12th graders' own attitudes became less tolerant while perceived peer norms among friends changed more slowly, suggesting some collective ignorance of the extent to which peers had come to disapprove of weekend binge drinking. In general, binge drinking has been in decline among 12th graders during the period of increased peer disapproval.
- The proportion of 12th grade students who believe that their friends disapprove of [having four or five drinks nearly every day](#) has been above 80% and changed little throughout the course of the study (middle panel of Figure 9-2a). Perceived peer disapproval of having [one or two drinks nearly every day](#) (top panel of Figure 9-2a) was at 76% in 2019, which is close to the record high of 79% set in 1990.

³ Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). [Explaining the recent decline in cocaine use among young adults: Further evidence that perceived risks and disapproval lead to reduced drug use](#). *Journal of Health and Social Behavior*, 31, 173–184.

⁴ Johnston, L. D. (1991). [Toward a theory of drug epidemics](#). In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–132). Hillsdale, NJ: Lawrence Erlbaum.

- Perceived peer disapproval of *regular cigarette smoking* reached a historic high in 2019. The proportion of 12th graders saying that their friends would disapprove of their smoking a pack or more daily was 89%, which is the highest level recorded by the survey. These high levels of disapproval coincide with self-reported smoking reaching a historical low. In general, peer disapproval of regular cigarette smoking has steadily increased over the course of the study from a low of 64% in 1975, with an exception of a slight decline during the 1990s relapse. Clearly, smoking became a less acceptable behavior among young people over the life of the study, particularly since 1996, and this corresponds to a period of a very considerable decline in adolescent smoking as is documented in Chapter 5.

Methodological Implications

The very close tracking of *self-reported disapproval* with *reported friends' disapproval*—across all of the drugs about which both in the aggregate survey questions are asked of 12th graders—suggests that self-reported disapproval in the aggregate gives a very good approximation of perceived peer norms (see Figures 9-1a through 9-2b). (If the two measures had failed to track closely, we might have thought that individuals were not correctly reading the norms among their peers.) This finding is valuable for two reasons: first, it may not be necessary for both to be measured in most surveys (and for that reason we did not include perceptions of peer attitudes in the questionnaires developed for 8th and 10th graders); second, the self-reported disapproval provided by the 8th and 10th graders in this study should serve quite well in the aggregate to reflect perceived peer norms at those grade levels.

FRIENDS' USE OF DRUGS

It is generally acknowledged that peer influences are among the most powerful mechanisms of substance use initiation during adolescence. Much youthful drug use is initiated through a peer social-learning process, and research, including our own, has shown a high correlation between an individual's illicit drug use and that of his or her friends. Such a correlation can—and probably does—reflect several causal patterns: (a) a person with friends who use a drug will be more likely to try the drug; (b) conversely, the individual who is already using a drug will be more likely to introduce friends to the experience; and (c) users are more likely to establish friendships with other people who use (and likewise, nonusers are more likely to form friendships with other nonusers).

Given the importance of exposure to drug use by others, it is useful to monitor students' associations with others taking drugs, as well as their perceptions about the extent to which their friends use drugs. For 12th graders, two sets of questions—each in a different questionnaire form and together covering nearly all categories of drug use addressed in this report—ask students to indicate for each drug (a) how often during the last 12 months they were around people taking that drug to get high (Table 9-3) and, separately, (b) what proportion of their own friends use each drug (Table 9-6).

As would be expected, respondents' answers to these two questions tend to be consistent with the respondents' self-reported drug use. For example, 12th graders who have recently used marijuana are much more likely to report that they have often been around others getting high on marijuana and separately state that most or all of their friends use (see Figure 9-3c). The strong

correspondence between reports of self-use and reports of friends' use is observed across nearly all drugs (see Figure 9-3a through 9-3t), with the exception of a divergence between these two reports for narcotics other than heroin (Figure 9-3l) after 2001. This exception likely results from a question change in which the survey updated examples of these drugs for the questions on self-report, but unfortunately did not update the examples for the questions on friends' use. A subsequent question change in 2010 to make the examples consistent with those used in the self-report question likely accounts for the re-convergence.

For 8th and 10th graders, questions on the proportion of friends using the various drugs were included in the questionnaires from the beginning of the 8th and 10th grade surveys in 1991 (Tables 9-3 and 9-4); the results are discussed below in a separate section. However, in the interest of saving questionnaire space, and because the information about exposure and proportion of friends who use are highly consistent, questions on direct exposure were not included for 8th and 10th graders.

Exposure to Drug Use by Friends and Others: 12th Graders, 2021

A comparison of the aggregated responses about (a) friends' use and (b) being around people in the prior 12 months who were using various drugs to get high reveals a high degree of correspondence between these two indicators of exposure, even though these two questions appear in separate questionnaire forms and therefore have a different set of respondents. For each drug, the proportion of respondents saying none of their friends use is fairly close to the proportion reporting that during the prior 12 months they have not been around anyone who was using that drug to get high. Similarly, the proportion reporting that most or all of their friends use a given drug bears a rough similarity to the proportion saying they have often been around people getting high on that drug.

- It is no surprise that the highest levels of exposure involved *alcohol*; over a quarter (27%) of the 2021 12th graders said they have often been around people using it to get high (Figure 9-4, Table 9-3). What may come as a surprise is that 8%, or one out of twelve, of all 12th graders said that most or all of their friends *get drunk* at least once a week (Table 9-6).
- After alcohol use, students are exposed next most frequently to *marijuana* use and any illicit drug use (which is driven in large part by marijuana use). Only about 36% of the 2021 12th graders reported “not at all” having been around people using marijuana during the prior year or people using any illicit drug (Figure 9-4, Table 9-3).
- Any illicit drug other than marijuana, hallucinogens other than LSD, amphetamines, and LSD rank next in exposure and are all in double digits, with 25%, 13%, 12% and 11%, respectively, of 12th graders reporting some exposure to use in the prior year (Table 9-3). The proportions who said they have at least some friends who use are 34% for any illicit drug other than marijuana, 18% for hallucinogens other than LSD, 15% for amphetamines, and 18% for hallucinogens other than LSD (Table 9-6).
- For the remaining illicit drugs, any exposure to use in the past year ranged from 8% for *tranquilizers* and *cocaine*, down to 3% for *heroin* in 2021 (Table 9-3).

- Only 1.1% of 12th graders reported that *most or all* of their friends smoked cigarettes in 2021, but 38% reported having at least *some* friends who smoked.

Friends' Use of Drugs: 8th and 10th Graders, 2021

While the questions about exposure to use were not included in the 8th and 10th grade questionnaires, questions about friends' use were included.

- As would be expected, with few exceptions 10th graders are less likely than 12th graders to have friends who use drugs, and 8th graders are less likely still (see Tables 9-4, 9-5, and 9-6). For example, 24% of 8th graders in 2021 said that they have any friends who use marijuana, compared with 45% of 10th graders and 64% of 12th graders. Still, that means that a quarter of 8th graders—most of whom are 13 or 14 years old—already have some friends who use marijuana.
- Inhalants are one important exception to the typical developmental trend. Consistent with our finding that current inhalant use is more prevalent in 8th grade than in 10th or 12th grades, 12% of 8th graders said they have some friends who use inhalants versus 9% of 10th graders and 4% of 12th graders in 2021.
- Exposure to alcohol use by friends is widespread even at these younger ages, with 37% of 8th graders and 57% of 10th graders reporting having friends who use alcohol. In fact, 6% of 8th graders and 15% of 10th graders said that most or all of their friends drink, and the proportions saying that most or all of their friends get drunk at least once a week are 2% in 8th grade and 6% in 10th grade, compared to 8% in 12th grade.
- Exposure to cigarette smoking by friends is also very high for these young people, with about one out of five (19%) of 8th graders and just under a quarter (23%) of 10th graders saying they have at least some friends who smoke cigarettes. (These percentages are high, but the percentage who say they have at least some friends who use marijuana are even higher.)
- Smaller proportions have friends who use smokeless tobacco: 11% of 8th graders and 17% of 10th graders in 2021.

In sum, today's U.S. adolescents—even those in middle school—have high degrees of exposure to illicit drug use among their peers, whether or not they use illicit drugs themselves. They also have high levels of exposure to vaping, cigarette smoking, drinking, and drunkenness.

TRENDS IN EXPOSURE TO DRUG USE AND FRIENDS' USE OF DRUGS THROUGH 2019

In what follows we present trends in exposure to drug use and friends' use up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced a survey mode effect and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample

size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

The extent of exposure to licit and illicit drug use among US adolescents has seen important changes over the past 45 years. Table 9-3 presents long-term trends in reported exposure to the use of various drugs by 12th graders, and Tables 9-4, 9-5, and 9-6 present trends in reported friends' use of the various drugs for each of the three grades. Figures 9-3a to 9-3t present graphs of these trends so that long-term patterns are more readily discernible.

Trends in Exposure to Drug Use by Friends and Others up to 2019: 12th Graders

In general, for almost all drugs, exposure to people using drugs moves concurrently with levels of actual use and does not precede it. These results indicate that measures of exposure and friends' use serve as additional indicators of drug use, but generally do not serve as leading predictors of actual use.

Specific Drugs

- In 2019 the proportion of 12th graders who report that they have *often been around people* who were using [marijuana](#) to get high during the past year (32%) is between the limits set by the high point in 1978 near the beginning of the study (39%) and the nadir set at the start of the 1990s drug relapse (16%, see Figure 9-3c). This measure trends closely with personal use. In the long run, both measures together experienced the same ups and downs over the course of the study: they increased at the start of the MTF study in the late 1970s, declined for more than a decade starting in the 1980s, increased rapidly during the 1990s drug relapse, and increased during the late 2000s.
- In 2019 the proportion of 12th grade students who report that *most or all of their friends* use [marijuana](#) (25%) is about midway between the high set in 1979 (36%) and the nadir set at the start of the 1990s drug relapse (10%, see Figure 9-3c).

Reported level of friends' use and of their personal use have moved together in the long run: both of them increased at the start of the study in the late 1970s, declined for more than a decade starting in the 1980s, increased rapidly during the 1990s drug relapse, and increased during the late 2000s.

- In 2019, the proportion of 12th graders who reported that they were often around people who used [cocaine](#) in the last year stood at 2.4% (Table 9-3 and Figure 9-3h). Together, both levels of friends' use and levels of personal use have shown an overall decline during the late 2000s, increased during the 1990s drug relapse, dropped substantially from the mid-1980s to the start of the 1990s, reached record highs in the early 1980s, and increased during the late 1970s. As seen in marijuana use, reports of friends' use move together with levels of actual use and do not consistently precede it.
- The proportions of 12th grade students who report that most or all of their friends use [cocaine](#) have been at 2% or lower for the past decade (Figure 9-3h). Reported levels of friends' use and levels of own personal use track closely with trends in personal levels of use but do not precede it.

- The proportions of 12th graders who report that they have often been around people using [amphetamines](#) to get high in the past year have ranged between 3% and 6% for the past two decades (Table 9-3). This narrow range has persisted even after a 2011 change in the question wording that added Adderall and Ritalin to the list of example amphetamines and doubled the estimated prevalence. Before 2011 this measure had been decreasing overall after reaching a peak of 6.3% in 1999, and levels of personal use decreased as well during this period. Both exposure and personal use declined by more than half from peak highs in the early 1980s through 1992. Both increased substantially from the beginning of the study to the early 1980s.⁵

The same parallel trends are also evident in reported friends' use of amphetamines and actual levels of own use, although friends' use of amphetamines shows less variation than exposure to amphetamine use (Figure 9-3m).

- The proportion of 12th grade students reporting that most or all of their friends use [MDMA](#) (ecstasy or more recently Molly, as well) has been under 3% for the past decade (Figure 9-3g). Although we did not ask students about their own use of MDMA until 1996, we did ask about friends' use beginning in 1990. Prevalence of both this measure and actual use is low, and as a result the estimates are somewhat noisy. Nevertheless, both showed a substantial spike between 1999 and 2001 and a substantial decline for the following five years. (Questions on exposure to people using MDMA are not included on the survey.)
- The proportion of 12th graders who report that most or all of their friends use [cigarettes](#) reached a historic low in 2019 at 4.7% (Figure 9-3s). In addition, the proportion who reported that any of their friends smoked cigarettes declined significantly by 6.4 points to 44%, also a historic low. Both have shown steady and dramatic declines and are currently less than one half of their 1997 levels. As these measures have declined so too has self-reported prevalence of cigarette smoking. Before 1997 these measures had increased during the 1990s drug relapse. (The survey does not include questions on exposure in the past year to people who have smoked, in part because exposure questions are about drug use to "get high," which is less relevant for cigarette use.)
- The proportion of 12th grade students who report any [alcohol](#) use in the prior 30 days tracks very closely the proportion saying that most or all of their friends use alcohol (Figure 9-3q). The proportion saying they were often around people who used alcohol to get high in the past year was 35% in 2019, near the historic low of 34% set in 2018. This measure trended with reports of their own *binge drinking* as both have declined over the life of the study.
- The percentage of 12th graders who reported that most or all of their friends got [drunk](#) at least once a week was at a historic low of 11% in 2019 (Figure 9-3r). This measure has

⁵ This finding was important because it indicated that a substantial part of the increase observed in self-reported amphetamine use was due to influences other than simply an increase in the use of over-the-counter diet pills or stay-awake pills, which presumably are not used to get high. Obviously, more young people were using stimulants for recreational purposes. Of course, the question still remains of whether the active ingredients in those stimulants really were amphetamines.

declined with levels of actual binge drinking since the early 2000s. In prior years, the prevalence of self-reported binge drinking was higher than the reported percentage of friends who got drunk once a week. Since the mid-1980s the prevalence of binge drinking declined at a faster rate; its level converged with the friends' measure around 1990, and the two have moved largely in parallel ever since.

- Among the most concerning findings here is that in 2019, about 11% of 12th graders reported that most or all of their friends got drunk at least once a week; although high, this level is the study's lowest ever (Figure 9-3r; the highest percentage was 33% in 2001). Almost half (46%) say that *none* of their friends get drunk at least once a week—a historic high level on this measure for the study as of 2019.

Implications for validity of self-reported usage questions. We have noted a high degree of concurrence in the aggregate-level data presented in this report among 12th graders' self-reports of their own drug use, their friends' use, and their own exposure to such use. Drug-to-drug comparisons in any given year across these three measures tend to be highly parallel, as are the changes from year to year.⁶ We take this consistency as additional evidence of the validity of the self-report data (and also of the trends in the self-report data), because respondents should have little reason to distort answers about use by unidentified friends or their general exposure to use. The degree of cross-time trending for 12th graders is very high between the proportion saying they personally used drugs and both (a) the proportion reporting exposure to others using drugs and (b) the proportion reporting that most or all of their friends used drugs. *We believe that this close correspondence provides persuasive evidence that the changing social acceptability of drug use has not affected the truthfulness of self-reports of use.*

Trends in Friends' Drug Use: 8th and 10th Graders through 2019

As with 12th graders, data on friends' use among 8th and 10th graders (available since those grades were added to the study in 1991) show trends that are highly consistent with trends in self-reported use. Questions on friends' use are included in all 8th and 10th grade questionnaire forms through 1998 and on three of the four forms beginning in 1999, providing very large sample sizes. Selected trend results for these questions are discussed below, with comparisons to 12th graders when salient, and are presented in Tables 9-4 through 9-6.

- The proportions of 8th and 10th grade students reporting that most or all of their friends use **marijuana** did not decline in the years leading up to 2019. Among 8th graders it had been between 8% and 9% from 2016–2019. Among 10th grade students it trended upward from 21% in 2015 to 25% in 2019, which is a significant linear trend ($p < .05$). Over the past 29 years these measures have trended in parallel with major changes in personal levels of use. All measures increased substantially during the 1990s relapse, retreated from peak levels established in 1996-1997 at the end of the 1990s, and increased during the late 2000s.
- The proportions reporting having any friends who use **inhalants** was at or near record lows for 8th and 10th graders in 2019. Among 8th grade students 16% responded that at least one

⁶ Those minor instances of noncorrespondence may well result from the larger sampling errors in our estimates of these environmental variables, which are measured on a sample size one fifth or one-sixth the size of the self-reported usage measures. They may also result, of course, from a lag between a change in the reality and students' recognition of that change.

friend used inhalants, a level that is close to the record low of 15% recorded in 2017 and 2016. Among 10th grade students 10% responded that at least one friend used inhalants, a record low. These low levels correspond with personal use, which is also at or near record lows in these grades. In both grades, reported levels of having any friends who use have trended with own levels of use to the extent that both increased during the 1990s relapse with a peak in 1996–1997 and have overall declined since then, with some small pauses and temporary increases along the way.

- Reports that most friends got drunk at least once a week were at historic lows in 8th and 10th grades in 2019, at 3% and 8%, respectively (Tables 9-4 and 9-5). These reports correspond with the prevalence of self-reported drunkenness in these grades, which also are near historic lows. All four measures have trended together over the course of the study, with increases during the 1990s relapse and a substantial decline since then. Room remains for continued progress, as 27% of 8th graders and 50% of 10th graders report that they have at least one friend who gets drunk at least once a week.
- The proportions of 8th grade students who reported that most or all of their friends smoke cigarettes was near a historic low of 1.8% in 2019, and in 10th grade it was 3.2% which is the record low. These low levels accompany historic lows in personal levels of smoking in the past 30 days. All four measures have trended together very closely, with all four increasing during the 1990s and reaching a peak in 1996, thereafter steadily decreasing to reach the lows achieved in recent years.

SOURCES OF CERTAIN PRESCRIPTION DRUGS USED WITHOUT MEDICAL SUPERVISION

The misuse of prescription drugs—that is, their use outside of a doctor’s orders—reemerged as a problem in the 1990s and into the 2000s, as is documented in Chapter 5. It was previously an issue in the late 1970s and early 1980s. To understand the sources of such drugs, in 2007 we added a set of questions to one of the six randomly distributed 12th grade questionnaire forms asking about how the users got these drugs. Respondents who indicated that in the prior 12 months they used tranquilizers, for example, were branched to a set of more detailed questions about their tranquilizer use. One of those new questions asked them to indicate where they got the tranquilizers by marking all sources that apply out of a pre-specified set of answers. Similar measures were introduced for narcotics other than heroin (most of which are analgesics) and amphetamines. (Sources of sedatives (barbiturates) were not asked.)

Table 9-10 and Figure 9-6 provide the information on sources of prescription drugs. The years 2009–2018 and 2019–2021 are combined in order to increase sample size and provide more stable estimates. Note that for the 2019 and 2021 combined data the weighted numbers of cases range between 51 and 83 for each of the drugs presented. For the 2009 through 2017 combined detailed data, the weighted numbers of cases range from 768 to 1081. Hence, the confidence intervals around the estimates are fairly wide.

One interesting finding is that the distribution of sources is similar for the three different types of psychotherapeutic drugs. “Given for free by a friend” and “bought from a friend” are two of the most common methods for obtaining amphetamines and tranquilizers and are considerably more

frequently mentioned than “given for free by a relative” or “bought from a relative.” Clearly the informal peer network is a major source of these drugs for adolescents, a far more common source than any family network.

“From a prescription I had” is a relatively common source for narcotic drugs and amphetamines, at 30% and 32%, respectively. It is relatively less prevalent for tranquilizers at 19%. The fact that a significant proportion of students who misuse prescription drugs are using leftovers from previous prescriptions has implications for the prescription practices of physicians and dentists. They might be well advised to lower the number of doses of these drugs provided in the initial prescription. It seems likely that such a change in practice could reduce diversion to non-medically supervised use.

Amphetamines and tranquilizers are more likely to be bought from a drug dealer or stranger, at 25% and 21%, respectively, than are narcotics other than heroin (15%).

Purchasing drugs online grew in prevalence from 2009–18 to 2019–21. For amphetamines the percentage of 12th grade students who reported this way of procuring amphetamines grew from 6% to 8%, for tranquilizers from 4% to 10%, and for narcotics other than heroin from 2% to 9%.

PERCEIVED AVAILABILITY OF DRUGS

One set of questions in the MTF surveys asks respondents how difficult they think it would be to obtain each of a number of different drugs if they wanted some. The answers range across five categories from “probably impossible” to “very easy.”⁷ We use the term “perceived availability” in discussing the responses to these questions because it is the respondent’s perception that is being measured. We recognize that availability is multidimensional, and respondents may consider a variety of factors in their answers, including knowing where to get access, the difficulty of getting to an access location, and possibly even the monetary cost. We suspect, however, that for most respondents, what we are measuring is perceived access, with little or no consideration of monetary cost.

While no systematic effort has been undertaken to directly assess the validity of these measures (because such an assessment would involve actual attempts to obtain drugs), we believe the measures do have a rather high level of face validity, particularly because it is the subjective reality of perceived availability being measured. It also seems quite reasonable to assume that, to a considerable extent, perceived availability tracks actual availability. In addition, differences across drugs in reported availability generally correspond to differences in reported prevalence of use, providing further evidence of their validity.

Perceived Availability of Drugs: All Grades

- Substantial differences were found in perceived availability of the various drugs (Tables 9-7 to 9-9). The percentage of 12th graders reporting it would be fairly easy or easy to get a drug varied from 10% or less for [heroin](#), crack, and crystal methamphetamines to 70% and above for [alcohol](#), [vaping devices](#), and marijuana.

⁷ In the 8th and 10th grade questionnaires, an additional answer category of “can’t say, drug unfamiliar” is offered; respondents who chose this answer are included in the calculation of percentages. Generally, fewer than 20% of respondents selected this answer.

- In general, the more widely used drugs are reported to be available by higher proportions of the age group, as would be expected. The substances with the highest levels of use in 2021, such as marijuana, alcohol, and vaping devices, also place in the top three in terms of perceived availability.
- Older adolescents generally perceive drugs to be more available. For example, in 2021, 27% of 8th graders said [marijuana](#) would be fairly easy or very easy to get (which we refer to as “readily available”), versus 48% of 10th graders and 70% of 12th graders.
- Higher availability among both the more widely used drugs and also older age groups is consistent with the notion that availability is largely attained through friendship circles. (Friends clearly are the leading source through which 12th graders obtain prescription drugs, as discussed above.) The differences among age groups may also reflect less willingness and/or motivation on the part of those who deal drugs to establish contact with younger adolescents.
- [Marijuana](#) appears to be readily available to the great majority of 12th graders; in 2021, 70% reported that they think it would be very easy or fairly easy to get—far higher than the proportion who reported ever having used it (39%). Marijuana has the highest availability level of all illicit substances in 12th grade.
- There is a considerable drop in availability after marijuana, alcohol, cigarettes, and vaping; the next most readily available class of drugs for 12th graders is hallucinogens other than LSD, with 31% saying these drugs would be very or fairly easy to get, followed by amphetamines (29%).
- Substances with the lowest availability among 12th grade students in 2021 are crystal methamphetamines (8%), heroin (10%), crack (10%), cocaine powder (11%), and steroids (13%).
- In each grade similar percentages of students reported they could fairly or very easily get a vaping device, e-liquids with nicotine, or flavored vaping solutions. In 8th grade the percentage were, respectively, 38%, 35%, and 39%. In 10th grade they were 55%, 49%, and 47%. In 12th grade they were 72%, 68%, and 68%.
- In 8th grade the percentage who reported they could fairly or very easily get a [vaping device](#) was 38% and for [e-liquids with nicotine](#) it was 35%. The respective availability levels in 10th grade were 55% and 49%, and in 12th grade they were 72% and 68%.
- The availability of a [JUUL](#) vaping device was asked for the first time of 8th and 10th grade students in 2019. Levels of availability were nearly identical for the more general category of a “vaping device.” In 2021, 8th grade the availability of JUUL as compared to a vaping device was 44% and 38%, respectively, and in 10th grade it was 56% and 55%, respectively. In both grades JUUL and vaping devices had higher perceived availability levels than cigarettes.

- In 2021, 38% of 8th graders, 48% of 10th graders, and 58% of 12th graders thought that [cigarettes](#) would be fairly easy or very easy for them to get if they wanted some.
- Alcohol has the highest level of availability in each grade. The percentage saying it would be fairly easy or very easy to get in 8th grade was 48%, in 10th grade was 60%, and in 12th grade was 77%.
- Drug availability levels are lowest in 8th grade. Even so, [marijuana](#) was reported as readily available by 27% of 8th graders in 2021.
- Because many *inhalants*—such as glues, butane, and aerosols—are universally available, we do not ask about their availability. See Table 9-9 for the full list of drugs included in the questions for 12th graders; a few of these drugs were not asked of the younger students (see Tables 9-7 and 9-8).

Trends in Perceived Availability for All Grades through 2019

Below we present trends in perceived availability up to 2019. We do not include 2021 results in the trend analyses because the transition to a web-based survey in 2021 may have introduced a survey mode effect and results may not be comparable. We do not include 2020 results because of insufficient sample size; in 2020 the three-quarters reduction in sample size as a result of the COVID-19 pandemic considerably reduced the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students.

Trend data on availability for all grades are presented in Tables 9-7 to 9-9 and are graphed for 12th grade students in Figures 9-5a through 9-5d. A glance at the four figures will show some substantial fluctuations in the perceived availability of most drugs over the historical interval covered by the study. Indeed, most drugs have shown a considerably decline in availability since the mid to late 1990s.

- [Marijuana](#) has been the most consistently available illicit drug and has shown only small variations over the years (see Figure 9-5a). What is most noteworthy is how little change has occurred in the proportion of 12th graders who say that marijuana is fairly or very easy to get. By this measure, marijuana has been readily available to the great majority of American 12th graders (from 80% to 90%) since 1975.

While variability has been small over the course of the survey, perceived availability of marijuana is at or near historic lows in each grade. In 2019 in 8th grade it was 35% (tied with 2016, 2017, and 2018 for a historic low), in 10th grade it was 66% (the third lowest level recorded by the survey, just above the 2016 low), and in 12th grade it was at 78% (the lowest level ever recorded by the survey). This decline in perceived availability is somewhat counter-intuitive and unexpected, given the widespread adoption of medical marijuana laws and recent legalizing of recreational marijuana use for adults in several states.

- [Vaping devices](#) and [e-liquids with nicotine for vaping](#) were added to the survey in 2017 and have the second and third highest levels of availability of all substances assessed (behind alcohol). This availability has been increasing; from 2017 to 2019 the availability of vaping devices increased from 78% to 83%, and for e-liquids with nicotine from 75% to 82%, which includes a significant increase of 4.5 percentage points for e-liquids in 2019. Part of the increase in availability of vaping products is due to the increasing prevalence of teen vaping; as vaping prevalence increases students have a wider body of peer associates who can provide them with vaping products.
- Although availability of [alcohol](#) among 12th grade students in 2019 was at its lowest level recorded since first measured in 1999, at 84% it is still very high (Figure 9-5a).

More substantial changes in the availability of alcohol have taken place among 8th and 10th graders. For 8th graders availability declined from 76% in 1992 to 53% in 2019. For 10th graders availability is down from the peak level of 90% in 1996 to 69% in 2019. This may reflect some success in state and local efforts to reduce access by those who are under age, as well as a decline in number of friends who use alcohol. It is worth noting, however, that even after these declines, alcohol clearly remains available to the majority of teens.

[Alcohol](#) has long been the substance with the highest level of availability. It has been at 84% or higher up to 2019 in all years since its addition to the 12th grade survey in 1999. Over the past decade it has declined somewhat from 92% in 2009 to 84% in 2019.

- The perceived availability of [cigarettes](#) continued a long-term decline in 8th and 10th grade to historic low levels (Tables 9-7 and 9-8). After holding fairly steady at very high levels for some years, perceived availability reported by 8th and 10th graders began to decline modestly after 1996, very likely as a result of increased enforcement of laws prohibiting sale to minors under the Synar Amendment and FDA regulations. The proportion of 8th graders saying that they could get cigarettes fairly or very easily fell from 77% in 1996 to 56% in 2010, and was at 43% in 2019 (Table 9-7). Over the same interval, the decline among 10th graders was from 91% in 1996 to 58% in 2019 (Table 9-8). These are encouraging changes and suggest that federal and local efforts to reduce accessibility to adolescents—particularly younger adolescents—seem to be working.

In 12th grade the availability of cigarettes also decreased in 2019, although in this grade trend data are only available starting in 2017. In 2019, 75% of 12th grade students reported ready availability of cigarettes, down from 78% in 2017 (Table 9-9). Availability may decline considerably in the coming years as a result of federal [legislation](#) signed into law on December 20, 2019 that makes it illegal for a retailer to sell any tobacco product to anyone under 21 years of age. The cigarette availability measures of 2017–2019 serve as a good “before” measure for future evaluations of the impact of this new law.

- The percentage of students who reported in 2019 that it would be fairly or very easy to obtain [amphetamines](#) has declined over the course of the study and was near historic lows in each grade, at 39% in 12th grade (the record low was in 2017 at 38%), 23% in 10th grade (tied with 2016 and 2018 for the historic low), and 13% in 8th grade (the record low was in

2017 at 11%, Figure 9-5a and Tables 9-6 to 9-8). These lows come despite a question change in 2011 that added Adderall and Ritalin to the list of examples, which slightly increased availability reports in that year and thereafter. In all grades the decline in availability has been consistent over the course of the study with the following exceptions: an increase in the late 1970s among 12th graders, possibly due to the advent of the “look-alike” drugs during that period (in these early years 8th and 10th graders were not surveyed), and an increase during the 1990s drug relapse in 10th and 12th grades along with a pause in the decline among 8th graders.

- Perceptions of the availability of sedatives (barbiturates) (Tables 9-7 to 9-9 and Figure 9-5b) were at or near the lowest levels recorded by the study in all grades in 2019. Among 12th graders the long, declining trend in availability over the course of the study was interrupted twice, once in 1981 when look-alikes were common, and again in 2004 when the question was updated with new examples of sedatives added to the question (see footnote in Figure 9-5b). Overall, over the course of the study availability declined by nearly two-thirds for 12th graders, from 68% in 1975 to 24% in 2019 (keeping in mind that the question change in 2004 led to a jump in the availability measure in that year and thereafter).

In 8th and 10th grades, availability of sedatives (barbiturates) has declined overall since first measured in 1992. In 8th grade this decline has been steady, while in 10th grade it was interrupted with a slight, short-lived increase during the 1990s drug relapse. In 2019 the percentage of students who reported it would be “fairly” or “very” easy to get sedatives was 9% in 8th grade (down from 27% in 1992), and in 10th grade it was 15% (down from 38% in 1992).

- Trends in the availability of crack cocaine and cocaine powder varied by grade (Figure 9-5a and Tables 9-7 to 9-9). Among 12th graders availability in 2019 was 17% and 20%, respectively, which are the lowest levels recorded by the study up to 2019. Earlier trends in availability resemble an inverted ‘U’. Availability of cocaine increased as use increased through the 1980s, and availability reached a study high of 59% in 1989, the same year study highs were also recorded for availability of the more specific measures of powder cocaine and crack. Importantly, this peak in availability occurred after cocaine use peaked in 1985, after which use began to decline sharply. Because perceived availability increased between 1986 and 1989, we are inclined to discount reduction in supply as an explanation for the significant and important decline in cocaine use observed during that period. As discussed in Chapter 8, the sharp increase in perceived risk for cocaine seems the more compelling explanation. After 1989, availability of cocaine declined steadily, with an exception of a slight rise during the 1990s drug relapse.

In 8th and 10th grades, levels of availability of these substances in 2019 were at or near historic lows and continued a steady decline that began ten years earlier. In 2019 the percentage reporting that it would be “fairly” or “very” easy to get cocaine powder or crack in 8th grade was 10% for cocaine powder and 9% for crack (down from a high of 28% in the mid-1990s), and in 10th grade was 15% for powdered cocaine and 14% for crack (down

from a high of 37% in the late 1990s). In these grades, levels of use of both these drugs have declined by more than half since the late 1990s.

- The availability of [*tranquilizers*](#) in 8th grade in 2019 continued an increase that began in 2014. The percentage reporting ready availability increased to 12.7% from 9.8% in 2014. In 10th grade an increase since 2014 paused in 2019, when availability fell 1.6 points to 23%. The overall increases in 2014 in the lower grades mark a reversal of a long-term decline that has occurred over the course of the study. At least as of 2019 the increased availability has not been accompanied by any immediate, significant increase in use, but the uptick in availability is a concern and warrants close monitoring in the future.

In 12th grade availability of tranquilizers has hovered between 13% and 15% from 2012 to 2019.

In the long run, tranquilizer availability in 8th and 10th grade has fallen considerably since it was first measured in 1992. Despite this overall decline in perceived availability, tranquilizer *use* in these grades had been slowly rising through most of the 1990s and through 2002, followed by a slight decline in use since then. This is another example of changes in availability not being able to explain the trends in use.

- In 2019, the perceived availability of [*LSD*](#) was near historic lows in all grades (Figure 9-5c and Tables 9-6 to 9-8). In 12th grade, reported availability showed a gradual increase from the mid-1980s to a peak in the mid-1990s, after which all this gain receded in the following decade. Outside of these years, availability decreased sharply in the first year of the study and then followed a slight but steady decline over the life of the study. In 2019, 28% of 12th graders reported ready access to LSD, down by about half from a high of 54% in 1995. In general, attitudes and beliefs—perceived risk and disapproval of LSD use—have not moved in ways that could explain the sharp drop in use that was observed between 2000 and 2003. It seems highly likely that it was this decrease in availability that helped to drive use down—particularly the decline in the early 2000s.

In 8th and 10th grades, LSD availability increased during the 1990s drug relapse, but in recent years has since declined to record low levels. Availability of [*LSD*](#) dropped sharply in the early 2000s, coinciding with a steep decline in use among 8th and 10th graders. As stated above, because perceived risk and disapproval did not move in a way that could explain this decline in use, but availability did, we are inclined to believe that a change in availability was driving use in this case.

- The percentage of 12th grade students who reported it would be “fairly” or “very” easy to obtain *hallucinogens other than LSD* in 2019 was 30%, which was down substantially from the high of 49% in 2001, when the question was updated to include “shrooms” (psilocybin) as an example (Figure 9-5c and Tables 9-6 to 9-8). Availability of hallucinogens other than LSD is asked only of 12th graders. Trends in this measure followed a fairly similar trajectory to that of LSD from 1975 through 1986, but quite a different one thereafter. From 1986 to 1994, there was only a gradual rise in perceived availability of hallucinogens other than LSD, in contrast to the sharp rise for LSD. From 1995 to 2000,

the availability of LSD showed a modest decline (from 54% to 47%), while the availability of other hallucinogens changed very little (from 36% to 35%). While LSD and the other hallucinogens, taken as a set, were about equally available in the late 1970s, LSD availability was substantially higher in the 1990s (note the crossover of the lines in Figure 9-5c between 2000 and 2001). The availability of LSD declined again in 2001 (to 45%), while the availability of other hallucinogens appeared to show a sharp increase, which likely was due in considerable part to a question change. (In 2001, the question text changed from “other psychedelics” to “other hallucinogens,” and the term “shrooms” was added to the list of examples. After this change, this class of drugs was actually reported to be slightly more available than LSD.) Since 2001, availability of hallucinogens other than LSD has declined and now has the same level of availability as LSD.

- The portion of 12th grade students who reported they could “fairly” or “very” easily obtain [MDMA](#) (ecstasy and later Molly) in 2019 was 24%, near the previous low of 22% set in 1989 (see Figure 9-5d and Tables 9-7 to 9-9). Availability jumped sharply in 2000 to 51% and again in 2001 to 62%—nearly three times the 1991 level—an increase that probably played an important role in the sharp increase in use after 1998. In 2002, availability of MDMA declined for the first time in several years. But while use dropped quite sharply between 2001 and 2003, perceived availability declined only slightly in that interval and did not show a sharp decline until 2004, when it dropped by 10 percentage points. This was followed by another significant decline in perceived availability (eight percentage points) and a nonsignificant decrease in use in 2005. This suggests that a reduction in availability was not key to the important downturn in MDMA use, though it may have been important to the rise in use; rather, the fall in perceived availability may simply have resulted from fewer 12th graders having friends who were users. In fact, friends’ use of MDMA dropped significantly in 2005. The decline in the frequency of raves, at which ecstasy was a popular drug, likely played a role too.

Among 8th and 10th graders, availability of MDMA (ecstasy, Molly) by 2019 had declined steadily to levels less than half of what they were in 2001, the first year it was measured in these grades. As with 12th graders, the decline in availability seemed to lag behind the decline in use for this drug, suggesting that use was driving availability and not vice versa.

- The portion of students reporting that they could readily obtain [PCP](#) declined in all grades and was at or near historic lows in 2019 (Tables 9-7 to 9-9). In 12th grade the availability level was 11% in 2019, tying with the previous year for the lowest level recorded. In general, for 12th graders availability has been gradually decreasing since 2000; before that it had hovered around 30% since 1992. Actual use of PCP almost doubled between 1993 and 1996, which is not well explained by trends in availability. For this drug, as for many others, it appears that availability was not the determining factor in the shifts in use.

In 8th grade availability of PCP has gradually declined since 2000 to a level of 6% in 2019; before 2000 availability hovered at around 18%. Perceived availability among 10th graders has also decreased overall since 2000 and in 2019 was at 10%. Use of PCP is not measured in these grades.

- In 2019 the percentage of 12th grade students who reported that they could readily obtain heroin was 16%, which is not far below the level of 24% at the start of the survey in 1975 (Figure 9-5b and Tables 9-7 to 9-9). In the intervening years availability increased to a high of 35% in the mid-1990s, and then steadily declined in the following years. The stability of heroin *use* during the 1980s and early 1990s, despite a substantial increase in perceived *availability*, is worthy of note. It suggests that availability alone is not sufficient to stimulate use (though it may well affect the consumption pattern of established users). It was not until the 1990s that methods for taking heroin by means other than injection began to be widely known, as purity continued to increase, and use substantially increased. The view that these methods (snorting and smoking) were less dangerous probably removed an important deterrent to use for a number of teenagers.

Among 8th and 10th graders perceived availability of heroin was near record lows in 2019, continuing an overall decrease since 1997, before which it held steady. As with 12th graders, trends in availability are insufficient, by themselves, to explain the increases in heroin use among 8th and 10th graders in the 1990s.

- In all grades the availability of narcotics other than heroin has decreased overall since 2010 (Figure 9-5b, Tables 9-7 to 9-9). Unfortunately, the availability question for narcotics other than heroin did not address the issue of changes in the availability of specific drugs within this general class, like OxyContin and Vicodin. Because the drugs being used in this class were changing over time, the list of drug examples given for narcotics other than marijuana was changed in 2010 to include OxyContin, Vicodin, and Percocet (methadone and opium were dropped from the list). This change in the drugs being given as examples in the question likely explains the large change seen in the data. For this reason, 2009 and 2010 data cannot be compared. However, the overall downward trend in availability after 2010, when the question was updated, seems to have continued a smaller downward trend that was present in the data from 2000 to 2008, before the question was updated. Annual prevalence of use increased from 2000 to 2004 and held steady for the next five years, making availability a poor candidate to explain this trend.

In 8th and 10th grades availability of narcotics other than heroin has declined overall since 1997, except for a jump in 2010 that resulted from the update of the question. Prevalence of *use* is not reported for narcotics other than heroin in these grades.

- Narcotics other than heroin fall into the more general class of prescription drugs used outside of medical supervision (tranquilizers, sedatives, amphetamines, and narcotics), which have been the subject of particular concern in the 2000s as their prevalence rose and then sustained for some years. Substantial efforts to curb their availability to young people include “take-back” programs and efforts by various government agencies and private organizations to persuade parents and other family members not to leave any such drugs where adolescents can get them. In addition, the medical and dental communities have been alerted about the potential for the misuse of these drugs. The results reported here, showing a considerable decline in perceived availability of these drugs to adolescents, suggest that these efforts may be working.

- As illustrated in Figure 9-5b, *sedatives (barbiturates)* and *tranquilizers* were much more available to 12th graders in 1975 compared to 2019.⁸
- In all grades the availability of *anabolic steroids* was at or near historic lows in 2019 with levels of 19%, 14%, and 11% in order of oldest to youngest of the three grade levels (Figure 9-5d and Table 9-7 to 9-9). The scheduling of steroids by the DEA no doubt played a role in the long-term decline in availability. Anabolic steroids were placed on Schedule III of the Controlled Substances Act in 1990 to take effect in early 1991, while the scheduling of the precursor *androstenedione* went into effect in 2005.
- In 2019 *crystal methamphetamine* was at its lowest levels of availability ever recorded by the study in 12th grade at 12% (Table 9-9). In contrast, for 8th and 10th graders availability increased, significantly in 10th grade. While this drug ranks among the least available in the lower grades, any increase in this highly addictive drug warrants concern and future monitoring.

The Importance of Supply Reduction versus Demand Reduction

Overall, supply reduction—that is, reducing the availability of drugs—does not appear to have played as major a role as many had assumed in four of the five most important downturns in illicit drug use that have occurred to date, namely, those for *marijuana*, *cocaine*, *crack*, and *MDMA (ecstasy, Molly)* (see, for example, Figures 8-4, 8-5, and 8-6). The case of cocaine is particularly striking, as perceived availability actually rose during much of the period of downturn in use that began in the mid-1980s. (These data are corroborated by data from the Drug Enforcement Administration on trends in the price and purity of cocaine on the streets.⁹) For *marijuana*, perceived availability has remained very high for 12th graders since 1976, while use dropped substantially from 1979 through 1992 and has fluctuated considerably thereafter. Perceived availability for MDMA did increase in parallel with increasing use in the 1990s, but the decline phase for use appears to have been driven much more by changing beliefs about the dangers of ecstasy than by any sharp downturn in availability. Similarly, *amphetamine* use declined appreciably from 1981 to 1992, with only a modest corresponding change in perceived availability. Finally, until 1995, *heroin* use had not risen among 12th graders even though availability had increased substantially.

- What did change dramatically were young peoples’ beliefs about the dangers of using *marijuana*, *cocaine*, *crack*, and *MDMA (ecstasy, and later Molly)*. We believe that increases in perceived risk led to a decrease in use directly through their impact on young people’s demand for these drugs and indirectly through their impact on personal disapproval and, subsequently, peer norms. Because the perceived risk of *amphetamine* use was changing little when amphetamine use was declining substantially (1981–1986), other factors must have helped to account for the decline in demand for that class of drugs—quite conceivably some displacement by cocaine. Because three classes of drugs (marijuana, cocaine, and amphetamines) have shown *different* patterns of change, it is

⁸ Figure 9-5b shows a sharp increase in the availability of sedatives (barbiturates) in 2004, but this shift likely was caused by a change in question wording.

⁹ Caulkins, J. P. (1994). *Developing price series for cocaine*. Santa Monica, CA: RAND.

highly unlikely that a general factor (e.g., a broad shift in attitudes about drug use) can explain their various trends.

- The increase in *marijuana* use in the 1990s among 12th graders added more compelling evidence to this interpretation. It was *both* preceded and accompanied by a decrease in perceived risk. (Between 1991 and 1997, the perceived risk of regular marijuana use declined 21 percentage points.) Perceived peer disapproval dropped sharply from 1993 through 1997, *after* perceived risk began to change, consistent with our interpretation that perceived risk can be an important determinant of disapproval as well as of use. Perceived availability remained fairly constant from 1991 to 1993 and then increased seven percentage points through 1998.¹⁰
- We do think that the expansion in the world supply of *heroin*, particularly in the 1990s, had the effect of dramatically raising the purity of heroin available on the streets, thus allowing for new means of ingestion, such as snorting and smoking. The advent of new forms of heroin, rather than any change in respondents' beliefs about the dangers associated with injecting heroin, very likely contributed to the fairly sharp increase in heroin use in the 1990s. Evidence from this study, showing that a significant portion of the self-reported heroin users are now using by means other than injection, lends credibility to this interpretation. The dramatic decline in *LSD* use in the early to mid-2000s is also not explainable by means of concurrent changes in perceived risk or disapproval; but availability did decline sharply during this period and very likely played a key role in reducing the use of that drug.

We should also note that other factors, such as price, could play an important role for some drugs. Analyses of MTF data have shown, for example, that price probably played an important role in the decline of marijuana use in the 1980s, and in changes in cigarette use in the 1990s.^{11,12} However, price does not appear to have the same influence in all periods for all drugs, as the dramatic reduction in cocaine prevalence during the late 1980s took place at the same time that the price of cocaine *decreased*,¹³ contrary to the supply/demand model.

¹⁰ In the last decade declines in perceived risk have not predicted future increases in marijuana use as expected. This disconnect results in large part from the great decline in adolescent cigarette smoking during the past ten years. Cigarette smoking is a strong, independent predictor of marijuana use, and the decline in cigarette prevalence has offset the expected increase in marijuana use. If cigarette smoking had not declined, we project current levels of marijuana use would be at or near record levels. For details see: Miech, R. A., Johnston, L. D., & O'Malley P. M. (2017). [Prevalence and attitudes regarding marijuana use among adolescents over the past decade](#). *Pediatrics*, 140(6).

¹¹ Pacula, R. L., Grossman, M., Chaloupka, F. J., O'Malley, P. M., Johnston, L. D., & Farrelly, M. C. (2001). Marijuana and youth. In J. Gruber (Ed.), *Risky behavior among youths: An economic analysis* (pp. 271–326). Chicago: The University of Chicago Press. Also appears as Working Paper No. 7703, National Bureau of Economic Research, Inc. (2000).

¹² Tauras, J. A., O'Malley, P. M., & Johnston, L. D. (2001). [Effects of price and access laws on teenage smoking initiation: A national longitudinal analysis](#). (ImpacTeen/Youth, Education, and Society Research Paper No. 1.) Chicago, IL: University of Illinois at Chicago and Ann Arbor, MI: The University of Michigan, Institute for Social Research.

¹³ Office of National Drug Control Policy. (2001). [The Price of Illicit Drugs: 1981 through the Second Quarter of 2000](#).

TABLE 9-1
Trends in Parents Disapproving of Drug Use for 12th Graders

Percentage saying parents disapprove ^{a,b}

How do you think your parents feel about you doing each of the following things?

	1975	1976	1977	1978	1979	1980-2016	2017	2018	2019 ^c	2020	2021
Trying marijuana once or twice	90.8	87.4	85.8	83.2	84.9	—	77.6	78.9	75.4	§	70.3*
Using marijuana occasionally	95.6	93.0	92.5	90.8	93.2	—	83.0	84.5	83.5	§	75.5*
Using marijuana regularly	98.1	96.3	96.5	95.6	97.2	—	87.3	88.2	87.9	§	85.3*
Having five or more drinks once or twice each weekend	85.3	85.9	86.5	82.6	84.5	—	86.2	88.1	86.8	§	83.9*
Smoking one or more packs of cigarettes per day	88.5	87.6	89.2	88.7	91.3	—	91.7	93.0	93.1	§	91.8*
Vaping nicotine occasionally	—	—	—	—	—	—	—	—	—	—	86.4*
Vaping nicotine regularly	—	—	—	—	—	—	—	—	86.6	§	89.6*
Vaping marijuana occasionally	—	—	—	—	—	—	—	—	—	—	83.1*
Vaping marijuana regularly	—	—	—	—	—	—	—	—	—	—	87.8*
<i>Approximate weighted N =</i>	<i>2,546</i>	<i>2,807</i>	<i>3,014</i>	<i>3,054</i>	<i>2,748</i>	—	<i>1,829</i>	<i>1,833</i>	<i>897</i>	§	<i>1,304</i>

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See text in Chapter 9 for important details on parental disapproval survey question over the course of the survey.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

^bQuestions on parental disapproval were not included in the surveys from 1980-2016. See [here](#) for levels of parental disapproval from 1975-1979 for trying LSD once or twice, trying an amphetamine once or twice, taking one or two drinks nearly every day, and taking four or five drinks every day.

^cThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

TABLE 9-2
Trends in Friends Disapproving of Drug Use for 12th Graders

Percentage saying friends disapprove ^a

*How do you think your close friends feel
(or would feel) about you . . .*

	1975 ^b	1976	1977 ^b	1978	1979 ^b	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Trying marijuana once or twice	44.3	—	41.8	—	40.9	42.6	46.4	50.3	52.0	54.1	54.7	56.7	58.0	62.9	63.7	70.3
Using marijuana occasionally	54.8	—	49.0	—	48.2	50.6	55.9	57.4	59.9	62.9	64.2	64.4	67.0	72.1	71.1	76.4
Using marijuana regularly	75.0	—	69.1	—	70.2	72.0	75.0	74.7	77.6	79.2	81.0	82.3	82.9	85.5	84.9	86.7
Trying LSD once or twice	85.6	—	86.6	—	87.6	87.4	86.5	87.8	87.8	87.6	88.6	89.0	87.9	89.5	88.4	87.9
Trying cocaine once or twice	—	—	—	—	—	—	—	—	—	—	—	79.6	83.9	88.1	88.9	90.5
Taking cocaine occasionally	—	—	—	—	—	—	—	—	—	—	—	87.3	89.7	92.1	92.1	94.2
Trying crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.2	95.0
Taking crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95.7	96.5
Trying cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91.7	93.4
Taking cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.0	95.0
Trying an amphetamine once or twice ^c	78.8	—	80.3	—	81.0	78.9	74.4	75.7	76.8	77.0	77.0	79.4	80.0	82.3	84.1	84.2
Taking one or two drinks nearly every day	67.2	—	71.0	—	71.0	70.5	69.5	71.9	71.7	73.6	75.4	75.9	71.8	74.9	76.4	79.0
Taking four or five drinks nearly every day	89.2	—	88.1	—	88.5	87.9	86.4	86.6	86.0	86.1	88.2	87.4	85.6	87.1	87.2	88.2
Having five or more drinks once or twice each weekend	55.0	—	53.4	—	51.3	50.6	50.3	51.2	50.6	51.3	55.9	54.9	52.4	54.0	56.4	59.0
Smoking one or more packs of cigarettes per day	63.6	—	68.3	—	73.4	74.4	73.8	70.3	72.2	73.9	73.7	76.2	74.2	76.4	74.4	75.3
<i>Approximate weighted N =</i>	2,488	—	2,615	—	2,716	2,766	3,120	3,024	2,722	2,721	2,688	2,639	2,815	2,778	2,400	2,184

Table continued on next page.

TABLE 9-2 (cont.)
Trends in Friends Disapproving of Drug Use for 12th Graders

Percentage saying friends disapprove ^a

*How do you think your close friends feel
(or would feel) about you . . .*

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Trying marijuana once or twice	69.7	73.1	66.6	62.7	58.1	55.8	53.0	53.8	55.1	58.1	57.6	54.1	58.4	59.5	60.9	62.3
Using marijuana occasionally	75.8	79.2	73.8	69.1	65.4	63.1	59.9	60.4	61.6	63.9	64.3	60.3	64.2	65.0	67.6	68.1
Using marijuana regularly	85.9	88.0	83.5	80.6	78.9	76.1	74.1	74.7	74.5	76.1	77.8	75.3	77.0	77.3	79.5	79.8
Trying LSD once or twice	87.9	87.3	83.5	83.4	82.6	80.8	79.3	81.7	83.2	84.7	85.5	84.9	87.5	87.3	88.4	89.5
Trying cocaine once or twice	91.8	92.2	91.1	91.4	91.1	89.2	87.3	88.8	88.7	90.2	89.3	89.1	91.2	87.9	89.0	88.7
Taking cocaine occasionally	94.7	94.4	93.7	93.9	93.8	92.5	90.8	92.2	91.8	92.8	92.2	92.2	93.0	91.0	92.3	92.4
Trying crack once or twice	94.4	94.6	95.1	93.9	93.8	93.0	92.3	93.7	93.9	94.6	92.3	93.1	94.5	92.2	92.8	93.5
Taking crack occasionally	95.7	95.9	96.4	95.3	96.1	94.7	94.8	96.2	96.0	96.9	95.0	94.7	95.6	94.3	95.5	95.3
Trying cocaine powder once or twice	93.3	94.0	94.2	93.2	93.5	92.1	91.4	91.9	91.8	93.3	91.9	92.3	92.7	90.9	91.1	91.9
Taking cocaine powder occasionally	94.8	94.8	95.2	94.7	95.3	93.6	93.9	94.5	94.0	96.3	93.7	93.8	94.1	92.9	94.1	94.6
Trying an amphetamine once or twice ^c	85.3	85.7	83.2	84.5	81.9	80.6	80.4	82.6	83.0	84.1	83.8	83.3	85.9	84.7	86.1	86.7
Taking one or two drinks nearly every day	76.6	77.9	76.8	75.8	72.6	72.9	71.5	72.3	71.7	71.6	73.4	71.6	74.7	72.8	74.0	73.2
Taking four or five drinks nearly every day	86.4	87.4	87.2	85.2	84.1	82.6	82.5	82.8	82.2	82.8	84.4	80.1	83.1	82.9	82.7	83.3
Having five or more drinks once or twice each weekend	58.1	60.8	58.5	59.1	58.0	57.8	56.4	55.5	57.6	57.7	57.8	55.6	60.3	59.4	59.9	60.6
Smoking one or more packs of cigarettes per day	74.0	76.2	71.8	72.4	69.2	69.3	68.5	69.0	71.2	72.6	74.5	75.7	79.2	78.6	81.1	81.2
<i>Approximate weighted N =</i>	2,160	2,229	2,220	2,149	2,177	2,030	2,095	2,037	1,945	1,775	1,862	1,820	2,133	2,208	2,183	2,188

Table continued on next page.

TABLE 9-2 (cont.)
Trends in Friends Disapproving of Drug Use for 12th Graders

Percentage saying friends disapprove ^a

How do you think your close friends feel (or would feel) about you . . .

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	2021 ^e
Trying marijuana once or twice	60.4	60.8	61.4	54.9	53.0	52.9	51.2	50.4	51.0	48.6	44.3	45.8	40.9	§	44.5*
Using marijuana occasionally	65.8	66.3	68.5	61.8	59.4	59.5	57.6	56.2	58.1	54.9	51.4	53.2	49.0	§	47.6*
Using marijuana regularly	78.3	78.0	79.1	73.8	73.3	72.7	71.2	70.1	70.9	68.4	65.2	67.9	62.7	§	62.2*
Trying LSD once or twice	88.4	86.3	87.2	84.5	85.6	85.0	84.9	84.6	81.9	83.3	81.3	82.7	81.3	§	76.1*
Trying cocaine once or twice	89.6	88.7	90.2	89.7	89.7	89.2	89.2	88.6	87.0	89.1	88.5	88.7	89.3	§	87.2*
Taking cocaine occasionally	93.1	92.0	92.7	91.8	92.9	92.8	92.5	91.4	90.6	91.5	91.7	93.1	91.6	§	89.2*
Trying crack once or twice	93.2	93.6	94.5	93.1	93.5	95.1	94.8	92.8	92.7	92.6	92.8	92.6	93.9	§	—
Taking crack occasionally	95.0	95.4	95.7	94.7	94.7	96.2	95.9	94.5	94.5	94.9	95.2	94.8	95.1	§	—
Trying cocaine powder once or twice	91.8	92.4	93.5	92.8	92.4	94.6	94.0	91.1	91.7	92.1	92.0	92.0	93.5	§	—
Taking cocaine powder occasionally	93.9	94.2	94.6	94.3	93.7	96.2	95.4	93.6	93.8	94.3	94.5	93.4	94.9	§	—
Trying an amphetamine once or twice ^c	87.3	87.1	87.0	85.8	84.6	83.7	83.5	83.2	83.2	83.2	83.7	84.5	85.1	§	83.2*
Taking one or two drinks nearly every day	74.5	75.2	75.5	75.0	74.9	74.0	75.4	74.0	76.3	76.3	77.3	77.8	76.4	§	74.8*
Taking four or five drinks nearly every day	84.8	84.7	84.6	83.4	85.8	84.1	85.8	83.8	85.3	85.6	87.3	86.5	85.9	§	84.9*
Having five or more drinks once or twice each weekend	60.0	62.1	63.5	62.0	62.2	62.3	65.2	65.6	68.5	70.7	69.0	72.1	70.7	§	62.5*
Smoking one or more packs of cigarettes per day	81.4	82.5	81.6	81.4	81.6	83.2	84.4	84.0	85.1	87.1	85.3	87.0	88.8	§	84.2*
Vape nicotine occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	62.8*
Vape nicotine regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	72.1*
<i>Approximate weighted N =</i>	<i>2,161</i>	<i>2,090</i>	<i>2,033</i>	<i>2,101</i>	<i>2,132</i>	<i>2,126</i>	<i>1,916</i>	<i>1,863</i>	<i>1,992</i>	<i>1,759</i>	<i>1,893</i>	<i>1,972</i>	<i>952</i>	§	<i>1,224</i>

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

^bThese numbers have been adjusted to correct for a lack of comparability of question context among administrations. (See text for discussion.)

^cIn 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin.

^dThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^eSample is decreased by approximately 50% for the following drugs due to survey question experiments: cocaine and alcohol.

TABLE 9-3
Trends in 12th Graders' Exposure to Drug Use

(Entries are percentages.)

During the LAST 12 MONTHS, how often have you been around people who were taking each of the following to get high?

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Any illicit drug ^a																
% saying not at all	—	17.4	16.5	15.1	15.0	15.7	17.3	18.6	20.6	22.1	22.3	24.5	26.1	28.7	31.4	32.4
% saying often	—	34.8	39.0	40.7	40.4	36.3	36.1	31.4	29.8	28.3	27.2	26.3	23.3	20.8	22.0	20.7
Any illicit drug other than marijuana ^a																
% saying not at all	—	44.9	44.2	44.7	41.7	41.5	37.4	37.5	40.6	40.2	40.7	44.7	48.3	52.2	52.9	54.6
% saying often	—	11.8	13.5	12.1	13.7	14.1	17.1	16.6	14.2	14.6	12.9	12.1	10.2	9.6	10.7	9.2
Marijuana																
% saying not at all	—	20.5	19.0	17.3	17.0	18.0	19.8	22.1	23.8	25.6	26.5	28.0	29.6	33.0	35.2	36.6
% saying often	—	32.5	37.0	39.0	38.9	33.8	33.1	28.0	26.1	24.8	24.2	24.0	20.6	17.9	19.5	17.8
LSD																
% saying not at all	—	78.8	80.0	81.9	81.9	82.8	82.6	83.9	86.2	87.5	86.8	86.9	87.1	86.6	85.0	85.1
% saying often	—	2.2	2.0	1.8	2.0	1.4	2.0	1.9	1.4	1.5	1.3	1.6	1.8	1.6	2.2	2.6
Other hallucinogens ^b																
% saying not at all	—	76.5	76.7	76.7	77.6	79.6	82.4	83.2	86.9	87.3	87.5	88.2	90.0	91.0	91.2	90.6
% saying often	—	3.1	3.2	2.9	2.2	2.2	2.0	2.6	1.1	1.7	1.4	1.5	1.2	1.1	1.3	1.2
Cocaine																
% saying not at all	—	77.0	73.4	69.8	64.0	62.3	63.7	65.1	66.7	64.4	61.7	62.6	65.1	69.8	69.8	72.3
% saying often	—	3.0	3.7	4.6	6.8	5.9	6.6	6.6	5.2	6.7	7.1	7.8	5.9	5.1	5.4	4.7
Heroin																
% saying not at all	—	91.4	90.3	91.8	92.4	92.6	93.4	92.9	94.9	94.0	94.5	94.0	94.2	94.3	93.5	94.6
% saying often	—	0.8	1.1	0.9	0.7	0.4	0.6	1.0	0.7	1.1	0.5	1.0	0.9	0.8	1.0	0.5
Narcotics other than heroin ^c																
% saying not at all	—	81.9	81.3	81.8	82.0	80.4	82.5	81.5	82.7	82.0	81.6	84.4	85.6	85.2	86.2	85.8
% saying often	—	1.8	2.4	2.0	1.7	1.7	1.7	2.4	2.2	2.0	1.8	2.1	1.7	1.7	1.7	1.6
Amphetamines ^d																
% saying not at all	—	59.6	60.3	60.9	58.1	59.2	50.5	49.8	53.9	55.0	59.0	63.5	68.3	72.1	72.6	71.7
% saying often	—	6.8	7.9	6.7	7.4	8.3	12.1	12.3	10.1	9.0	6.5	5.8	4.5	4.1	4.7	4.1
Sedatives (barbiturates) ^e																
% saying not at all	—	69.0	70.0	73.5	73.6	74.8	74.1	74.3	77.5	78.8	81.1	84.2	86.9	87.6	88.2	86.7
% saying often	—	4.5	5.0	3.4	3.3	3.4	4.0	4.3	3.0	2.7	1.7	2.1	1.5	1.4	1.7	1.7
Tranquilizers ^f																
% saying not at all	—	67.7	66.0	67.5	67.5	70.9	71.0	73.4	76.5	76.9	76.6	80.4	81.6	81.8	84.9	83.7
% saying often	—	5.5	6.3	4.9	4.3	3.2	4.2	3.5	2.9	2.9	2.2	2.5	2.6	2.2	2.1	1.9
Alcohol																
% saying not at all	—	6.0	5.6	5.5	5.2	5.3	6.0	6.0	6.0	6.0	6.0	5.9	6.1	6.9	7.7	6.4
% saying often	—	57.1	60.8	60.8	61.2	60.2	61.0	59.3	60.2	58.7	59.5	58.0	58.7	56.4	55.5	56.1
Approximate weighted N =	—	2,950	3,075	3,682	3,253	3,259	3,608	3,645	3,334	3,238	3,252	3,078	3,296	3,300	2,795	2,556

Table continued on next page.

TABLE 9-3 (cont.)
Trends in 12th Graders' Exposure to Drug Use

(Entries are percentages.)

During the LAST 12 MONTHS, how often have you been around people who were taking each of the following to get high?

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Any illicit drug ^a																
% saying not at all	35.8	38.7	33.9	29.2	24.7	22.0	21.2	22.8	22.1	24.0	23.5	23.5	26.4	25.7	27.0	26.3
% saying often	18.2	18.0	24.0	29.3	32.3	33.8	34.7	33.2	35.6	32.6	33.6	32.6	31.8	30.3	29.9	29.7
Any illicit drug other than marijuana ^a																
% saying not at all	60.0	58.4	57.4	54.7	52.8	50.3	52.1	52.7	53.5	52.8	50.1	50.7	53.7	51.7	54.1	54.7
% saying often	7.9	7.5	9.6	9.4	11.1	12.1	11.7	9.9	11.7	10.5	11.9	12.6	10.8	11.4	10.6	11.4
Marijuana																
% saying not at all	40.4	43.2	39.0	32.8	27.3	24.4	23.2	24.5	24.2	26.2	25.1	25.8	28.6	27.8	29.2	28.6
% saying often	16.0	15.6	20.9	27.6	30.7	31.8	32.9	31.4	34.4	30.3	30.8	30.7	30.4	28.0	27.0	27.8
LSD																
% saying not at all	84.3	82.2	79.0	75.8	73.9	72.4	74.1	76.9	76.4	78.0	78.4	82.8	85.8	87.6	89.2	88.4
% saying often	2.9	3.0	3.9	4.2	6.1	4.7	5.1	3.2	4.1	3.3	2.8	2.6	1.8	1.6	1.5	1.9
Other hallucinogens ^b																
% saying not at all	90.6	90.3	87.9	86.0	84.2	83.4	82.2	84.1	82.3	83.7†	71.9	73.6	74.2	75.2	75.7	76.2
% saying often	1.3	1.1	1.9	2.3	2.5	2.7	2.8	1.7	2.7	2.1†	3.6	4.5	3.2	3.2	2.6	4.1
Cocaine																
% saying not at all	78.7	80.2	80.8	81.2	78.4	75.0	74.4	73.4	74.2	75.8	75.5	75.1	75.2	75.6	74.3	71.8
% saying often	3.4	2.7	2.9	2.5	3.2	4.0	4.2	3.7	4.6	4.6	4.5	5.3	5.0	4.7	4.2	5.4
Heroin																
% saying not at all	94.9	94.6	94.3	92.7	92.1	91.4	90.9	91.3	91.9	90.9	91.3	91.7	92.7	93.4	92.7	91.1
% saying often	0.9	0.7	1.1	0.7	1.2	1.6	1.2	0.9	1.3	1.5	0.7	1.3	1.2	1.2	0.8	1.7
Narcotics other than heroin ^c																
% saying not at all	88.7	88.9	87.6	85.1	84.5	81.5	79.6	79.3	78.1	78.9	78.4	77.5	78.2	79.7	81.0	81.1
% saying often	1.4	1.3	1.7	1.7	2.1	3.4	2.5	2.8	3.9	2.9	3.0	3.8	3.0	3.3	2.6	3.4
Amphetamines ^d																
% saying not at all	76.4	75.5	75.3	71.8	71.9	68.5	69.0	70.1	69.9	70.5	68.5	69.4	72.6	72.8	73.6	73.4
% saying often	3.1	3.0	3.9	4.1	4.5	5.6	5.2	4.7	6.3	4.4	6.0	6.4	4.9	5.3	4.1	5.6
Sedatives (barbiturates) ^e																
% saying not at all	90.0	89.8	88.1	87.0	85.5	84.5	83.9	83.9	82.9	83.7	82.9	82.3	85.2†	78.5	79.6	78.7
% saying often	1.2	1.1	1.6	1.7	2.0	2.9	2.5	2.7	3.8	2.7	2.7	4.6	2.8†	4.1	3.7	3.9
Tranquilizers ^f																
% saying not at all	85.8	87.3	86.2	83.5	84.3	82.1	81.1	82.7	81.8	82.3†	76.2	77.3	79.0	77.9	79.1	78.2
% saying often	1.4	1.9	1.7	1.8	2.3	3.5	3.2	2.8	3.7	3.5†	4.9	5.8	4.2	4.1	4.5	5.4
Alcohol																
% saying not at all	8.3	9.4	8.2	10.0	8.8	8.5	8.6	7.8	8.2	9.3	9.2	10.5	11.7	12.4	12.6	12.4
% saying often	54.5	53.1	51.9	54.0	54.0	54.5	53.9	54.5	53.5	50.2	52.7	50.8	49.0	48.2	49.1	47.8
Approximate weighted N =	2,525	2,630	2,730	2,581	2,608	2,407	2,595	2,541	2,312	2,153	2,147	2,162	2,454	2,456	2,469	2,372

Table continued on next page.

TABLE 9-3 (cont.)
Trends in 12th Graders' Exposure to Drug Use

(Entries are percentages.)

During the LAST 12 MONTHS, how often have you been around people who were taking each of the following to get high?

	2007	2008	2009	2010	2011	2012	2013	2014 ^g	2015	2016	2017	2018	2019 ^h	2020	2021
Any illicit drug ^a															
% saying not at all	29.2	28.1	25.9	24.0	23.4	23.6	24.6	24.8	24.6	24.9	25.2	27.3	24.6	§	35.5*
% saying often	27.8	28.6	31.4	33.2	34.6	34.9	32.3	31.3	32.5	33.1	32.8	30.8	33.5	§	22.3*
Any illicit drug other than marijuana ^a															
% saying not at all	54.6	56.2	55.7	52.8	53.4	55.0	55.8	59.0	55.7	56.2	58.3	59.9	61.9	§	74.6*
% saying often	10.8	8.2	9.4	10.2	11.5	11.6	9.3	9.7	9.2	10.3	10.7	7.5	7.4	§	3.7*
Marijuana															
% saying not at all	31.6	30.2	28.2	25.8	25.4	24.9	26.3	26.6	26.8	26.9	26.5	29.9	26.3	§	36.2*
% saying often	25.1	27.0	29.3	31.3	32.3	32.2	30.6	29.2	30.5	31.2	30.4	28.0	32.0	§	21.9*
LSD															
% saying not at all	87.6	87.9	88.1	85.9	86.5	87.0	86.2	87.1	84.3	84.5	82.6	84.6	84.9	§	89.0*
% saying often	1.7	0.8	1.3	1.4	1.4	1.6	1.5	1.5	1.9	2.1	2.4	2.0	1.9	§	1.4*
Other hallucinogens ^b															
% saying not at all	76.5	76.4	78.0	75.0	76.2	77.3	77.7	80.2	79.6	81.4	82.5	84.5	84.3	§	87.0*
% saying often	3.0	1.9	2.7	2.2	2.5	2.7	2.4	1.9	1.9	2.4	2.5	1.8	1.6	§	1.3*
Cocaine															
% saying not at all	74.8	75.9	80.0	80.0	80.7	82.6	83.3	82.4	82.0	81.8	82.4	82.9	82.9	§	91.9*
% saying often	4.6	3.6	2.6	2.1	2.3	2.8	2.1	2.2	2.3	3.0	3.0	1.7	2.4	§	1.2*
Heroin															
% saying not at all	91.4	93.2	92.7	91.7	93.6	94.0	93.4	94.8	94.4	94.7	93.6	94.8	95.1	§	97.3*
% saying often	1.1	0.8	0.8	1.0	1.1	1.3	0.7	0.7	1.2	0.9	1.1	0.6	0.6	§	0.7*
Narcotics other than heroin ^c															
% saying not at all	81.1	83.7	83.7‡	69.7	72.5	72.9	77.1	79.1	79.0	79.0	80.1	81.9	85.6	§	93.4*
% saying often	3.4	2.1	2.7‡	5.3	5.6	5.7	3.8	3.6	2.8	3.8	3.4	1.8	1.3	§	1.1*
Amphetamines ^d															
% saying not at all	76.2	76.7	76.2	76.4‡	72.0	73.8	74.6	76.3	74.3	75.7	77.6	78.1	79.0	§	88.1*
% saying often	4.3	3.0	4.3	3.3‡	6.1	5.7	5.3	5.7	5.2	5.0	5.0	3.3	4.0	§	1.4*
Sedatives (barbiturates) ^e															
% saying not at all	81.2	83.3	82.4	81.2	83.8	84.0	85.0	86.6	86.5	87.2	88.8	88.6	90.4	§	94.2*
% saying often	3.9	2.1	3.4	2.5	3.1	2.9	2.5	2.3	1.8	2.5	2.3	1.9	1.5	§	1.0*
Tranquilizers ^f															
% saying not at all	80.7	80.1	80.0	81.8	83.0	82.4	83.6	84.0	80.3	77.8	77.4	79.5	80.8	§	92.4*
% saying often	4.9	3.7	3.9	2.8	3.4	3.3	3.4	3.4	2.6	4.6	4.7	3.1	1.9	§	1.4*
Alcohol															
% saying not at all	13.5	14.3	13.5	14.8	15.0	14.7	15.2	17.9	19.5	19.6	21.1	21.7	21.6	§	27.2*
% saying often	46.4	45.4	46.3	45.8	40.7	43.0	41.7	40.3	38.0	37.4	35.4	33.6	35.1	§	26.6*
Approximate weighted N =	2,448	2,332	2,274	2,434	2,372	2,299	2,150	2,075	2,177	1,999	2,121	2,200	1,039	§	1,405

Table continued on next page.

(Table continued on next page.)

TABLE 9-3 (cont.)
Trends in 12th Graders' Exposure to Drug Use

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available. '‡' indicates that the question changed the following year. See relevant footnote. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aThe data presented here were derived from responses to questions on the drugs included in this table. Any illicit drug includes exposure to any of the drugs presented in this table with the exception of alcohol.

^bIn 2001 the question text was changed from other psychedelics to other hallucinogens and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

^cIn 2010 the list of examples for narcotics other than heroin was changed from methadone and opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^dIn 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

^eIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^fIn 2001 for tranquilizers, Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

^gIn 2014 the phrase 'or for "kicks"' was dropped from the question.

^hThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

TABLE 9-4
Trends in Friends' Use of Drugs as Estimated by 8th Graders

(Entries are percentages.)

<i>How many of your friends would you estimate . . .</i>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Use marijuana																
% saying any	21.9	25.1	30.8	41.1	46.1	50.8	50.8	46.7	44.4	42.6	46.1	42.3	40.9	38.3	38.7	38.1
% saying most or all	3.3	4.1	6.0	10.5	12.7	15.2	13.8	12.6	12.1	10.4	11.4	10.0	9.4	7.8	9.1	8.9
Use inhalants																
% saying any	20.5	23.1	26.3	29.2	32.1	32.3	32.9	31.9	31.0	29.0	29.3	25.7	27.8	27.4	28.1	28.8
% saying most or all	2.4	2.9	3.7	4.2	5.0	5.2	4.8	4.5	4.7	4.0	3.9	3.4	4.0	4.0	4.2	4.5
Take crack																
% saying any	8.6	10.9	12.5	15.2	17.7	18.5	19.3	19.2	18.5	18.1	18.9	17.4	17.2	15.8	16.7	17.0
% saying most or all	0.9	1.0	1.3	1.6	1.6	2.0	1.8	1.9	1.9	1.6	2.0	1.6	1.7	1.7	1.7	1.8
Take cocaine powder																
% saying any	8.4	10.7	12.1	14.3	16.2	17.4	17.6	17.1	16.7	16.1	16.3	14.8	14.9	13.8	15.0	15.6
% saying most or all	0.9	1.1	1.3	1.7	1.6	1.7	1.6	2.0	1.8	1.6	1.8	1.7	1.6	1.6	1.5	1.8
Take heroin																
% saying any	6.1	7.3	8.9	10.3	11.6	12.0	12.2	11.8	11.4	10.9	11.2	10.5	10.2	9.4	9.8	10.3
% saying most or all	0.7	0.9	0.9	1.3	1.3	1.4	1.2	1.3	1.3	1.1	1.4	1.3	1.0	1.2	1.1	1.1
Drink alcoholic beverages																
% saying any	72.1	76.4	75.7	77.0	75.9	77.1	75.8	74.6	73.4	72.7	72.3	68.1	65.4	65.9	63.9	64.7
% saying most or all	21.0	23.7	25.5	27.4	27.5	28.8	25.9	25.0	24.9	23.6	22.7	20.1	19.6	19.3	17.6	19.1
Get drunk at least once a week																
% saying any	42.8	48.0	48.0	50.3	48.7	51.2	48.3	47.6	48.7	46.6	45.5	42.3	40.6	39.8	38.4	40.5
% saying most or all	7.2	8.4	9.0	10.6	9.9	10.9	9.3	8.8	9.6	9.1	8.6	7.4	7.7	7.1	6.6	6.6
Smoke cigarettes																
% saying any	67.7	72.4	73.8	76.1	76.1	78.1	76.9	75.2	70.9	67.9	64.2	58.6	56.0	54.0	52.2	51.7
% saying most or all	11.8	14.4	16.7	19.0	20.5	22.5	19.7	19.4	16.4	13.0	10.6	9.0	8.9	8.1	7.5	7.5
Vape using a JUUL ^a																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine ^c																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco																
% saying any	36.5	37.5	37.3	38.6	37.8	37.9	34.5	32.7	30.0	28.0	27.3	24.5	25.1	24.9	23.3	25.5
% saying most or all	3.8	4.2	3.8	4.8	4.7	5.1	3.5	3.5	3.5	2.6	2.9	2.5	2.9	3.0	2.5	2.7
<i>Approximate weighted N =</i>	16,000	16,600	16,500	15,800	15,300	16,100	16,100	16,000	10,100	10,000	9,700	9,200	10,400	10,500	10,400	10,200

Table continued on next page.

TABLE 9-4 (cont.)
Trends in Friends' Use of Drugs as Estimated by 8th Graders

(Entries are percentages.)

<i>How many of your friends would you estimate . . .</i>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019^b</u>	<u>2020</u>	<u>2021</u>
Use marijuana															
% saying any	35.6	37.5	39.3	43.8	41.9	41.0	42.4	40.3	40.5	35.6	37.0	36.1	38.4	§	24.2*
% saying most or all	7.7	8.0	9.1	12.1	10.7	11.0	12.0	10.1	9.5	8.0	7.8	8.4	8.5	§	4.3*
Use inhalants															
% saying any	25.8	27.1	27.5	27.5	25.7	22.9	19.9	18.0	17.0	15.2	15.0	16.2	15.6	§	12.0*
% saying most or all	3.6	3.6	4.6	4.0	3.4	3.2	2.6	2.5	2.4	1.7	1.9	2.1	2.0	§	1.7*
Take crack															
% saying any	15.2	16.1	15.8	16.6	15.1	14.3	12.8	11.0	10.3	8.1	8.0	7.6	8.8	§	5.9*
% saying most or all	1.6	1.4	1.7	1.8	1.5	1.4	1.4	1.2	1.0	0.9	0.8	0.7	1.0	§	0.8*
Take cocaine powder															
% saying any	13.4	14.6	13.2	14.4	12.8	12.5	11.3	10.0	9.8	7.7	8.0	7.4	8.4	§	4.8*
% saying most or all	1.5	1.4	1.6	1.5	1.4	1.2	1.1	1.2	1.0	0.8	0.8	0.7	0.8	§	0.6*
Take heroin															
% saying any	8.9	9.3	9.5	10.1	9.2	8.1	7.9	7.1	6.5	5.6	5.5	4.9	6.1	§	3.5*
% saying most or all	1.1	1.1	1.2	1.1	1.2	0.9	0.9	1.0	0.7	0.8	0.6	0.6	0.8	§	0.6*
Drink alcoholic beverages															
% saying any	63.7	64.1	62.8	63.7	59.8	57.2	54.7	51.7	51.5	47.9	48.9	48.6	51.1	§	37.0*
% saying most or all	17.6	17.9	17.8	18.0	15.3	13.9	11.8	9.4	9.5	8.3	7.7	8.0	7.9	§	5.9*
Get drunk at least once a week															
% saying any	39.5	39.3	38.3	39.9	34.8	33.2	30.8	26.9	27.5	24.5	24.4	25.0	27.3	§	19.5*
% saying most or all	6.6	6.2	6.9	6.9	5.6	5.1	4.4	3.7	3.9	3.3	2.7	2.8	3.1	§	2.2*
Smoke cigarettes															
% saying any	49.7	49.6	49.5	51.6	47.3	43.9	41.8	38.3	36.9	31.1	30.4	28.4	28.6	§	18.6*
% saying most or all	6.1	5.7	5.7	6.3	5.1	4.5	3.9	3.0	2.8	2.2	1.5	1.5	1.8	§	1.3*
Vape using a JUUL^a															
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	58.4	§	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	18.8	§	—
Vape an e-liquid with nicotine^c															
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.7*
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.9*
Use smokeless tobacco															
% saying any	24.6	25.1	26.7	27.4	26.7	23.9	23.1	23.7	23.7	20.5	18.8	17.5	18.6	§	11.2*
% saying most or all	2.6	2.7	3.4	3.3	3.2	2.4	2.5	2.3	2.4	2.1	1.3	1.5	1.6	§	1.2*
<i>Approximate weighted N =</i>	9,900	9,600	9,200	9,600	10,200	9,400	9,000	8,700	8,900	10,400	9,300	9,200	4,200	§	5,400

Table continued on next page.

TABLE 9-4 (cont.)
Trends in Friends' Use of Drugs as Estimated by 8th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. In 2000, this set of questions was removed from one of the four forms in which it appeared, which resulted in a slight adjustment in the average change score that year. To correct for this, although this set of questions was asked in all four forms in 1999, the data presented here for 1999 are from only the three forms in which the questions are still asked. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aData based on two of four forms; N is one half of N indicated.

^bThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^cData based on two-thirds of N indicated.

TABLE 9-5
Trends in Friends' Use of Drugs as Estimated by 10th Graders

(Entries are percentages.)

<i>How many of your friends would you estimate . . .</i>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Use marijuana																
% saying any	48.3	45.9	52.7	63.4	68.5	73.5	73.4	70.4	70.5	70.6	72.8	69.6	68.0	66.2	66.2	66.3
% saying most or all	7.9	8.0	11.2	18.0	21.3	26.4	25.0	23.5	23.3	22.4	23.8	23.3	21.8	19.2	19.5	18.5
Use inhalants																
% saying any	17.3	17.8	21.1	23.6	25.3	25.7	23.7	22.8	21.4	20.6	21.4	19.3	18.8	18.4	18.7	20.6
% saying most or all	1.4	1.5	1.8	2.0	2.1	2.2	2.2	2.5	2.1	2.2	1.8	2.1	1.9	1.7	2.0	2.2
Take crack																
% saying any	13.2	13.2	15.1	17.3	19.8	21.4	22.0	22.2	21.2	21.1	21.4	21.0	19.3	18.7	19.6	20.5
% saying most or all	0.8	0.7	0.9	1.0	1.2	1.2	1.5	1.7	1.6	1.5	1.5	1.8	1.5	1.4	1.5	1.3
Take cocaine powder																
% saying any	14.7	14.1	15.4	17.3	19.7	21.7	22.5	23.0	21.0	21.2	20.9	20.5	18.5	19.0	19.8	20.9
% saying most or all	0.8	0.8	0.8	1.1	1.3	1.4	1.7	2.0	1.9	1.7	1.5	2.0	1.5	1.4	1.5	1.6
Take heroin																
% saying any	7.8	8.1	9.3	10.5	11.1	11.7	11.8	11.5	10.7	10.1	11.4	10.3	9.9	9.0	9.8	10.1
% saying most or all	0.6	0.6	0.7	0.6	0.8	0.7	0.9	1.0	1.0	0.8	0.9	1.2	1.0	0.8	1.0	0.9
Drink alcoholic beverages																
% saying any	92.9	91.3	91.8	92.8	92.2	92.4	92.2	91.4	91.4	92.0	91.3	89.4	87.5	87.7	88.0	88.1
% saying most or all	49.6	48.2	49.9	50.3	50.7	53.4	50.7	50.1	50.3	52.0	50.2	45.7	44.9	44.5	43.9	46.2
Get drunk at least once a week																
% saying any	75.1	72.6	74.5	76.9	75.3	76.7	76.2	74.9	75.9	77.3	76.4	73.1	72.1	71.1	71.1	72.8
% saying most or all	19.3	18.6	20.2	20.3	20.6	23.1	21.8	21.2	22.8	23.5	22.4	19.9	20.9	19.0	18.3	20.5
Smoke cigarettes																
% saying any	81.2	82.0	85.4	86.3	88.0	89.3	88.1	87.1	85.4	84.6	82.7	77.2	75.1	73.9	73.6	72.5
% saying most or all	18.2	18.7	22.8	24.7	27.8	32.8	29.3	27.8	25.9	21.2	19.3	15.8	14.2	13.4	12.6	13.0
Vape using a JUUL^a																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine^c																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco																
% saying any	53.1	53.1	57.5	58.4	57.9	55.0	52.0	47.5	44.8	42.3	45.5	41.8	38.6	37.6	41.5	45.3
% saying most or all	7.5	7.3	7.7	7.6	7.3	6.0	6.4	5.8	4.7	4.6	5.2	5.2	4.4	4.5	5.6	5.8
<i>Approximate weighted N =</i>	<i>14,300</i>	<i>14,000</i>	<i>14,600</i>	<i>15,000</i>	<i>16,100</i>	<i>14,800</i>	<i>14,700</i>	<i>14,400</i>	<i>8,700</i>	<i>9,100</i>	<i>9,000</i>	<i>9,100</i>	<i>10,100</i>	<i>10,500</i>	<i>10,400</i>	<i>10,500</i>

Table continued on next page.

TABLE 9-5 (cont.)
Trends in Friends' Use of Drugs as Estimated by 10th Graders
(Entries are percentages.)

<i>How many of your friends would you estimate . . .</i>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019^b</u>	<u>2020</u>	<u>2021</u>
Use marijuana															
% saying any	66.4	64.6	67.6	70.9	70.9	70.7	71.9	69.4	66.7	65.6	66.0	66.6	66.7	§	45.3*
% saying most or all	17.8	18.9	22.0	23.9	25.6	26.2	27.8	25.1	21.4	21.2	22.7	23.6	25.1	§	12.8*
Use inhalants															
% saying any	21.2	21.1	19.7	20.2	18.1	15.3	14.9	12.6	11.1	10.2	10.4	10.3	9.9	§	8.6*
% saying most or all	2.1	2.2	2.0	2.1	1.7	1.5	1.6	1.4	1.2	1.2	1.2	1.1	1.3	§	0.9*
Take crack															
% saying any	20.1	19.4	18.4	19.1	17.0	15.4	14.4	12.4	11.7	11.0	10.6	10.2	9.4	§	6.7*
% saying most or all	1.5	1.4	1.2	1.5	1.1	1.1	1.2	1.2	1.1	1.0	0.9	0.9	1.3	§	0.6*
Take cocaine powder															
% saying any	21.2	20.2	18.6	18.5	16.7	15.6	14.9	12.9	12.5	11.8	11.4	11.4	11.4	§	5.8*
% saying most or all	1.5	1.4	1.4	1.4	1.0	1.1	1.3	1.0	1.1	1.0	0.8	0.9	1.5	§	0.5*
Take heroin															
% saying any	9.9	10.6	10.0	10.6	9.1	8.8	7.8	7.0	6.6	6.5	6.1	4.9	5.8	§	3.0*
% saying most or all	0.9	1.1	1.1	0.9	0.6	0.8	0.9	0.8	0.8	0.7	0.7	0.5	1.0	§	0.4*
Drink alcoholic beverages															
% saying any	88.2	87.0	87.5	87.8	85.9	84.9	83.9	80.5	78.0	75.0	75.2	75.9	74.3	§	56.9*
% saying most or all	44.7	41.3	42.1	42.0	38.2	39.3	36.8	31.9	29.0	24.4	25.4	26.1	23.6	§	15.0*
Get drunk at least once a week															
% saying any	73.5	70.1	70.4	69.7	66.4	66.3	63.4	58.0	54.1	50.2	51.2	51.8	50.2	§	38.2*
% saying most or all	19.7	16.1	16.8	16.0	15.2	15.9	14.4	12.3	9.9	8.2	8.2	8.9	7.8	§	5.5*
Smoke cigarettes															
% saying any	72.1	70.7	71.3	72.7	70.2	66.5	62.6	57.2	51.7	46.3	43.7	43.3	35.3	§	23.4*
% saying most or all	11.8	10.5	11.4	11.8	10.2	8.9	7.3	5.8	5.0	3.5	3.2	3.6	3.2	§	1.6*
Vape using a JUUL^a															
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	70.0	§	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	30.2	§	—
Vape an e-liquid with nicotine^c															
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	53.2*
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.8*
Use smokeless tobacco															
% saying any	44.5	41.6	45.6	48.8	47.1	44.2	45.1	42.6	39.0	32.8	32.2	33.1	26.3	§	16.6*
% saying most or all	5.1	4.8	5.7	7.3	5.5	6.0	6.1	6.1	5.2	3.9	3.0	3.7	3.2	§	1.3*
<i>Approximate weighted N =</i>	<i>10,300</i>	<i>9,700</i>	<i>10,300</i>	<i>9,900</i>	<i>9,700</i>	<i>9,700</i>	<i>8,400</i>	<i>8,400</i>	<i>10,100</i>	<i>9,300</i>	<i>8,500</i>	<i>8,500</i>	<i>4,500</i>	<i>§</i>	<i>5,800</i>

Table continued on next page.

TABLE 9-5 (cont.)
Trends in Friends' Use of Drugs as Estimated by 10th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. In 2000, this set of questions was removed from one of the four forms in which it appeared, which resulted in a slight adjustment in the average change scores that year. To correct for this, although this set of questions was asked in all four forms in 1999, the data presented here for 1999 are from only the three forms in which the questions are still asked. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aData based on two of four forms; N is one half of N indicated.

^bThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^cData based on two-thirds of N indicated.

TABLE 9-6
Trends in Friends' Use of Drugs as Estimated by 12th Graders

(Entries are percentages.)

How many of your friends would you estimate . . .

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Take any illicit drug ^a																
% saying any	85.8	84.6	86.9	87.5	89.0	87.5	85.4	86.3	82.6	81.0	82.4	82.2	81.7	79.1	76.9	71.0
% saying most or all	31.9	31.7	33.2	36.3	37.0	32.5	29.8	26.5	23.8	20.9	22.7	21.5	18.6	15.8	15.7	11.6
Take any illicit drug other than marijuana ^a																
% saying any	66.7	55.5	57.5	56.4	61.3	62.4	63.3	64.7	61.2	61.3	61.8	63.3	62.4	56.5	56.2	50.1
% saying most or all	10.6	8.9	7.7	8.5	10.4	11.1	11.9	10.9	11.0	10.3	10.4	10.3	9.2	6.9	7.7	5.1
Use marijuana																
% saying any	83.0	82.9	85.9	86.1	87.6	86.4	83.0	84.4	80.3	77.7	79.5	79.2	78.4	75.3	72.5	68.3
% saying most or all	30.3	30.6	32.3	35.3	35.5	31.3	27.7	23.8	21.7	18.3	19.8	18.2	15.8	13.6	13.4	10.1
Use inhalants																
% saying any	24.3	18.6	18.9	20.0	19.1	17.8	16.5	18.4	16.1	19.3	21.2	22.4	24.7	20.8	22.1	20.0
% saying most or all	1.1	1.1	1.0	1.1	1.1	1.2	0.9	1.3	1.1	1.1	1.5	2.0	1.9	1.2	1.9	1.0
Use nitrites																
% saying any	—	—	—	—	21.6	19.0	17.4	17.5	14.5	15.0	15.6	18.0	18.3	13.6	13.3	10.4
% saying most or all	—	—	—	—	1.9	1.3	1.2	0.9	0.7	1.2	1.0	1.2	1.3	0.7	0.9	0.6
Take LSD																
% saying any	36.5	30.6	31.9	29.9	28.9	28.1	28.5	27.8	24.0	23.9	24.4	24.5	25.3	24.1	25.2	25.0
% saying most or all	2.7	2.8	3.0	2.0	1.9	1.8	2.2	2.4	1.4	2.0	1.5	1.8	1.6	1.5	2.4	1.9
Take other hallucinogens ^b																
% saying any	41.2	30.3	31.4	29.2	28.2	28.2	26.3	25.6	22.1	21.3	22.0	22.3	21.7	17.8	18.1	15.9
% saying most or all	4.7	3.0	2.8	2.0	2.2	2.2	2.1	1.9	1.6	1.9	1.4	1.3	1.2	0.9	1.4	1.0
Take PCP																
% saying any	—	—	—	—	27.8	22.2	17.2	17.3	14.2	14.2	15.9	16.1	15.5	13.5	14.7	13.0
% saying most or all	—	—	—	—	1.7	1.6	0.9	0.9	1.1	1.1	1.2	1.2	1.1	0.8	1.2	0.5
Take ecstasy (MDMA) ^a																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.2
Take cocaine																
% saying any	33.6	28.8	30.1	33.2	38.9	41.6	40.1	40.7	37.6	38.9	43.8	45.6	43.7	37.7	37.4	31.7
% saying most or all	3.4	3.2	3.6	4.0	6.0	6.1	6.3	4.9	5.1	5.1	5.8	6.2	5.1	3.4	3.7	2.1
Take crack																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	27.4	25.4	26.1	19.2
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	2.2	1.1	2.1	0.6
Take cocaine powder																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.3	24.6
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.3	2.5
Approximate weighted N =	2,640	2,697	2,788	3,247	2,933	2,987	3,307	3,303	3,095	2,945	2,971	2,798	2,948	2,961	2,587	2,361

Table continued on next page.

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TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders

(Entries are percentages.)

How many of your friends would you estimate . . .

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Take any illicit drug ^a															
% saying any	69.1	67.3	71.0	78.3	78.6	80.6	83.4	84.6	82.0	82.0	82.8	81.8	80.7	81.2	79.8
% saying most or all	11.7	12.0	15.5	20.3	21.7	23.8	23.7	25.9	25.5	24.5	25.2	23.1	23.5	23.0	20.2
Take any illicit drug other than marijuana ^a															
% saying any	46.3	47.1	48.7	53.7	53.7	54.5	55.1	55.6	51.2	52.5	55.0	54.3	50.0	51.4	51.3
% saying most or all	4.6	5.3	7.1	7.1	7.7	8.9	7.0	8.9	7.4	7.4	7.0	6.1	6.7	7.3	6.7
Use marijuana															
% saying any	65.8	63.1	67.4	75.6	76.1	78.0	81.4	83.2	80.7	80.5	81.2	79.4	78.9	79.5	77.4
% saying most or all	10.0	10.3	13.9	18.9	20.7	22.2	22.5	23.8	24.2	23.2	24.0	21.4	21.7	21.1	17.9
Use inhalants															
% saying any	19.2	22.2	23.7	26.5	27.5	27.2	27.4	25.9	21.6	23.5	22.2	21.0	17.5	17.9	18.1
% saying most or all	0.7	1.8	1.8	2.0	2.0	2.4	1.9	2.7	1.8	1.4	1.4	1.2	1.1	1.2	2.0
Use nitrites															
% saying any	8.9	9.0	10.7	10.0	10.7	11.2	11.9	12.9	10.9	11.0	11.9	11.2	8.5	9.4	9.1
% saying most or all	0.4	0.7	0.7	0.8	0.8	0.8	0.7	1.0	0.7	1.0	0.6	0.8	1.0	1.2	1.0
Take LSD															
% saying any	23.4	28.1	31.3	34.1	36.9	37.9	36.5	36.8	32.2	31.9	32.2	28.6	21.9	23.5	19.5
% saying most or all	1.7	2.4	3.8	4.2	4.8	5.0	3.7	4.7	3.9	3.1	2.9	1.7	1.9	1.5	1.5
Take other hallucinogens ^b															
% saying any	15.1	17.0	19.3	21.4	23.8	26.4	26.3	27.4	22.5	24.0†	35.4	33.6	30.1	31.9	31.0
% saying most or all	0.8	1.0	1.7	2.2	2.2	2.3	2.6	3.1	2.4	2.4†	2.9	2.3	2.4	2.6	2.2
Take PCP															
% saying any	12.0	12.7	15.6	15.5	18.3	20.3	19.7	20.2	16.8	17.5	19.1	17.2	13.6	11.8	10.1
% saying most or all	0.5	0.9	1.9	1.2	1.2	1.3	1.4	1.6	1.5	1.7	1.3	1.0	1.5	1.1	1.0
Take ecstasy (MDMA) ^a															
% saying any	11.9	10.7	12.8	15.9	20.7	24.2	27.7	24.5	26.7	37.3	41.9	38.0	34.2	28.9	23.1
% saying most or all	1.7	2.1	1.2	1.7	2.8	3.0	2.6	2.5	2.7	4.8	5.2	3.7	2.7	3.2	2.5
Take cocaine															
% saying any	26.8	26.3	24.5	26.1	24.8	28.1	28.5	31.2	27.8	27.2	27.1	26.8	23.8	29.3	28.1
% saying most or all	1.5	1.5	2.1	1.5	2.0	2.2	2.0	3.2	2.9	2.0	1.7	1.7	2.4	2.3	2.3
Take crack															
% saying any	17.6	17.8	17.9	20.0	19.2	21.6	22.2	24.4	19.0	21.4	23.4	21.5	18.7	22.5	22.9
% saying most or all	0.6	0.7	0.9	1.0	1.1	0.9	1.1	1.7	1.5	1.4	0.8	0.8	1.4	1.6	1.6
Take cocaine powder															
% saying any	19.8	19.7	18.1	20.7	19.2	22.8	24.8	22.9	22.0	21.3	20.1	22.4	23.2	25.4	23.2
% saying most or all	1.8	2.0	1.6	1.9	1.7	1.9	2.0	1.9	1.9	1.8	1.5	1.9	1.9	3.3	1.7
Approximate weighted N =	2,339	2,373	2,410	2,337	2,379	2,156	2,292	2,313	2,060	1,838	1,923	1,968	2,233	2,271	2,266

Table continued on next page.

TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders

(Entries are percentages.)

How many of your friends would you estimate . . .

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021
Take any illicit drug ^a																
% saying any	78.8	77.7	80.1	79.2	80.4	81.7	78.9	80.8	80.8	78.2	79.9	79.6	78.1	77.2	§	64.5*
% saying most or all	20.9	21.7	21.3	22.4	25.4	29.1	26.4	26.7	24.6	28.0	24.9	26.1	26.7	25.4	§	19.7*
Take any illicit drug other than marijuana ^a																
% saying any	51.0	50.0	49.3	49.4	53.7	49.9	48.9	45.4	43.7	41.2	44.2	40.3	41.1	38.7	§	33.8*
% saying most or all	5.3	6.5	5.3	5.6	7.1	6.5	5.5	4.3	5.1	6.0	4.6	4.6	4.8	4.3	§	0.9*
Use marijuana																
% saying any	76.4	74.8	78.2	77.2	79.7	80.6	77.7	80.2	79.3	76.9	78.9	78.2	76.5	76.4	§	63.6*
% saying most or all	19.6	19.2	19.9	20.9	23.6	27.3	25.0	25.7	23.4	25.9	23.8	24.3	25.7	24.9	§	18.6*
Use inhalants																
% saying any	19.0	17.9	18.0	18.0	19.0	16.4	12.3	12.1	9.4	8.7	8.8	7.2	9.0	8.0	§	3.5*
% saying most or all	1.2	1.6	1.1	0.9	1.8	1.4	0.9	1.1	0.7	0.8	0.8	0.7	1.1	0.7	§	0.1*
Use nitrites																
% saying any	8.1	7.7	7.3	7.7	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	0.5	0.7	0.5	0.2	—	—	—	—	—	—	—	—	—	—	—	—
Take LSD																
% saying any	18.7	18.3	20.9	21.3	22.3	22.5	21.3	17.7	18.0	18.9	22.7	20.1	21.5	21.2	§	17.7*
% saying most or all	0.8	1.2	1.1	1.1	1.5	1.4	1.3	1.2	1.2	1.6	1.0	1.5	2.0	1.9	§	0.2*
Take other hallucinogens ^b																
% saying any	30.1	30.1	29.4	30.5	32.3	31.8	29.5	26.9	22.0	22.1	23.7	20.0	21.5	18.8	§	21.7*
% saying most or all	1.7	1.7	1.8	1.6	2.0	2.1	2.0	1.6	1.6	1.7	1.0	1.2	1.7	1.2	§	0.2*
Take PCP																
% saying any	10.6	9.4	9.4	9.3	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	0.5	0.8	0.5	0.5	—	—	—	—	—	—	—	—	—	—	—	—
Take ecstasy (MDMA) ^a																
% saying any	23.1	23.6	24.7	23.5	25.9	27.5	26.8	25.6	24.3	26.3	24.4	22.4	19.4	16.3	§	14.8*
% saying most or all	1.9	2.1	2.4	2.2	2.1	2.7	2.7	1.8	2.3	2.0	2.6	2.1	2.0	1.8	§	2.5*
Take cocaine																
% saying any	29.7	29.7	25.2	24.0	22.9	18.8	18.1	18.8	17.9	18.3	16.9	17.0	18.1	15.7	§	9.2*
% saying most or all	1.9	2.1	1.2	1.8	1.4	1.0	0.8	1.1	0.8	1.5	0.9	1.1	1.0	1.5	§	0.2*
Take crack																
% saying any	22.3	21.8	19.1	18.8	15.2	12.1	10.4	10.3	9.0	10.1	8.0	8.0	8.6	7.5	§	2.6*
% saying most or all	1.0	1.3	1.1	1.1	1.5	0.9	0.8	0.9	0.8	1.0	0.7	1.0	0.8	1.1	§	0.2*
Take cocaine powder																
% saying any	22.8	22.3	22.6	19.1	17.6	15.9	17.4	15.6	15.4	14.7	16.0	17.1	15.8	12.9	§	13.0*
% saying most or all	1.7	1.8	1.5	1.5	1.0	1.6	1.5	1.2	1.8	1.2	2.2	2.2	2.1	1.8	§	0.2*
Approximate weighted N =	2,217	2,253	2,125	2,110	2,195	2,208	2,144	1,973	1,920	2,055	1,828	1,955	2,002	946	§	1,398

Table continued on next page.

↓
(List of drugs continued)

TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders

(Entries are percentages.)

How many of your friends would you estimate . . .

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Take heroin																
% saying any	15.2	13.6	12.9	14.3	12.9	13.0	12.5	13.2	12.0	13.0	14.5	15.3	13.9	12.4	14.0	11.4
% saying most or all	0.7	0.8	0.7	0.9	0.5	1.0	0.5	0.7	0.8	0.8	0.9	1.1	0.9	0.7	1.1	0.4
Take other narcotics ^c																
% saying any	28.8	24.1	23.7	23.2	23.1	22.4	23.1	23.9	20.8	21.4	22.8	21.8	23.2	19.2	19.2	17.2
% saying most or all	2.1	2.2	1.7	1.4	1.5	1.7	1.5	1.4	1.4	1.6	1.4	1.8	1.4	1.2	1.4	0.9
Take amphetamines ^d																
% saying any	51.0	42.2	41.3	40.7	40.7	43.9	48.8	50.6	46.1	45.1	43.3	41.8	39.5	33.4	33.5	28.7
% saying most or all	5.9	5.6	4.1	4.7	4.3	4.8	6.4	5.4	5.1	4.5	3.4	3.4	2.6	1.9	2.6	1.9
Take crystal methamphetamine (ice)																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.1
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.7
Take sedatives (barbiturates) ^e																
% saying any	45.0	36.3	34.7	32.5	30.7	30.5	31.1	31.3	28.3	26.6	27.1	25.6	24.3	19.7	20.3	17.4
% saying most or all	4.3	3.5	3.0	2.3	2.1	2.6	2.1	1.8	1.7	1.7	1.6	1.4	1.1	1.1	1.4	0.6
Take qualudes																
% saying any	31.7	27.0	28.3	27.0	27.7	32.5	35.0	35.5	29.7	26.1	26.0	23.5	22.0	17.1	16.6	14.3
% saying most or all	3.0	1.8	2.9	2.2	2.8	3.6	3.6	2.6	2.6	1.7	1.3	1.6	1.0	1.0	1.3	0.8
Take tranquilizers ^f																
% saying any	45.6	36.3	37.8	34.8	32.0	29.7	29.5	29.9	26.7	26.6	25.8	24.2	23.3	19.9	18.0	14.9
% saying most or all	3.5	3.1	2.7	1.8	2.0	1.9	1.4	1.1	1.2	1.5	1.2	1.3	1.0	0.7	1.5	0.5
Drink alcoholic beverages																
% saying any	96.7	95.1	94.4	94.9	95.4	96.1	94.7	95.7	95.5	94.6	94.6	95.6	95.4	95.7	95.1	92.0
% saying most or all	68.4	64.7	66.2	68.9	68.5	68.9	67.7	69.7	69.0	66.6	66.0	68.0	71.8	68.1	67.1	60.5
Get drunk at least once a week																
% saying any	82.4	80.7	81.0	82.0	83.3	83.1	81.8	83.1	83.9	81.5	82.5	84.7	85.6	84.4	82.8	79.2
% saying most or all	30.1	26.6	27.6	30.2	32.0	30.1	29.4	29.9	31.0	29.6	29.9	31.8	31.3	29.6	31.1	27.5
Smoke cigarettes																
% saying any	95.2	93.7	93.7	93.1	92.1	90.6	88.5	88.3	87.0	86.0	87.0	87.8	88.3	87.7	86.5	84.9
% saying most or all	41.5	36.7	33.9	32.2	28.6	23.3	22.4	24.1	22.4	19.2	22.8	21.5	21.0	20.2	23.1	21.4
Vape an e-liquid with nicotine ⁱ																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take steroids																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.9
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8
Approximate weighted N =	2,640	2,697	2,788	3,247	2,933	2,987	3,307	3,303	3,095	2,945	2,971	2,798	2,948	2,961	2,587	2,361

Table continued on next page.

TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders
(Entries are percentages.)

How many of your friends would you estimate . . .

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Take heroin																
% saying any	11.4	13.2	13.3	14.3	14.5	15.6	15.6	16.5	12.7	14.9	13.1	12.9	10.3	12.7	13.1	12.8
% saying most or all	0.4	0.7	1.1	1.0	1.1	0.9	0.8	1.3	1.0	1.1	0.9	0.7	0.9	0.9	1.1	0.8
Take other narcotics ^e																
% saying any	13.7	14.9	16.1	18.5	19.5	21.8	22.2	24.8	22.9	23.1	24.0	27.5	21.6	24.6	21.4	23.0
% saying most or all	0.5	1.1	1.2	1.0	1.6	1.5	1.4	2.9	1.8	2.0	2.0	2.1	2.4	2.4	1.9	1.9
Take amphetamines ^o																
% saying any	24.3	24.3	27.5	28.1	30.3	32.2	32.7	33.8	30.8	32.9	33.2	34.4	28.1	31.4	28.8	29.0
% saying most or all	1.3	1.3	2.0	1.8	2.0	2.8	2.4	3.4	2.8	3.1	2.2	2.4	2.1	2.9	2.2	2.0
Take crystal methamphetamine (ice)																
% saying any	10.2	8.9	9.4	11.8	12.9	15.9	18.6	16.8	15.7	16.9	17.0	17.5	16.2	17.8	14.3	13.4
% saying most or all	1.0	1.5	1.2	1.5	1.7	1.5	2.3	2.1	1.1	2.0	1.6	2.0	1.8	3.0	1.9	1.2
Take sedatives (barbiturates) ^e																
% saying any	14.8	16.4	17.8	18.2	17.8	21.6	20.4	22.8	20.9	21.6	22.1	25.3	18.1‡	25.2	22.3	22.5
% saying most or all	0.5	0.6	1.0	1.1	1.4	1.6	1.1	2.5	1.4	1.7	1.1	1.7	1.9‡	2.0	1.8	1.3
Take quaaludes																
% saying any	12.0	13.1	14.2	14.2	15.5	18.1	16.1	17.4	15.5	16.2	17.8	18.0	14.2	16.6	13.6	13.4
% saying most or all	0.5	0.8	1.1	1.1	1.3	1.7	1.1	2.0	1.4	1.4	1.2	1.2	1.2	1.6	1.3	1.3
Take tranquilizers [†]																
% saying any	13.5	14.6	15.5	16.5	15.8	18.1	17.9	19.7	16.4	19.4	18.6	21.2	17.2	18.3	16.9	15.3
% saying most or all	0.4	0.7	0.9	0.9	1.1	1.4	0.8	2.3	1.3	2.1	1.3	1.6	1.5	1.7	1.6	1.2
Drink alcoholic beverages																
% saying any	91.2	90.5	88.9	90.1	90.9	89.6	90.7	91.2	90.2	89.8	89.2	88.0	87.9	87.8	87.2	86.0
% saying most or all	58.6	56.9	57.0	59.6	56.4	56.4	60.9	61.0	58.2	57.2	59.2	53.7	53.1	53.9	55.3	52.4
Get drunk at least once a week																
% saying any	79.8	79.9	79.2	81.4	78.9	78.5	82.4	81.1	81.5	79.5	79.6	78.3	77.3	79.0	78.7	77.4
% saying most or all	29.7	28.6	27.6	28.4	27.4	29.0	30.9	31.7	30.1	32.4	32.7	28.3	27.1	27.6	28.5	27.7
Smoke cigarettes																
% saying any	85.7	84.4	84.8	88.1	87.9	88.3	89.9	89.5	89.3	87.2	86.8	85.4	83.3	83.7	81.8	81.4
% saying most or all	21.8	21.4	25.0	25.3	27.5	30.4	34.4	33.9	31.1	28.2	25.0	23.0	19.6	20.6	16.7	15.8
Vape an e-liquid with nicotine [†]																
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take steroids																
% saying any	24.7	21.5	19.0	18.1	19.5	17.9	18.9	18.3	20.0	19.8	21.7	21.6	21.1	22.8	19.1	19.8
% saying most or all	1.0	1.7	0.9	1.2	1.3	0.8	1.7	1.4	0.9	1.9	1.2	1.5	1.5	2.6	1.5	0.9
Approximate weighted N =	2,339	2,373	2,410	2,337	2,379	2,156	2,292	2,313	2,060	1,838	1,923	1,968	2,233	2,271	2,266	2,217

Table continued on next page.

TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders

(Entries are percentages.)

How many of your friends would you estimate . . .

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021 ^j
Take heroin															
% saying any	12.9	11.2	12.7	12.4	10.2	7.7	8.5	7.9	7.1	6.0	5.3	5.8	4.6	§	2.1*
% saying most or all	1.4	0.7	0.9	1.3	0.6	0.6	0.6	0.5	0.7	0.7	0.9	0.3	0.7	§	0.1*
Take other narcotics ^c															
% saying any	20.7	20.6	21.5‡	36.3	31.0	28.5	25.8	22.0	20.0	20.5	18.4	14.7	14.2	§	7.6*
% saying most or all	2.6	1.3	1.9‡	3.8	2.6	1.8	1.9	1.8	1.5	1.7	1.7	1.3	0.9	§	0.0*
Take amphetamines ^d															
% saying any	27.4	27.3	30.0	31.1	31.3	30.5	25.7	25.0	24.2	27.3	21.4	21.5	18.9	§	15.1*
% saying most or all	2.4	1.8	2.0	2.9	2.2	2.4	2.2	2.9	2.5	2.4	1.7	1.7	1.4	§	0.4*
Take crystal methamphetamine (ice)															
% saying any	11.9	10.9	9.4	9.2	8.9	9.6	8.9	8.2	6.8	7.9	9.0	6.2	7.0	§	4.4*
% saying most or all	0.8	1.4	1.5	1.0	1.3	1.5	1.0	1.5	0.9	1.8	1.3	1.4	1.4	§	0.4*
Take sedatives (barbiturates) ^e															
% saying any	20.8	19.8	21.0	23.5	21.1	17.3	15.5	14.2	14.5	15.1	12.9	11.9	11.3	§	8.1*
% saying most or all	1.6	1.3	1.3	1.5	1.3	1.5	1.2	1.1	1.4	1.4	1.0	0.8	1.3	§	0.1*
Take quaaludes															
% saying any	13.6	11.2	14.3	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	1.6	0.8	1.1	—	—	—	—	—	—	—	—	—	—	—	—
Take tranquilizers ^f															
% saying any	15.5	15.0	15.8	16.1	13.9	13.3	11.7	10.1	11.5	12.0	11.1	10.5	9.9	§	11.9*
% saying most or all	1.8	1.2	1.5	1.4	0.8	0.8	1.0	1.3	1.5	1.1	1.0	0.7	0.7	§	0.0*
Drink alcoholic beverages															
% saying any	85.1	85.2	83.7	83.9	82.6	82.0	82.0	79.7	75.5	77.2	75.7	74.2	71.2	§	63.6*
% saying most or all	52.0	51.6	50.5	51.4	50.3	49.4	46.9	46.2	42.3	39.2	39.7	38.0	35.5	§	26.4*
Get drunk at least once a week															
% saying any	75.5	76.2	76.2	73.5	71.9	68.9	69.9	64.2	58.9	59.0	58.0	55.4	53.9	§	45.0*
% saying most or all	27.0	25.2	24.4	23.7	23.8	21.2	20.7	18.5	15.5	11.5	12.4	11.6	11.2	§	7.6*
Smoke cigarettes															
% saying any	77.1	78.4	79.6	78.0	75.4	74.3	72.1	66.4	60.2	58.4	54.0	50.9	44.4	§	37.8*
% saying most or all	16.4	13.9	14.1	14.9	14.1	12.2	11.0	8.1	6.5	5.9	6.6	6.1	4.7	§	1.1*
Vape an e-liquid with nicotine ⁱ															
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	63.8*
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.2*
Take steroids															
% saying any	20.1	19.4	19.3	16.4	16.0	18.7	17.4	15.7	12.8	15.5	13.7	13.0	11.7	§	6.9*
% saying most or all	1.2	1.3	1.5	1.7	1.1	1.8	1.5	1.7	1.0	1.9	1.7	1.5	1.3	§	0.1*
Approximate weighted N =	2,253	2,125	2,110	2,195	2,208	2,144	1,973	1,920	2,055	1,828	1,955	2,002	946	§	1,398

Table continued on next page.

TABLE 9-6 (cont.)
Trends in Friends' Use of Drugs as Estimated by 12th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available. '‡' indicates that the question changed the following year. See relevant footnote. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aThese estimates were derived from responses to the questions listed. Any illicit drug includes all drugs listed except ecstasy (MDMA), cocaine powder, crystal methamphetamine (ice), alcohol, get drunk, cigarettes, and steroids. PCP and nitrites were not included from 1975 to 1978. Crack was not included from 1975 to 1986. Methaqualone was not included beginning in 2010.

^bIn 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

^cIn 2010 the list of examples for narcotics other than heroin was changed from methadone and opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^dIn 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin.

^eIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^fIn 2001 for tranquilizers, Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

^gBeginning in 2014 "molly" was added to the question on friends' use of Ecstasy (MDMA). An examination of the data did not show any effect from this wording change.

^hThe *N* for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

ⁱData based on three of six forms. *N* is approximately three times *N* indicated.

^jSample is decreased by approximately 50% for the following drugs due to survey question experiments: cigarettes, marijuana, LSD, hallucinogens other than LSD, amphetamines, sedatives (barbiturates), tranquilizers, cocaine, heroin, narcotics other than heroin, inhalants, alcohol, getting drunk, crack, cocaine powder, ecstasy (MDMA, molly), crystal methamphetamine (ice), and steroids.

TABLE 9-7
Trends in Availability of Drugs as Perceived by 8th Graders

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Percentage saying fairly easy or very easy to get ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Marijuana	—	42.3	43.8	49.9	52.4	54.8	54.2	50.6	48.4	47.0	48.1	46.6	44.8	41.0	41.1	39.6
LSD	—	21.5	21.8	21.8	23.5	23.6	22.7	19.3	18.3	17.0	17.6	15.2	14.0	12.3	11.5	10.8
PCP ^b	—	18.0	18.5	17.7	19.0	19.6	19.2	17.5	17.1	16.0	15.4	14.1	13.7	11.4	11.0	10.5
MDMA (e.g. ecstasy, "Molly") ^b	—	—	—	—	—	—	—	—	—	—	23.8	22.8	21.6	16.6	15.6	14.5
Crack	—	25.6	25.9	26.9	28.7	27.9	27.5	26.5	25.9	24.9	24.4	23.7	22.5	20.6	20.8	20.9
Cocaine powder	—	25.7	25.9	26.4	27.8	27.2	26.9	25.7	25.0	23.9	23.9	22.5	21.6	19.4	19.9	20.2
Heroin	—	19.7	19.8	19.4	21.1	20.6	19.8	18.0	17.5	16.5	16.9	16.0	15.6	14.1	13.2	13.0
Narcotics other than Heroin ^{b,c}	—	19.8	19.0	18.3	20.3	20.0	20.6	17.1	16.2	15.6	15.0	14.7	15.0	12.4	12.9	13.0
Amphetamines ^d	—	32.2	31.4	31.0	33.4	32.6	30.6	27.3	25.9	25.5	26.2	24.4	24.4	21.9	21.0	20.7
Crystal methamphetamine (ice) ^b	—	16.0	15.1	14.1	16.0	16.3	15.7	16.0	14.7	14.9	13.9	13.3	14.1	11.9	13.5	14.5
Sedatives (barbiturates)	—	27.4	26.1	25.3	26.5	25.6	24.4	21.1	20.8	19.7	20.7	19.4	19.3	18.0	17.6	17.3
Tranquilizers	—	22.9	21.4	20.4	21.3	20.4	19.6	18.1	17.3	16.2	17.8	16.9	17.3	15.8	14.8	14.4
Alcohol	—	76.2	73.9	74.5	74.9	75.3	74.9	73.1	72.3	70.6	70.6	67.9	67.0	64.9	64.2	63.0
Cigarettes	—	77.8	75.5	76.1	76.4	76.9	76.0	73.6	71.5	68.7	67.7	64.3	63.1	60.3	59.1	58.0
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored e-liquid with nicotine (for vaping) ^{e,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	—	24.0	22.7	23.1	23.8	24.1	23.6	22.3	22.6	22.3	23.1	22.0	21.7	19.7	18.1	17.1
<i>Approximate weighted N =</i>		8,355	16,775	16,119	15,496	16,318	16,482	16,208	15,397	15,180	14,804	13,972	15,583	15,944	15,730	15,502

Table continued on next page.

TABLE 9-7 (cont.)
Trends in Availability of Drugs as Perceived by 8th Graders

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Percentage saying fairly easy or very easy to get ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021 ⁱ
Marijuana	37.4	39.3	39.8	41.4	37.9	36.9	39.1	36.9	37.0	34.6	35.2	35.0	34.9	§	26.7*
LSD	10.5	10.9	10.0	10.0	9.3	7.5	7.4	6.9	6.6	6.9	6.3	6.5	6.9	§	6.3*
PCP ^b	9.5	10.1	9.1	8.0	7.9	6.7	5.8	5.5	5.1	4.8	4.6	4.7	5.6	§	4.4*
MDMA (e.g. ecstasy, "Molly") ^b	13.4	14.1	13.1	12.9	12.0	9.6	9.5	10.1	9.6	8.7	8.0	7.2	8.5	§	6.4*
Crack	19.7	20.2	18.6	17.9	15.7	14.4	13.7	12.0	11.3	11.1	10.2	9.6	9.0	§	7.5*
Cocaine powder	19.0	19.5	17.8	16.6	14.9	14.1	13.5	11.9	11.6	11.0	10.4	9.8	9.5	§	7.7*
Heroin	12.6	13.3	12.0	11.6	9.9	9.4	10.0	8.6	7.8	8.9	8.1	7.8	8.1	§	5.4*
Narcotics other than Heroin ^{b,c}	11.7	12.1	11.8‡	14.6	12.3	10.6	9.7	9.2	8.8	8.9	8.9	8.3	9.3	§	6.0*
Amphetamines ^d	19.9	21.3	20.2	19.6‡	15.0	13.4	12.8	12.1	11.8	12.1	11.0	11.6	12.8	§	11.4*
Crystal methamphetamine (ice) ^b	12.1	12.8	11.9	10.9	9.6	8.8	8.5	7.7	6.9	6.6	6.6	6.2	6.9	§	4.9*
Sedatives (barbiturates) ^e	16.8	17.5	15.9	15.3	12.6	11.1	10.6	10.0	9.0	9.3	9.2	8.6	9.0	§	8.1*
Tranquilizers	14.4	15.4	14.1	13.7	12.0	10.5	10.4	9.8	9.8	11.4	11.8	12.2	12.7	§	7.5*
Alcohol	62.0	64.1	61.8	61.1	59.0	57.5	56.1	54.4	53.6	52.7	53.2	53.9	53.1	§	47.9*
Cigarettes	55.6	57.4	55.3	55.5	51.9	50.7	49.9	47.2	47.0	45.6	46.2	45.7	42.9	§	38.0*
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	38.6	45.7	49.1	§	37.8*
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	31.0	37.9	46.1	§	35.1*
Flavored e-liquid with nicotine (for vaping) ^{e,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	§	33.8*
JUUL vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	51.5	§	43.6*
Steroids	17.0	16.8	15.2	14.2	13.3	12.5	12.9	11.8	11.6	12.6	11.6	10.9	11.4	§	9.1*
<i>Approximate weighted N =</i>															
	15,043	14,482	13,989	14,485	15,233	14,235	13,605	13,208	13,494	15,628	14,042	12,315	5,712	§	9,790

Table continued on next page.

TABLE 9-7 (cont.)
Trends in Availability of Drugs as Perceived by 8th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. ' — ' indicates data not available. ' ‡ ' indicates that the question changed the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, (5) Very easy, and (6) Can't say, drug unfamiliar.

^bBeginning in 1993, data based on one of two of forms; N is one half of N indicated. Beginning in 2014 data based on one sixth of N indicated. For MDMA only: In 2014 the question text was changed in one form to include "Molly." In 2015 a second form was changed to including "Molly;" data based on one sixth of N indicated in 2014 and on one half of N indicated in 2015. An examination of the data did not show any effect from this wording change.

^cIn 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^dIn 2011 the list of examples for amphetamines was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2012 results.

^eBeginning in 2017, data based on one half of N indicated.

^fPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

^gData based on three of four forms. N is two thirds of N indicated.

^hThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

ⁱSample is decreased by as much as 50% for the following drugs due to survey question experiments: crack, cocaine powder, heroin, narcotics other than heroin, tranquilizers, crystal methamphetamine (ice), alcohol, cigarettes, steroids, and vaping.

^jQuestion asks specifically about "e-liquid with nicotine (for vaping) with a flavor other than tobacco or menthol, such as mint or mango."

TABLE 9-8
Trends in Availability of Drugs as Perceived by 10th Graders

<i>How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?</i>	Percentage saying fairly easy or very easy to get ^a															
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Marijuana	—	65.2	68.4	75.0	78.1	81.1	80.5	77.9	78.2	77.7	77.4	75.9	73.9	73.3	72.6	70.7
LSD	—	33.6	35.8	36.1	39.8	41.0	38.3	34.0	34.3	32.9	31.2	26.8	23.1	21.6	20.7	19.2
PCP ^b	—	23.7	23.4	23.8	24.7	26.8	24.8	23.9	24.5	25.0	21.6	20.8	19.4	18.0	18.1	15.8
MDMA (e.g. ecstasy, "Molly") ^c	—	—	—	—	—	—	—	—	—	—	41.4	41.0	36.3	31.2	30.2	27.4
Crack	—	33.7	33.0	34.2	34.6	36.4	36.0	36.3	36.5	34.0	30.6	31.3	29.6	30.6	31.0	29.9
Cocaine powder	—	35.0	34.1	34.5	35.3	36.9	37.1	36.8	36.7	34.5	31.0	31.8	29.6	31.2	31.5	30.7
Heroin	—	24.3	24.3	24.7	24.6	24.8	24.4	23.0	23.7	22.3	20.1	19.9	18.8	18.7	19.3	17.4
Narcotics other than Heroin ^b	—	26.9	24.9	26.9	27.8	29.4	29.0	26.1	26.6	27.2	25.8	25.4	23.5	23.1	23.6	22.2
Amphetamines ^d	—	43.4	46.4	46.6	47.7	47.2	44.6	41.0	41.3	40.9	40.6	39.6	36.1	35.7	35.6	34.7
Crystal methamphetamine (ice) ^b	—	18.8	16.4	17.8	20.7	22.6	22.9	22.1	21.8	22.8	19.9	20.5	19.0	19.5	21.6	20.8
Sedatives (barbiturates)	—	38.0	38.8	38.3	38.8	38.1	35.6	32.7	33.2	32.4	32.8	32.4	28.8	30.0	29.7	29.9
Tranquilizers	—	31.6	30.5	29.8	30.6	30.3	28.7	26.5	26.8	27.6	28.5	28.3	25.6	25.6	25.4	25.1
Alcohol	—	88.6	88.9	89.8	89.7	90.4	89.0	88.0	88.2	87.7	87.7	84.8	83.4	84.3	83.7	83.1
Cigarettes	—	89.1	89.4	90.3	90.7	91.3	89.6	88.1	88.3	86.8	86.3	83.3	80.7	81.4	81.5	79.5
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored e-liquid with nicotine (for vaping) ^{e,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL vaping device ^h	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	—	37.6	33.6	33.6	34.8	34.8	34.2	33.0	35.9	35.4	33.1	33.2	30.6	29.6	29.7	30.2
<i>Approximate weighted N =</i>		7,014	14,652	15,192	16,209	14,887	14,856	14,423	13,112	13,690	13,518	13,694	15,255	15,806	15,636	15,804

Table continued on next page.

TABLE 9-8 (cont.)
Trends in Availability of Drugs as Perceived by 10th Graders

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Percentage saying fairly easy or very easy to get ^a														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	2020	2021 ^j
Marijuana	69.0	67.4	69.3	69.4	68.4	68.8	69.7	66.9	65.6	64.0	64.6	64.5	65.8	§	47.5*
LSD	19.0	19.3	17.8	18.3	16.6	14.9	16.3	14.8	15.5	15.2	15.9	14.9	16.2	§	13.4*
PCP ^b	15.4	14.4	13.4	12.6	12.0	10.2	9.4	8.3	9.0	7.6	7.1	7.3	9.5	§	6.8*
MDMA (e.g. ecstasy, "Molly") ^c	27.7	26.7	25.6	25.7	24.8	21.0	20.7	20.4	19.3	16.3	15.0	13.9	16.0	§	11.3*
Crack	29.0	27.2	23.9	22.5	19.7	18.4	17.1	15.1	14.4	13.9	13.8	13.0	13.6	§	8.6*
Cocaine powder	30.0	28.2	24.7	22.6	20.6	19.2	18.3	16.4	16.1	14.9	15.0	14.7	14.8	§	9.5*
Heroin	17.3	17.2	15.0	14.5	13.2	11.9	11.9	10.9	11.0	10.6	10.6	9.7	10.5	§	6.3*
Narcotics other than Heroin ^{b,g}	21.5	20.3	18.8‡	28.7	25.0	24.3	22.5	18.8	19.2	16.8	17.7	16.8	17.1	§	9.8*
Amphetamines ^d	33.3	32.0	31.8	32.6‡	28.5	27.3	26.5	25.2	27.3	22.9	24.2	23.4	23.0	§	16.4*
Crystal methamphetamine (ice) ^b	18.8	15.8	14.0	13.3	11.8	10.7	10.0	9.8	8.9	8.2	8.0	8.0	9.9	§	6.1*
Sedatives (barbiturates) ^e	28.2	26.9	25.5	24.9	22.0	20.2	18.3	16.7	16.6	14.2	15.1	14.4	14.5	§	11.3*
Tranquilizers	24.9	24.1	22.3	21.6	20.8	19.7	18.3	17.5	19.4	20.5	23.3	24.2	22.6	§	11.4*
Alcohol	82.6	81.1	80.9	80.0	77.9	78.2	77.2	75.3	74.9	71.1	71.5	70.6	68.9	§	60.2*
Cigarettes	78.2	76.5	76.1	75.6	73.6	72.9	71.4	69.0	66.6	62.9	62.5	61.5	58.4	§	48.0*
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	59.5	66.6	68.3	§	54.6*
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	52.8	60.4	64.5	§	48.5*
Flavored e-liquid with nicotine (for vaping) ^{e,k}	—	—	—	—	—	—	—	—	—	—	—	—	—	§	46.9*
JUUL vaping device ^h	—	—	—	—	—	—	—	—	—	—	—	—	68.8	§	55.6*
Steroids	27.7	24.5	20.8	20.3	18.8	18.0	17.2	16.5	17.0	15.3	15.0	14.5	13.7	§	10.9*
Approximate weighted N = 15,511 14,634 15,451 14,827 14,509 14,628 12,601 12,574 15,186 14,126 12,901 13,365 6,042 § 10,258															

Table continued on next page.

TABLE 9-8 (cont.)
Trends in Availability of Drugs as Perceived by 10th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. '‡' indicates that the question changed the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, (5) Very easy, and (6) Can't say, drug unfamiliar.

^bBeginning in 1993, data based on one of two forms; N is one half of N indicated. Beginning in 2014 data based on one sixth of N indicated.

^cBeginning in 1993, data based on one of two of forms; N is one half of N indicated. Beginning in 2014 data based on one sixth of N indicated for MDMA only:

In 2014 the question text was changed in one form to include "Molly." In 2015 a second form was changed to including "Molly;" data based on one sixth of N indicated in 2014 and on one half of N indicated in 2015. An examination of the data did not show any effect from this wording change.

^dIn 2011 the list of examples for amphetamines was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^eBeginning in 2017, data based on one half of N indicated.

^fPercentages for all years reported here include respondents who replied "can't say, drug unfamiliar" in the denominator. The percentage for 2017 published in late 2017 and early 2018 did not include these respondents in the denominator.

^gIn 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^hData based on three of four forms. N is two thirds of N indicated.

ⁱThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

^jSample is decreased by as much as 50% for the following drugs due to survey question experiments: crack, cocaine powder, heroin, narcotics other than heroin, tranquilizers, crystal methamphetamine (ice), alcohol, cigarettes, steroids, and vaping.

^kQuestion asks specifically about "e-liquid with nicotine (for vaping) with a flavor other than tobacco or menthol, such as mint or mango."

TABLE 9-9
Trends in Availability of Drugs as Perceived by 12th Graders

Percentage saying fairly easy or very easy to get ^a

<i>How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Marijuana	87.8	87.4	87.9	87.8	90.1	89.0	89.2	88.5	86.2	84.6	85.5	85.2	84.8	85.0	84.3	84.4
Amyl/butyl nitrites	—	—	—	—	—	—	—	—	—	—	—	—	23.9	25.9	26.8	24.4
LSD	46.2	37.4	34.5	32.2	34.2	35.3	35.0	34.2	30.9	30.6	30.5	28.5	31.4	33.3	38.3	40.7
Some other hallucinogen ^b	47.8	35.7	33.8	33.8	34.6	35.0	32.7	30.6	26.6	26.6	26.1	24.9	25.0	26.2	28.2	28.3
PCP	—	—	—	—	—	—	—	—	—	—	—	—	22.8	24.9	28.9	27.7
MDMA (e.g. ecstasy, "molly") ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.7	22.0
Cocaine	37.0	34.0	33.0	37.8	45.5	47.9	47.5	47.4	43.1	45.0	48.9	51.5	54.2	55.0	58.7	54.5
Crack	—	—	—	—	—	—	—	—	—	—	—	—	41.1	42.1	47.0	42.4
Cocaine powder	—	—	—	—	—	—	—	—	—	—	—	—	52.9	50.3	53.7	49.0
Heroin	24.2	18.4	17.9	16.4	18.9	21.2	19.2	20.8	19.3	19.9	21.0	22.0	23.7	28.0	31.4	31.9
Some other narcotic (including methadone) ^d	34.5	26.9	27.8	26.1	28.7	29.4	29.6	30.4	30.0	32.1	33.1	32.2	33.0	35.8	38.3	38.1
Amphetamines ^e	67.8	61.8	58.1	58.5	59.9	61.3	69.5	70.8	68.5	68.2	66.4	64.3	64.5	63.9	64.3	59.7
Crystal methamphetamine (ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.1
Sedatives (barbiturates) ^f	60.0	54.4	52.4	50.6	49.8	49.1	54.9	55.2	52.5	51.9	51.3	48.3	48.2	47.8	48.4	45.9
Tranquilizers	71.8	65.5	64.9	64.3	61.4	59.1	60.8	58.9	55.3	54.5	54.7	51.2	48.6	49.1	45.3	44.7
Alcohol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored e-liquid with nicotine (for vaping) ^{g,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	2,627	2,865	3,065	3,598	3,172	3,240	3,578	3,602	3,385	3,269	3,274	3,077	3,271	3,231	2,806	2,549

Table continued on next page.

TABLE 9-9 (cont.)
Trends in Availability of Drugs as Perceived by 12th Graders

Percentage saying fairly easy or very easy to get ^a

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Marijuana	83.3	82.7	83.0	85.5	88.5	88.7	89.6	90.4	88.9	88.5	88.5	87.2	87.1	85.8	85.6	84.9
Amyl/butyl nitrites	22.7	25.9	25.9	26.7	26.0	23.9	23.8	25.1	21.4	23.3	22.5	22.3	19.7	20.0	19.7	18.4
LSD	39.5	44.5	49.2	50.8	53.8	51.3	50.7	48.8	44.7	46.9	44.7	39.6	33.6	33.1	28.6	29.0
Some other hallucinogen ^b	28.0	29.9	33.5	33.8	35.8	33.9	33.9	35.1	29.5	34.5‡	48.5	47.7	47.2	49.4	45.0	43.9
PCP	27.6	31.7	31.7	31.4	31.0	30.5	30.0	30.7	26.7	28.8	27.2	25.8	21.9	24.2	23.2	23.1
MDMA (e.g. ecstasy, "Molly") ^c	22.1	24.2	28.1	31.2	34.2	36.9	38.8	38.2	40.1	51.4	61.5	59.1	57.5	47.9	40.3	40.3
Cocaine	51.0	52.7	48.5	46.6	47.7	48.1	48.5	51.3	47.6	47.8	46.2	44.6	43.3	47.8	44.7	46.5
Crack	39.9	43.5	43.6	40.5	41.9	40.7	40.6	43.8	41.1	42.6	40.2	38.5	35.3	39.2	39.3	38.8
Cocaine powder	46.0	48.0	45.4	43.7	43.8	44.4	43.3	45.7	43.7	44.6	40.7	40.2	37.4	41.7	41.6	42.5
Heroin	30.6	34.9	33.7	34.1	35.1	32.2	33.8	35.6	32.1	33.5	32.3	29.0	27.9	29.6	27.3	27.4
Some other narcotic (including methadone) ^d	34.6	37.1	37.5	38.0	39.8	40.0	38.9	42.8	40.8	43.9	40.5	44.0	39.3	40.2	39.2	39.6
Amphetamines ^e	57.3	58.8	61.5	62.0	62.8	59.4	59.8	60.8	58.1	57.1	57.1	57.4	55.0	55.4	51.2	52.9
Crystal methamphetamine (ice)	24.3	26.0	26.6	25.6	27.0	26.9	27.6	29.8	27.6	27.8	28.3	28.3	26.1	26.7	27.2	26.7
Sedatives (barbiturates) ^f	42.4	44.0	44.5	43.3	42.3	41.4	40.0	40.7	37.9	37.4	35.7	36.6	35.3‡	46.3	44.4	43.8
Tranquilizers	40.8	40.9	41.1	39.2	37.8	36.0	35.4	36.2	32.7	33.8	33.1	32.9	29.8	30.1	25.7	24.4
Alcohol	—	—	—	—	—	—	—	—	95.0	94.8	94.3	94.7	94.2	94.2	93.0	92.5
Cigarettes ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored e-liquid with nicotine (for vaping) ^{g,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	46.7	46.8	44.8	42.9	45.5	40.3	41.7	44.5	44.6	44.8	44.4	45.5	40.7	42.6	39.7	41.1
<i>Approximate weighted N =</i>	2,476	2,586	2,670	2,526	2,552	2,340	2,517	2,520	2,215	2,095	2,120	2,138	2,391	2,169	2,161	2,131

Table continued on next page.

TABLE 9-9 (cont.)
Trends in Availability of Drugs as Perceived by 12th Graders

	Percentage saying "fairly easy" or "very easy" to get ^a														
How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2020	2021 ⁱ
Marijuana	83.9	83.9	81.1	82.1	82.2	81.6	81.4	81.3	79.5	81.0	79.8	79.7	78.0	§	69.6*
Amyl/butyl nitrites	18.1	16.9	15.7	—	—	—	—	—	—	—	—	—	—	—	—
LSD	28.7	28.5	26.3	25.1	25.1	27.6	24.5	25.9	26.5	28.0	26.3	28.0	28.2	§	23.6*
Some other hallucinogen ^b	43.7	42.8	40.5	39.5	38.3	37.8	36.6	33.6	31.4	32.5	28.4	28.6	29.7	§	31.3*
PCP	21.0	20.6	19.2	18.5	17.2	14.2	15.3	11.1	13.8	12.6	10.6	10.8	11.0	§	—
MDMA (e.g. ecstasy, "Molly") ^c	40.9	41.9	35.1	36.4	37.1	35.9	35.1	36.1	37.1	32.5	29.3	27.7	24.3	§	20.8*
Cocaine	47.1	42.4	39.4	35.5	30.5	29.8	30.5	29.2	29.1	28.6	27.3	28.1	24.2	§	17.2*
Crack	37.5	35.2	31.9	26.1	24.0	22.0	24.6	20.1	22.0	19.8	18.1	20.8	16.9	§	10.0*
Cocaine powder	41.2	38.9	33.9	29.0	26.4	25.1	28.4	22.3	25.8	22.9	21.3	23.0	19.9	§	11.4*
Heroin	29.7	25.4	27.4	24.1	20.8	19.9	22.1	20.2	20.4	20.0	19.1	18.4	16.1	§	9.9*
Some other narcotic (including methadone) ^d	37.3	34.9	36.1‡	54.2	50.7	50.4	46.5	42.2	39.0	39.3	35.8	32.5	31.0	§	18.7*
Amphetamines ^e	49.6	47.9	47.1	44.1‡	47.0	45.4	42.7	44.5	41.9	41.1	38.0	39.3	39.0	§	29.4*
Crystal methamphetamine (ice)	25.1	23.3	22.3	18.3	17.1	14.5	17.2	13.7	15.3	14.5	13.6	13.6	11.9	§	7.6*
Sedatives (barbiturates) ^f	41.7	38.8	37.9	36.8	32.4	28.7	27.9	26.3	25.0	25.7	23.4	23.0	23.6	§	16.3*
Tranquilizers	23.6	22.4	21.2	18.4	16.8	14.9	15.0	14.4	14.9	15.2	14.9	13.0	14.7	§	25.5*
Alcohol	92.2	92.2	92.1	90.4	88.9	90.6	89.7	87.6	86.6	85.4	87.1	85.5	84.4	§	76.8*
Cigarettes ^g	—	—	—	—	—	—	—	—	—	—	77.9	75.1	74.7	§	57.9*
Vaping device ^g	—	—	—	—	—	—	—	—	—	—	78.2	80.5	82.9	§	71.5*
E-liquid with nicotine (for vaping) ^g	—	—	—	—	—	—	—	—	—	—	75.0	77.2	81.6	§	68.4*
Flavored e-liquid with nicotine (for vaping) ^{g,j}	—	—	—	—	—	—	—	—	—	—	—	—	—	§	68.0*
Steroids	40.1	35.2	30.3	27.3	26.1	25.0	28.5	22.0	23.7	21.3	20.1	21.1	19.2	§	12.9*
<i>Approximate weighted N =</i>	2,420	2,276	2,243	2,395	2,337	2,280	2,092	2,066	2,181	1,958	1,882	1,931	868	§	1,219

Table continued on next page.

TABLE 9-9 (cont.)
Trends in Availability of Drugs as Perceived by 12th Graders

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: $s = .05$, $ss = .01$, $sss = .001$. '—' indicates data not available. '‡' indicates that the question changed the following year. See relevant footnote for that drug. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§Estimates not presented due to insufficient data this year.

*Results may not be comparable to previous years. In 2021 MTF conducted survey administrations via the internet for the first time, and responses, especially on attitudes, can be sensitive to mode effects.

^aAnswer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, and (5) Very easy.

^bIn 2001 the question text was changed from other psychedelics to other hallucinogens and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

^cBeginning in 2014 "molly" was added to the question on availability of Ecstasy (MDMA). An examination of the data did not show any effect from this wording change.

^dIn 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^eIn 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^fIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

^gData based on 2 of 6 forms. N is twice the N indicated.

^hThe N for 2019 is approximately one-half of that for the full sample, because it is based on the half-sample who received the traditional paper and pencil questionnaire form.

ⁱSample is decreased by approximately 50% for the following drugs due to survey question experiments: marijuana, LSD, hallucinogens other than LSD, amphetamines, sedatives (barbiturates), tranquilizers, cocaine, heroin, and narcotics other than heroin.

^jQuestion asks specifically about "e-liquid with nicotine (for vaping) with a flavor other than tobacco or menthol, such as mint or mango."

TABLE 9-10
Source of Prescription Drugs
among Those Who Used in Last Year
Grade 12, 2009–2021

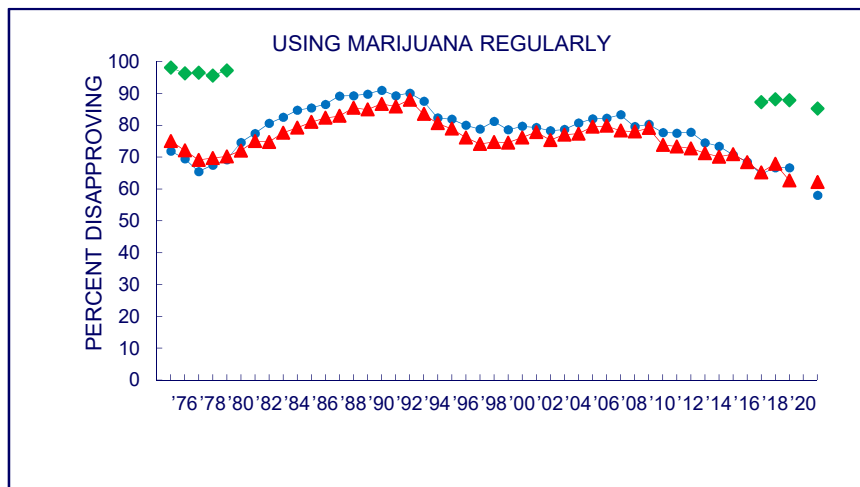
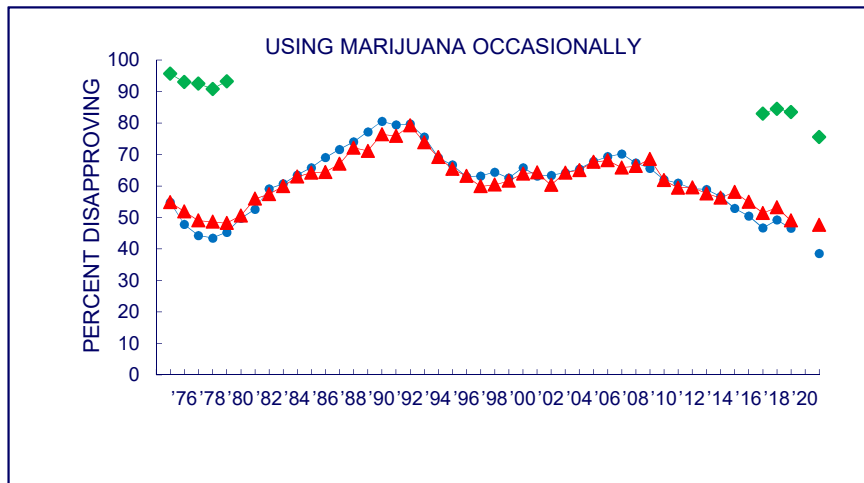
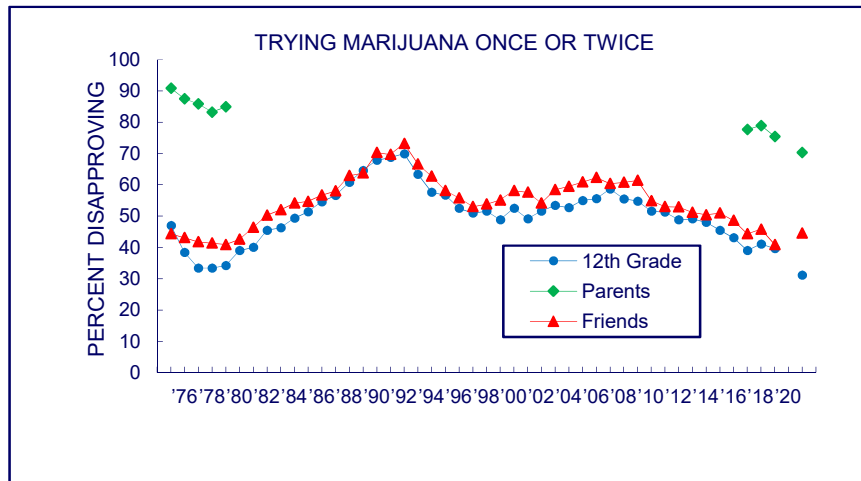
(Entries are percentages.)

Where did you get the [insert drug name here] you used without a doctor's orders during the past year? (Mark all that apply.)

	Amphetamines		Tranquilizers		Narcotics other than Heroin	
	2009-2018	2019-2021	2009-2018	2019-2021	2009-2018	2019-2021
Bought online	5.6	7.7	4.2	10.1	1.9	9.0
Took from friend/relative without asking	10.1	21.3	14.9	19.6	20.3	12.2
Took from a friend without asking	4.1	13.4	4.0	6.2	4.1	0.0
Took from a relative without asking	7.9	13.8	13.0	15.9	18.7	12.2
Given for free by friend or relative	56.4	55.1	59.3	56.8	55.0	47.4
Given for free by a friend	51.9	41.6	49.6	41.4	47.9	34.0
Given for free by a relative	9.9	21.0	17.5	18.8	14.9	18.9
Bought from friend or relative	42.7	35.1	37.3	31.8	31.5	38.6
Bought from a friend	41.9	32.8	36.1	28.7	31.0	37.7
Bought from a relative	2.8	6.9	4.1	8.0	3.4	9.3
From a prescription I had	14.7	32.2	12.2	19.1	35.5	30.1
Bought from drug dealer/stranger	17.9	25.1	22.5	21.1	16.7	14.5
Other method	12.5	23.1	9.4	28.0	9.8	23.4
<i>Weighted N =</i>	<i>1081</i>	<i>70</i>	<i>768</i>	<i>83</i>	<i>1063</i>	<i>51</i>

Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-1a
MARIJUANA
Trends in Disapproval
12th Graders, Parents, and Friends

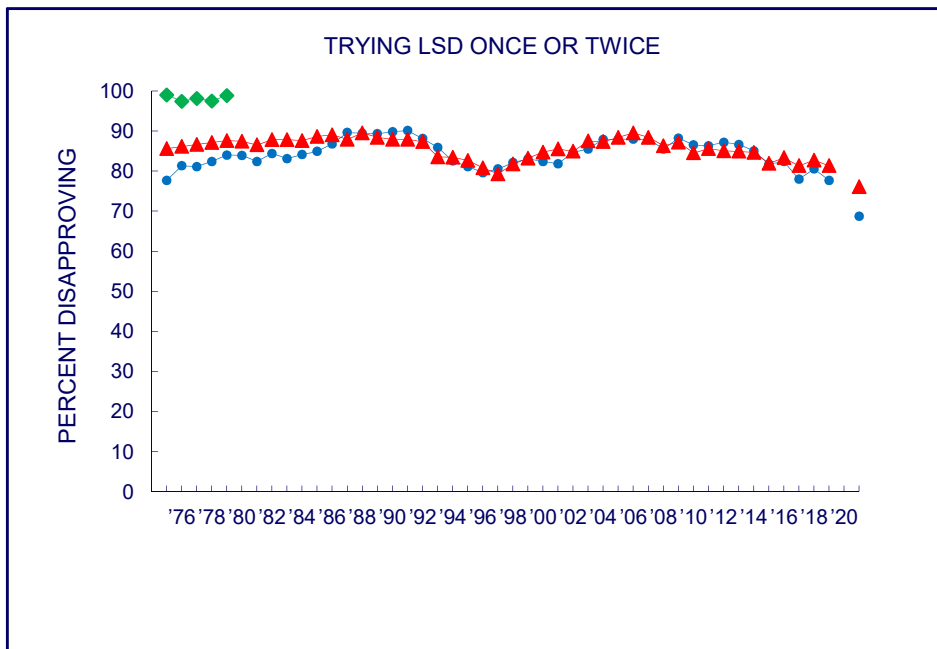
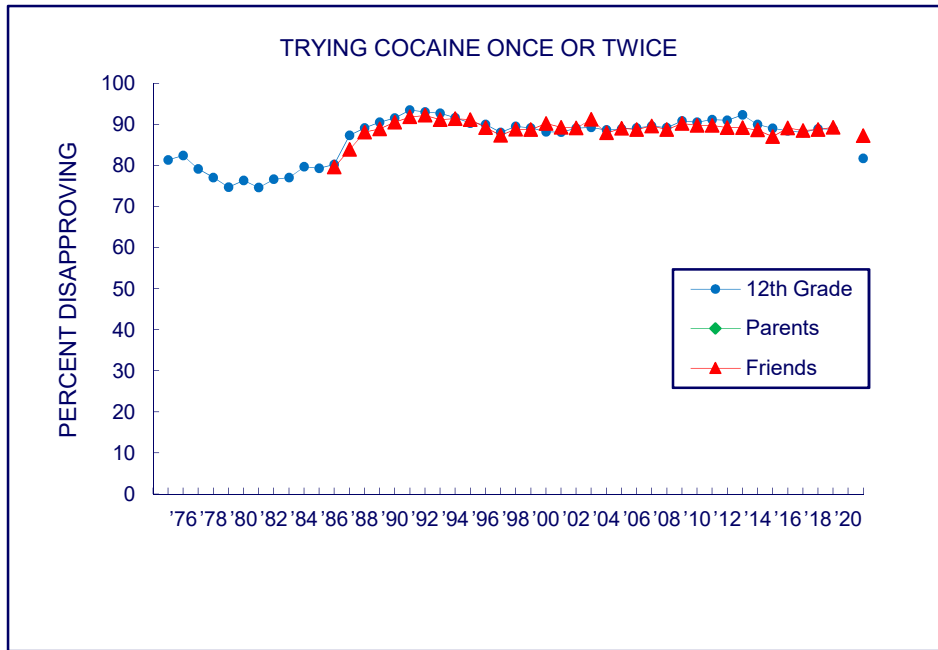


Source. The Monitoring the Future study, the University of Michigan.

Notes. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-1b
COCAINE AND LSD
Trends in Disapproval
12th Graders, Parents, and Friends

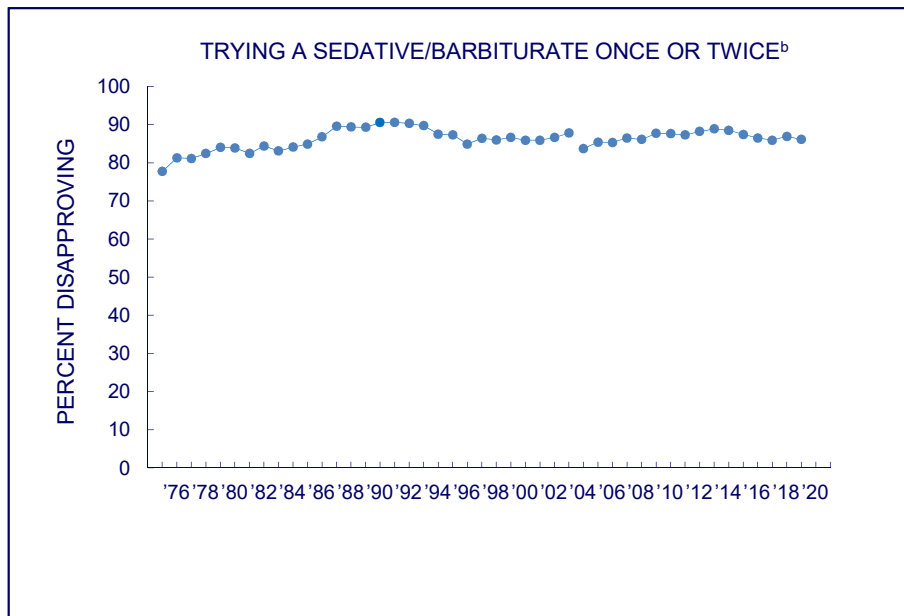
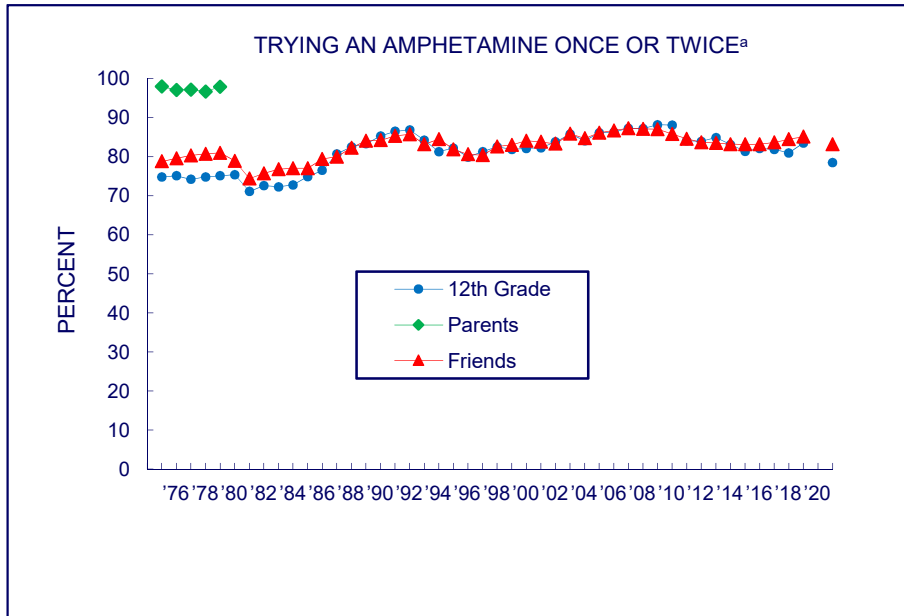


Source. The Monitoring the Future study, the University of Michigan.

Notes. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-1c
AMPHETAMINES AND SEDATIVES (BARBITURATES)
Trends in Disapproval
12th Graders, Parents, and Friends



Source. The Monitoring the Future study, the University of Michigan.

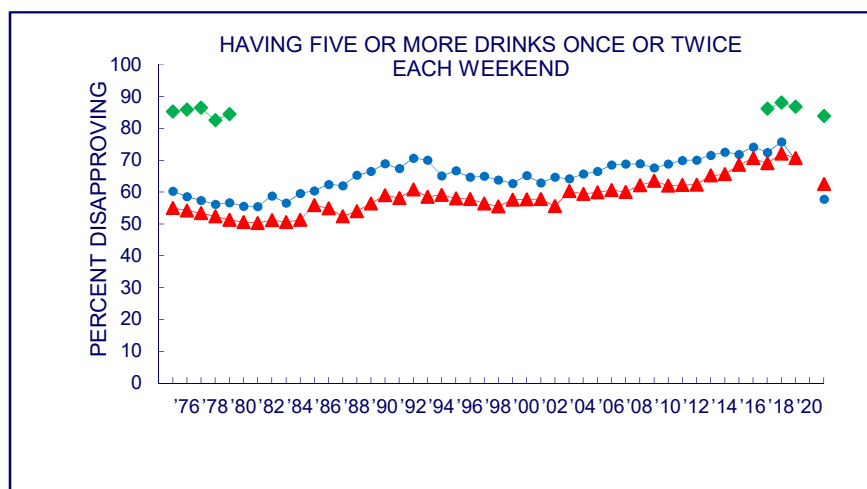
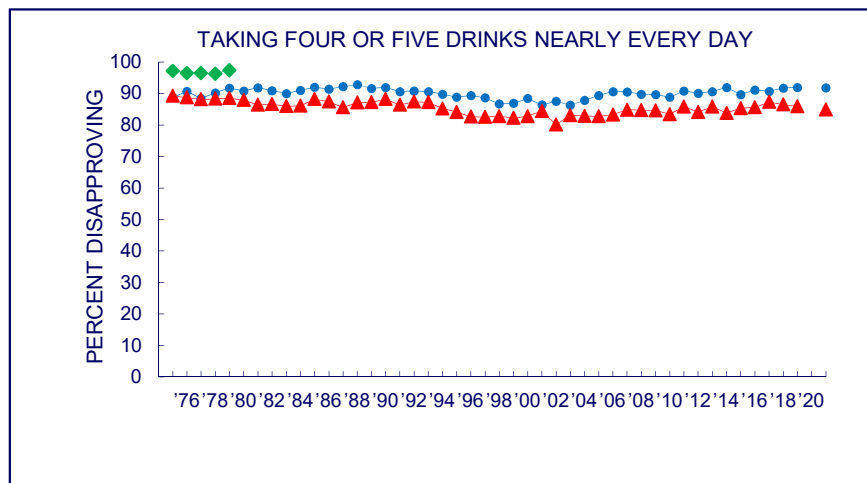
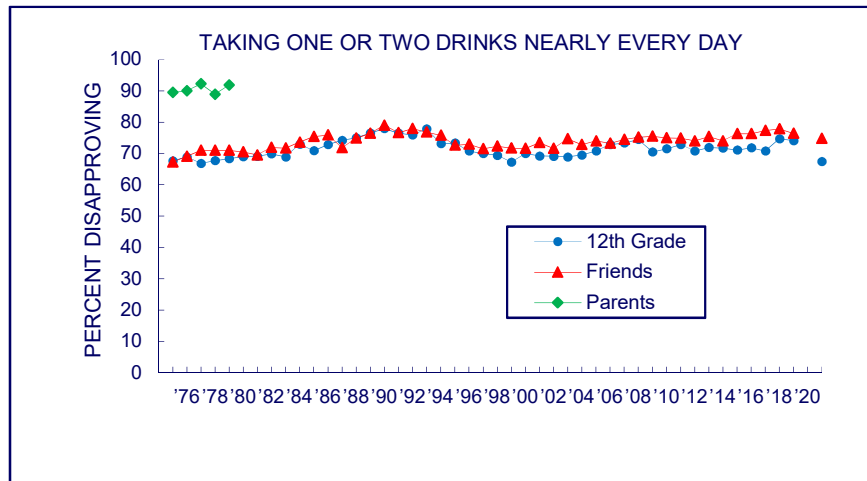
Notes. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aFor 12th graders only: In 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates, and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 9-2a
ALCOHOL
Trends in Disapproval
12th Graders, Parents, and Friends

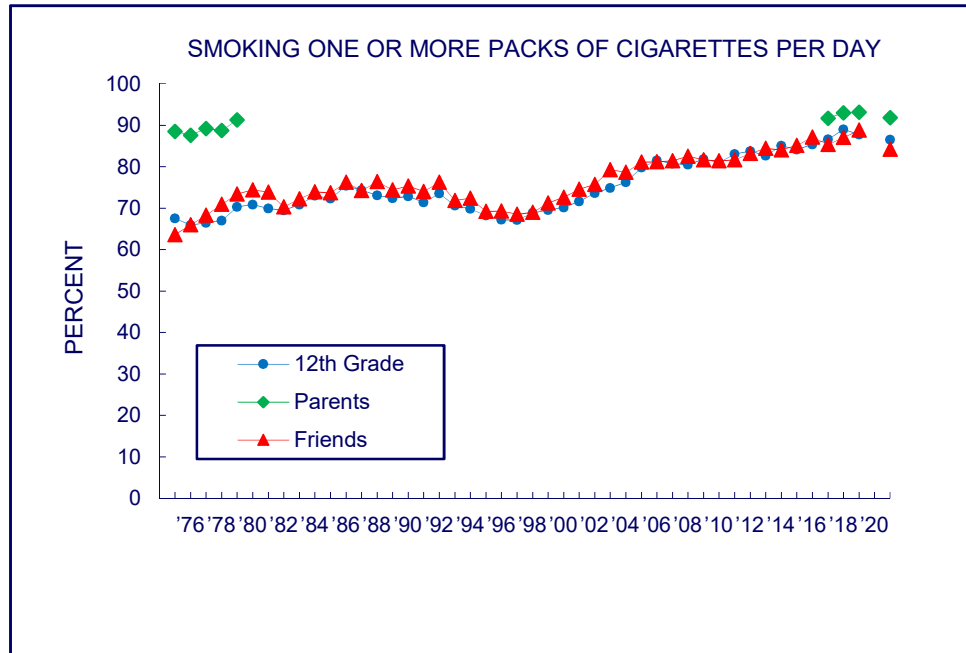


Source. The Monitoring the Future study, the University of Michigan.

Notes. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-2b
CIGARETTES
Trends in Disapproval
12th Graders, Parents, and Friends

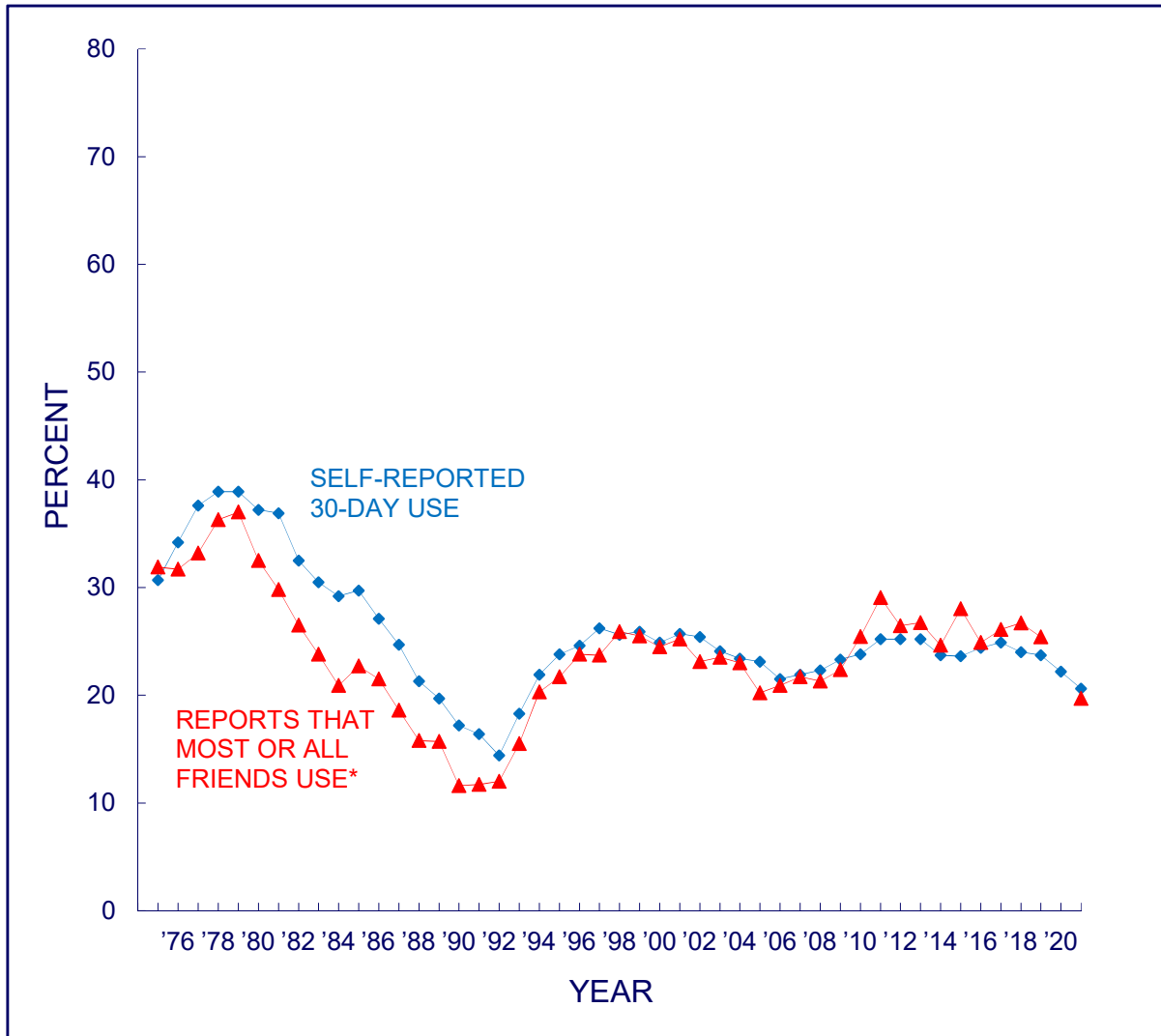


Source. The Monitoring the Future study, the University of Michigan.

Notes. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-3a
ANY ILLICIT DRUG
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

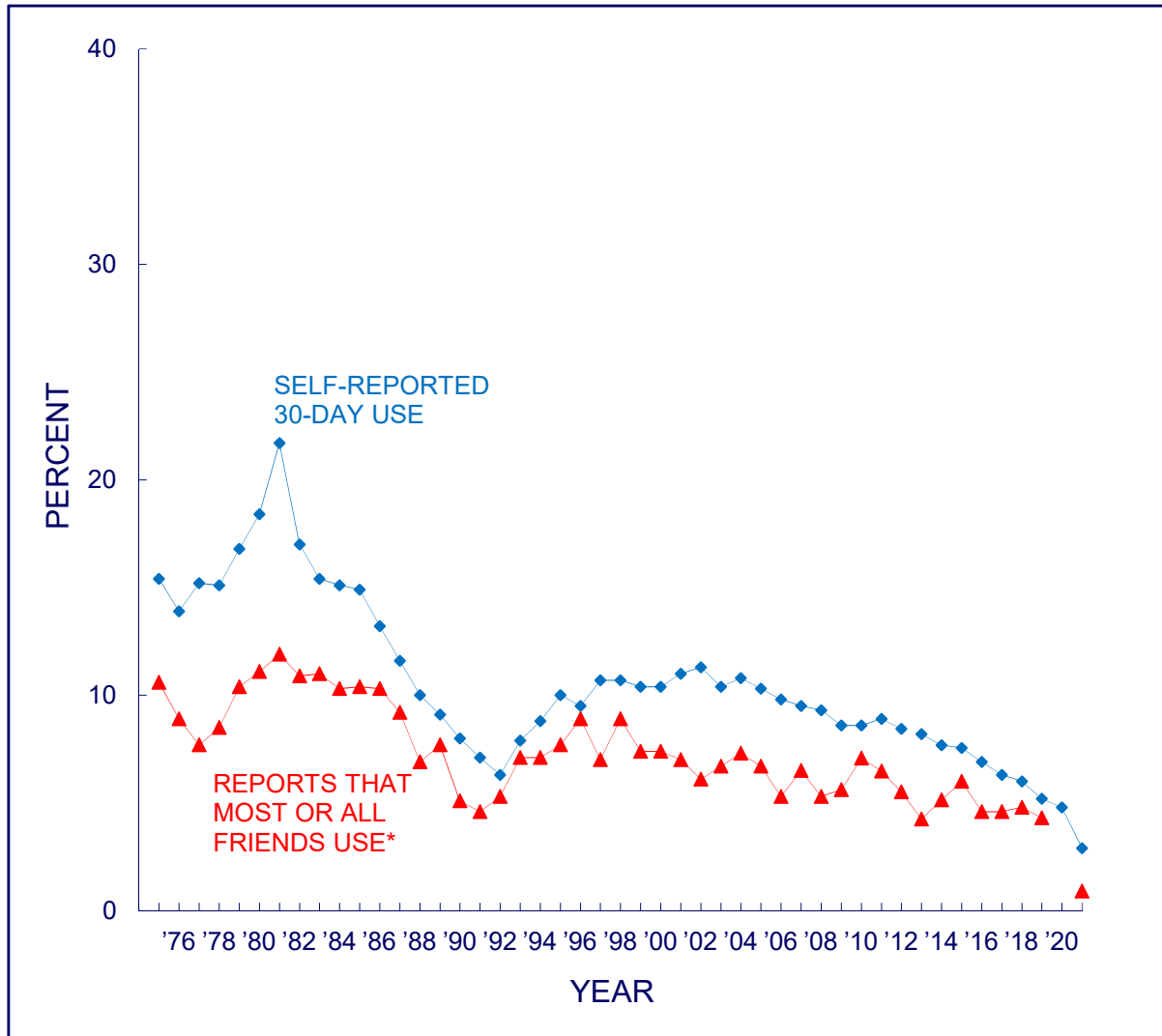


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2013, the question text for the use of amphetamines was changed on some of the questionnaire forms, with the remaining forms changed in 2014. This change affected the data for use of any illicit drug. Data presented here include only the changed forms.

FIGURE 9-3b
ANY ILLICIT DRUG OTHER THAN MARIJUANA
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

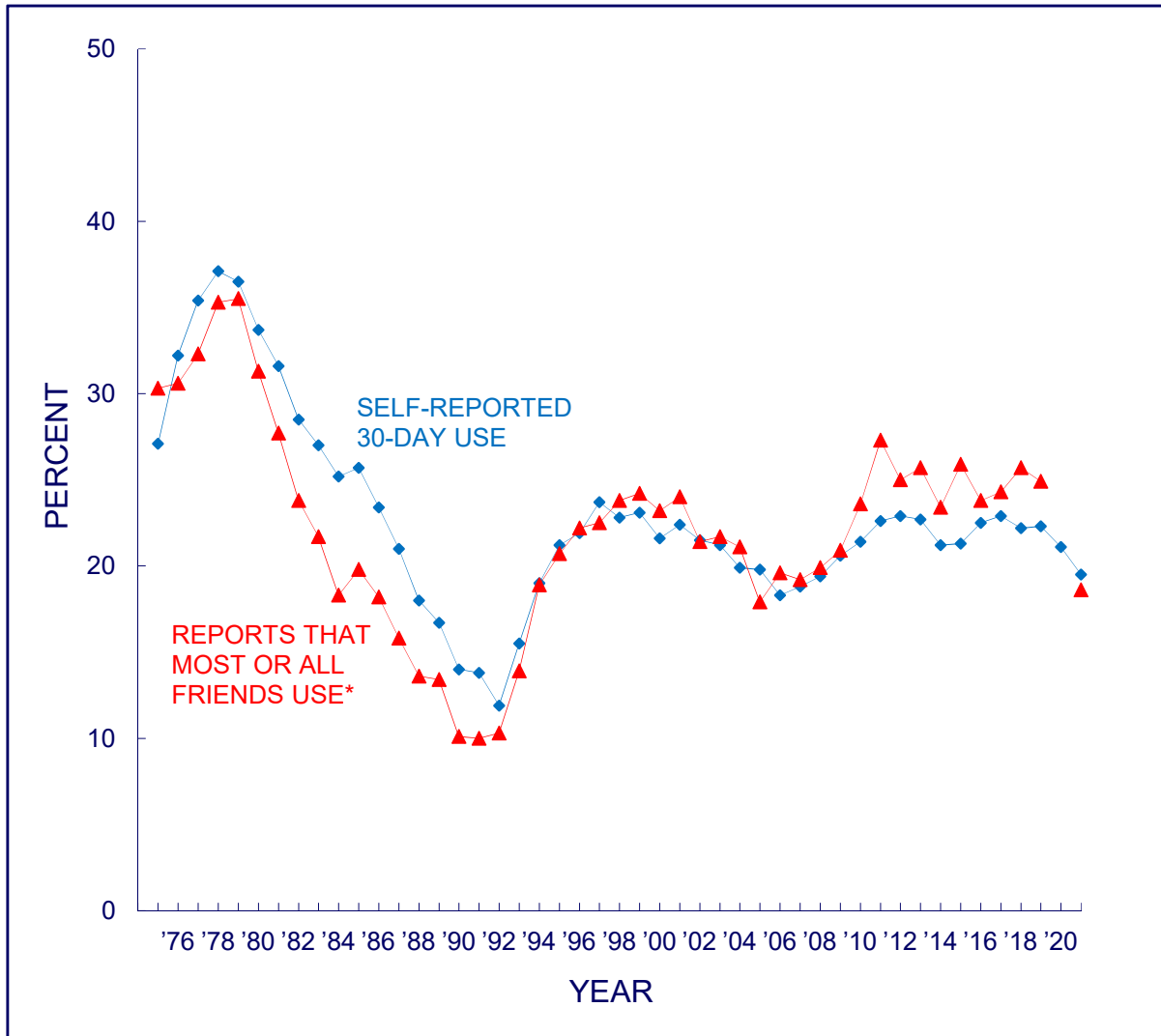


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2013, the question text for the use of amphetamines was changed on some of the questionnaire forms, with the remaining forms changed in 2014. This change affected the data for use of any illicit drug other than marijuana. Data presented here include only the changed forms.

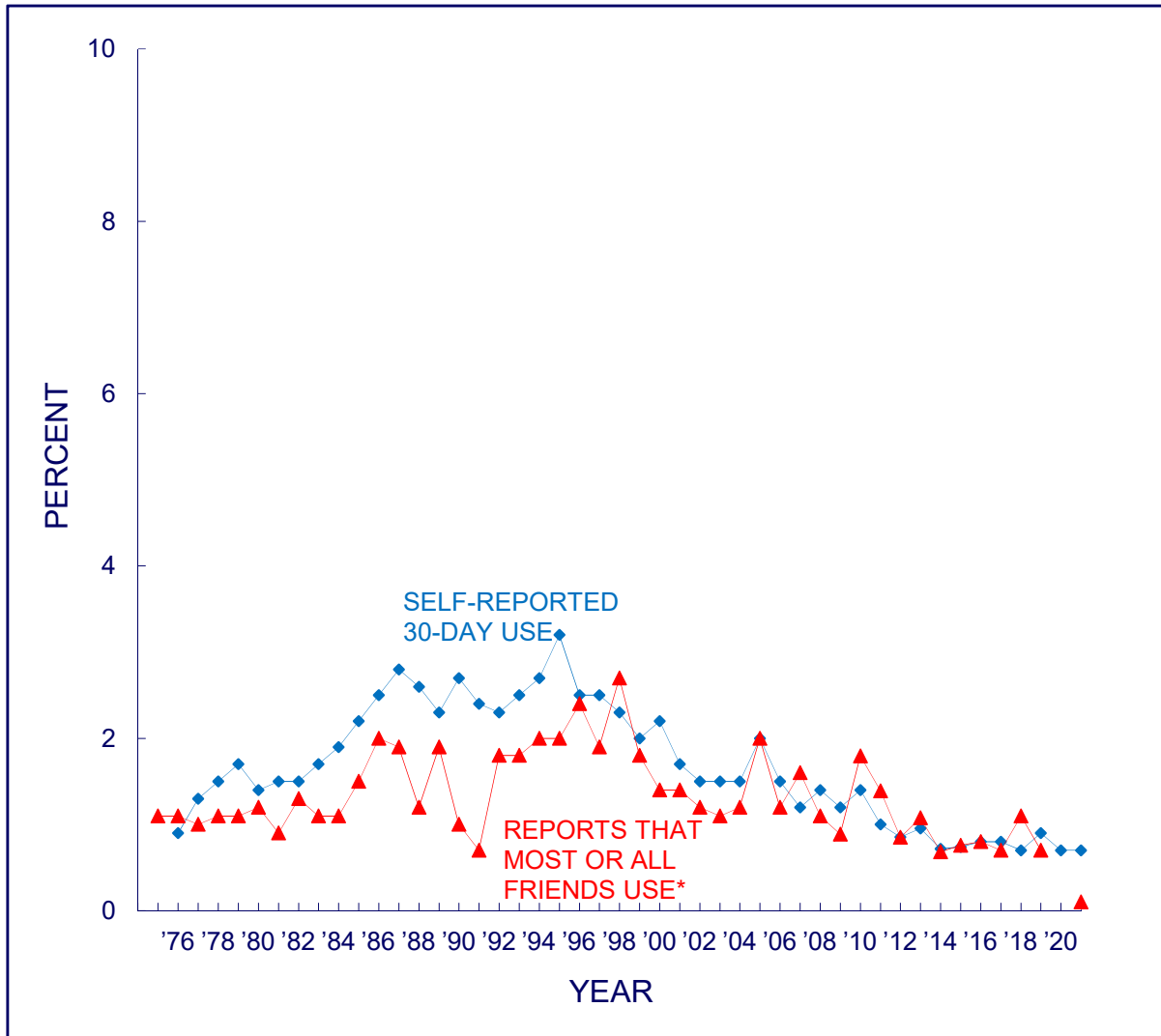
FIGURE 9-3c
MARIJUANA
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

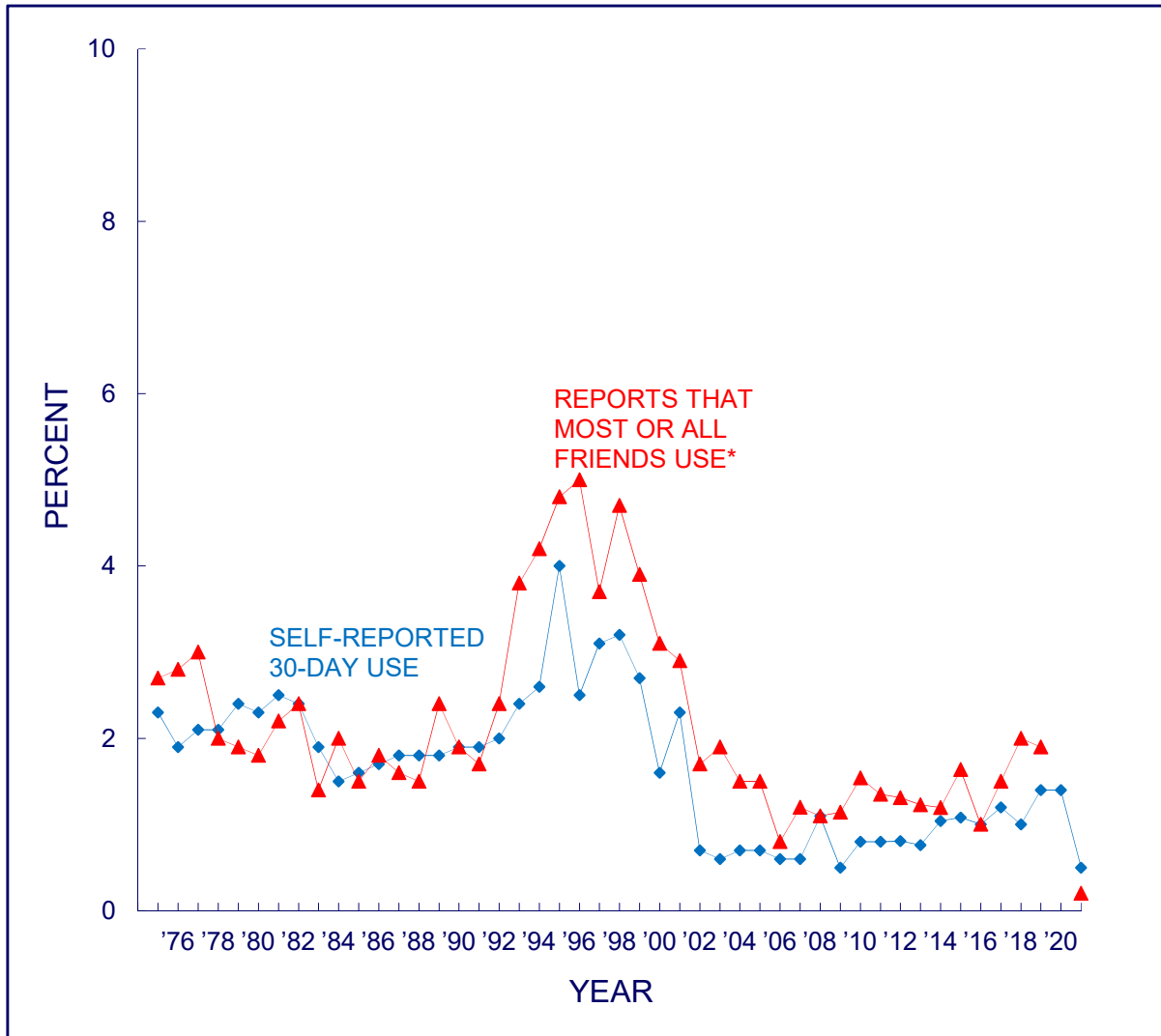
FIGURE 9-3d
INHALANTS
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

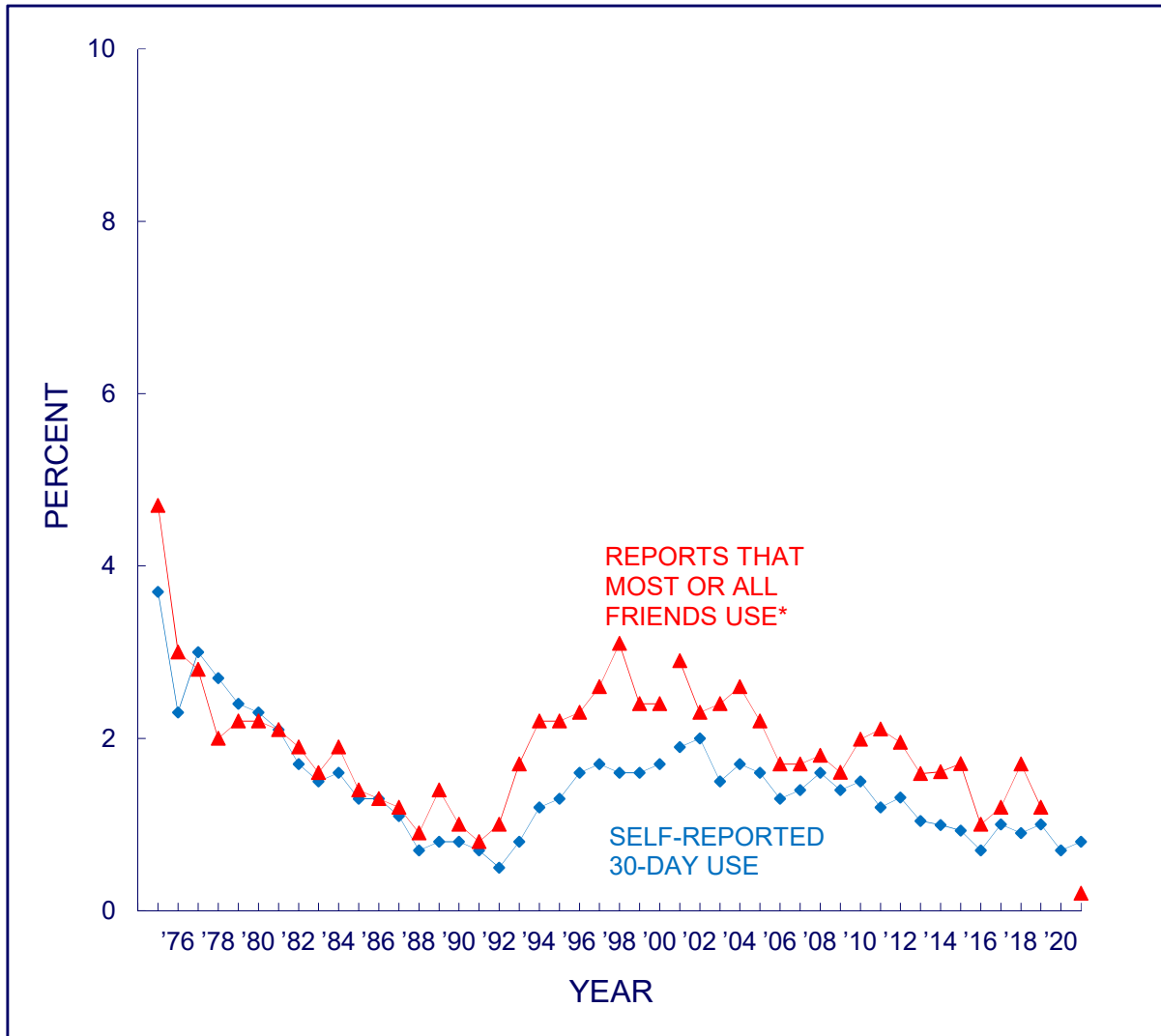
FIGURE 9-3e
LSD
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-3f
HALLUCINOGENS OTHER THAN LSD
Trends in 30-Day Prevalence^a and
Friends' Use^a in Grade 12

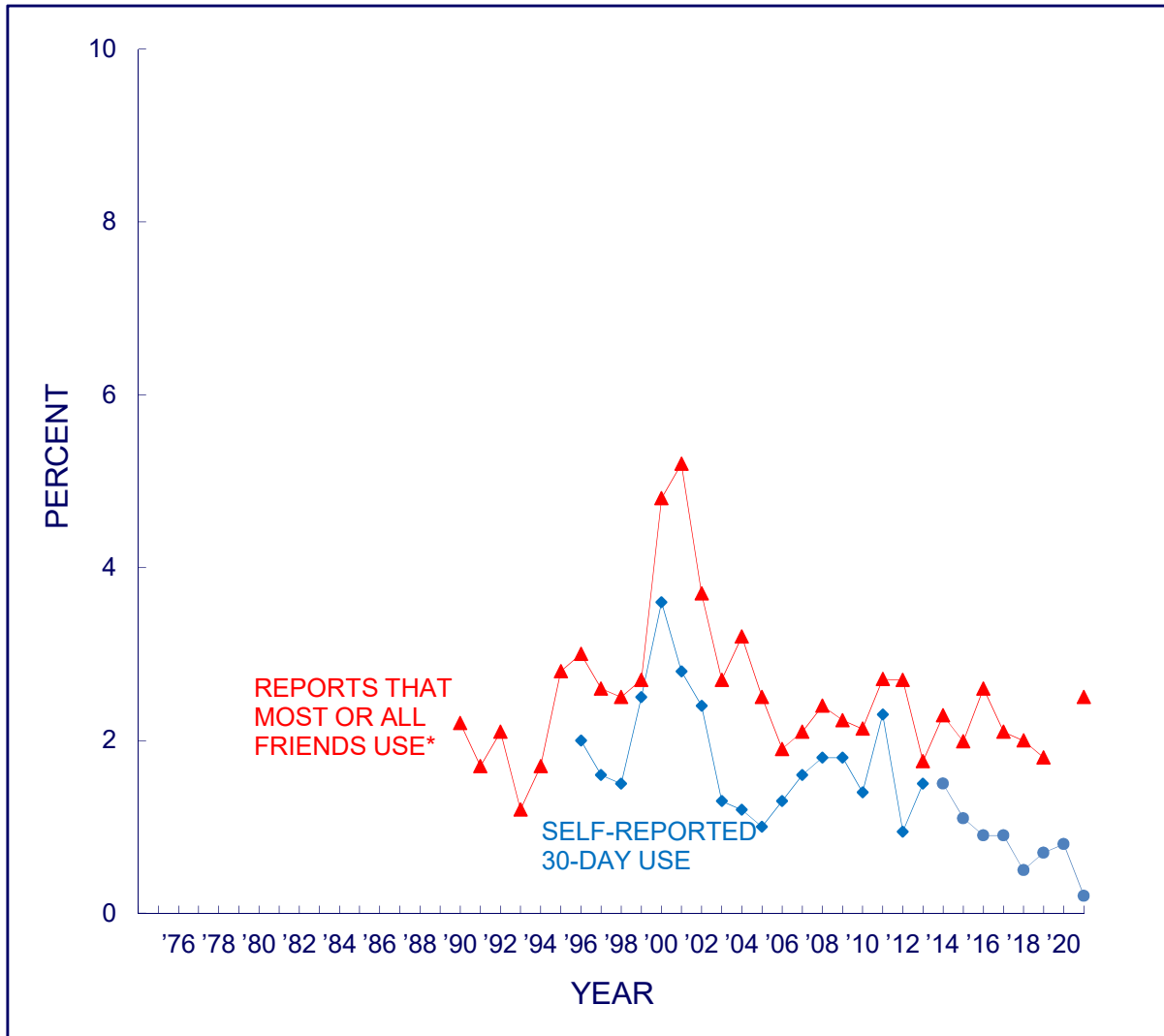


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

FIGURE 9-3g
MDMA (ECSTASY, MOLLY)
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

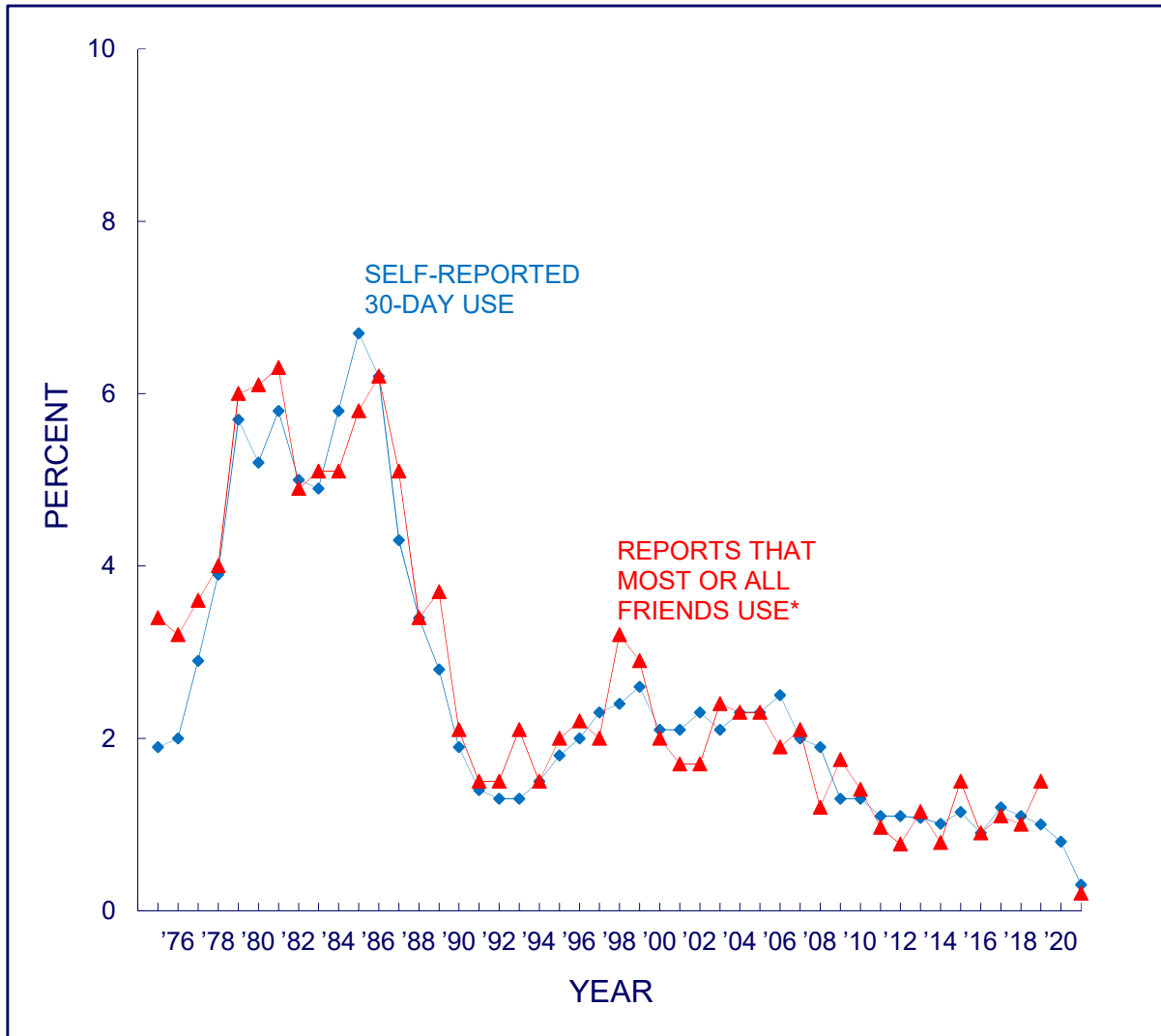


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2014, the text was changed on one of the questionnaire forms to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

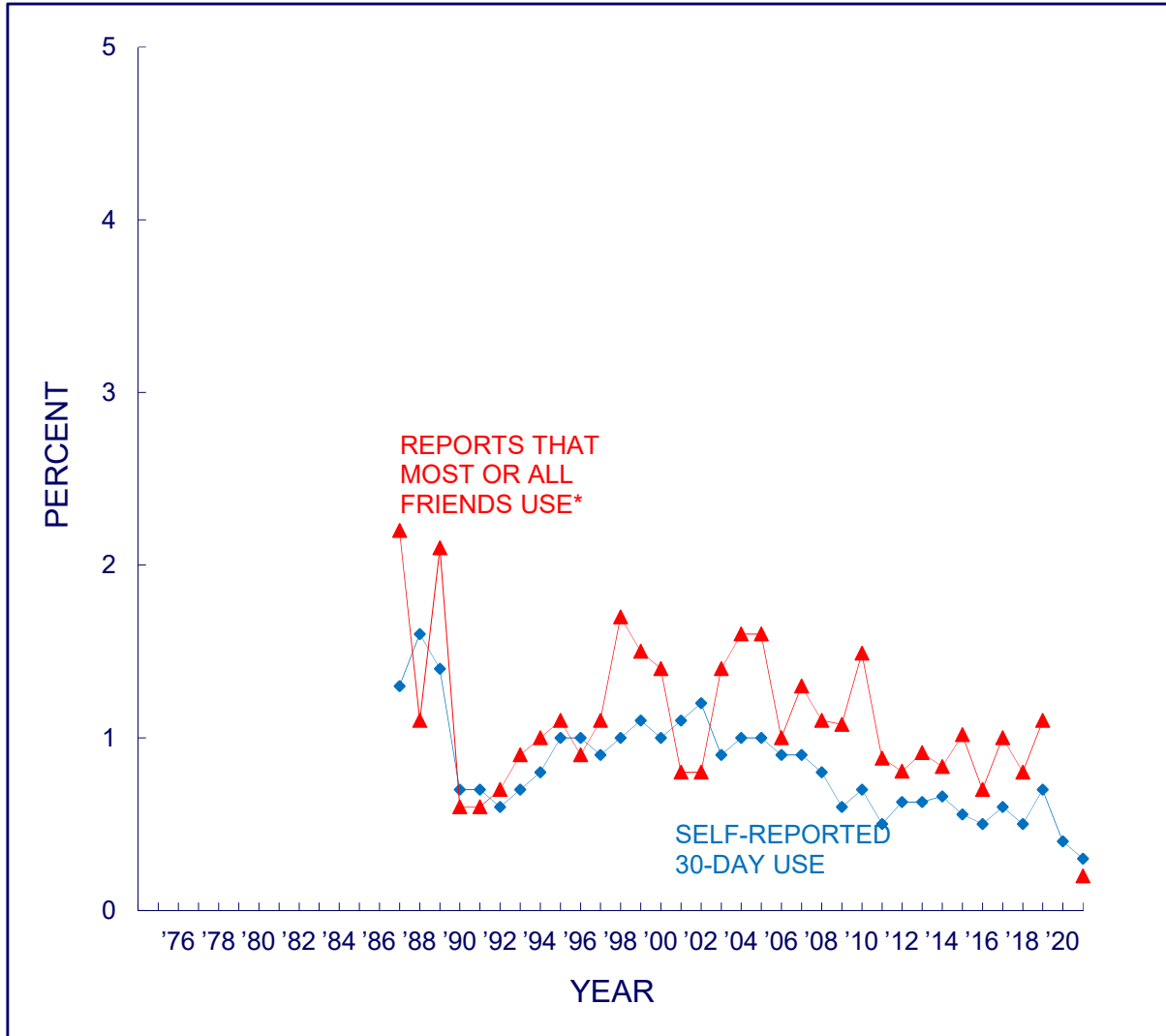
FIGURE 9-3h
COCAINE
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

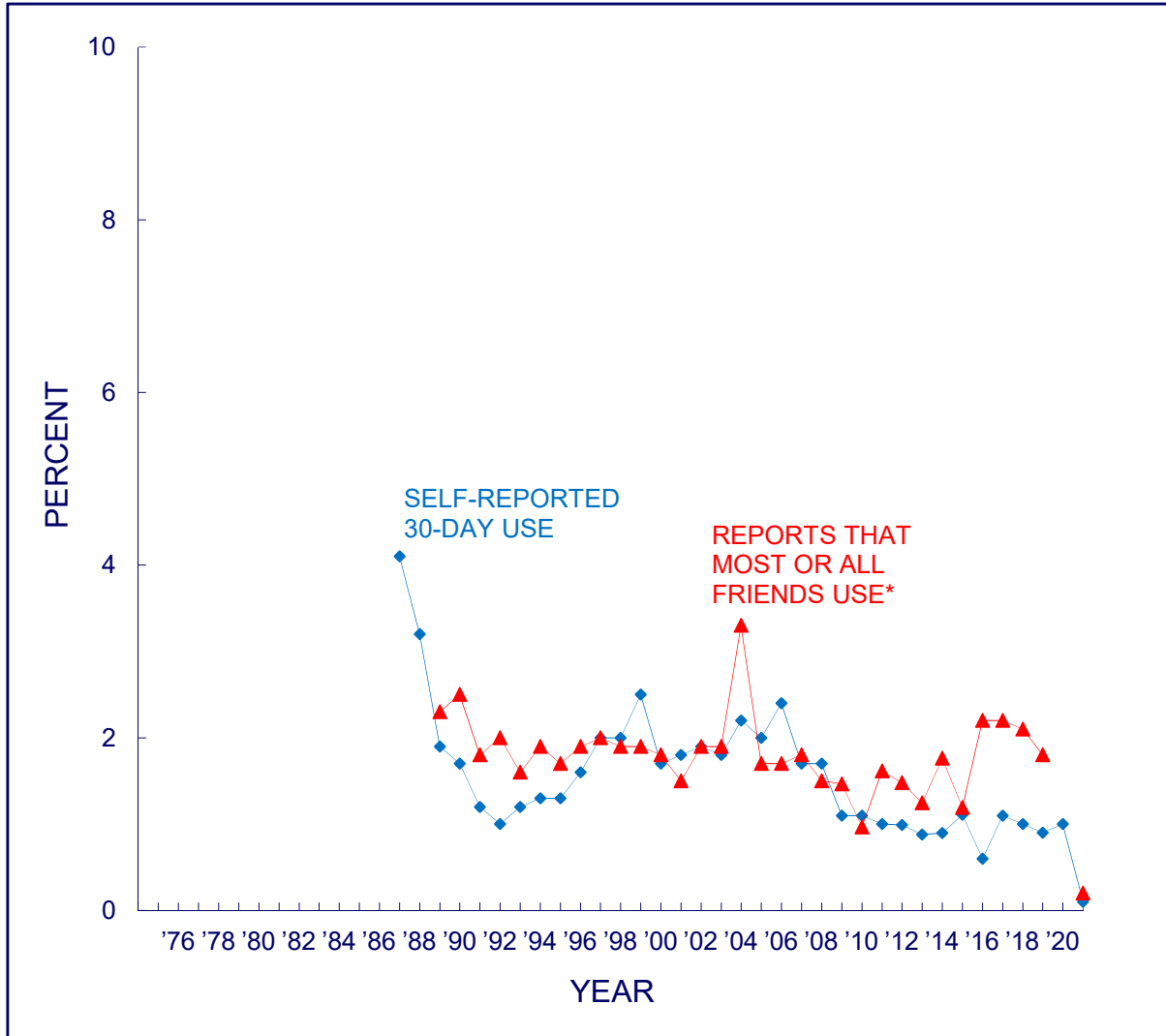
FIGURE 9-3i
CRACK
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

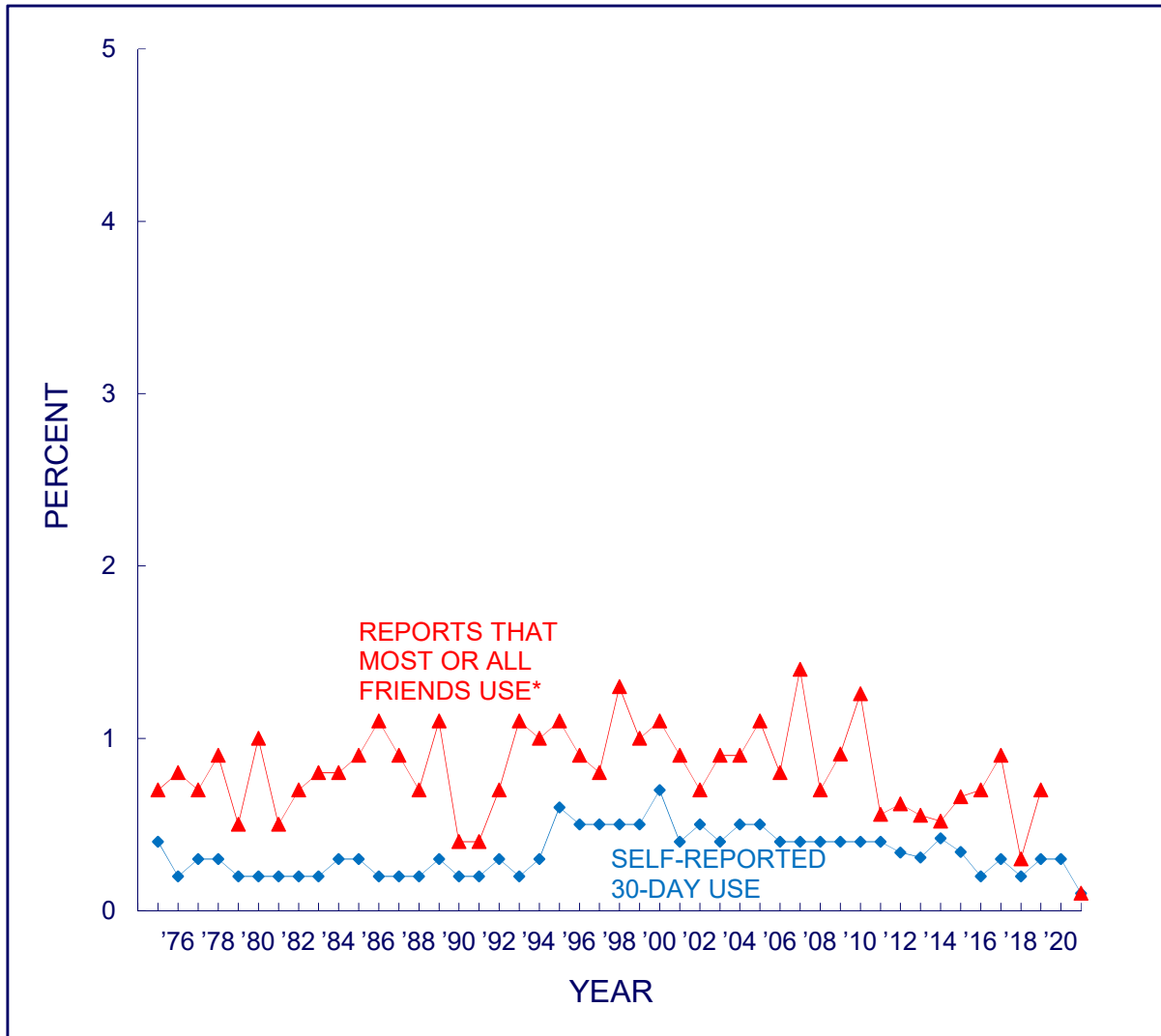
FIGURE 9-3j
COCAINE POWDER
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

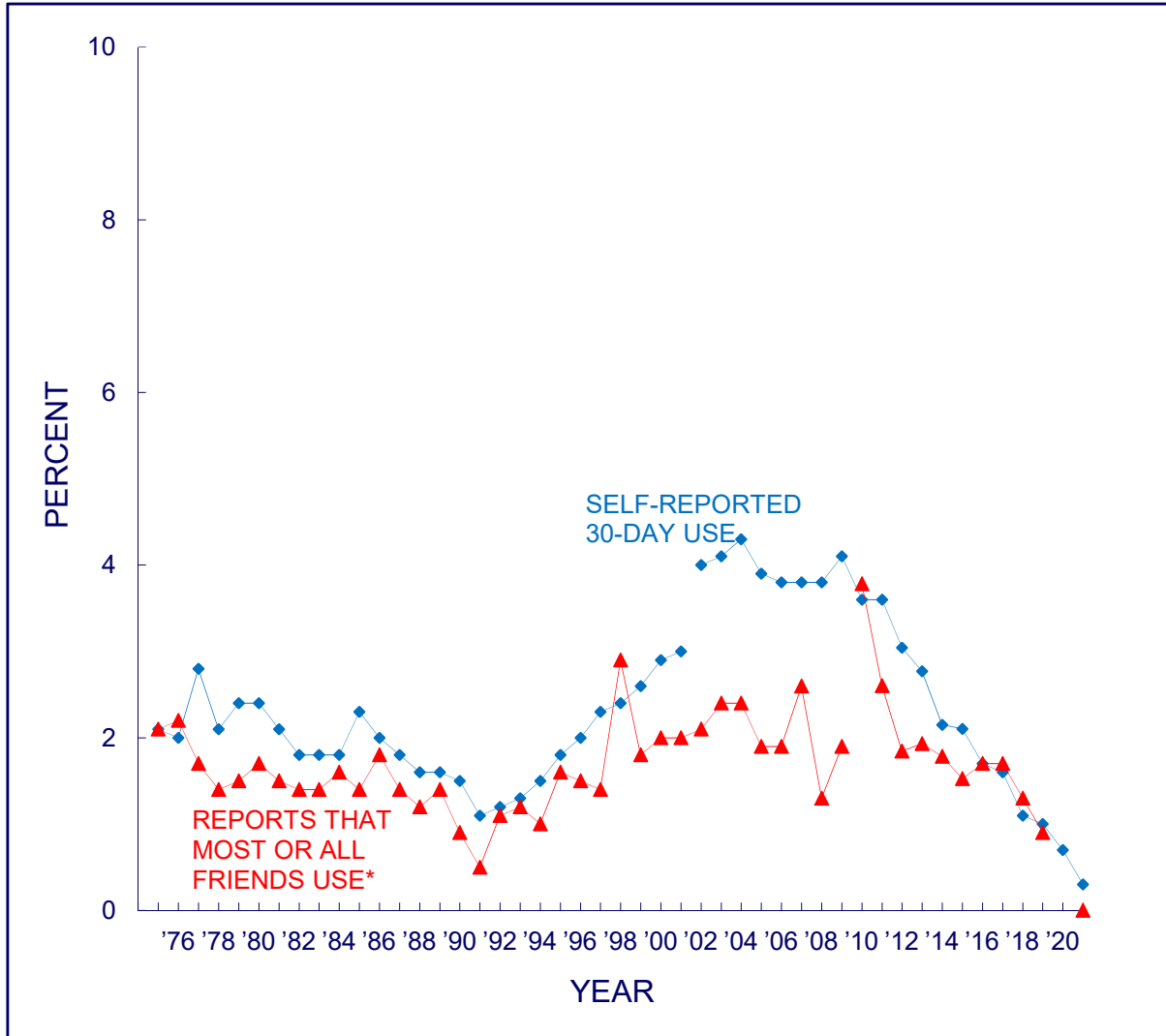
FIGURE 9-3k
HEROIN
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-31
NARCOTICS OTHER THAN HEROIN
Trends in 30-Day Prevalence^a and
Friends' Use^b in Grade 12



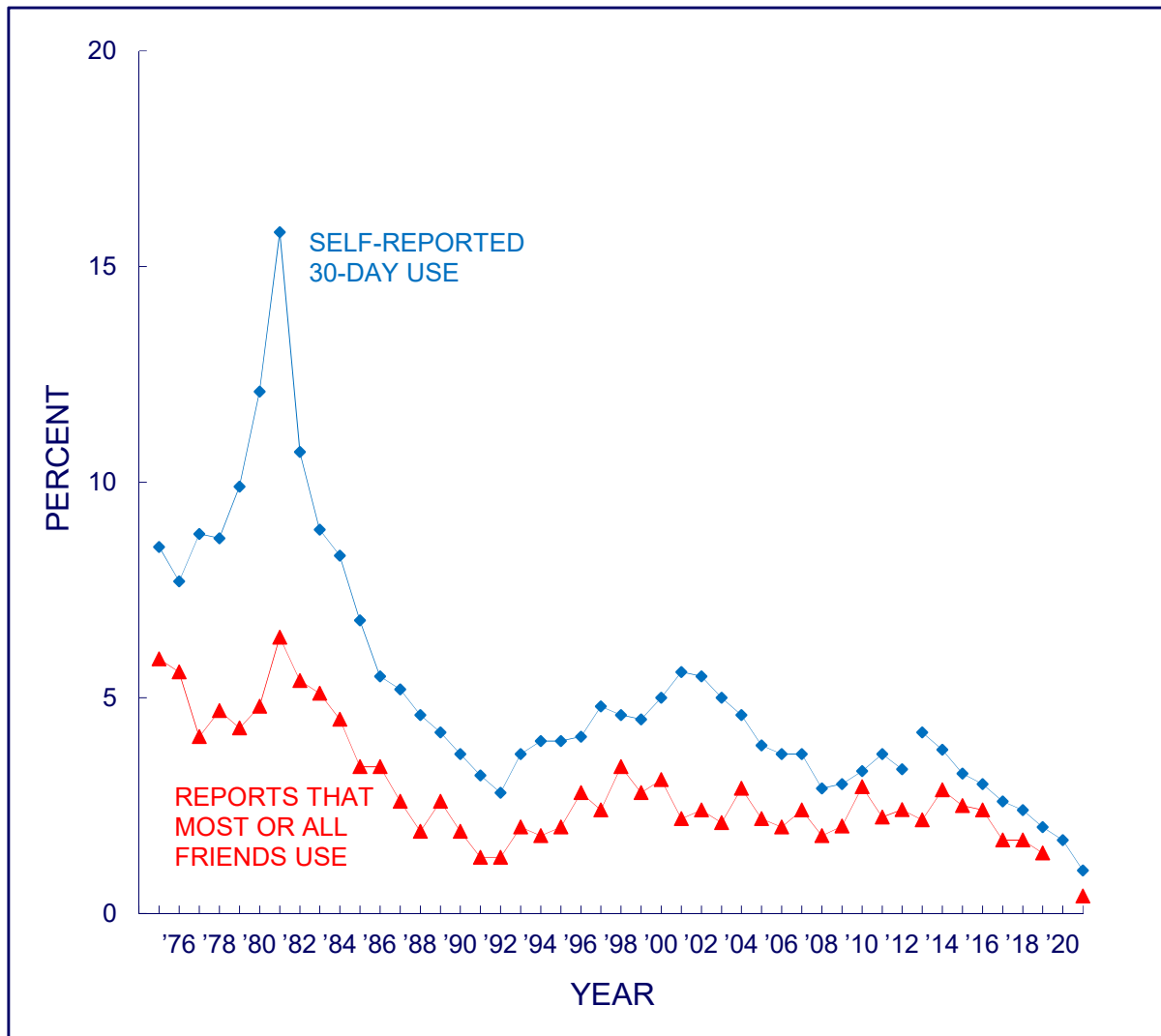
Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2002, a revised set of questions on other narcotic use was introduced. Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet in the list of examples. From 2002 on, data points are based on the revised question.

^bIn 2010 the list of examples for narcotics other than heroin was changed from methadone and opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

FIGURE 9-3m
AMPHETAMINES
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

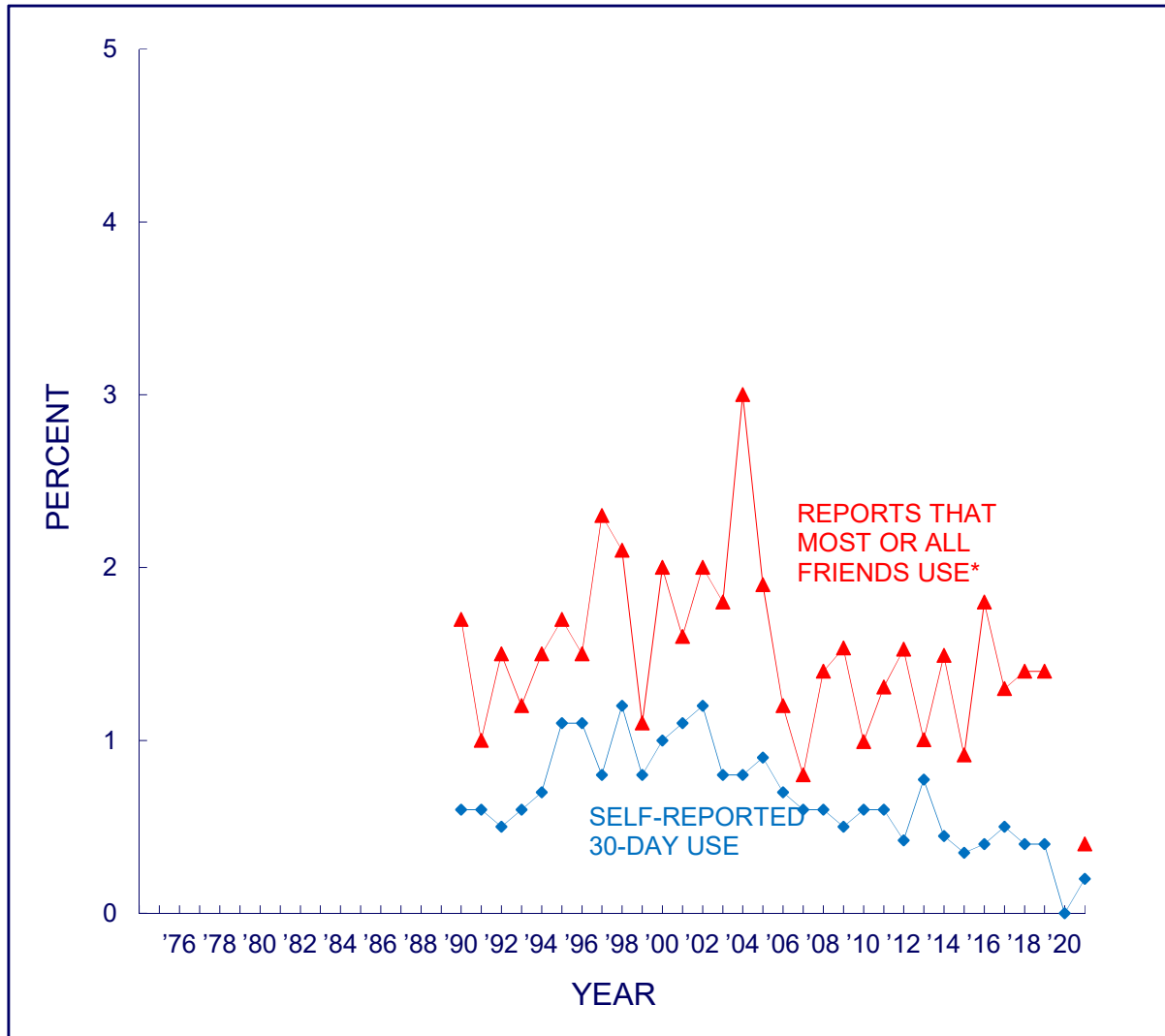


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2013, the question text for the use of amphetamines was changed on some of the questionnaire forms, with the remaining forms changed in 2014. Data presented here include only the changed forms.

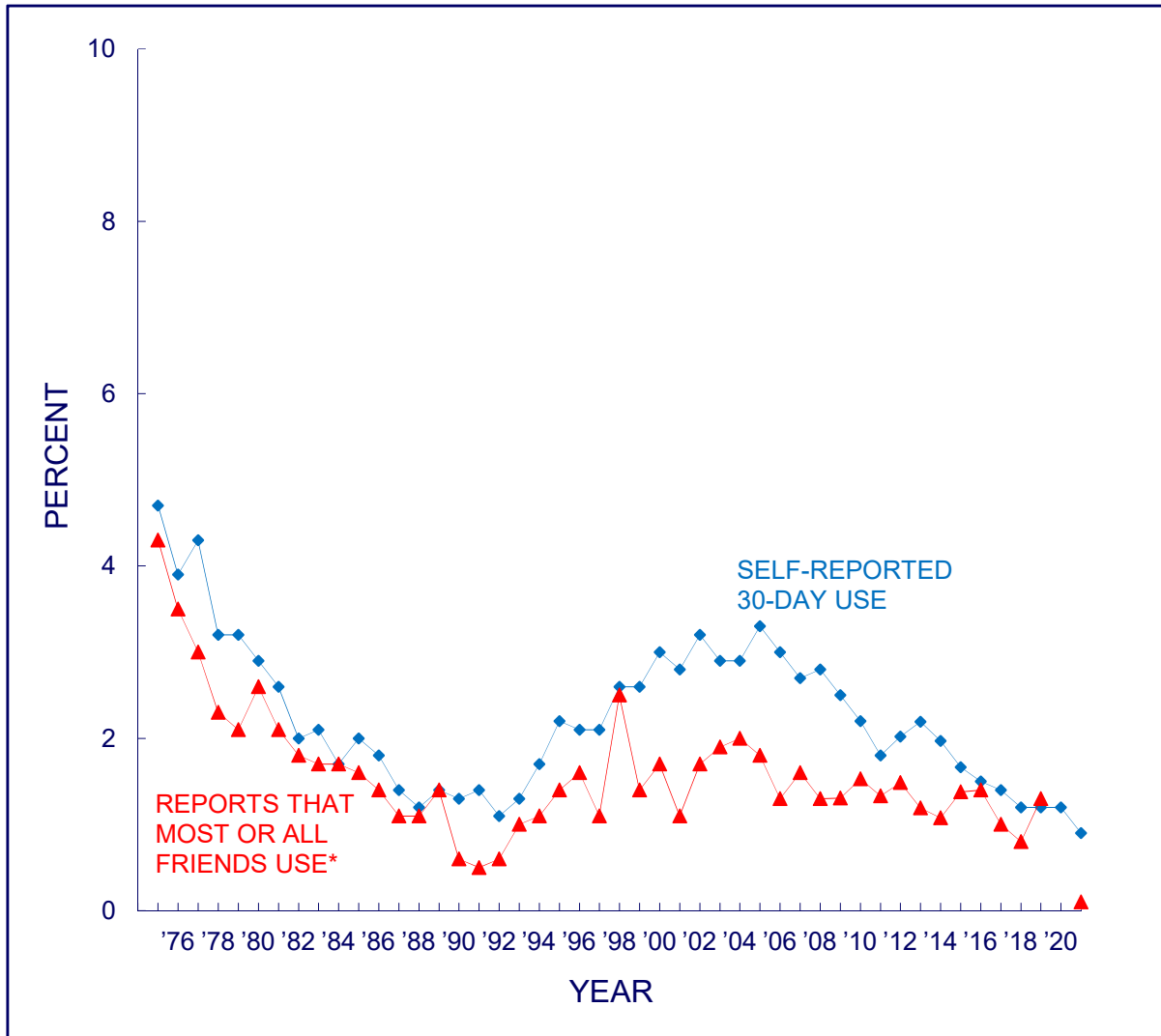
FIGURE 9-3n
CRYSTAL METHAMPHETAMINE (ICE)
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

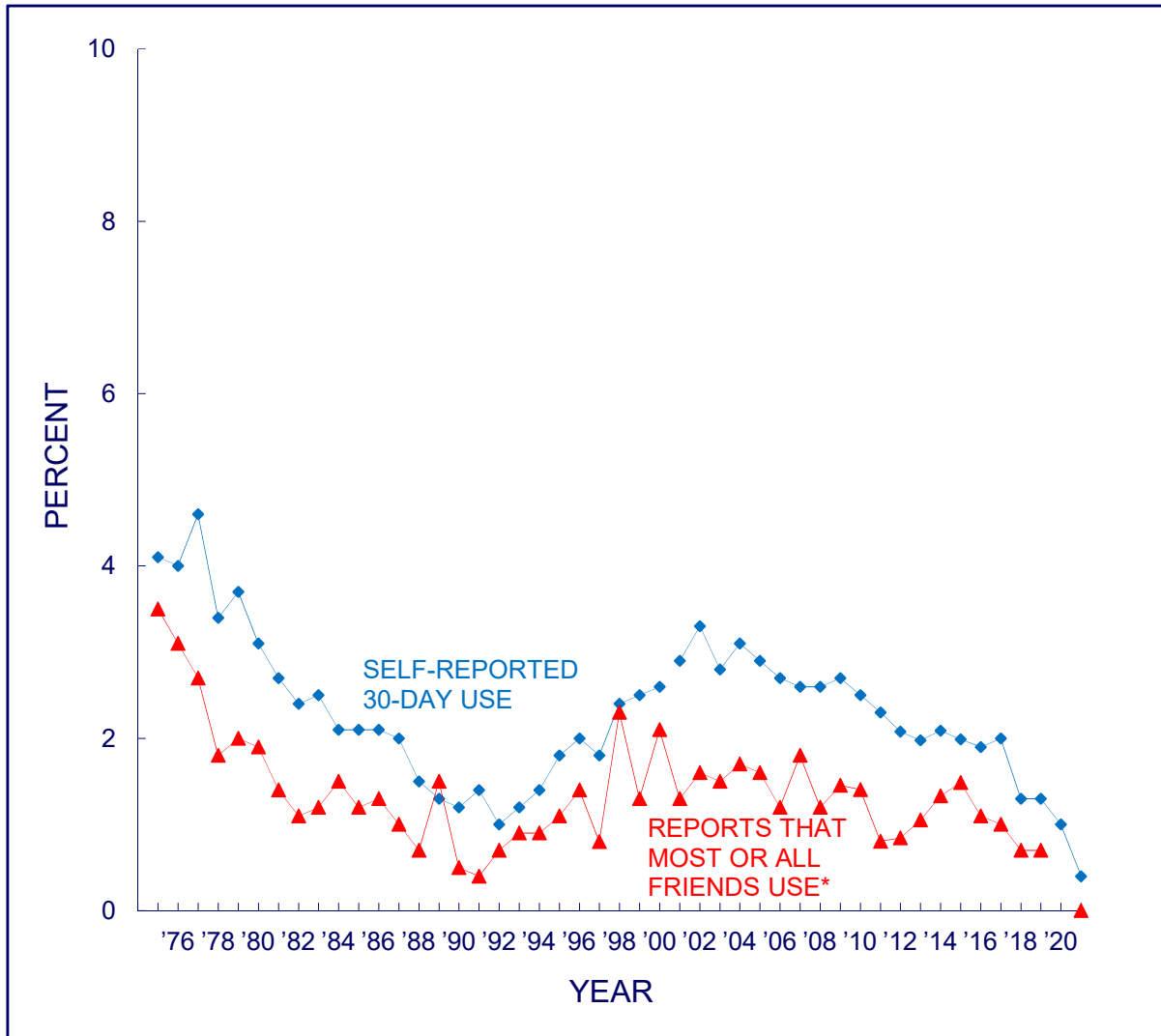
FIGURE 9-3o
SEDATIVES (BARBITURATES)
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-3p
TRANQUILIZERS
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

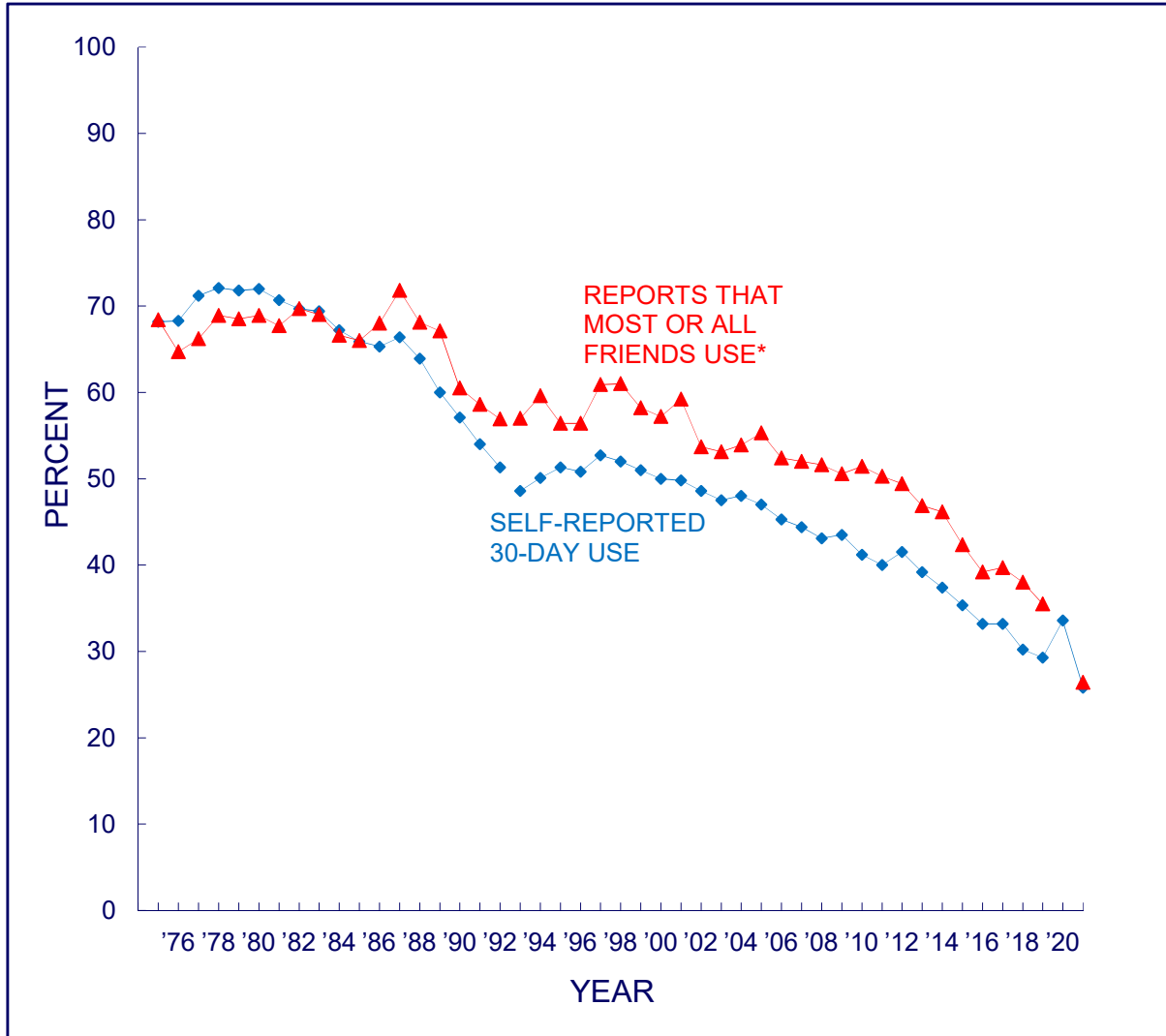


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aBeginning in 2001, a revised set of questions on tranquilizer use was introduced in which Xanax replaced Miltown in the list of examples. From 2001 on data points are based on the revised question.

FIGURE 9-3q
ALCOHOL
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12

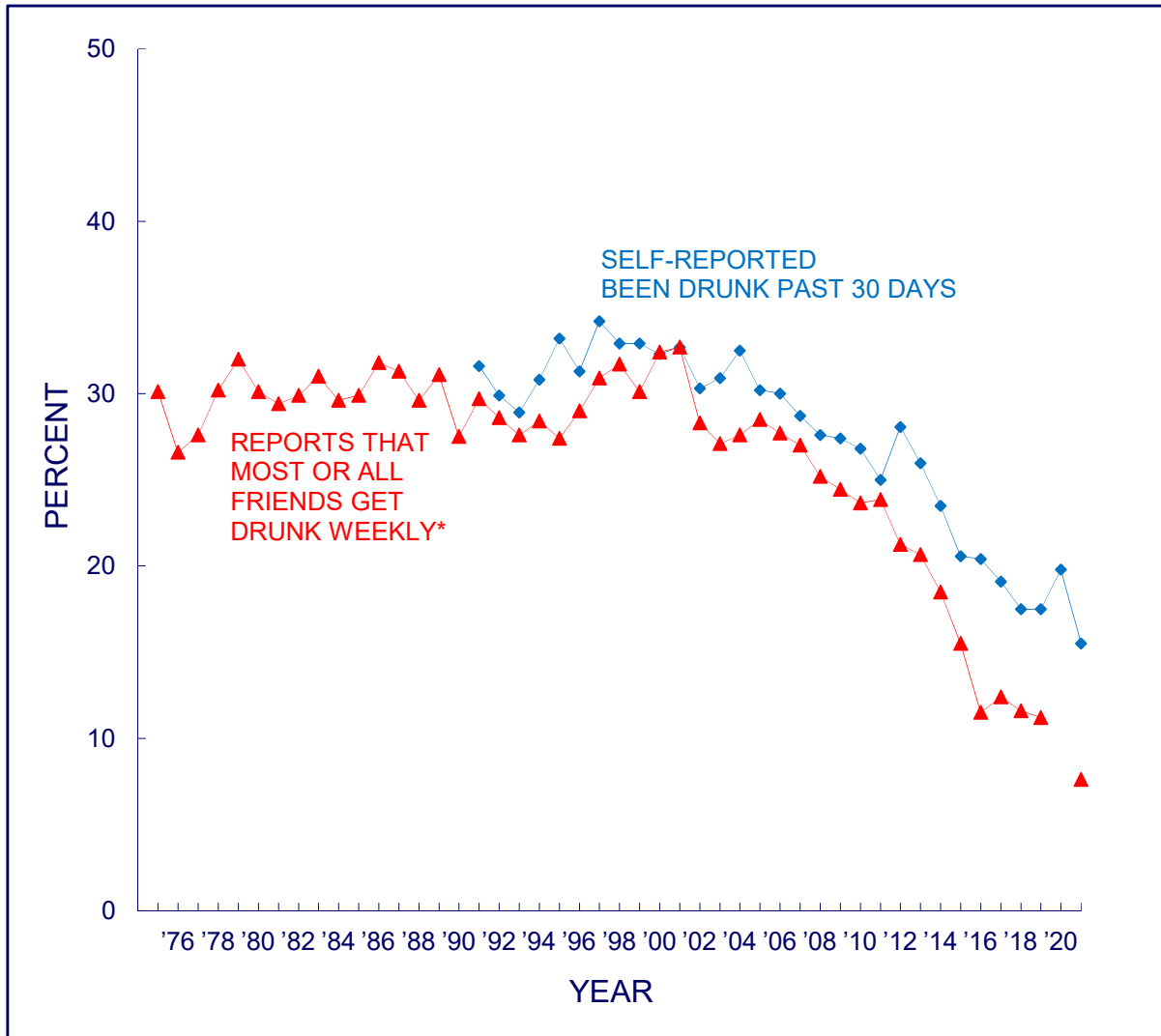


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 1993, a revised set of questions on alcohol use was introduced indicating that a drink meant more than a few sips. From 1993 on, data points are based on the revised question.

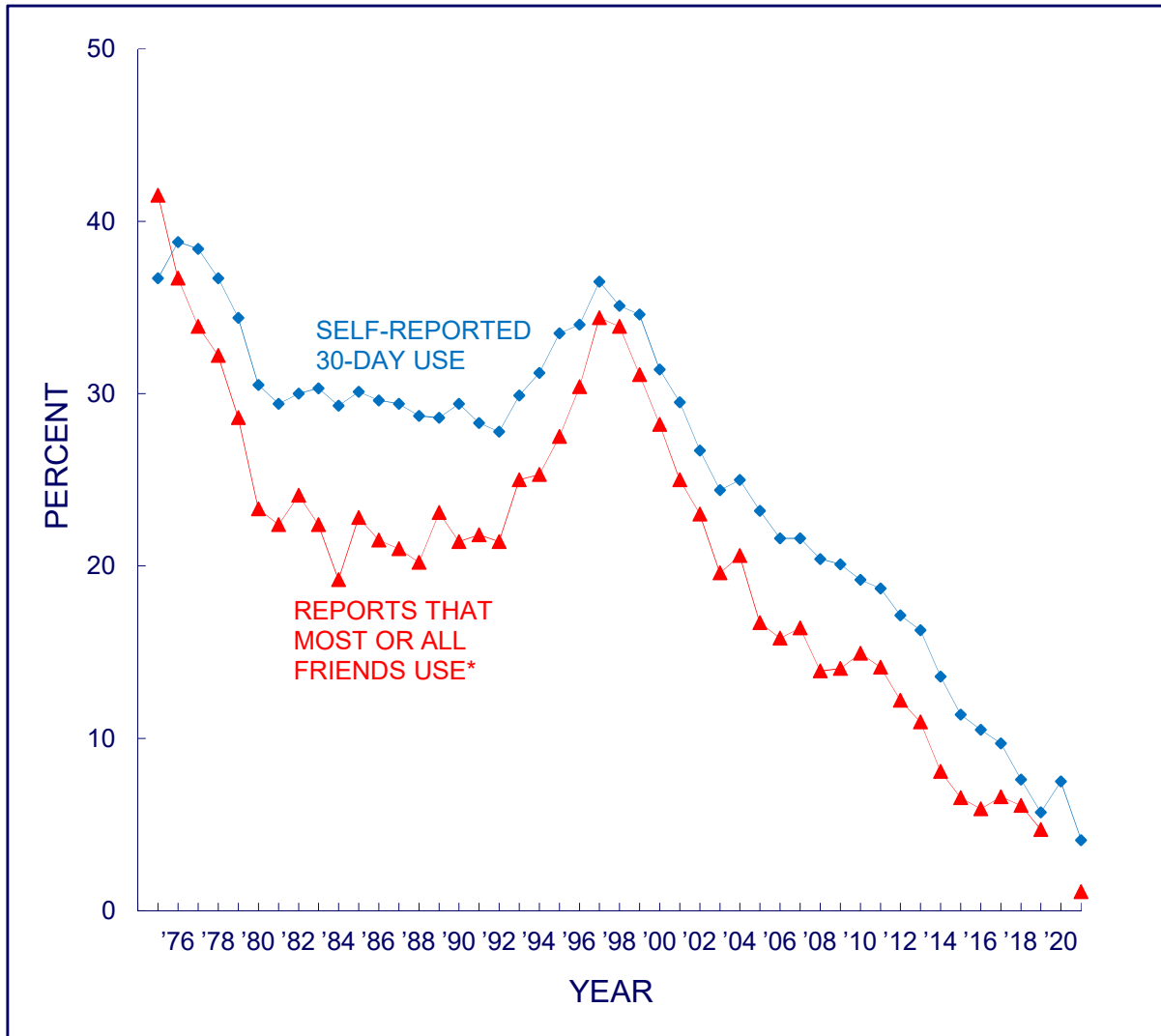
FIGURE 9-3r
BEEN DRUNK
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

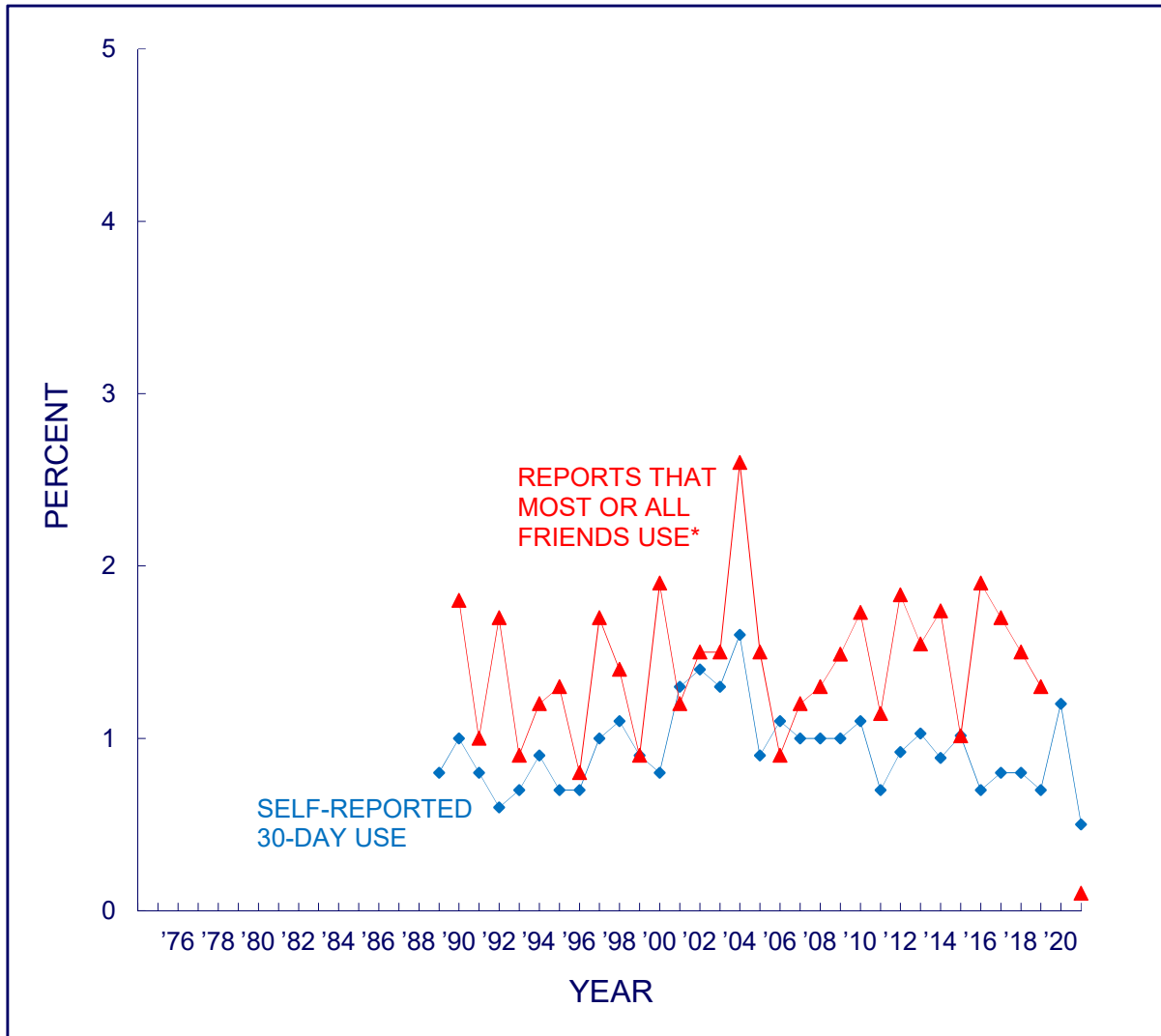
FIGURE 9-3s
CIGARETTES
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-3t
STERIODS
Trends in 30-Day Prevalence and
Friends' Use in Grade 12

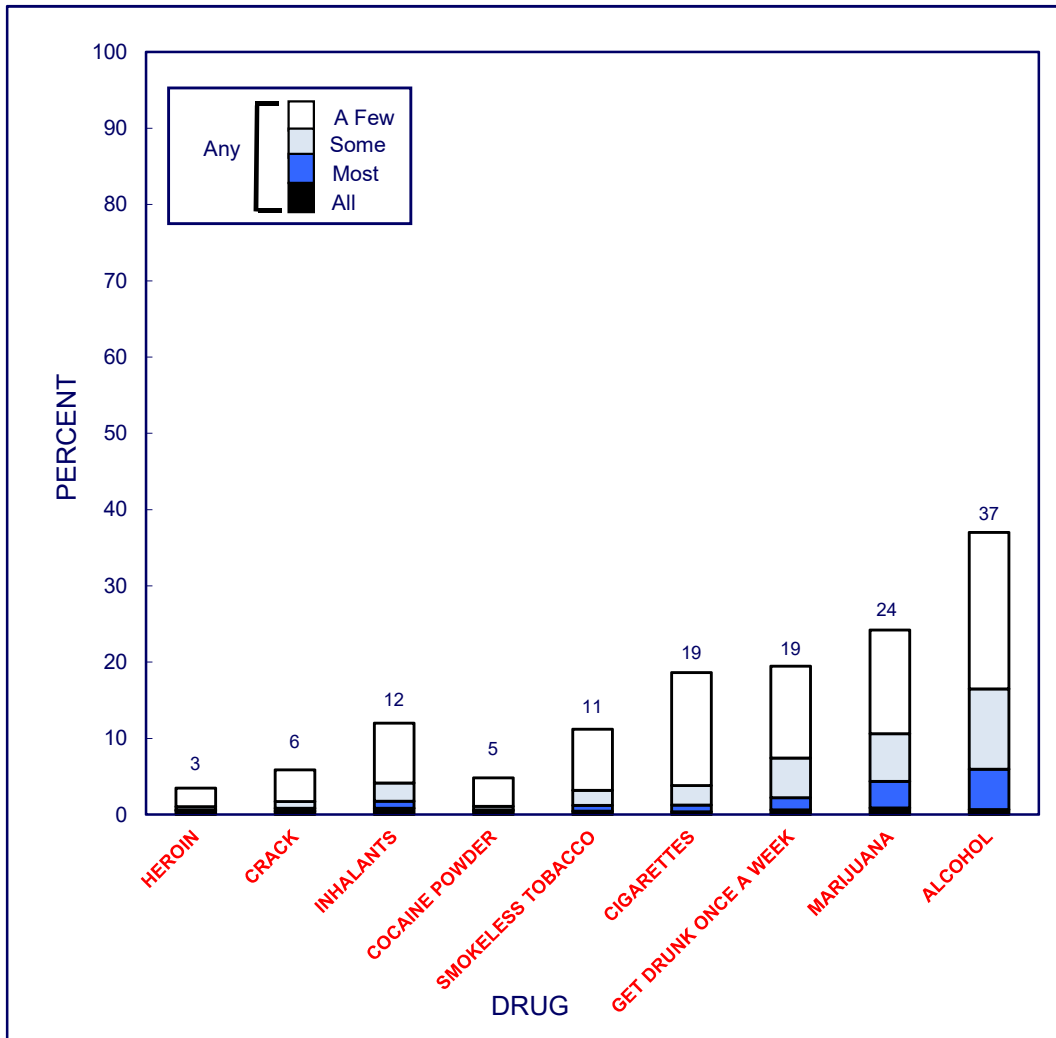


Source. The Monitoring the Future study, the University of Michigan.

*Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-4
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2021

8th Graders

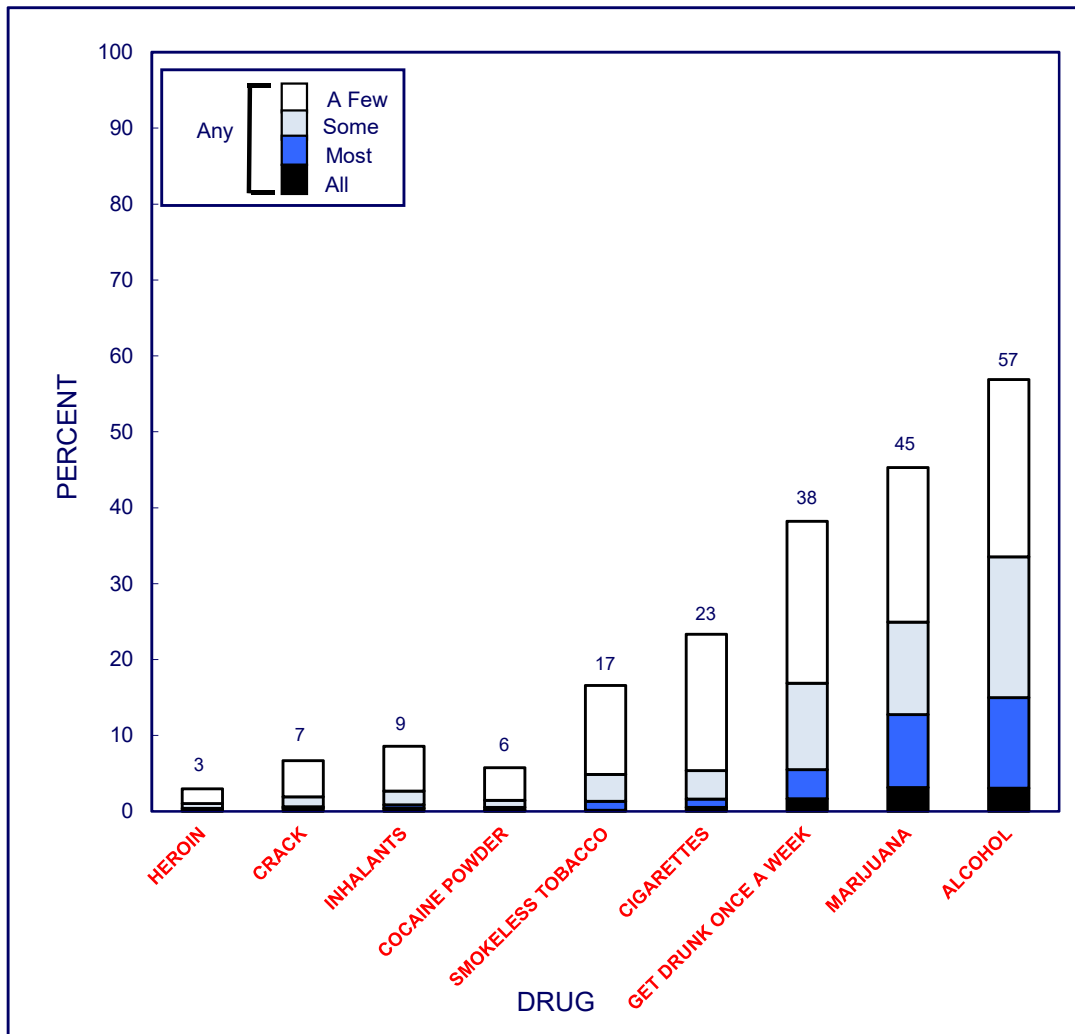


Source. The Monitoring the Future study, the University of Michigan.

(Figure continued on next page.)

FIGURE 9-4 (cont.)
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2021

10th Graders

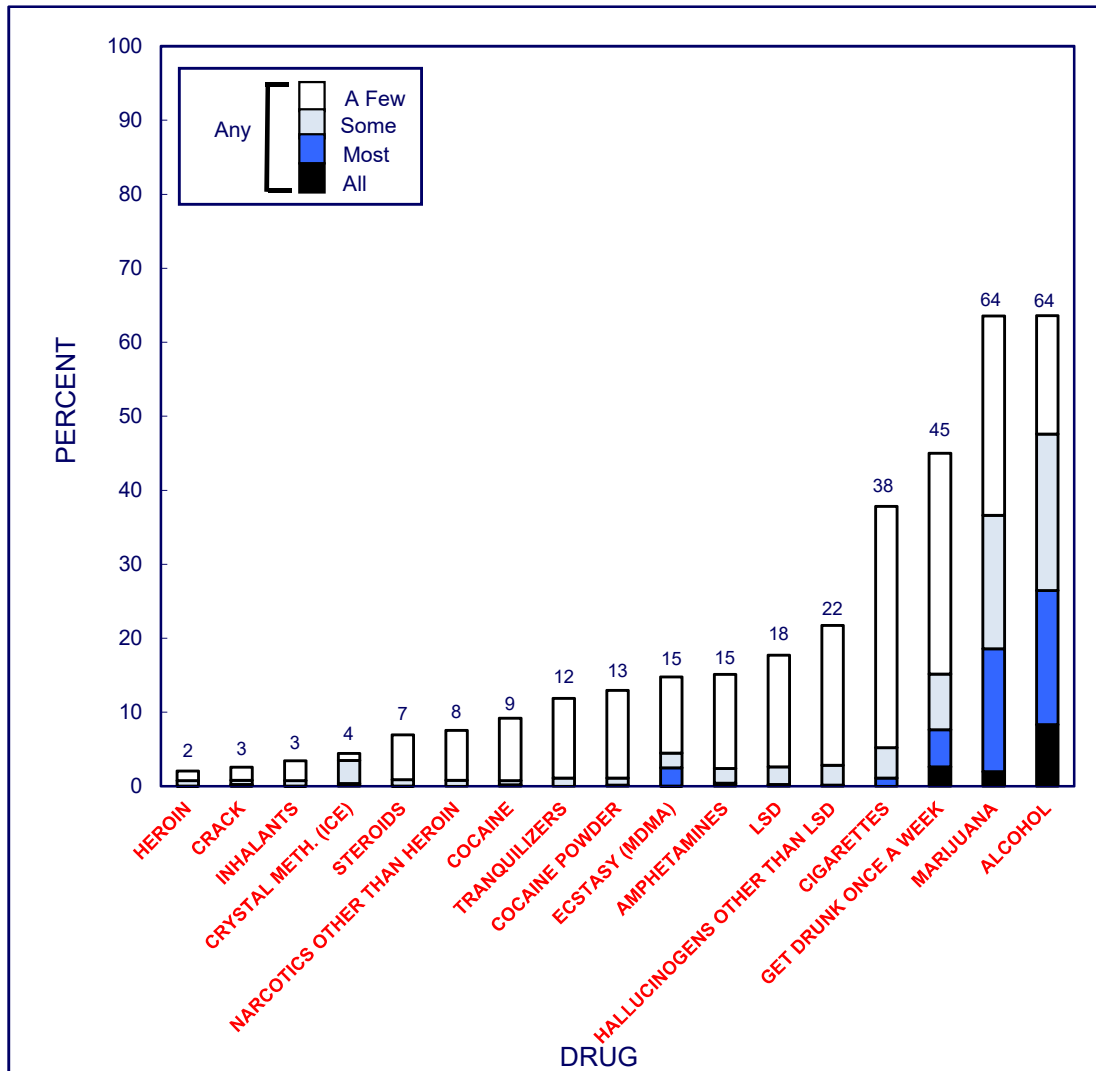


Source. The Monitoring the Future study, the University of Michigan.

(Figure continued on next page.)

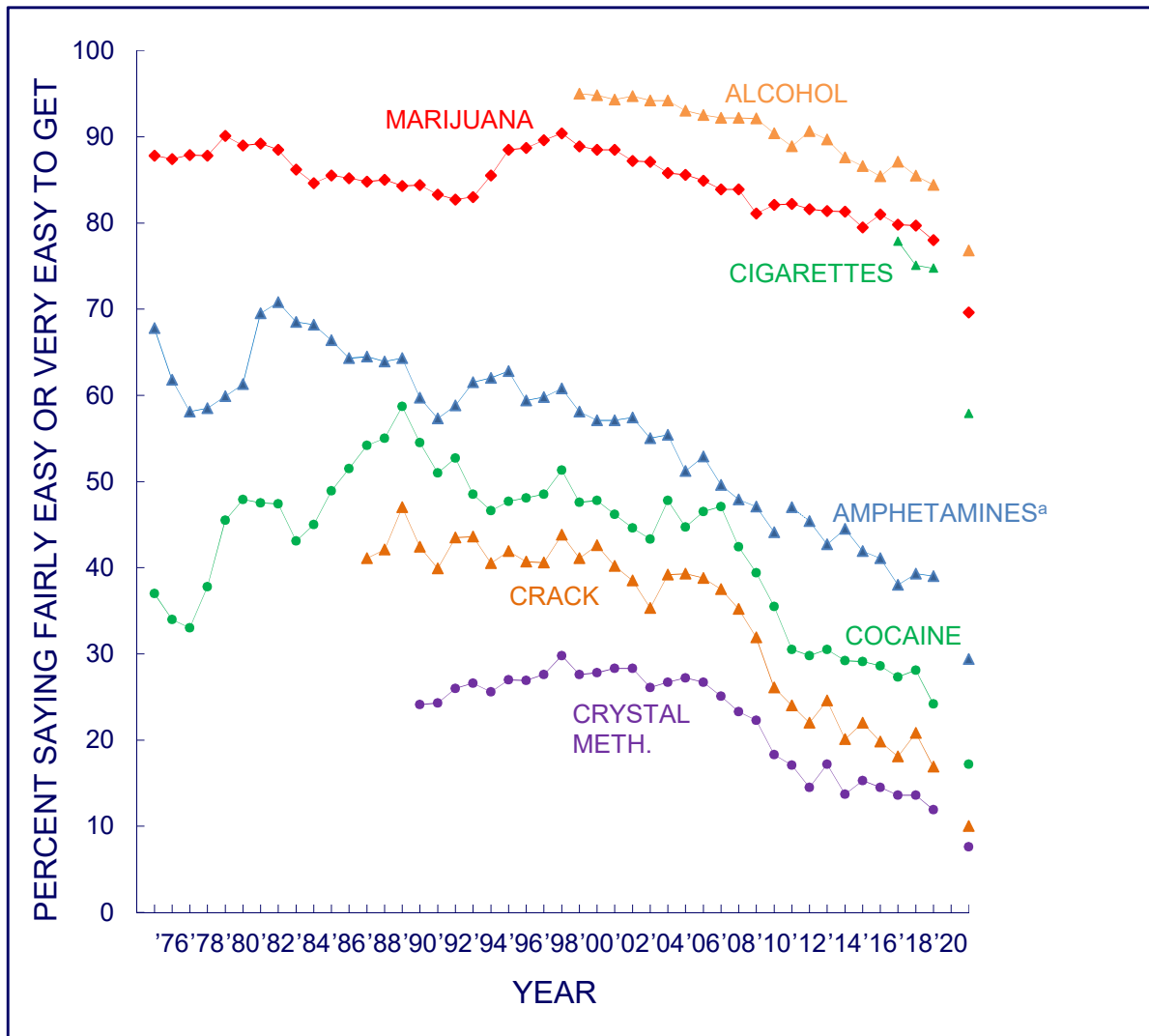
FIGURE 9-4 (cont.)
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2021

12th Graders



Source: The Monitoring the Future study, the University of Michigan.

FIGURE 9-5a
Various Drugs: Trends in Perceived Availability in Grade 12

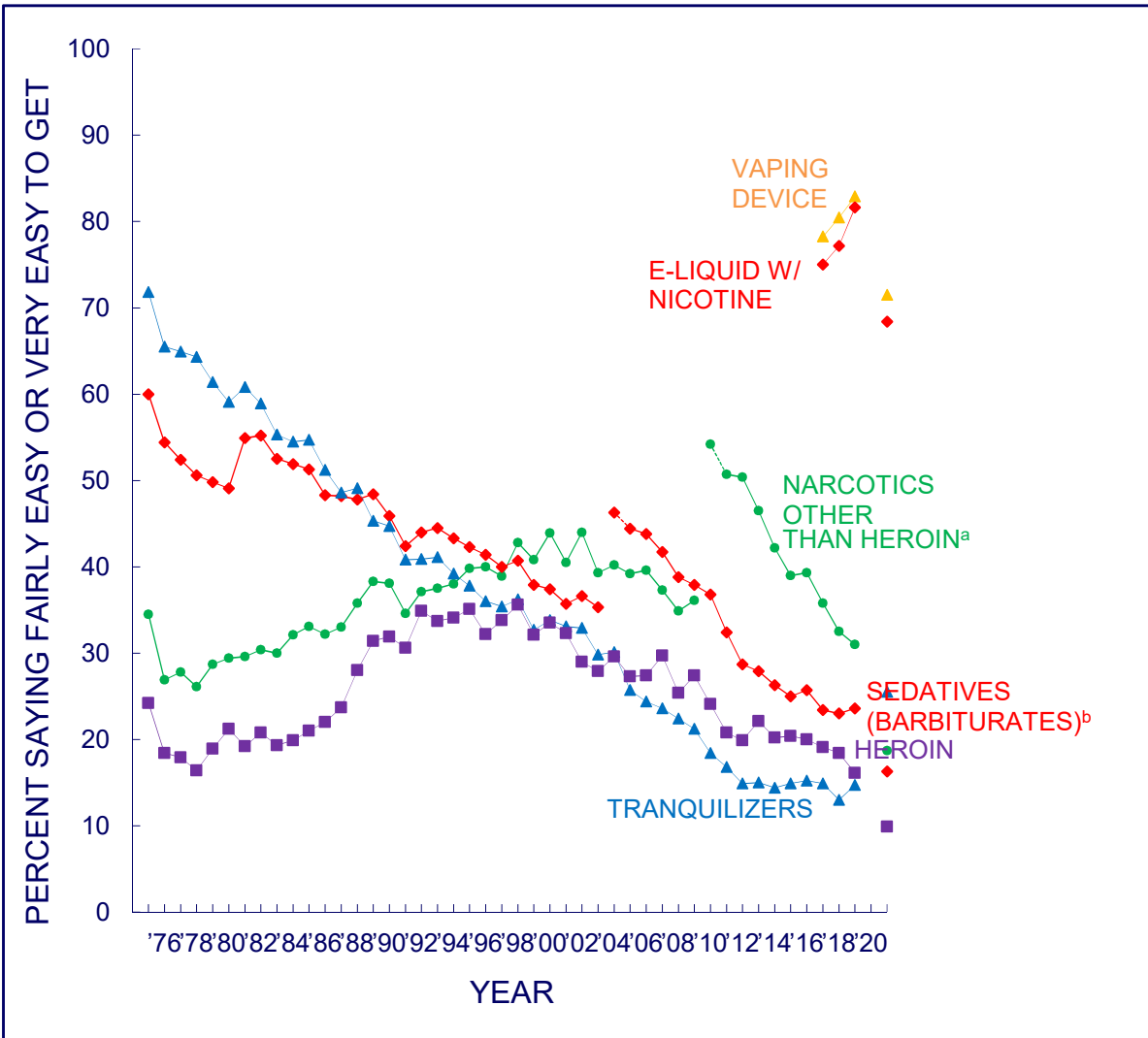


Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aFor 12th graders only: In 2011 the list of examples was changed from uppers, pep pills, bennies, speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

FIGURE 9-5b
Various Drugs: Trends in Perceived Availability in Grade 12



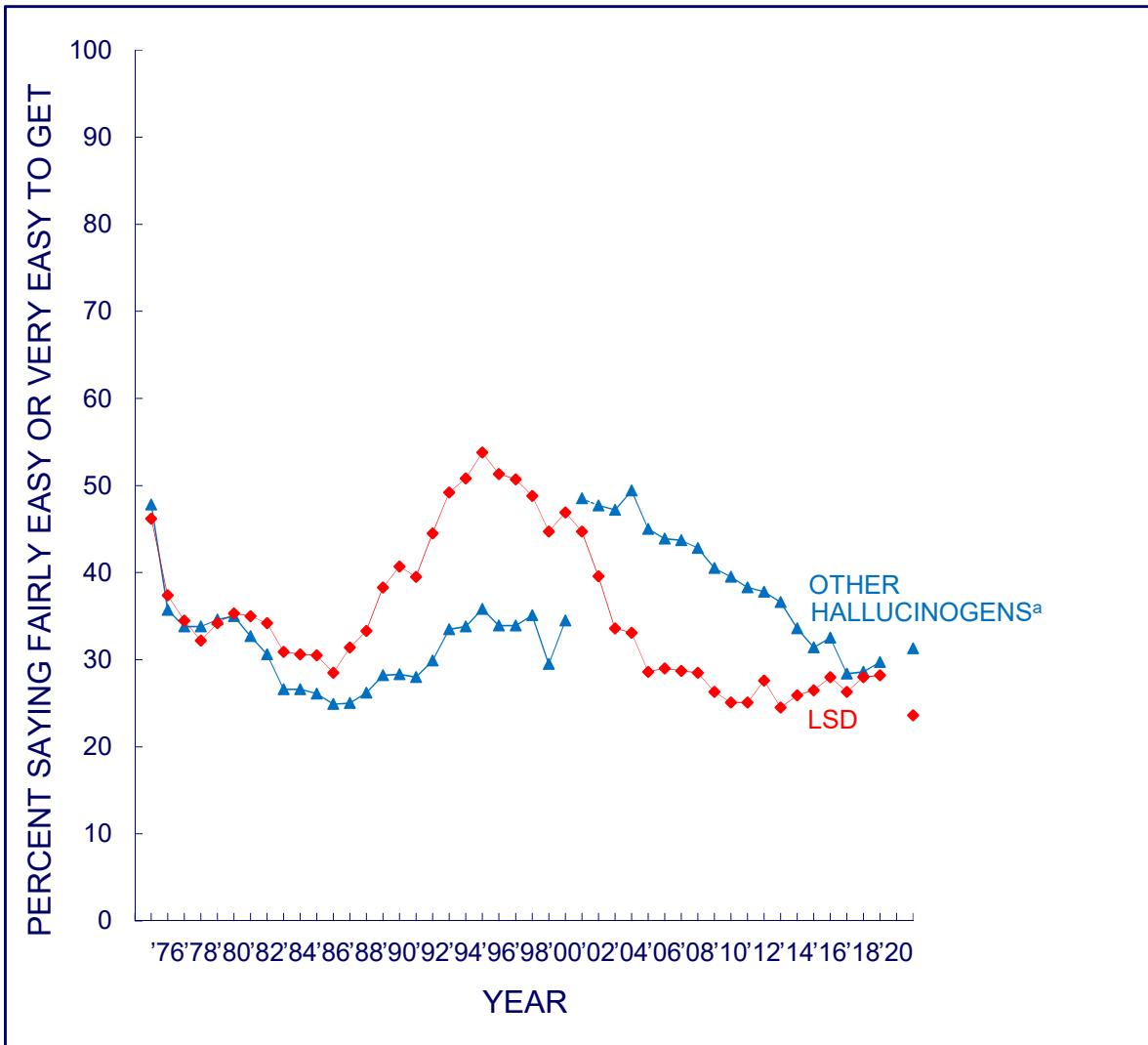
Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates, and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 9-5c
LSD AND HALLUCINOGENS OTHER THAN LSD
Trends in Perceived Availability
in Grade 12

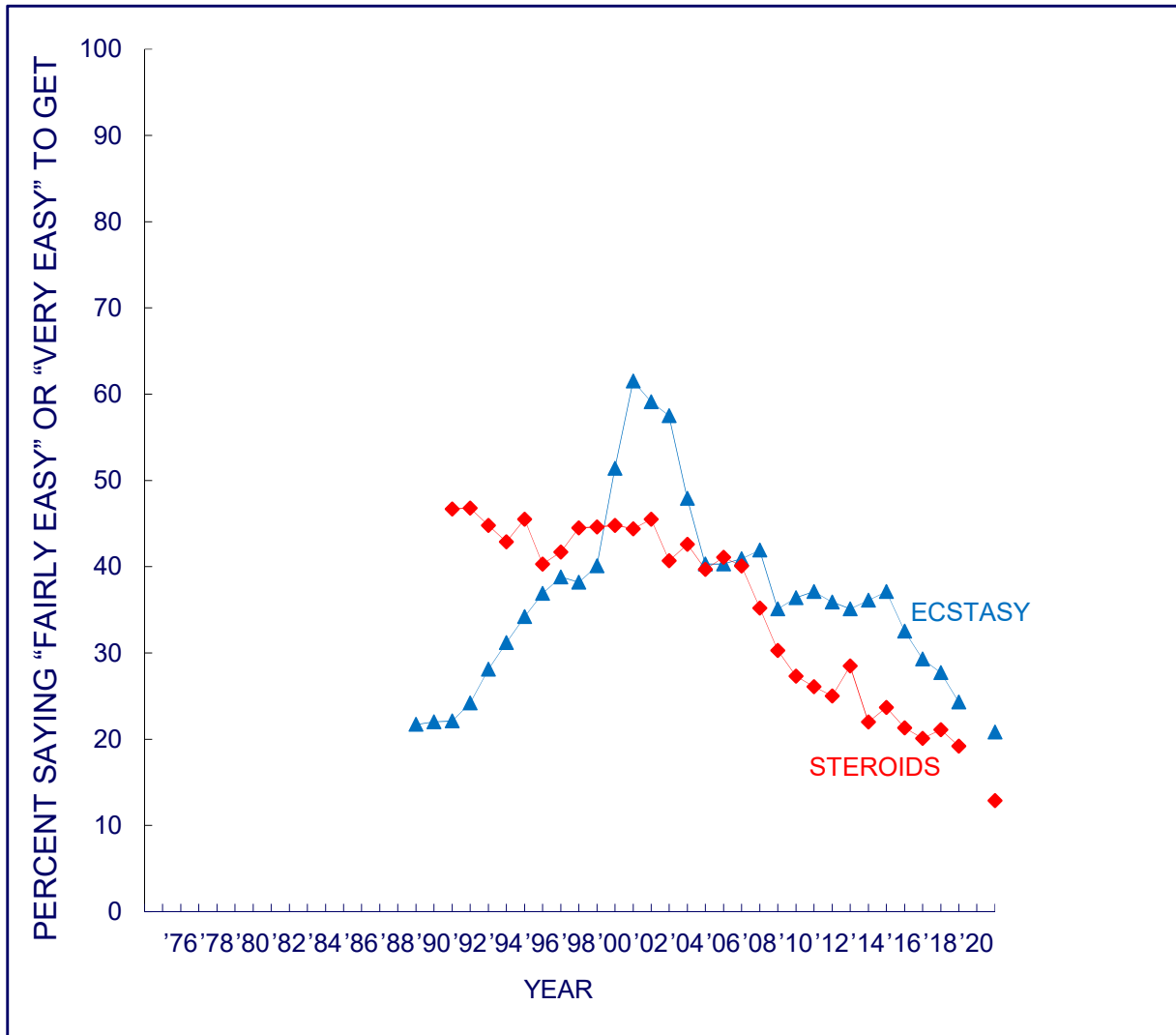


Source. The Monitoring the Future study, the University of Michigan.

Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

^aIn 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

FIGURE 9-5d
ECSTASY (MDMA) AND STEROIDS
Trends in Perceived Availability in Grade 12

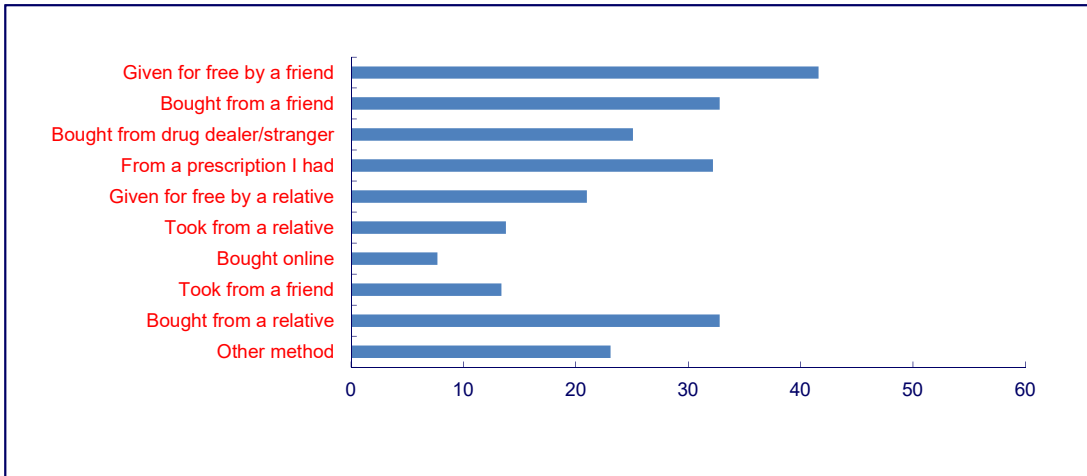


Source. The Monitoring the Future study, the University of Michigan.

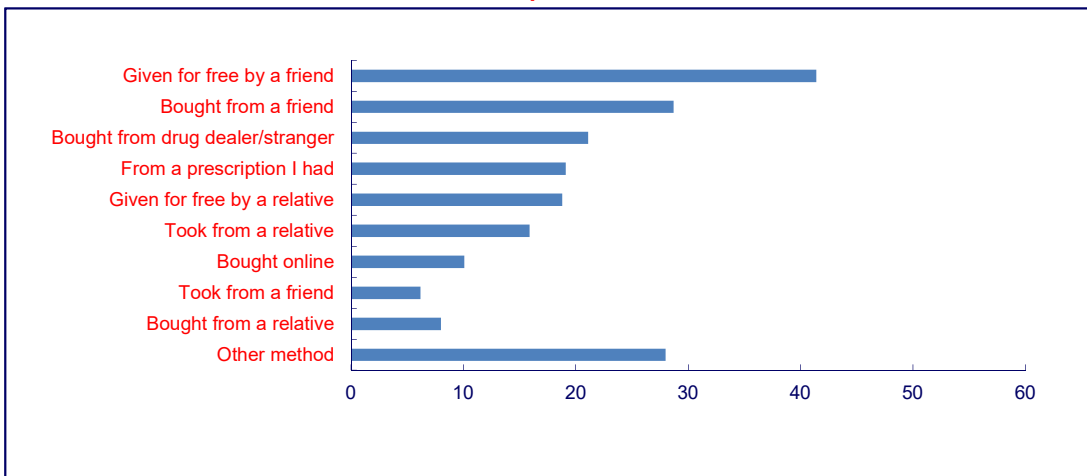
Note. Beginning in 2021, results may not be comparable with previous years. In 2021, MTF conducted survey administrations via the internet for the first time, and responses, especially about attitudes, can be sensitive to mode effects.

FIGURE 9-6
Source of Prescription Drugs
among Those Who Used in Past Year
Grade 12, 2019-2021

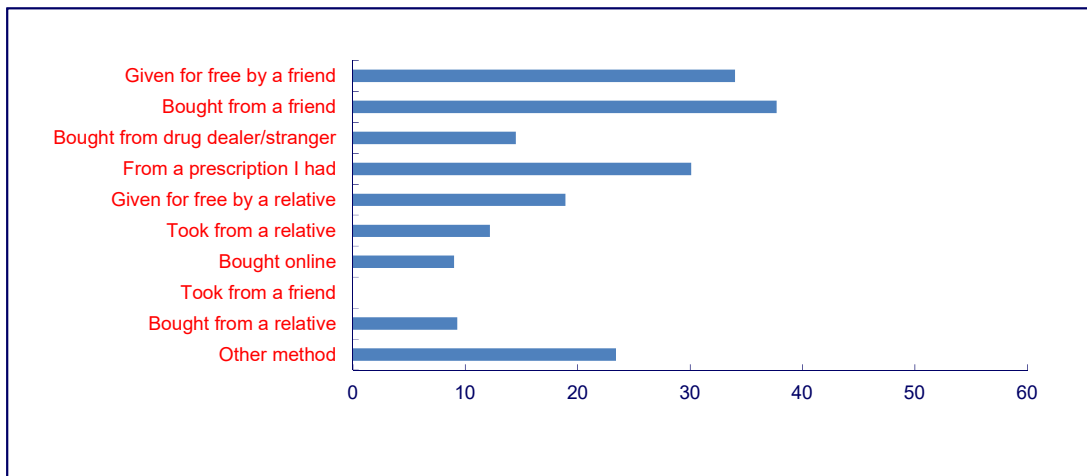
Amphetamines



Tranquilizers



Narcotics other than Heroin



Source. The Monitoring the Future study, the University of Michigan.

Note. Respondents were instructed to mark all answers that apply.

Chapter 10

STUDY PUBLICATIONS

MTF results are reported in a number of other types of publications, in particular peer-reviewed journals. Selected articles published in the past year or in press as of this writing are summarized below. Further details, as well as a more complete listing, may be found on the [Monitoring the Future website](#). In this chapter we include summaries of new publications by MTF Investigators not listed in last year's Volume that used MTF data from the 8th, 10th, and 12th grade samples, and/or the panel data.

Articles below are listed in alphabetical order by author.

Party, academic, or prepped for college? School norm profiles and adolescent well-being using national data¹

The current study examined how schoolwide norms came together into distinct profiles and how norm profile membership was linked to adolescent well-being. Using school-level (N = 786) and student-level data (N = 174,587 12th grade students; 52% female; 64% White, 13% Latino, 12% Black, 12% other) from Monitoring the Future (MTF), we identified four distinct school profiles—average, academic, prepped-for-college, party—that had unique patterns of shared norms. Compared with average schools, academic schools (high academics and low substance use and social integration norms) were most advantageous for students, prepped-for-college schools (high academics, substance use, and social integration norms) had both benefits and drawbacks, and party schools (low academics and high substance use and social integration norms) were most detrimental.

Tobacco 21 laws may reduce smoking and tobacco-related health disparities among youth in the US²

The goal of our study is to understand the impact of Tobacco 21 (T21) laws on youth smoking and health equity. We conducted modified Poisson regression models using 2014-2019 Monitoring the Future data to measure the impact of attending school in a county 100% covered by a T21 law versus counties with <100% T21 coverage on past 30-day smoking participation (n = 262,632), first cigarette smoking initiation (n = 189,698), and daily smoking initiation among 8th, 10th, and 12th graders (n = 214,496), separately. Additive interactions were tested between T21 coverage and sex, race/ethnicity, parental education, and college plans. T21 coverage was associated with a lower likelihood of smoking participation among 12th graders. T21 coverage was most strongly associated with a lower likelihood of smoking participation among: Hispanic and NH (Non-Hispanic) Other/Multiracial individuals; respondents with parents who had less than a college education; and respondents who were not definitely planning on attending college. T21 laws were associated with a lower likelihood of smoking participation among 12th graders. T21 policies were most impactful for individuals disproportionately impacted by tobacco, indicating T21 laws might

¹ Benner, A. D., Bakhtiari, F., Wang, Y., & Schulenberg, J. (2021). [Party, academic, or prepped for college? School norm profiles and adolescent well-being using national data](#). *Journal of Research on Adolescence*.

² Colston, D. C., Xie, Y., Patrick, M. E., Thrasher, J. F., Titus, A. R., Elliott, M. R., Levy, D. T., & Fleischer, N. L. (2022). [Tobacco 21 laws may reduce smoking and tobacco-related health disparities among youth in the U.S.](#) *Preventive Medicine Reports*, 27, 101762.

help reduce tobacco-related health disparities.

Exploring how exposure to truth and state-sponsored anti-tobacco media campaigns affect smoking disparities among young adults using a national longitudinal dataset, 2002–2017³

Background

Little is known regarding long-term impacts of anti-tobacco media campaigns on youth smoking and related disparities in the United States.

Methods

We examined longitudinal cohort data from Monitoring the Future (MTF) between 2000 and 2017 in modified Poisson regression models to understand the long-term impacts of televised Truth and state-sponsored ad campaign exposure at baseline (age 18) on first cigarette and daily smoking initiation 1 to 2 years later (at modal ages 19/20). We also used additive interactions to test for potential effect modification between campaign exposure and smoking outcomes by sex, race/ethnicity, and parental educational attainment.

Results

We found no evidence for baseline media campaign exposure to be associated with first cigarette or daily smoking initiation at modal age 19/20. Further, results showed no evidence for effect modification between campaign exposure and first cigarette or daily smoking initiation.

Conclusions

We found no evidence that baseline Truth and state-sponsored ad exposure was associated with first cigarette or daily smoking initiation at follow up, nor did we find any evidence for effect modification by sex, race/ethnicity, or parental education. We hypothesize that anti-tobacco media campaigns might have had a short-term impact on smoking behaviors, though these effects were not sustained long term.

Examining truth and state-sponsored media campaigns as a means of decreasing youth smoking and related disparities in the U.S.⁴

Introduction

To analyze the impact of Truth and state-sponsored anti-tobacco media campaigns on youth smoking in the United States, and their potential to reduce tobacco-related health disparities.

Aims and Methods

Our study included data from the 2000–2015 Monitoring the Future study, an annual nationally representative survey of youth in 8th (n = 201 913), 10th (n = 194 468), and 12th grades (n = 178 379). Our primary exposure was Gross Rating Points (GRPs) of Truth or state-sponsored anti-tobacco advertisements, from Nielsen Media Research. Modified Poisson regression was used to assess the impact of a respondent's GRPs on smoking intentions, past 30-day smoking

³ Colston, D. C., Xie, Y., Thrasher, J. F., Emery, S., Patrick, M. E., Titus, A. R., Elliott, M. R., & Fleischer, N. L. (2021). [Exploring how exposure to truth and state-sponsored anti-tobacco media campaigns affect smoking disparities among young adults using a national longitudinal dataset, 2002-2017](#). *International Journal of Environmental Research and Public Health*, 18(15), 7803.

⁴ Colston, D. C., Xie, Y., Thrasher, J. F., Patrick, M. E., Titus, A. R., Emery, S., McLeod, M. C., Elliott, M. R., & Fleischer, N. L. (2022). [Examining truth and state-sponsored media campaigns as a means of decreasing youth smoking and related disparities in the U.S.](#) *Nicotine & Tobacco Research*, 24(4), 469-477.

participation, and first and daily smoking initiation. Additive interactions with sex, parental education, college plans, and race/ethnicity were used to test for differential effects of campaign exposure on each outcome.

Results

Greater campaign exposure (80th vs. 20th GRP percentile) was associated with lower probabilities of smoking intentions among 8th graders, smoking participation among 8th and 12th graders, and initiation among 8th graders. Greater exposure was associated with a greater reduction in the likelihood of smoking participation among 10th and 12th grade males than females; 10th and 12th graders with parents of lower education versus those with a college degree; and 12th graders who did not definitely plan to go to college relative to those who did.

Conclusions

Media campaign exposure was associated with a lower likelihood of youth smoking behaviors. Associations were more pronounced for groups disproportionately affected by smoking, including youth of lower socioeconomic status. Media campaigns may be useful in reducing smoking disparities and improving health equity.

Implications

Few recent studies have investigated the impact of anti-tobacco media campaigns on youth smoking and their potential to reduce tobacco-related health disparities in the United States. We found media campaigns—specifically state-sponsored media campaigns—reduced the likelihood of several smoking outcomes among youth, with some evidence that they mitigate disparities for disproportionately affected groups.

Daily-level analysis of drinking intensity and acute physical consequences⁵

Objective

We examined associations of drinking intensity on a given drinking day with acute physical consequences in a sample of U.S. young adult drinkers.

Methods

Participants were past 30-day drinkers at modal age 18 in the 2018 12th-grade Monitoring the Future study who were followed up as part of a daily study in 2019 (n = 911). Of these participants, n = 489 reported at least one drinking day. At age 19, they reported their alcohol use and consequences for 14 consecutive days (n = 1051 drinking days). Daily data were used to examine within- and between-person associations of drinking intensity (moderate [1–3 drinks for women, 1–4 drinks for men], binge [4–7/5–9], or high-intensity [8+/10+]) with four acute physical consequences: hangover, nausea, blackout, and passing out.

Results

At least one acute physical consequence was reported on more than half (59.3%) of high-intensity drinking days compared to 40.7% of binge and 4.9% of moderate drinking days. Blackouts and passing out were reported on 17.1% and 9.2% of high-intensity drinking days, respectively. Compared to binge drinking days, high-intensity drinking days were associated with a greater

⁵ Evans-Polce, R. J., Stevenson, B. L., & Patrick, M. E. (2022). [Daily-level analysis of drinking intensity and acute physical consequences](#). *Addictive Behaviors* 128, 107246.

likelihood of any physical consequences (adjusted odds ratio [aOR] = 4.64; 95% confidence interval [CI] = 2.00, 10.75), a greater number of consequences (adjusted incident rate ratio [aIRR] = 1.99; 95% CI = 1.16, 3.42), and a greater likelihood of hangover (aOR = 3.72; 95% CI = 1.58, 8.74). Acute physical consequences were also more likely on high-intensity and binge drinking days versus moderate drinking days.

Conclusions

High-intensity drinking days were associated with a distinctly greater risk for acute physical consequences than binge or moderate drinking days.

The link between depressive symptoms and vaping nicotine in U.S. adolescents, 2017–2019⁶

Purpose

While there is a well-established association between depression and cigarette use, the mental health sequelae of vaping nicotine remain unclear. This study examined whether adolescents with depressive symptoms had higher odds of vaping nicotine than others, and how this association differed when examining vaping with cigarette use, vaping without cigarette use, and cigarette use alone.

Methods

Using 2017–2019 Monitoring the Future data, we examined U.S. adolescents in the eighth, 10th and 12th grades surveyed in schools across the contiguous states. Depressive symptoms were measured by using questions around negative affect and hopelessness. The outcome included vaping with cigarette use; vaping without cigarette use; cigarette use alone; and neither. Control covariates included sex, race, highest level of parental education, and average grades.

Results

The sample included 32,636 adolescents. Depressive symptoms were positively associated with comorbid vaping and cigarette use across all grades (eighth graders: adjusted odds ratio [aOR] = 3.52 [95% confidence interval (CI): 1.94–6.39]; 10th graders: aOR = 2.26 [95% CI: 1.51–3.38]; 12th graders: aOR = 1.81 [95% CI: 1.05–3.12]); vaping without cigarette use among eighth graders (eighth graders: aOR = 2.01 [95% CI: 1.46–2.77]; 10th graders: aOR = 1.20 [95% CI: .97–1.49]; 12th graders: aOR = 1.20 [95% CI: .84–1.70]); and cigarette use alone among eighth and 10th graders (eighth graders: aOR = 2.91 [95% CI: 1.50–5.62]; 10th graders: aOR = 2.29 [95% CI: 1.35–3.88]; 12th graders: aOR = 1.73 [95% CI: .83–3.61]).

Conclusions

Eighth grade adolescents with depressive symptoms have increased odds of vaping nicotine with and without cigarette use. As vaping prevalence increases, clinician assessment of adolescent vaping should concomitantly acknowledge potential mental health correlates. Vaping may be a marker for a broader constellation of adolescent health concerns, including mental health.

⁶ Gorfinkel, L., Hasin, D., Miech, R., & Keyes, K. M. (2022). [The link between depressive symptoms and vaping nicotine in U.S. adolescents, 2017–2019](#). *Journal of Adolescent Health, 70*(1), 133–139.

Cohort and age trends in age 35–45 prevalence of alcohol use disorder symptomology, by severity, sex, race, and education⁷

Aims

To present national trends by age and cohort among middle-aged adults in the prevalence of AUD symptomology, by severity, sex, race, and education.

Methods

The present study examined national multi-cohort longitudinal probability samples of US adults from the Monitoring the Future Panel Study, with data collected at ages 35, 40, and 45 among 14 cohorts who reached age 45 between 2003 and 2016. Data were collected via self-administered questionnaires to adults in the United States. The sample consisted of 20,634 individuals. Outcomes included 5-year prevalence of symptoms consistent with a DSM-5 AUD.

Findings

Between ages 35–45, prevalence of any AUD symptoms decreased by 19%; decreases were most evident between ages 35–40. From 2003 to 2016, AUD symptoms were steady across cohort. However, because the pace of decrease across ages 35–45 slowed across cohort, cohort differences emerged at specific ages: age 35 prevalence decreased by 18% across cohort, but age 45 prevalence was equivalent across cohort. Age and cohort effects, and their interaction, did not vary by AUD severity level. Declines in AUD symptoms across age were 17% slower for women, and declines in AUD symptoms across age and cohort were 11% and 29% slower, respectively, for those with a college degree. The protection afforded by a college degree was reversed among mild AUD and most pronounced for severe AUD.

Conclusions

AUDs may be more plastic and responsive to intervention during early mid-life than later. Despite progress in reducing the burden of AUD in the US population among younger middle-aged adults, an increased focus remains necessary as they continue to age.

Age 18–30 trajectories of binge drinking frequency and prevalence across the past 30 years for men and women: Delineating when and why historical trends reversed across age⁸

Historical analyses based on US data indicate that recent cohorts engage in lower binge drinking at age 18 relative to past cohorts, but by the mid- to late-20s the reverse is true: recent cohorts engage in higher binge drinking relative to past cohorts. We pinpoint when – both developmentally and historically – this reversal manifested, examine possible reasons for this reversal, and examine sex convergence in these developmental and historical patterns. As part of the US national Monitoring the Future Study, over 75,000 youths from the high school classes of 1976–2006 were surveyed biennially between ages 18 and 30. We found that the reversal primarily manifested between ages 18 and 24 for men and 18 and 22 for women. We also found that the reversal emerged gradually across the last three decades, suggesting it is the result of a broad and durable historical

⁷ Jager, J., Keyes, K. M., Son, D., Kloska, D., Patrick, M. E., & Schulenberg, J. E. (2021). [Cohort and age trends in age 35–45 prevalence of alcohol use disorder symptomology, by severity, sex, race, and education](#). *Drug and Alcohol Dependence*, 226, 108820.

⁸ Jager, J., Keyes, K. M., Son, D., Patrick, M. E., Platt, J., & Schulenberg, J. E. (2022). [Age 18–30 trajectories of binge drinking frequency and prevalence across the past 30 years for men and women: Delineating when and why historical trends reversed across age](#). *Development and Psychopathology*, 1–15.

shift. Our findings indicated that historical variation in social roles and minimum legal drinking age collectively accounted for only a modest amount of the reversal, although marriage was the most influential among the factors examined here. Finally, we found evidence that sex convergence in binge drinking was developmentally limited and far more pronounced at the beginning of the transition to adulthood.

The destabilization and destandardization of social roles across the adult life course: Considering aggregate social role instability and its variability from a historical-developmental perspective⁹

Existing research focused on social role destabilization (historical increases in role instability) and destandardization (historical increases in variability of role instability) has primarily focused on discrete social roles during discrete periods of development. Building on this work, we applied a macro approach to elucidate the extent to which historical trends toward destabilization and destandardization are occurring at the aggregate among a key set of social roles (union formation, education, residential independence, and employment) and across the whole of adulthood. Applying a historical-developmental approach, we also document how historical trends toward destabilization and destandardization vary by age. We used 3 historical, longitudinal data sets: the Monitoring the Future study (N = 69,464; 55.4% women; 75.5% white), the Panel Study of Income Dynamics (N = 45,001; 51.4% women; 54.3% white), and The Health and Retirement Study (N = 30,913; 53.6% women; 75.6% white) that collectively cover the entire adult life course and over a century of U.S. birth cohorts. We found that aggregate destabilization and destandardization have occurred across the entirety of adulthood, although trends appear more pronounced at either end of the adult life course and the specific roles driving both trends vary across the adult life course. Findings were robust for educational attainment, and destabilization and destandardization were more pronounced among women. Findings highlight the importance of considering social role changes at the aggregate and singularly, and the need to evaluate social role changes in any one period of adulthood in conjunction with those occurring in other periods of adulthood.

Cohort effects on gender differences in alcohol use in the United States: How much is explained by changing attitudes towards women and gendered roles?¹⁰

Gender differences in binge drinking have converged in recent cohorts, due in part to faster decreases in consumption among boys in adolescence, and faster increases in consumption among women in young to middle adulthood. Changes in education and occupation explain a portion, but not all, of these differences; the present study examines how attitudes about gender, religion and family additionally explain cohort effects in binge drinking by sex. Data were drawn from the Monitoring the Future panel studies, including >54,000 participants who were high school seniors from 1976 through 2006, followed to age 29/30 from 1988 through 2016. The main effect relationship between cohort and binge drinking was assessed, and 28 items on gender, religion and family were evaluated to determine if mediation criteria were met; mediation models assessed direct and indirect effects. Results indicated that gender, religion and family attitudes and beliefs among US adults across the 20th and 21st centuries have shifted dramatically but not

⁹ Jager, J., Rauer, A., Staff, J., Lansford, J. E., Pettit, G. S., & Schulenberg, J. E. (2022). [The destabilization and destandardization of social roles across the adult life course: Considering aggregate social role instability and its variability from a historical-developmental perspective](#). *Developmental Psychology*, 58(3), 589–605.

¹⁰ Keyes, K. M., Platt, J., Rutherford, C., Patrick, M.E., Kloska, D. D., Schulenberg, J., & Jager, J. (2021). [Cohort effects on gender differences in alcohol use in the United States: How much is explained by changing attitudes towards women and gendered roles?](#) *Social Science and Medicine – Population Health* 15, 100919.

monotonically. US adolescents and adults have largely become less religious; some attitudes on women and family have become less conservative and some more. Among men, views on marriage showed the largest mediation effects; agreeing with the statement ‘one partner is too restrictive’ mediated 3.35% of the cohort effect (95% C.I. 2.42, 4.31) and ‘couples should live together before they are married’ mediated 1.6% of the cohort effect (95% C.I. –2.37, –0.8). Among women, declines in religious service attendance mediated 2.0% of cohort effects in binge drinking (95% C.I. –3.03, –1.09), as well as similar family attitudes as men. In conclusion, changes in social roles, as well as some gender, and religious views, partially mediate cohort effects on binge drinking for men and women. The dynamic changes in how adolescents and adults view family and gender are important components of alcohol epidemiology.

Nicotine dependence symptoms in U.S. youth who use JUUL E-cigarettes¹¹

Purpose

To estimate the prevalence, patterns, and correlates of self-reported nicotine dependence symptoms among U.S. youth who use JUUL – a widely-sold e-cigarette brand – in 2019 and compare findings to nicotine dependence symptoms in youth who smoke cigarettes.

Methods

Data were from a nationally-representative subsample of 8th, 10th, and 12th grade students in the Monitoring the Future Study who had used JUUL or cigarettes in the past 30 days. Participants self-reported presence/absence of 9 different nicotine dependence symptoms for JUUL or cigarettes. Weighted percentages for JUUL or cigarette nicotine dependence symptom status (≥ 1 vs. 0 symptoms) and severity (count, range: 0–9) were calculated. Among JUUL users, we estimated associations of sociodemographic characteristics and other substance use with nicotine dependence and severity.

Results

Among 1,748 past 30-day JUUL users, 41.3 % screened positive for ≥ 1 nicotine dependence symptoms; the mean symptom count was 1.6 (SD = 2.6). Non-nicotine substance use and more frequent JUUL use was associated with significantly greater odds of dependence and more severe dependence symptoms in multivariable models. The severity distribution of most (craving) and least (inability to quit) dependence symptom types observed in JUUL dependence paralleled those observed in analysis of combustible cigarette dependence symptoms in past 30-day smokers.

Conclusion

A substantial proportion of U.S. adolescent JUUL users reported symptoms of nicotine dependence, which is greater for those who vape more frequently and use other substances. Nicotine dependence screening, prevention, and regulatory policies addressing use of JUUL or similar e-cigarette products should be considered to protect U.S. youth.

¹¹ Kechter, A., Cho, J., Miech, R. A., Barrington-Trimis, J. L., & Leventhal, A. M. (2021). [Nicotine dependence symptoms in U.S. youth who use JUUL E-cigarettes](#). *Drug and Alcohol Dependence*, 227, 108941.

Pills to powder: A 17-year transition from prescription opioids to heroin among U.S. adolescents followed into adulthood¹²

Objectives

To examine the longitudinal relationships between US adolescents' prescription opioid use and misuse and any subsequent heroin use in adulthood.

Methods

Nationally representative samples of adolescents from 25 independent cohorts from the Monitoring the Future study were surveyed via self-administered questionnaires and followed from ages 18 to 35 (n = 11,012). Adolescents were divided into 5 subgroups based on survey responses at age 18: no lifetime exposure to prescription opioids (population controls), medical prescription opioid use without a history of nonmedical misuse (medical use only), medical use followed by nonmedical misuse, nonmedical misuse followed by medical use, and nonmedical misuse only. These 5 subgroups were compared on their risk for any heroin use through age 35 (1993–2017). Adolescents who reported lifetime heroin use at age 18 were excluded.

Results

Adolescents who reported nonmedical prescription opioid misuse followed by medical use or nonmedical misuse only had greater odds of any heroin use in adulthood than population controls. More recent cohorts of adolescents who reported nonmedical misuse or medical use only (compared to older cohorts) had greater odds of any heroin use in adulthood relative to population controls. Nearly 1 in 3 adolescents in recent cohorts who reported nonmedical prescription opioid misuse transitioned to any heroin use.

Conclusions

There is increased risk for heroin use among adolescents who initiated nonmedical misuse or adolescents prescribed opioids in more recent cohorts. These findings indicate historical variation and reinforce the critical role of vigilant monitoring and drug screening to detect high-risk individuals who would benefit from an intervention to reduce later heroin use.

Trajectories of prescription drug misuse among US adults from ages 18 to 50 years¹³

Importance

US adults born from 1965 to 1996 had high exposure to controlled medications, yet little is known about how this exposure has affected them over time. Prescription drug misuse (PDM) has increased among adults in the past 2 decades, with related increases in emergency department visits, overdoses, and deaths.

Objectives

To identify 32-year PDM trajectories involving opioids, stimulants, and sedatives or tranquilizers and to examine associations between these PDM trajectories and substance use disorder (SUD) symptoms in adulthood as well as between baseline characteristics and PDM trajectories.

¹² McCabe, S. E., Boyd, C. J., Evans-Polce, R. J., McCabe, V. V., Schulenberg, J. E., & Veliz, P. T. (2021). [Pills to powder: A 17-year transition from prescription opioids to heroin among U.S. adolescents followed into adulthood](#). *Journal of Addiction Medicine*, 15(3), 241-244.

¹³ McCabe, S. E., Schulenberg, J. E., Schepis, T. S., Evans-Polce, R. J., Wilens, T. E., McCabe, V. V., & Veliz, P. T. (2022). [Trajectories of prescription drug misuse among US adults from ages 18 to 50 years](#). *JAMA Network Open*, 5(1), e2141995.

Design, Setting, and Participants

This cohort study included 11 cohorts of adolescents who were followed up longitudinally from age 18 years (study start, 1976-1986) to age 50 years (2008-2018) in the Monitoring the Future (MTF) study, which included a national multistage random sample of US 12th grade students. Baseline surveys (modal age 18) were self-administered in classrooms. Ten follow-ups were conducted by mail. Data analysis was conducted from December 2020 to October 2021.

Main Outcomes and Measures

Sociodemographic variables were measured at baseline. PDM and SUD symptoms were measured at baseline and every follow-up. Latent profile analysis (LPA) was used to create PDM trajectory profiles. Associations between these PDM trajectories, SUD symptoms, and baseline sociodemographic characteristics were examined.

Results

The sample of 26 575 individuals was 50.8% (95% CI, 50.2%-51.4%) female and 79.3% (95% CI, 78.8%-79.8%) White. The baseline response rate ranged from 77% to 84%, and the 32-year retention rate was 53%. In adjusting for attrition, 45.7% (95% CI, 44.9%-46.4%) of the respondents reported past-year PDM at least once during the 32-year reporting period. Among those who reported PDM, the prevalence of poly-PDM was 40.3% (95% CI, 39.3%-41.3%). Based on LPA, the number of class-specific PDM trajectories ranged from 4 (prescription opioids) to 6 (prescription stimulants). For the class-combined analyses, we identified 8 PDM trajectories consisting of early peak trajectories (eg, age 18 years), later peak trajectories (eg, age 40 years), and a high-risk trajectory (eg, high frequency PDM at multiple ages). All PDM trajectories were associated with increased odds of developing SUD symptoms in middle adulthood, especially the later peak and high-risk trajectories compared with early peak trajectories (eg, peak at age 40 years: adjusted odds ratio [aOR], 5.17; 95% CI, 3.97-6.73; high-risk: aOR, 12.41; 95% CI, 8.47-18.24). Baseline characteristics associated with a high-risk trajectory were binge drinking (aOR, 1.69; 95% CI, 1.13-2.54), cigarette smoking (aOR, 2.30; 95% CI, 1.60-3.29), and marijuana use (aOR, 3.78; 95% CI, 2.38-6.01). More recent cohorts (eg, 1985-1986) had a higher risk of belonging to later peak PDM trajectories (ages 40 and 45 years) than the 1976-1978 cohort (age 40 years peak: aOR, 2.49; 95% CI, 1.69-3.68).

Conclusions and Relevance

In this cohort study, adults with later peak PDM trajectories were at increased risk of SUD symptoms in middle adulthood. These findings suggest the need to screen for PDM and SUD from adolescence through middle adulthood.

35-year-old parents do not approve of 17-year-olds' cigarette, marijuana, or alcohol use: U.S. national data 1993–2018¹⁴

Purpose

Parents' attitudes about adolescent substance use likely guide their parenting behaviors. This study documents prevalence of parents' disapproval of adolescent substance use and characteristics associated with disapproval.

¹⁴ Mehus, C. J., Patrick, M. E., Schulenberg, J., & Maggs, J. L. (2022). [35-year-old parents do not approve of 17-year-olds' cigarette, marijuana, or alcohol use: U.S. national data 1993–2018](#). *Journal of Adolescent Health, 70*(6), 989-992.

Methods

Survey data from national samples of 35-year-old parents from the U.S. Monitoring the Future study were collected 1993–2018. Multivariable logistic regression examined predictors of disapproving attitudes about substance use by a hypothetical 17-year-old child, including occasional marijuana use or drunkenness, and regular cigarette, marijuana, or alcohol use.

Results

Across all cohorts, rates of disapproving attitudes ranged from 93.7% disapproving of getting drunk occasionally to 97.2% disapproving of regular cigarette use, with some erosion in disapproval for some substances across cohorts. Parents' own recent abstinence from substance use predicted greater odds of disapproval.

Conclusions

The overwhelming majority of 35-year-old parents disapprove of adolescent substance use. Prevention and public health messaging can support parenting by sharing this important information.

Adolescent cannabis users who have never smoked a combustible cigarette: Trends and level of addictive drug use from 1976 to 2020¹⁵

Background

Adolescent cannabis users are at a substantially elevated risk for use of highly addictive drugs such as cocaine, heroin, and nonmedical use of prescription drugs. Unknown is whether this elevated risk applies to adolescent cannabis users who have never smoked a combustible cigarette, a group that has grown considerably in size in recent years. This study documents the recent growth in the proportion of adolescent cannabis users who abstain from combustible cigarette use, and examines their probability for use of addictive drugs.

Methods

Data are annual, cross-sectional, nationally-representative Monitoring the Future surveys of 607,932 U.S. 12th grade students from 1976 to 2020.

Results

Among ever cannabis users, the percentage who had never smoked a combustible cigarette grew from 11% in 2000 to 58% in 2020. This group had levels of addictive drug use that were 8% higher than their peers. In comparison, adolescents who had ever used cannabis—regardless of whether they had ever smoked a cigarette—had levels of addictive drug use 500% higher than their peers.

Conclusions

Adolescent cannabis users who have not smoked a combustible cigarette have much lower levels of addictive drug use than the group of cannabis users as a whole. These results suggest policies and laws aimed at reducing adolescent prevalence of addictive drugs may do better to focus on cigarette use of adolescent cannabis users rather than cannabis use per se.

¹⁵ Miech, R. A. (2022). [Adolescent cannabis users who have never smoked a combustible cigarette: Trends and level of addictive drug use from 1976 to 2020](#). *Discover Social Science and Health*, 2(3), 1–9.

Recent, national trends in US adolescent use of menthol and non-menthol cigarettes¹⁶

Objective

In light of the current U.S. Food and Drug Administration (FDA) proposal to ban menthol cigarettes, this study updates trends in menthol cigarette use among adolescents age 13–18 years up to the year 2020. The study considers a potential role for the ban to reduce black/non-black disparities in menthol cigarette use, as well as a counterargument that a ban is not necessary because menthol use is already diminishing.

Methods

Data are from annual, cross-sectional, nationally representative Monitoring the Future (MTF) surveys of 85 547 8th, 10th and 12th grade students surveyed between 2012 and 2020. Analyses include trends in past 30-day menthol and non-menthol cigarette smoking among the total adolescent population, as well as stratified by race/ethnicity.

Results

Declines in adolescent menthol and non-menthol cigarette smoking continued through 2020 so that in 2018–2020 past 30-day prevalence for each was less than 1% for non-Hispanic black adolescents and less than 2.2% for non-black adolescents. For non-Hispanic black adolescents no smoking declines in mentholated or non-mentholated cigarette use from 2015–2017 to 2018–2020 were statistically significant, in part because prevalence levels approached a floor effect and had little room to fall further. Menthol levels were lower for non-Hispanic black versus all other adolescents in all study years.

Conclusions

Continuing declines in adolescent menthol prevalence indicate that both menthol prevalence and also black/non-black disparities in its use are steadily decreasing. However, these decreases in adolescence will take decades to reach later ages through generational replacement. Efforts to accelerate menthol decreases will require new initiatives to increase cessation among adult menthol users.

Failed attempts to quit combustible cigarettes and e-cigarettes among US adolescents¹⁷

Purpose

This study assessed trends in the percentage of adolescents with an unsuccessful cigarette quit attempt between 1997 and 2020 and compares quit attempts for cigarettes and e-cigarettes in 2020.

Methods

Respondents were from the 1997-2020 Monitoring the Future study, which each year surveyed nationally representative samples of 8th-, 10th-, and 12th-grade students in person at their schools during school hours. Analyses centered on the questions “Have you ever tried to stop smoking cigarettes and found that you could not?” among ever smokers (asked between 1997-2020) and “Have you ever tried to stop vaping nicotine and found that you could not?” among ever e-cigarette

¹⁶ Miech, R. A., Leventhal, A. M., & Johnson, L. D. (2022). [Recent, national trends in US adolescent use of menthol and non-menthol cigarettes](#). *Tobacco Control*.

¹⁷ Miech, R., Leventhal, A. M., O'Malley, P. M., Johnston, L. D., & Barrington-Trimis, J. L. (2022). [Failed attempts to quit combustible cigarettes and e-cigarettes among US adolescents](#). *JAMA*, 327(12), 1179-1181.

users (asked in 2020 only). Response categories were “yes” or “no.”

Results

The percentage of all adolescents who reported an unsuccessful quit attempt for cigarettes declined from 9.82% (95% CI, 9.15%-10.53%) in 1997 to 2.23% (95% CI, 1.53%-3.22%) in 2020 ($P < .001$). For e-cigarettes, the percentage of all adolescents who reported an unsuccessful quit attempt was 4.12% (95% CI, 3.25%-5.20%) in 2020. For either type of nicotine use (combustible cigarettes or e-cigarettes), the percentage of all adolescents who reported an unsuccessful quit attempt was 5.74% (95% CI, 4.66%-7.05%) in 2020. Compared with this estimate of 5.74% in 2020, the percentage unsuccessfully attempting to quit cigarettes was significantly higher during each year from 1997 to 2001, was not significantly different from 2002 and 2006, and was significantly lower during each year from 2007 to 2020.

Conclusion

The contribution of e-cigarettes to unsuccessful nicotine quit attempts among adolescents is substantial and warrants consideration as the US formulates policies to regulate e-cigarettes.

Increased nicotine vaping due to the COVID-19 pandemic among US young adults: Associations with nicotine dependence, vaping frequency, and reasons for use¹⁸

Previous research has not examined increased vaping because of the pandemic using a national sample of young adults (YAs), which is a critical gap because pandemic-related increases in vaping among YAs could have important implications for nicotine dependence, prolonged regular use, and using substances to cope with stress. We examined self-reported increased vaping attributed to the COVID-19 pandemic among YAs, and its associations with outcomes that have important implications for future nicotine use. Data came from the Monitoring the Future (MTF) Vaping Supplement. Participants were selected from a nationally representative sample of US 12th-graders who were surveyed at age 19 in fall 2020 ($N = 1244$). Cross-sectional analyses of the 2020 survey included YAs who vaped nicotine in the past year (35%; $N = 440$). Weighted descriptive analyses and logistic regression models examined self-reported pandemic-related increased vaping (vs. decreased vaping, or no change), and its associations with current nicotine dependence, vaping behavior, and reasons for vaping. Among YAs who vaped nicotine in the past year, 16.8% reported increased and 44.4% reported decreased vaping due to the pandemic, while 38.9% reported no change. Increased vaping (vs. decreased and/or no change) was significantly associated with nicotine dependence symptoms, current regular nicotine vaping, and vaping to relax, get high, and because of boredom. Self-reported increased vaping because of the pandemic was associated with increased risk for current nicotine dependence and frequent use. Increased vaping may have been a form of coping with pandemic-related stressors, which increases risk for future substance use problems.

¹⁸ Parks, M. J., Fleischer, N. L., & Patrick, M. E. (2022). [Increased nicotine vaping due to the COVID-19 pandemic among US young adults: Associations with nicotine dependence, vaping frequency, and reasons for use](#). *Preventive Medicine, 159*, 107059.

Daily fluctuations in drinking intensity: Links with vaping and combustible use of nicotine and marijuana¹⁹

Background

Whether alcohol use intensity on a given day is linked with nicotine or marijuana use that same day is not well known, nor are links of drinking intensity with different modes of nicotine and marijuana use. This study examined these within-person links across 14 days in a national sample of young adults (YAs).

Methods

Past 30-day drinkers participating in the U.S. nationally representative Monitoring the Future study of 12th graders in 2018, who also reported alcohol use during a 14-day data collection one year later in the Young Adult Daily Life Study in 2019, were included (N = 487). Weighted multilevel modeling estimated within- and between-person associations of drinking intensity with cigarette smoking, nicotine vaping, marijuana smoking, and marijuana vaping.

Results

Within-person fluctuations in drinking intensity on a given day were associated with cigarette smoking, nicotine vaping, and marijuana smoking, but not marijuana vaping. There were significant between-person associations of means of drinking intensity and each outcome, except for cigarette smoking.

Conclusion

Drinking intensity on a given day was associated with multiple modes of nicotine use and marijuana smoking that day. Nicotine and marijuana use remain critical areas of concern for public health, and future research and interventions should consider the comorbidity of drinking intensity and multiple modes of nicotine and marijuana use. Focusing on the same-day use of alcohol may provide a tailored avenue for preventing and reducing nicotine and marijuana emerging trends among YAs.

Protective factors for nicotine and marijuana vaping among U.S. adolescents²⁰

Introduction

Nicotine and marijuana vaping among U.S. adolescents are public health priorities. Research has assessed the demographic and risk factors related to vaping, but there is a dearth of research on protective factors for vaping. On the basis of the healthy youth development perspective, the developmental assets framework is used to assess cumulative protective factors and vaping in a national sample of adolescents.

Methods

Data came from the nationally representative Monitoring the Future study, consisting of 12th graders (n=6,982) from the 48 contiguous U.S. states (2017–2019). Past 30-day nicotine and marijuana vaping and developmental assets (low, medium, or high) were examined. Covariates included demographics and other substance use. Weighted descriptive statistics, logistic

¹⁹ Parks, M. J., Maggs, J. L., & Patrick, M. E. (2022). [Daily fluctuations in drinking intensity: Links with vaping and combustible use of nicotine and marijuana](#). *Drug and Alcohol Dependence*, 233, 109347.

²⁰ Parks, M. J., & Patrick, M. E. (2022). [Protective factors for nicotine and marijuana vaping among U.S. adolescents](#). *American Journal of Preventive Medicine*, 62(3), 414–421.

regression, postestimation analyses, and multiple imputation were used.

Results

Students with higher assets were less likely to vape nicotine and marijuana, even after adjusting for covariates. The odds of nicotine vaping were lower for students with medium assets (AOR=0.65, 95% CI=0.54, 0.78) and high assets (AOR=0.22, 95% CI=0.16, 0.29) than for students with low assets. Similarly, the odds of marijuana vaping were lower for youth with medium assets (AOR=0.54, 95% CI=0.42, 0.69) and high assets (AOR=0.09, 95% CI=0.05, 0.18) than for those with low assets. Social competence and positive peer norms were strongly protective against both forms of vaping.

Conclusions

The healthy youth development perspective applies to the critical issues of nicotine and marijuana vaping among adolescents. Promoting cumulative assets may help to prevent vaping among U.S. adolescents, and increasing the specific assets of social competence and positive peer norms could be particularly fruitful.

Cigarette pack price and its within-person association with smoking initiation, smoking progression, and disparities among young adults²¹

Background

There is a dearth of research on within-person relationships between tobacco price and cigarette smoking initiation and progression in young adulthood. This project examines the within-person association between cigarette pack price and smoking initiation and progression between age 18 and 21/22, focusing on differences across subgroups.

Methods

Data came from the longitudinal Monitoring the Future (MTF) project. MTF examines drug use behaviors with nationally representative samples of 12th graders annually. Subsamples of 12th graders are annually selected and followed longitudinally. Among 12th graders from baseline years 2000–2014, we examined past 30-day cigarette smoking initiation among baseline never smokers (N = 15 280) and progression to daily smoking among youth who were not daily smokers at baseline (N = 26 998). We used hierarchical logistic regression and interaction terms to assess differences across sex, race/ethnicity, and parental education.

Results

The within-person relationship between pack price and smoking indicated that a one-dollar increase in pack price corresponded with a 72% decrease in the odds of initiation (AOR = 0.28, 95% CI = 0.18, 0.44) and 70% decrease in the odds of progression to daily smoking (AOR = 0.30, 95% CI = 0.21, 0.44). There was a linear age trend for both smoking initiation and progression. There were no statistically significant interactions between price and demographics, making it difficult to disentangle differences across subgroups.

²¹ Parks, M. J., Patrick, M. E., Levy, D. T., Thrasher, J. F., Elliott, M. R., & Fleischer, N. L. (2022). [Cigarette pack price and its within-person association with smoking initiation, smoking progression, and disparities among young adults](#). *Nicotine & Tobacco Research*, 24(4), 519–528.

Conclusions

Exposure to increased cigarette prices during young adulthood was associated with lower odds of cigarette smoking initiation and progression. Additional policies and programs beyond cigarette prices could help reduce tobacco-related disparities in smoking initiation and progression among young adults.

Implications

There is a strong, within-person relationship between cigarette prices and smoking initiation and progression during the transition to young adulthood: higher prices are associated with decreased odds of both initiation and progression. Cigarette taxation can help to prevent smoking initiation and progression among youth, but it is less clear how taxes are associated with disparities in smoking experienced by certain subgroups. We could not draw definitive conclusions about the impact of cigarette prices on tobacco-related disparities. Tobacco taxes should be increased on a regular basis to ensure young adults experience within-person increases in prices, and complementary programs geared toward reducing tobacco-related disparities among young adults should be promoted.

Building on a sequential mixed-mode research design in the Monitoring the Future study²²

Given the promise of the web push plus e-mail survey design for providing cost-effective and high-quality data (Patrick et al. 2018, 2019) as an alternative to a paper-and-pencil mailed survey design for the longitudinal Monitoring the Future (MTF) study, the current study sought to further enhance the web push condition. The MTF sample is based on US nationally representative samples of 12th grade students surveyed annually. The MTF control group for the current study included participants who completed the in-school baseline survey in the 12th grade and were selected to participate in their first follow-up survey in 2017 via mailed surveys (N = 1,222). A supplementary sample (N = ~2,450) was assigned to one of the two sequential mixed-mode conditions. Those in condition 1 (N = 1,198), or mail push, were invited to complete mailed surveys and later given a web survey option. Those in condition 2 (N = 1,173), or enhanced web push, were invited to complete a web survey (the same as in the 2014 study, but with the addition of text messages and quick response (QR) codes and the web survey was optimized for mobile devices) and then later given a mailed survey option. Research aims were to examine response rates across conditions, as well as how responses were distributed across mode (paper, web), devices (computer, smartphone, table), and method of accessing the web survey (hand-entered URL, QR code, e-mail link, SMS link). Response rates differed significantly: the MTF control group was 34.2 percent, mail push was 35.4 percent, and enhanced web push was 42.05 percent. The higher response rate in the enhanced web push condition suggests that the additional strategies were effective at bringing in more respondents. Key estimates produced by the enhanced web push condition did not differ from those of the MTF control group.

²² Patrick, M. E., Couper, M. P., Jang, B. J., Laetz, V., Schulenberg, J. E., O'Malley, P. M., Bachman, J., & Johnston, L. D. (2022). [Building on a sequential mixed-mode research design in the Monitoring the Future study](#). *Journal of Survey Statistics and Methodology*, 10(1), 149-160.

Comparison of a web-push survey research protocol with a mailed paper and pencil protocol in the Monitoring the Future Panel survey²³

Aims

The experiment tested the effects of a web-push survey research protocol, compared with the standard mailed paper-and-pencil protocol, among young adults aged 19–30 years in the Monitoring the Future (MTF) longitudinal study.

Design, Setting and Participants

The US-based MTF study has measured substance use trends among young adults in panel samples followed biennially, using consistent mailed survey procedures from 1977 to 2017. In 2018, young adult participants in the MTF longitudinal component scheduled to be surveyed at ages 19–30 in 2018 (from high school senior cohorts of 2006–17, $n = 14\,709$) were randomly assigned to receive the standard mail/paper survey procedures or new web-push procedures.

Measurements

Primary outcomes were responding to the survey and prevalence estimates for past 30-day use of alcohol, cigarettes, marijuana and illicit drugs.

Findings

The web-push response rate was 39.07% [95% confidence interval (CI) = 37.889, 40.258]; this was significantly better than the standard MTF response rate of 35.12% (95% CI = 33.964, 36.285). After adjusting for covariates, the web-push condition was associated with a 19% increase in the odds of responding compared with standard MTF (adjusted odds ratio = 1.188; 95% CI = 1.096, 1.287). Substance use prevalence estimates were very similar and differences became negligible when using attrition weights and controlling for socio-demographic characteristics.

Conclusions

The web-push protocol produced a higher response rate than the mailed pencil and paper protocol in the Monitoring the Future panel study, without substantially affecting estimates of substance use once attrition weights and socio-demographic variables were factored in.

Using substances to cope with the COVID-19 pandemic: U.S. national data at age 19²⁴

Purpose

To examine predictors of using substances to cope with the COVID-19 pandemic, including pandemic-related isolation, stress, economic hardship, demographics, and prepandemic substance use.

Methods

A U.S. national sample ($N = 1,244$) was followed from the 12th grade in Spring 2019 to Fall 2020 ($M = 19.6$ years) when young adults were asked about their use of marijuana, vaping, drinking, and other drugs to cope.

²³ Patrick, M. E., Couper, M. P., Parks, M. J., Laetz, V., & Schulenberg, J. E. (2021). [Comparison of a web-push survey research protocol with a mailed paper and pencil protocol in the Monitoring the Future panel survey](#). *Addiction*, *116*(1), 191–199.

²⁴ Patrick, M. E., Parks, M. J., Fairlie, A. M., Kreski, N. T., Keyes, K. M., & Miech, R. A. (2022). [Using substances to cope with the COVID-19 pandemic: U.S. national data at age 19](#). *Journal of Adolescent Health*, *70*(2), 340–344.

Results

In Fall 2020, 15.7% reported using marijuana, 8.9% increased vaping, and 8.2% increased drinking to cope with social distancing and isolation. In multivariable analyses controlling for demographics and prepandemic substance use, COVID-related isolation was associated with marijuana use (odds ratio = 1.31, 95% confidence interval = 1.06–1.63) and economic hardship with increased drinking (odds ratio = 1.39, 95% confidence interval = 1.01–1.92). There were few demographic differences. Most (>80%) who reported COVID-related substance use coping used that substance before pandemic.

Discussion

Young people reported using substances to cope with the COVID-19 pandemic, especially if they reported prepandemic use.

Consideration of an upper-bound continuous maximum drinks measure for adolescent binge and high-intensity drinking prevalence²⁵

Background

The degree to which binge and high-intensity drinking prevalence estimates vary from fixed threshold frequency and continuous maximum drinks measures is unknown. The current study compared prevalence estimates for adolescent binge and high-intensity drinking (5+ drinks, 10+ drinks, respectively) and sex-specific thresholds using fixed threshold frequency and continuous maximum drinks measures.

Methods

Data were obtained from 7911 respondents participating in the 2018 and 2019 nationally representative Monitoring the Future 12th-grade surveys. Comparisons of frequency prevalence (e.g., any occasions of 5+ drinking using the frequency measure) versus maximum drinks prevalence (e.g., reporting 5 or more drinks using the maximum number of drinks measure) were made using all respondents and then separately within males and females.

Results

Among the sample overall and within sex, binge drinking estimates from the 5+ frequency prevalence and 5+ maximum drinks prevalence measures evidenced overlapping confidence intervals (estimates were slightly higher for frequency prevalence); similar results were observed for high-intensity drinking 10+ frequency prevalence and 10+ maximum drinks prevalence. For example, among the sample overall, 5+ frequency prevalence was 11.4% [95% CI 10.3, 12.6]; 5+ maximum drinks prevalence was 10.7% [9.6, 11.8]; 10+ frequency prevalence was 5.1% [4.4, 5.8]; and 10+ maximum drinks prevalence was 4.1% [3.5, 4.7]. Using sex-specific thresholds (i.e., 4+ drinks for females and 5+ drinks for males), binge frequency and maximum drinks levels also had overlapping confidence intervals. Binge drinking prevalence estimates for females were approximately 1.5 times higher using sex-specific (4+) versus universal (5+) thresholds.

²⁵ Patrick, M. E., & Terry-McElrath, Y. M. (2021). [Consideration of an upper-bound continuous maximum drinks measure for adolescent binge and high-intensity drinking prevalence](#). *Alcoholism: Clinical and Experimental Research* 45(9), 1821-1828.

Conclusions

In this nationally representative sample of 12th-grade students, prevalence levels for 5+ and 10+ drinking did not differ significantly when using frequency versus maximum drinks measures. Among females, binge drinking prevalence was higher using sex-specific versus universal thresholds. Both the frequency and maximum drinks measures provided comparable estimates of binge and high-intensity drinking prevalence among older adolescents.

Patterns and predictors of high-intensity drinking and implications for intervention²⁶

Efforts to intervene with subgroups at particularly high risk for alcohol use require information on factors that differentiate drinking intensity levels. This article summarizes existing research and provides new findings on sociodemographics and risk factors that differentiate high-intensity drinking (HID) to provide context for developing and delivering interventions for the highest-risk drinkers. Cross-sectional data were obtained in 2019 from participants who reported past 30-day alcohol use in 2018 as part of the nationally representative 12th grade Monitoring the Future study. Among past 2-week drinkers in 2019 (N = 601; modal age 19; 57.0% male; 67.4% non-Hispanic White), bivariate associations between drinking intensity (moderate drinking [1–4 drinks for women/1–5 drinks for men], binge-only drinking [4–7/5–9 drinks], and HID [8+/10+ drinks]) and a range of sociodemographic characteristics, risk factors, and alcohol-related consequences were examined. Results showed binge-drinking norms, social and enhancement drinking motives, nicotine vaping, and use of limiting/stopping drinking and manner of drinking protective behavioral strategies differentiated all drinking intensity levels, lending support to HID and binge-only drinking having an overlapping risk profile. However, there were also risk factors uniquely associated with HID, including sex, college attendance, employment, HID norms, use of serious harm reduction protective behavioral strategies, family history of drinking problems, any cigarette or drug use other than marijuana, and depression symptoms. Therefore, risk factors differentiate young adult drinking intensity. These results can inform efforts to adapt interventions for young adults who report HID.

Alcohol use and the COVID-19 pandemic: Historical trends in drinking, contexts, and reasons for use among US adults²⁷

Objective

The current study used U.S. national data to examine drinking trends prior to and during the COVID-19 pandemic in 2020, focusing on changes in U.S. young- and middle-adult alcohol prevalence, frequency, and drinking contexts and reasons, and whether they differed by age and college status.

Methods

Data from 2015 to 2020 from 16,987 young adults (ages 19–30) and 23,584 middle adults (ages 35–55) in the national Monitoring the Future study were used to model historical trends and potential 2020 shifts (data collection April 1 to November 30, 2020) in prevalence (30-day, daily, binge drinking) and frequency (30-day, binge drinking). For young adults, data on drinking contexts and negative affect reasons for drinking were examined. Moderation by age and college

²⁶ Patrick, M. E., Terry-McElrath, Y. M., & Bonar, E. E. (2021). [Patterns and predictors of high-intensity drinking and implications for intervention](#). *Psychology of Addictive Behaviors*.

²⁷ Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., Keyes, K. M., Jager, J., & Schulenberg, J. E. (2022). [Alcohol use and the COVID-19 pandemic: Historical trends in drinking, contexts, and reasons for use among US adults](#). *Social Science & Medicine*, 114887.

status was also tested.

Results

2020 was associated with (1) downward deviation in 30-day (young and middle adults) and binge drinking (young adults) prevalence; (2) upward deviation in daily drinking prevalence (middle adults); (3) among drinkers, upward deviation in frequency of 30-day (young and middle adults) and binge drinking (young adults); and (4) changes in drinking contexts and reasons among drinkers. Among college students, in particular, 2020 was associated with a downward deviation from expected historical trends in drinking prevalence. Upward deviations in daily prevalence and both binge and 30-day drinking frequency were stronger at ages 25–30 (vs. 19–24) and 35–45 (vs. 50–55).

Conclusions

Among U.S. young and middle adults, deviations from expected historical trends in population alcohol use that occurred during the pandemic included decreases in alcohol use prevalence, increases in alcohol use frequency, and increases in the use of alcohol to relax/relieve tension and because of boredom. These shifts were likely due, in part, to drinking while alone and at home—which increased during the pandemic.

Forecasting future prevalence and gender differences in binge drinking among young adults through 2040²⁸

Background

Binge drinking among adolescents and young adults has changed over time, but patterns differ by age and gender. Identifying high-risk groups to target future efforts at reducing drinking in this population remains a public health priority. Forecasting methods can provide a better understanding of variation and determinants of future binge drinking prevalence.

Methods

We implemented regression-based forecasting models to estimate the prevalence and gender differences in binge drinking among cohort groups of U.S. young adults from the Monitoring the Future Panel study, ages 18, 23–24, and 29–30 through 2040. Forecasting models were adjusted for covariates accounting for changes in demographic, Big-5 social roles (e.g., residential independence), and drinking norms and related substance use, to understand the drivers of forecasted binge drinking estimates.

Results

From the last observed cohort group (years varied by age) through 2040, unadjusted binge drinking prevalence was forecasted to decrease from 26% (95% CI: 20, 33%) (2011–15) to 11% (95% CI: 4, 27%) at age 18, decrease from 38% (95% CI: 30, 45%) (2006–2010) to 34% (95% CI: 18, 55%) at ages 23/24, and increase from 32% (95% CI: 25, 40%) (2001–2005) to 35% (95% CI: 16, 59%) at ages 29/30. Gender-stratified forecasts show a continuation in the narrowing of binge drinking prevalence between young men and women, though the magnitude of narrowing differs by age. Estimated trends were partially explained by changing norms regarding drinking and other substance use, though these indirect effects explained less of the total trend as age increased.

²⁸ Platt, J. M., Jager, J., Patrick, M. E., Kloska, D., Schulenberg, J. E., Rutherford, C., & Keyes, K. M. (2021). [Forecasting future prevalence and gender differences in binge drinking among young adults through 2040](#). *Alcoholism: Clinical and Experimental Research*, 45(10), 2069–2079.

Conclusions

Understanding how covariates influence binge drinking trends can guide public health policies to leverage the most important determinants of future binge drinking to reduce the harm caused by binge drinking from adolescence to adulthood.

Daily associations between affect, drinking motives, and drinking intensity among U.S. young adults²⁹

Objective

We investigated the relationships between daily affect, drinking motives, likelihood of drinking, and intensity of drinking, particularly high-intensity drinking (HID), in a sample of young adults. We also explored differences in our outcomes before versus during the early coronavirus disease (COVID-19) pandemic.

Method

In the springs of 2019 and 2020, young adult drinkers (N = 633) completed 14 consecutive morning surveys (each year) characterizing the prior day's affect, motives, and alcohol use. We examined between-person and within-person associations of affect and motives with two outcomes: any drinking and drinking intensity on drinking days (1 = moderate drinking [1–3 drinks for women, 1–4 drinks for men], 2 = binge drinking [4–7 for women, 5–9 for men], and 3 = HID [8 + for women, 10 + for men]).

Results

Young adults reported higher positive affect on drinking days and higher negative affect on nondrinking days. On days when young adults reported greater enhancement motives, positive affect was strongly related to HID. During the early COVID-19 pandemic, young adults were more likely to report drinking, but did not drink more heavily unless they also reported drinking for social motives.

Conclusions

These results suggest that heightened social, coping, and enhancement motives are risk factors for drinking in young adults. They also suggest that young adults perceive their mood to be better on drinking days, particularly when they were drinking to enhance positive affect. Results are consistent with a positive affect regulation model (i.e., drinking to increase positive affect), but not a negative affect regulation model (i.e., drinking to cope with negative affect).

Social role, behavior, and belief changes associated with driving after using marijuana among U.S. young adults, and comparisons with driving after 5+ drinking³⁰

Objective

This study examined past-2-week driving after marijuana use (DMU) and driving after having five or more drinks (D5D) during young adulthood, specifically focusing on associations between within-person change in social roles (living situation, marriage, parenthood, education, employment) and mediators (perceived risk, evenings out, and religiosity) from modal ages 19 to

²⁹ Stevenson, B. L., Parks, M. J., & Patrick, M. E. (2021). [Daily associations between affect, drinking motives, and drinking intensity among U.S. young adults](#). *Psychology of Addictive Behaviors*.

³⁰ Terry-McElrath, Y. M., & O'Malley, P. M. (2021). [Social role, behavior, and belief changes associated with driving after using marijuana among U.S. young adults, and comparisons with driving after 5+ drinking](#). *Journal of Studies on Alcohol and Drugs*, 82(5), 584–594.

30.

Method

Multilevel analyses were conducted using survey data collected from 2013 to 2019 from 1,873 adults (1,060 women; total number of data collection waves = 7,037) participating in the longitudinal Monitoring the Future study.

Results

Change across waves from not being married to married was associated with lower DMU likelihood at any particular wave both directly and via mediation through wave-level change in evenings out. Change in employment (not employed to employed full time) was associated with higher D5D likelihood at any particular wave both directly and via mediation through change in evenings out. Wave-level change in other social roles was indirectly associated with DMU/D5D likelihood via wave-level change in evenings out.

Conclusions

Change in all social roles examined was associated with change in evenings out, which appears to be a primary, proximal predictor of young adult DMU/D5D. Improved understanding of how socialization change is associated with driving after substance use may strengthen efforts to reduce the harms associated with such driving behaviors.

Characteristics and reasons for use associated with solitary alcohol and marijuana use among U.S. 12th Grade Students, 2015–2021³¹

Background

Little is known regarding what sociodemographic characteristics and reasons for use are associated with adolescent solitary alcohol and marijuana use.

Methods

Data from 7845 12th grade students participating in the nationally-representative Monitoring the Future study from 2015 to 2021 were used to examine cross-sectional associations between sociodemographics, heavy drinking/marijuana use, reasons for use, and past 12-month solitary alcohol or marijuana use among past 12-month users. Historical trends and possible differences related to the COVID-19 pandemic also were examined.

Results

Solitary use prevalence increased from 2015 to 2021 with no evidence of significant COVID-19 deviations. In 2021, solitary alcohol use was reported by 32.1% (SE 3.01) and solitary marijuana use by 55.8% (4.72) of those reporting past 12-month use. Common and substance-specific sociodemographic risk factors were observed. Binge drinking was associated with solitary alcohol use; frequent marijuana use was associated with solitary marijuana use. Reasons for use related to coping with negative affect were associated with solitary use. Compulsive use reasons were more strongly associated with solitary alcohol than marijuana use. Drinking to have a good time with friends was negatively associated with solitary alcohol use but this association was not seen for solitary marijuana use.

³¹ Terry-McElrath, Y. M., O'Malley, P. M., Pang, Y. C., & Patrick, M. E. (2022). [Characteristics and reasons for use associated with solitary alcohol and marijuana use among U.S. 12th Grade Students, 2015–2021](#). *Drug and Alcohol Dependence*, 109448.

Conclusions

The percentage of adolescents who use alcohol or marijuana when they were alone has increased among those who report using each substance. Associations between solitary use and (a) higher levels of consumption and (b) coping with negative affect highlight the importance of solitary use as a risk indicator.

Self-reported perceived negative consequences of marijuana use among U.S. young adult users, 2008–2019³²

Purpose

This study estimated self-reported perceived negative marijuana use consequences among a national sample of U.S. young adults, examining consequence prevalence differences by use frequency, college attendance, living situation, employment, sex, and race/ethnicity; and use frequency/sociodemographic characteristic interactions.

Methods

A subsample of 1,212 respondents from the 2004–2018 class cohorts of 12th grade students participating in the nationally-representative Monitoring the Future study was surveyed up to two times from modal ages 19 through 22 (in 2008–2019). Respondents self-reported negative consequences related to their own past 12-month marijuana use. Bivariate and multivariable models examined subgroup differences in consequence prevalence.

Results

Approximately 60% of those using frequently (20+ use occasions in the past 30 days) and 35% of those using non-frequently reported negative consequences. Among all young adult marijuana users, 31.1% reported emotional/physical consequences, 12.9% performance/financial consequences, and 12.3% relational consequences. Use frequency was positively associated with consequence likelihood, excluding regret and unsafe driving. Among college students, frequent use was more strongly associated with any and performance/financial consequences. Controlling for use frequency, men reported more performance/financial consequences; relational consequences were higher among Hispanic (vs. White) respondents, and those living with parents, employed full-time, and not attending 4-year colleges.

Conclusion

Young adults using marijuana reported a wide range of negative use consequences; likelihood of most consequences increased with higher use frequency. Perceived consequences varied by college attendance, living situation, employment, sex, and race/ethnicity. Efforts to reduce negative marijuana consequences may be strengthened by recognizing and addressing the different types of negative consequences users perceive.

³² Terry-McElrath, Y. M., Patrick, M. E., O'Malley, P. M., & Johnston, L. D. (2021). [Self-reported perceived negative consequences of marijuana use among U.S. young adult users, 2008-2019](#). *Addictive Behaviors*, 107098.

Smoke-free laws and disparities in youth smoking in the U.S., 2001–2018³³

Introduction

This study examines whether smoke-free laws are differentially associated with youth smoking outcomes by parental education, race/ethnicity, sex, and college plans in a U.S. sample.

Methods

This study assessed the relationships between smoke-free laws in workplaces and hospitality venues (restaurants/bars) and past 30-day smoking participation, first cigarette initiation, and daily smoking initiation within a repeated cross-sectional sample of 8th, 10th, and 12th graders from the Monitoring the Future study. Data were collected between 2001 and 2018 and were analyzed in 2020–2021. Grade-stratified Poisson models were used to calculate prevalence ratios and average marginal effects, incorporating interaction terms to examine differential associations across groups.

Results

Hospitality smoke-free laws were significantly associated with lower probabilities of smoking participation in all grades as well as with first cigarette and daily smoking initiation in 8th and 10th grade. Workplace smoke-free laws were associated with lower probabilities of smoking participation among 10th and 12th graders as well as with first cigarette and daily smoking initiation among 10th graders. Average marginal effects ranged from –0.4 percentage points (hospitality laws and daily smoking initiation in 8th and 10th grades) to –2.2 percentage points (workplace laws and smoking participation in 10th grade). Associations between smoke-free laws and a lower probability of smoking participation were most pronounced among students who definitely planned to attend college. Other instances of effect modification suggested more pronounced associations for students who were female and from high-SES households; however, relationships varied by grade.

Conclusions

Smoke-free laws were associated with reduced smoking among youth; however, associations varied by grade, sex, parental education, and college plans.

A longitudinal analysis of smoke-free laws and smoking initiation disparities among young adults in the United States³⁴

Background and Aims

Tobacco control policies may differentially impact smoking initiation among socio-demographic groups. We measured longitudinal associations between exposure to smoke-free laws in grade 12 (modal age 18 years) and patterns of smoking initiation in the United States.

Design

Prospective longitudinal analysis.

³³ Titus, A. R., Xie, Y., Colston, D. C., Patrick, M. E., Elliott, M. R., Levy, D. T., Thrasher, J. F., & Fleischer, N. L. (2021). [Smoke-free laws and disparities in youth smoking in the U.S., 2001–2018](#). *American Journal of Preventive Medicine*, 61(6), 841–851.

³⁴ Titus, A. R., Xie, Y., Thrasher, J. F., Levy, D. T., Elliott, M. R., Patrick, M. E., & Fleischer, N. L. (2022). [A longitudinal analysis of smoke-free laws and smoking initiation disparities among young adults in the United States](#). *Addiction*, 117(3), 730–738.

Setting and Participants

We used data on US young adults sampled at modal age 18 years from the Monitoring the Future Survey. Baseline data were collected between 2000 and 2017, with the last year of follow-up in 2018. The sample number varied by outcome and time-point, ranging from 7314 to 17 702.

Measurements

Smoke-free law coverage in work-places and hospitality venues (restaurants/bars) was measured as the percentage of the county population covered by each type of law. We examined associations with any past 30-day smoking initiation and daily smoking initiation at modal ages 19/20, 21/22 and 23/24, using Poisson regression and calculating average marginal effects. We explored effect modification by sex, race/ethnicity and parental education by testing the significance of interaction terms.

Findings

Work-place law coverage at modal age 18 was associated with a lower probability of daily smoking initiation at modal ages 21/22 [−2.4 percentage points (p.p.); 95% confidence interval (CI) = −3.9, −0.9] and 23/24 (−2.0 p.p.; 95% CI = −3.9, −0.2). Hospitality law coverage was associated with a lower probability of daily smoking initiation at modal ages 19/20 (−1.6 p.p.; 95% CI = −2.8, −0.4), 21/22 (−2.3 p.p.; 95% CI = −3.7, −0.9) and 23/24 (−1.8 p.p.; 95% CI = −3.6, −0.0). Findings were inconclusive with regard to associations with any past 30-day smoking initiation and with regard to effect modification, after adjusting for multiple testing.

Conclusions

Exposure to smoke-free laws at age 18 appears to be prospectively associated with reduced daily smoking initiation 1–6 years later.

Sociodemographic patterns of exclusive and dual combustible tobacco and e-cigarette use among US adolescents—a nationally representative study (2017–2020)³⁵

This study assessed the sociodemographic predictors of exclusive and dual use of the most frequently used nicotine/tobacco products, e-cigarettes, and combustible tobacco among adolescents. Cross-sectional data was from the 2017–2020 Monitoring the Future nationally representative study of eighth, tenth, and twelfth-grade students. We coded past 30 day nicotine/tobacco use into four mutually exclusive categories: no use, e-cigarette use only, combustible use (cigarette or cigar) only, and dual use (e-cigarette and combustible). We pooled the 2017–2020 data to examine the relationship between sex, race/ethnicity, parental education, and each product-use category using multinomial logistic regression, stratified by grade level. Among eighth (N = 11,189), tenth (N = 12,882), and twelfth graders (N = 11,385), exclusive e-cigarette use was the most prevalent pattern (6.4%, 13.2%, 13.8%, respectively), followed by dual use (2.7%, 4.5%, 8.9%), and exclusive combustible use (1.5%, 2.5%, 5.3%). Eighth and tenth-grade adolescents whose highest parental education was a 4-year college degree or more had lower odds of exclusive combustible and dual use when compared to adolescents whose highest parental education was less than a high school degree. Research should continue to monitor the differential use of combustible tobacco products and e-cigarettes among adolescents from low socioeconomic

³⁵ Usidame, B., Hirschtick, J. L., Mattingly, D. T., Patel, A., Patrick, M. E., & Fleischer, N. L. (2022). [Sociodemographic patterns of exclusive and dual combustible tobacco and e-cigarette use among US adolescents—a nationally representative study \(2017–2020\)](#). *International Journal of Environmental Research and Public Health*, 19(5), 2965.

status backgrounds or racial/ethnic minority households to inform ongoing and future interventions or policies.

OTHER DATA ON CORRELATES AND TRENDS

Drug use correlates and trends not presented in this monograph or in the papers above can be calculated using the publicly available MTF data archive at the [Inter-University Consortium of Political and Social Research](#). In addition, interested users can use the online interface at the [National Addiction and HIV Data Archive Program](#) (sponsored in part by the National Institute on Drug Abuse) to produce cross-tabulations for variables of interest, also available at the [Inter-University Consortium of Political and Social Research website](#).

These online resources allow users to calculate hundreds of correlates of drug use. For data previous to 2013, MTF published bivariate correlates without accompanying interpretation in a series of annual volumes entitled [Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors](#). For each year between 1975 and 2012, a separate volume presents univariate and selected bivariate distributions on all questions asked of 12th graders. A host of variables dealing explicitly with drugs—many of them not covered here—are contained in that series. Bivariate tables are provided for all questions asked of high school seniors each year distributed against an index of lifetime illicit drug involvement, making it possible to examine the relationships between hundreds of potential risk factors and illicit drug use. These reference volumes are available on the [MTF website](#) and include MTF data up to 2012. They were discontinued thereafter as the online resources have made it possible for interested readers to themselves calculate these statistics and any combination thereof, for 8th and 10th grade as well as for 12th grade respondents.

An annual [occasional paper on subgroups](#)³⁶ presents trends up to 2021 in both graphic and tabular form for the various subgroups of adolescents for each of the many drug classes. It covers all years for all three grades in which data have been collected. It is available on the MTF website. An additional occasional paper on subgroup trends among young adults is also available on the website.

WEBSITE

Any reader wishing to obtain more information on the study, or to check for recent findings and publications, may visit the [MTF website](#). Prior to publication in this series of annual monographs, many recent MTF findings on substance use trends and related attitudes and beliefs are posted on the website in two forms: (1) [press releases](#) issued in mid-December of the year in which the data were collected; and (2) an [Overview of Key Findings](#) monograph posted at the end of the following January.

³⁶ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2022). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2021](#) (Monitoring the Future Occasional Paper No. 94). Ann Arbor, MI: Institute for Social Research, University of Michigan.

Appendix A

PREVALENCE AND TREND ESTIMATES ADJUSTED FOR ABSENTEES AND DROPOUTS

To what extent do the MTF prevalence and trend estimates derived from 12th graders represent trends among *all* young people in the same class or age cohort, including those who have dropped out of school by senior year? To answer this question, we published an extensive report¹ and have since continued to estimate the degree to which MTF data accurately represent the entire class cohorts. In this appendix, we summarize the main points relevant to sample coverage.

We begin by noting that two segments of a given age cohort are missing from the 12th grade data: (a) those who are still enrolled in school but are absent the day of data collection (absentees), and (b) those who have left school and are not likely to complete high school (dropouts). Because refusal rates are very low, absentees and dropouts constitute virtually all of the nonrespondents shown in the response rate in Table 3-1, or typically about 20% of all 12th graders (the percentage varies slightly by year). U.S. Census data indicate that dropouts currently comprise about 6% of the class/age cohort, a level that has declined gradually since 2002, when it was 15% and had been at that level since the beginning of the survey in 1975.²

In 2021 one group of particular interest is the absentees. During the pandemic a portion of students who otherwise would have been in class during the MTF survey school stopped attending school (virtually or in-person). These students are absentees because they had not formally dropped out of school by the time of the survey, and may have still graduated. The extent to which absentees, in general, affect prevalence and trend estimates of drug use provides a basis to consider the effects of heightened school absenteeism during the pandemic on 2021 MTF estimates.

The methods we use to estimate prevalence for these two missing segments are summarized briefly here. Then, estimates of the effects of adding the two segments to the calculation of the overall prevalence estimates are presented, along with the impact on the trends. Two drugs are highlighted for illustrative purposes: marijuana, one of the most prevalent drugs among adolescents, and cocaine, one of the more dangerous and less prevalent drugs. Estimates for 12th graders are presented for both lifetime and 30-day prevalence of each drug.

CORRECTIONS FOR 8th AND 10th GRADES

Potential underestimation of drug use is likely higher among 12th graders than among 8th and 10th graders, because the rates of dropping out and absenteeism are lower for 8th and 10th grades than for 12th grade. With respect to dropping out, only very few members of an age cohort have ceased attending school by grade 8, when most are age 13 or 14. In fact, Census data suggest that less than 2% have dropped out at this stage. Most 10th graders are about age 15, and Census data

¹ Johnston, L. D. & O'Malley, P. M. (1985). Issues of validity and population coverage in student surveys of drug use. In B. A. Rouse, N. J. Kozel, & L. G. Richards (Eds.), *Self-report methods of estimating drug use: Meeting current challenges to validity* (NIDA Research Monograph No. 57 (ADM) 85-1402). Washington, DC: U.S. Government Printing Office.

² United States Census Bureau. [CPS Historical Time Series Tables on School Enrollment](#). Published February 2, 2021. Accessed April 12, 2021.

indicate that only a small proportion (less than 3%) have dropped out by then.³ Thus, any correction for the missing dropouts should be negligible at 8th grade and quite small at 10th grade.

While in 2021 absentees comprised 31% of the 12th graders who should be in school, they comprised 22% of 10th graders and 18% of 8th graders (see Table 3-1). Thus, the prevalence estimate adjustments that would result from corrections for this missing segment would also be less for 8th and 10th graders than for 12th graders.

In sum, it is clear that corrections for dropouts and absentees would be smaller at 8th grade and 10th grade. For this reason, and because the corrections estimated below for 12th graders turn out to be modest ones, we have not made estimates of the comparable corrections for 8th and 10th graders.

THE EFFECTS OF MISSING ABSENTEES

Taking into account the influence on drug prevalence of absentees requires two key estimates: the size of the absentee group and their drug prevalence levels.

The size of the absentee group in 12th grade is reported in Chapter 3 in Table 3-1 and has hovered around 20% over the course of the study up to 2020. In 2021 it increased to 31%, in part because some 12th grade students stopped attending school entirely during the pandemic, and these students are included in the denominator. As mentioned above, these students qualify as absentees because they had not formally dropped out of school by the time of the survey and may have still graduated.

Drug prevalence levels of absentees are estimated with available MTF data. We included a question asking students how many days of school they had missed in the previous four weeks. Using this variable, we can place individuals into different strata as a function of how often they tend to be absent from school. For example, all students who had been absent 50% of the time could form one stratum. Assuming that absence on the particular day of administration is a fairly random event, we can give the actual survey participants in this stratum a double weight to represent all students in their stratum, including the ones who happen to be absent that particular day. Those who say they were absent two thirds of the time would get a weight of three to represent themselves plus the two thirds in their stratum who were not there on the day of the administration, and so forth. Using this method, we found that absentees as a group have appreciably higher than average estimated prevalence levels for all licit and illicit drugs.

THE EFFECTS OF MISSING DROPOUTS

Taking into account the influence on drug prevalence of 12th graders who have dropped out of school also requires the key estimates: information on the size of this group and its drug prevalence levels.

As for the size of the dropout group, the U.S. Census currently estimates it is about 6% of the 12th grade age population. The size of this group has declined gradually and appreciably since 2002, when it was 15% and had been at that level since the beginning of the survey in 1975 (see Figure A-1). MTF surveys probably include some 12th grade students who will eventually drop out of

³ According to the [Digest of Education Statistics 2019](#), in 2018 the proportion of the U.S. civilian noninstitutionalized population enrolled in school was 98.2% among 10- to 13-year-olds and 90% among 14- to 15-year-olds.

school because the surveys of 12th graders take place a few weeks or months before graduation, and not quite all will graduate. At the same time, perhaps 1–2% of the age group actually left high school before completing 12th grade, but then earned a Certificate of General Education Development (GED), and thus may not be covered by MTF samples. So these two factors probably cancel each other out. Thus, we used 15% as our estimate of the proportion of an age cohort not covered through 2002; and, since then, we have used the gradually decreasing annual proportion as reported by the U.S. Census Bureau.

To estimate the drug usage levels for dropouts, we use two quite different approaches. The first approach uses the best national data available on drug use among dropouts – namely the [National Survey on Drug Use and Health](#) (NSDUH, formerly the National Household Surveys on Drug Abuse, or NHSDA). This survey is household-based and not school-based, and provides estimates of drug prevalence for dropouts who would have been 12th graders had they remained in school.

We use these NSDUH estimates in two ways. First, using only NSDUH data we estimate drug prevalence levels with and without the dropouts. Second, with this information we calculate the absolute difference in prevalence levels attributable to dropouts. We then add this to the MTF estimates of drug prevalence for 12th graders who have not dropped out of school (discussed in the section above) to get an estimate for drug prevalence levels including dropouts.

The second approach is based entirely on MTF data. We estimate the drug prevalence level of dropouts to be 1.5 times the difference between absentees and 12th grade respondents. If this approximation works well then it would be possible to derive drug prevalence estimates for all 12th grade age youth across all years of MTF surveys from 1975 to 2021. NSDUH data does not provide consistent estimates of dropouts for all these years because it was not fielded in all years and the questions used to measure high school dropout status change substantially across years and are not directly comparable.

Drug Prevalence Estimates Taking Into Account Absentees and Dropouts

Table A-1 presents estimates for drug prevalence among all 12th grade age youth, taking into account dropouts and absentees. These results are based on pooled 2016–2018 data in order to produce stable estimates for drug prevalence of 12th graders who have dropped out of school.⁴

Columns 1 through 4 use NSDUH data only and focus on the influence of dropouts. For all ten drug use measures, estimates with dropouts (Column 4) and without them (Column 1) are similar and in no case differ by more than 1.2 percentage points. The small size of the dropout group precludes it from having a large impact on overall estimates of drug prevalence levels for 12th grade age youth. For example, levels of lifetime marijuana use are 17 points higher for dropouts as compared to their peers in school, but taking this group into account increases overall prevalence for 12th grade youth by only 1.2 points, from 32.5% to 33.7%.

⁴ These years are the most current three-year grouping in which MTF used the same survey methodology in all years (paper-and-pencil), as well as NSDUH (in-person interviews). In 2020 NSDUH switched to a web-based questionnaire, which NSDUH cautions may be subject to mode effects, and in 2021 MTF also switched to a web-based questionnaire. In 2023 we will be able to update these analyses because we will have three years of results from web-based questionnaires from both MTF and NSDUH.

Columns 5 through 9 use only MTF data to estimate the influence of absentees and dropouts. Adjusting for absentees increases prevalence levels for all drugs to a limited degree, with the largest difference of 2.6 points for lifetime any illicit drug use (compare Columns 7 and 5). This increases the estimate from 48.4% to 51.0%. Adjusting for the additional influence of dropouts (compare Columns 9 and 7) also increases overall prevalence for 12th grade age youth, albeit again to a limited degree with the largest increase of 1.4 points for lifetime illicit drug use, bringing the estimate from 51.0% up to 52.4%.

Columns 10 and 11 use both MTF and NSDUH data to estimate overall prevalence of drug use among 12th grade age youth. This approach estimates the drug use levels of MTF dropouts (Column 10) as drug prevalence levels of MTF students who have not dropped out of high school (Column 7, calculated with MTF data) plus the additional increase in prevalence for dropouts as compared to their peers in school (Column 3, calculated with NSDUH data). Adjustments for dropouts have little effect on overall prevalence of 12th grade aged youth, consistent with the other methods discussed above, and the largest increase is 1.2 points for marijuana lifetime use and any illicit drug lifetime use (compare Columns 11 and 7).

We highlight two main findings from these results. First, while adjustments for absentees and high school dropouts raise drug prevalence levels, they do not raise them substantially. In no case did the combined influence of these two groups increase prevalence by more than 4 percentage points (compared Column 5 with Columns 9 and 11). Even when dropouts and absentees have substantially higher levels of drug prevalence, the small size of these groups precludes them from having a large influence on overall prevalence estimates.

Second, our adjustment to MTF prevalence levels for dropouts using only MTF data matches quite closely parallel adjustments informed by actual data on drug prevalence levels of dropouts based on NSDUH data. These two different approaches produce estimates that differ from each other by a maximum of 0.6 percentage points (compare Columns 11 and 9). These results support MTF-based adjustment for dropouts as reasonable approximations when information from NSDUH is not available.

We should note that there are a number of reasons for dropping out, many of which do not result from drug use, including homelessness and economic hardship, as well as certain learning disabilities and health problems. At the national level, the extreme groups such as those in jail or without a permanent residence are a small proportion of the total age group, and probably a small proportion of all dropouts as well. Thus, regardless of their levels of drug use, their inclusion would not influence the overall prevalence estimates by much except possibly in the case of the rarest events—in particular, heroin use. We do believe that in the case of heroin use—particularly regular use—it is probably impossible to get an entirely accurate survey-based prevalence estimate even with the corrections used in this report (although the trend estimates should be affected less, if at all). The same may be true for crack cocaine and methamphetamine. For the remaining drugs, we conclude that our estimates based on participating 12th graders, though somewhat low, are nevertheless good approximations for the age group as a whole. And, of course, the samples are selected to be representative of students *in* school, not all persons in an age cohort.

Absenteeism during the Pandemic

The influence of absentees warrants special attention in 2021 given elevated absenteeism during the pandemic. An estimate of this influence comes from comparison of columns 5 and 7. In these models the estimate of lifetime marijuana prevalence, for example, increases from 44.4% in the observed data to 47.1% for the estimate taking into account absentees. This model was based on an absentee rate of 20%, and if this rate were increased to 31%—the elevated level of absenteeism in 2021—it becomes 48.5%. Therefore, taking into account absenteeism during the pandemic could increase estimates by about 1.4 percentage points, and for estimates with smaller prevalence the increase would be smaller. Likely these estimates of absenteeism on study estimates are theoretical maximums because many of the absentees were schooling at home, under parental supervision, and would be expected to have lower levels of drug use than typical absentees from previous years. In sum, taking into account heightened absenteeism for MTF estimates in 2021 would likely increase drug prevalence estimates, but only slightly by about 1 percentage point or so.

Effects of Omitting Dropouts on Trend Estimates

Whether the omission of dropouts affects the estimates of trends in prevalence is a separate question from the degree to which it affects absolute estimates at a given point in time. The relevant issues parallel those discussed earlier regarding the possible effects on trends of omitting the absentees. Most important is the question of whether the rate of dropping out has changed appreciably, because a substantial change would mean that 12th graders studied in different years would represent noncomparable segments of their whole class/age cohort. The U.S. Census data provided in Figure A-1 indicate a quite stable rate of dropping out from 1972 to 2002, followed by a decline since then.

One possible reason that 12th graders' trend data might deviate from trends for the entire age cohort (including dropouts) would be dropouts showing trends that differed from 12th grade trends. Even then, because of their small numbers, dropouts would have to show dramatically different trends to change the whole age group trend.

One hypothesis occasionally voiced was that more teens were being expelled from school, or voluntarily leaving school, because of their drug use, and that this explained the downturn in the use of many drugs being reported by MTF in the 1980s. However, it is hard to reconcile this hypothesis with the virtually flat (or, if anything, slightly declining) dropout rates reported by the U.S. Census during this period. Further, the reported prevalence of some drugs (e.g., alcohol and narcotics other than heroin) remained remarkably stable throughout those years, and the prevalence of others rose (cocaine until 1987, and amphetamines until 1981). These facts are inconsistent with the hypothesis that there had been an increased rate of departure by the most drug-prone. Certainly, more teens leaving school in the 1980s had drug problems than was true in the 1960s. (So did more of those who stayed in.) However, the teens leaving school still seem likely to be very much the same segment of the population, given the degree of association that exists between drug use, deviance, and problem behaviors in general. In recent years, with a decline in dropping out, one might predict an increase in observed usage levels among 12th graders since 2002; this assumes, of course, that everything else was equal, and also that the higher retention rate involved some staying in school who were more likely to be drug users. In fact, however, in the in-school

population there actually was a pattern of decline in the years immediately after 2002, most likely because everything else did not remain equal.

EXAMPLES OF TREND ESTIMATES FOR TWO DRUGS

Figure A-2 provides the prevalence and trend estimates of marijuana and cocaine, for both the lifetime and 30-day prevalence periods, showing (a) the original estimates based on participating 12th graders only; (b) the empirically derived, revised estimates based on all 12th graders, including the absentees; and (c) estimates for the entire class/age cohort (developed using the assumption described above—namely, that drug use prevalence for dropouts differs from the drug use prevalence for participating 12th graders by 1.5 times the amount that the drug use prevalence for absentees does). Estimates were calculated separately for each year, thus taking into account any differences from year to year in the participation or absentee rates. The dropout rate was taken as a constant 15% of the age group through 2002, then at the declining rates reported by the U.S. Census for each subsequent year through 2020.

As Figure A-2 illustrates, any differences in the slopes of the trend lines between the original and revised estimates are extremely small. The prevalence estimates are higher, of course, but not dramatically so, and certainly not enough to have any serious policy implications. It also may be seen in Figure A-2 that as the dropout rates declined in recent years, the differences between the 12th graders present and the estimates for the total population the same age have narrowed some, but again not so much as to have any serious policy implications.

As stated earlier, the corrections for 8th and 10th grade samples should be considerably less than for 12th grade. *Therefore, we have confidence that the trends that have appeared for the in-school populations represented in this study are very similar to those that would pertain if the entire age cohorts had been the universes from which we sampled.*

SUMMARY AND CONCLUSIONS

While we believe that the prevalence of drug use for the entire age cohort is somewhat underestimated in the MTF results, due to the study's omission of dropouts and absentees (whose substance use levels are above average), the degree of underestimation appears rather limited for most drugs; more importantly, trend estimates seem rather little affected. Short of having good trend data gathered directly from dropouts, who, fortunately, appear to constitute a shrinking proportion of the total age group, we cannot close the case definitively. Nevertheless, the available evidence argues strongly against alternative hypotheses.

TABLE A-1
Estimated Prevalence Levels for Selected Drug Outcomes, 2016-2018,
Based on Data from Monitoring the Future and the National Survey on Drug Use and Health

	1	2	3	4	5	6	7	8	9	10	11
	NSDUH				MTF					MTF and NSDUH	
	Seniors in School	Dropouts ^a	Difference	Combined	MTF Seniors Present	MTF Absentees, Estimated	MTF Seniors Absent & Present, Estimated	Dropouts, Based on MTF Data	Total, Based Entirely on MTF Data	MTF Dropouts, Estimated with MTF and NSDUH Data	Total, Based on MTF and NSDUH Data
Marijuana											
Lifetime	32.5	49.1	16.6	33.7	44.4	57.7	47.1	64.4	48.4	63.7	48.3
30-Day	15.6	26.2	10.6	16.4	22.5	33.3	24.6	38.7	25.7	35.2	25.4
Cocaine											
Lifetime	2.3	4.5	2.2	2.5	3.9	7.6	4.6	9.5	5.0	6.8	4.8
30-Day	0.5	0.9	0.4	0.5	1.1	2.3	1.3	2.9	1.4	1.7	1.3
Any Illicit Drug Use											
Lifetime	38.8	54.9	16.1	40.0	48.4	62.2	51.0	69.1	52.4	67.1	52.2
30-Day	16.9	28.4	11.5	17.8	24.4	36.3	26.7	42.3	27.9	38.2	27.6
Cigarette Use											
Lifetime	22.2	32.0	9.8	22.9	26.1	35.6	27.9	40.4	28.8	37.7	28.6
30-Day	8.3	14.7	6.4	8.8	9.2	14.5	10.2	17.2	10.7	16.6	10.7
Alcohol Use											
Lifetime	53.4	58.8	5.4	53.8	60.3	70.4	62.2	75.5	63.2	67.6	62.6
30-Day	23.7	29.2	5.5	24.1	32.1	42.3	34.1	47.4	35.1	39.6	34.5

Source: The Monitoring the Future study, the University of Michigan and the National Survey on Drug Use and Health.

^a Lower prevalence levels in NSDUH versus MTF reflect in part different survey designs; see [here](#) for further details.

Notes: For size of the 12th grade aged population that has dropped out of high school these analyses use the U.S. Census estimate of 7.5%. Size of group of 12th grade students who were not in school on the date of the MTF survey administration is estimated at 20% (see Table 3-1).

Column 1: Estimated directly from NSDUH data

Column 2: Estimated directly from NSDUH data, using the NSDUH methodology described [here](#)

Column 3: Column 2 - Column 1

Column 4: Columns 1 and 2 combined per their size as estimated using the U.S. Census for 2016-2018: $.925(\text{Column 1}) + .075(\text{Column 2})$

Column 5: Estimated directly from MTF data

Column 6: Estimated directly from MTF data, as described in text

Column 7: Columns 5 and 6 combined per their size as estimated by MTF: $.8(\text{Column 5}) + .2(\text{Column 6})$

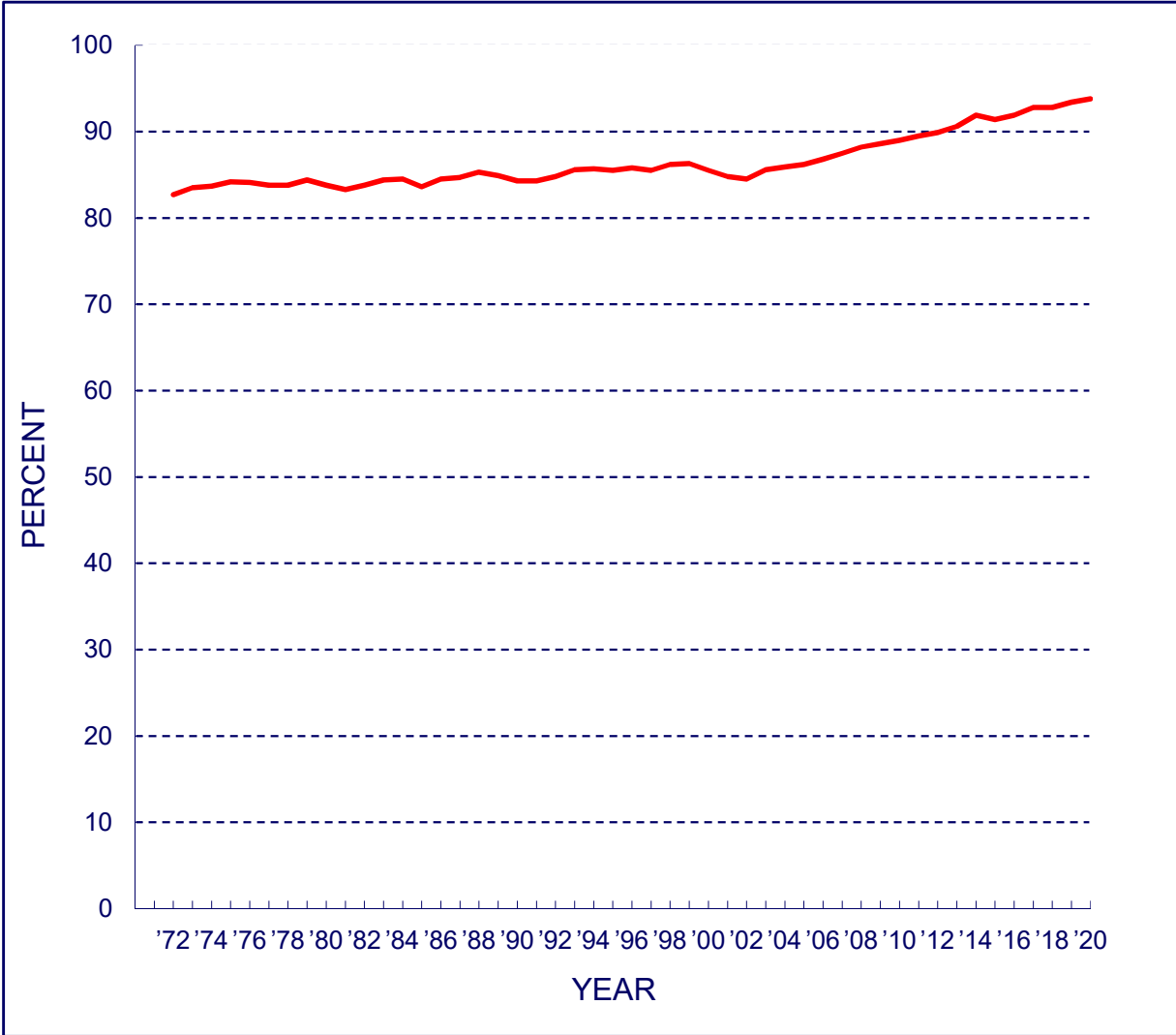
Column 8: Column 5 + 1.5(Column 6 - Column 5)

Column 9: Columns 7 and 9 combined per their size as estimated using the U.S. Census for 2016-2018: $.925(\text{Column 7}) + .075(\text{Column 9})$

Column 10: Column 7 + Column 3

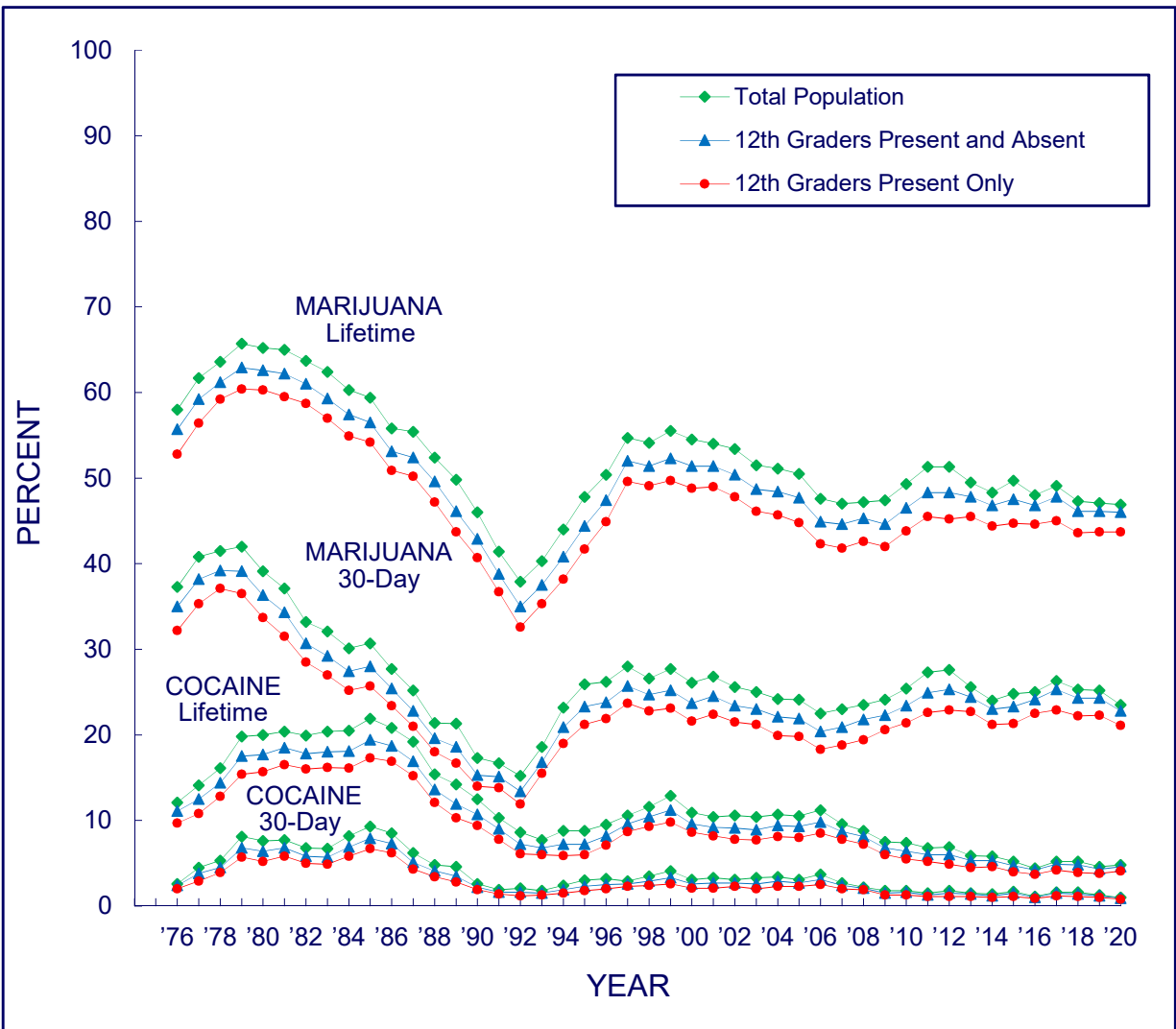
Column 11: Columns 10 and 11 combined per their size as estimated using the U.S. Census for 2016-2018: $.925(\text{Column 7}) + .075(\text{Column 10})$

FIGURE A-1
High School Completion by 20- to 24-Year-Olds



Source. U.S. Census Bureau

FIGURE A-2
Estimates of Prevalence and Trends for the Entire Age/Class Cohort
(Adjusting for Absentees and Dropouts) for 12th Graders



Source. The Monitoring the Future study, the University of Michigan.

Appendix B

DEFINITION OF BACKGROUND AND DEMOGRAPHIC SUBGROUPS

The following are brief definitions of the background and demographic subgroups explored in the Monitoring the Future (MTF) national survey of 8th, 10th, and 12th graders' attitudes toward and use of drugs (including alcohol and tobacco). Additional information on subgroup trends, such as the tables and figures depicting subgroup trends through the 2021 MTF survey, can be found in [Occasional Paper 97](#).¹ MTF does not present subgroup trends in 2020 because the pandemic-restricted sample size was insufficient to produce reliable estimates. (Data collection was curtailed in 2020 as a result of the COVID-19 pandemic, resulting in a three-quarters reduction in the sample size).

Total: The total sample of respondents in a given year based on weighted cases (set to equal the total number of actual cases).

Gender: *Male and female.* Respondents are asked “What is your sex?,” with response categories of “Male” and “Female.” Starting in 2020 the question included an additional response category of “Other or prefer not to say.” Those with missing data on the question are omitted from the data presented by gender.

College Plans: Respondents are asked how likely it is that they will graduate from a four-year college program. College plans groupings are defined as follows:

None or under four years. Respondents who indicate they “definitely won’t” or “probably won’t” graduate from a four-year college program. (Note that, among those who do not expect to complete a four-year college program, a number still expect to get some postsecondary education.)

Complete four years. Respondents who indicate they “definitely will” or “probably will” graduate from a four-year college program.

Those not answering the college plans question are omitted from both groupings.

Region: Region of the country in which the respondent’s school is located. There are four mutually exclusive regions in the US based on Census Bureau categories, defined as follows:

Northeast. Census classifications of New England and Middle Atlantic states consist of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

¹ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick M. E. (2022). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs, 1975-2021](#) (Monitoring the Future Occasional Paper No. 97). Ann Arbor, MI: Institute for Social Research, University of Michigan.

Midwest. Census classifications of East North Central and West North Central states consist of Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

South. Census classifications of South Atlantic, East South Central, and West South Central states consist of Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

West. Census classifications of Mountain and Pacific states consist of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California (Alaska and Hawaii are also included in this Census region, but are not included in the MTF study).

**Population
Density:**

Population density of the area in which the schools are located. There are three mutually exclusive groups into which schools have been placed in a given year based on population density. The 1975–1985 samples were based on the 1970 Census; in 1986, one-half of the sample was based on the 1970 Census and the other half was based on the 1980 Census. In 1987 through 1993, all samples were based on the 1980 Census; in 1994, half of the sample was based on the 1980 Census and half on the 1990 Census. Starting in 2006 until 2013, each first-year half-sample of schools comes from a sample design that utilizes 2000 Census counts as the measure of size for first-stage units. Counts from the 2010 Census were used for the samples beginning in 2014.

The three levels of population density were defined in terms of Standard Metropolitan Statistical Area (SMSA) designations through 1985 and then changed to the new Office of Management and Budget (OMB) classifications of Metropolitan Statistical Areas (MSAs).² Except in the New England states, an MSA is a county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more or twin cities with a combined population of at least 50,000. In the New England states, MSAs consisted of towns and cities instead of counties until 1994, after which New England Consolidated Metropolitan Areas (NECMAs) were used to define MSAs. Each MSA must include at least one central city, and the complete title of an MSA identifies the central city or cities. For the complete description of the criteria used in defining MSAs, see the OMB publication, *Metropolitan Statistical Areas, 1990* (NTIS-PB90-214420), Washington, D.C. Although MTF has updated the measures of size of the MSAs and non-MSAs following the 2000 and 2010 Censuses, the project has not altered MSA definitions since the introduction of its new sample design in 1994. Thus,

² The U.S. Office of Management and Budget (OMB) utilizes several names for geographic areas, such as Primary Metropolitan Statistical Areas (PMSAs) which are component parts of Consolidated Metropolitan Statistical Areas (CMSAs). For example, in June 1990, the Ann Arbor MI PMSA and Detroit MI PMSA constituted the Detroit-Ann Arbor MI CMSA. For the sake of simplicity, this document utilizes MSA throughout.

MTF continues to utilize the MSAs as defined by OMB in June 1990.³ The population living in an MSA is designated as the metropolitan population. The levels of population density used in MTF include those described here:

Large MSAs. These were the 12 largest SMSAs as of the 1970 Census and were used for the 1975–1985 samples: New York, Los Angeles, Chicago, Philadelphia, Detroit, San Francisco, Washington, Boston, Pittsburgh, St. Louis, Baltimore, and Cleveland. As of the 1980 Census, the Large MSA group consisted of the 16 largest MSAs in the nation. This new structure was used for the 1986–1994 samples. These 16 MSAs include all of those mentioned above except Cleveland, plus Dallas-Fort Worth, Houston, Nassau-Suffolk, Minneapolis-St. Paul, and Atlanta.

A new sample design was developed based on the 1990 Census, beginning with the first-year half-sample of schools chosen in 1994. In the 1990s sample, only the eight largest MSAs are represented with certainty at all three grade levels; 16 other large MSAs are divided into pairs, with half randomly assigned to both the 8th- and 12th-grade samples and the other half assigned to the 10th-grade sample. The eight largest MSAs are New York, Los Angeles-Long Beach, Chicago, Philadelphia PA-NJ, Detroit, Washington DC-MD-VA, Dallas-Ft. Worth, and Boston-Lawrence-Salem-Lowell-Brockton. The other 16 large MSAs are Houston, Atlanta, Seattle-Tacoma, Minneapolis-St. Paul MN-WI, St. Louis MO-IL, San Diego, Baltimore, Pittsburgh, Phoenix, Oakland, Cleveland, Miami, Newark, Denver, San Francisco, and Kansas City MO-KS.

Other MSAs. This category consists of all other, smaller MSAs, as defined by OMB, except those listed previously.

Non-MSAs. This category consists of all areas not designated as MSAs—in other words, they do not contain a town (or twin cities) of at least 50,000 inhabitants. The population living outside of MSAs constitutes the nonmetropolitan population.

Parental Education:

This is an average of mother’s education and father’s education based on the respondents’ answers about the highest level of education achieved by each parent, using the following scale: (1) completed grade school or less, (2) some high school, (3) completed high school, (4) some college, (5) completed college, and (6) graduate or professional school after college. Missing data were allowed for one of the two parents. The respondent was instructed, “If you were raised mostly by foster parents, stepparents, or others, answer for them. For example, if you have both a stepfather and a biological father, answer for the one that was most important in raising you.”

³ For example, the U.S. Office of Management and Budget (OMB) currently defines the Detroit-Warren-Dearborn MSA as Wayne, Oakland, Macomb, Livingston, St. Clair, and Lapeer Counties, while MTF continues to define the Detroit MSA as Wayne, Oakland, Macomb, Livingston, St. Clair, Monroe, and Lapeer Counties, as OMB defined Detroit in June 1990.

**Race/
Ethnicity:**

From 1975 through 2004, respondents were asked “How do you describe yourself?” and presented with a list of various racial/ethnic categories. A general instruction told them to select the one best response for each question. In 2005 the instructions in half of the questionnaire forms were revised in order to be more consistent with the guidelines of the Office of Management and Budget for assessing race/ethnicity. In the changed forms, respondents were presented with a list of racial/ethnic categories and instructed to “select one or more responses.” An examination of the data showed that relatively few respondents (about 6% in 2005) selected more than one racial/ethnic category. Because some survey questions appear in only one or a few forms, there was some variation in the version of the race/ethnicity question upon which the 2005 data were based. Based on the analyses we have examined, we do not believe these different permutations make any appreciable difference in the 2005 results. In 2006 and thereafter the revised instruction was used in all forms. Those checking multiple racial/ethnic groups or one of the other specified groups are omitted from the reporting on race/ethnicity in this volume because of the small numbers of cases.

White. Consists of those respondents who describe themselves as White or Caucasian in 1975–2004. In 2005 the unchanged questionnaire forms were treated in a similar manner. For the revised question in 2005 and for all forms in 2006 and beyond, those checking only White and no other racial/ethnic group were categorized as White.

Black/African-American. Consists of those respondents who in 1975–1990 describe themselves as Black or Afro-American or who, in 1991–2004, describe themselves as Black or African American. In 2005 the unchanged questionnaire forms were treated in a similar manner; for the revised question in 2005 and for all forms in 2006 and beyond, only those checking Black or African American and no other racial ethnic group were categorized as Black/African American.

Hispanic. Consists of those respondents who in 1975–1990 describe themselves as Mexican American or Chicano, or Puerto Rican or other Latin American. After 1990 this group includes those respondents who describe themselves as Mexican American or Chicano, Cuban American, Puerto Rican American, or other Latin American. The term “Puerto Rican American” was shortened to “Puerto Rican” after 1994. In 2005 the unchanged questionnaire forms were treated in a similar manner; the changed forms in 2005 and for all forms in 2006 and beyond, only those checking Mexican American or Chicano, Cuban American, Puerto Rican, or Other Hispanic or Latino and no other racial/ethnic group were categorized as Hispanic.

Appendix C

TRENDS IN SPECIFIC SUBCLASSES OF HALLUCINOGENS, AMPHETAMINES, TRANQUILIZERS, NARCOTIC DRUGS OTHER THAN HEROIN, AND SEDATIVES

The tables for this Appendix present trends in specific drugs that fall under the more general categories of **amphetamines, hallucinogens other than LSD, tranquilizers, narcotics other than heroin, and sedatives (barbiturates)**. Information on these specific drugs comes in part from “branching questions,” in which respondents are first asked if they have used a general class of drugs such as amphetamines or tranquilizers and are then asked to mark which ones they have used from a list of candidates. For example, in one of the six questionnaire forms administered to 12th graders, respondents who answer that they used *tranquilizers* in the prior 12 months are then asked a small set of additional questions about that use. One question asks, “What tranquilizers have you taken during the last year without a doctor’s orders? (Mark all that apply.)” A specified list of tranquilizers (e.g., Valium, Xanax, Librium, etc.) is provided, along with an additional category labeled “Other” and one labeled “Don’t know the name of some tranquilizers I have used.” (Note that 8th and 10th graders are not asked these more difficult questions about the use of specific drugs.)

We present trends up through 2021. We do not present results for 2020 because of insufficient sample size. Information for all these tables comes from a randomly-selected 1/6 subsample of 12th grade students, of whom only those who have reported using a substance class in the past 12 months receive the additional, detailed questions used in the analyses for this appendix. In 2020 the three-quarters reduction of sample size due to the COVID-19 pandemic resulted in a sample size that was too small to produce reliable estimates that year. The 2021 sample size was large enough for us to resume these estimates.

We provide a caution to the reader in interpreting these results. For some of the drug classes, the absolute prevalence may be an underestimate. This occurs because some users of a particular subclass may not realize that the substance (e.g., peyote) is actually a subclass of the more general class (in this case, hallucinogens other than LSD), even though all the subclasses are listed as examples in the introduction to the question set. Such respondents, therefore, may not indicate use on the general question, which means they would never get to the branching question about using the subclass drug. Thus, they would not be counted among the users.

In the relevant 12th grade questionnaire form, we state both the full list of common street names as well as the proper names for the drugs in the general class *before* asking about whether they used the general class of drugs in the prior 12 months. However, because several of the drugs in the subclass lists (i.e., PCP, methamphetamine, crystal methamphetamine, Ritalin, OxyContin, and Vicodin) have also been included on a different questionnaire form in tripwire questions,¹ we have been able to determine that those questions usually yield higher levels of use when asked directly than when a branching question precedes them. For example, the 2003 prevalence rates for PCP

¹A tripwire question is a single non-branching question that, for reasons of questionnaire space economy, asks only about frequency of use in the prior 12 months.

use among 12th graders shows such a pattern. The 2003 annual prevalence for PCP generated by a single free-standing question about PCP use asked of all 12th graders was 1.3%, whereas the estimate was 0.9% when the drug was presented as a subcategory of hallucinogens other than LSD.²

Despite the potential for underestimation of *prevalence* when using branching questions, we still think such questions are helpful for discerning long-term *trends* in use. To stay with the PCP example, both the tripwire questions about PCP use and the branching question that treats PCP as a subcategory of hallucinogens other than LSD have shown very similar trends since 1979, when they were first available for comparison. Both measures showed a substantial decline in PCP use from 1979 through the mid-1980s, followed by a period of stability in use at low levels, then a modest increase in use in the 1990s until 1996, when use leveled. Thus if we only had the results from the branching question available, we would have obtained quite an accurate picture of the trend story, even though we would have been underestimating the absolute prevalence to some degree.

We conclude that the data for the other specific drug classes should also provide a fair approximation of the trends. The majority of such prevalence data probably underestimates the true prevalence, however.

Note on hallucinogens: In 2001, we changed the question wording in the branching question about use of hallucinogens other than LSD, replacing the older term “psychedelics” with the more current term “hallucinogens.” That same year the term “shrooms,” a common street name for hallucinogenic mushrooms or psilocybin, was added to the list of examples. Since then psilocybin (“shrooms”) has been the most widely used of the hallucinogens other than LSD. We believe that these methodological changes had the effect of increasing the reported prevalence; thus, the 2000–2001 change for the various classes of hallucinogens other than LSD in Table C-1 should not be mistaken for a real change in use. In 2021 “shrooms” continued to have the highest annual prevalence among hallucinogens other than LSD.

Note on psychotherapeutics: The pharmaceutical products that are part of each of these classes of psychotherapeutic drugs change over the years. Therefore, the lists of drugs are updated periodically as some drugs fall out of favor or are withdrawn from the market and others are introduced.

Note on amphetamines: Ritalin has been one of the drugs listed under the general class of amphetamines, though it is not formally an amphetamine. It is a stimulant, like amphetamine, and it is a medically indicated treatment for attention deficit hyperactivity disorder (ADHD). The issue of its diversion for other uses received increasing attention in the 1990s. For that reason, we added a separate tripwire question about its use starting with the 2001 survey. In past years, prevalence estimates based on the stand-alone question were higher than those based on the branching question. In 2021 the annual prevalence from a branching question was 0.3% vs. 0.5% from the stand-alone question.

² This may be an atypical case; proper classification of PCP is quite ambiguous—it is actually an animal tranquilizer with hallucinogenic effects. We suspected some years ago that students were not categorizing PCP as a hallucinogen other than LSD, even though it was given in the list of examples for the general question about hallucinogens other than LSD.

We believe that the trend results based on the branching question tell a reasonably accurate story about the pattern of change for Ritalin use, despite past differences in absolute prevalence in comparison to the stand-alone, tripwire question. However, since 2001 we have based our prevalence estimates for Ritalin, shown elsewhere in this volume, primarily on the tripwire question, not the branching question.

In 2007, Preludin and Dexamyl (amphetamines with substantially decreased usage) were deleted to make room for Adderall and Concerta (which had become increasingly popular). Since then Adderall has been the most widely reported of the amphetamines with an annual prevalence of 0.6%.

In 2011, Benzedrine and Methedrine, as well as the street term Bennies, were dropped from the list of examples for the general use question about amphetamines due to very low prevalence levels (shown in Table C-2). In the follow-up questions asking about use of specific amphetamines, both Benzedrine and Methedrine were deleted from the list of specific drugs.

In 2013, all questions on amphetamines were revised so that they asked about “amphetamines and other stimulant drugs” instead of only “amphetamines.” Also, in 2013 Vyvanse—another stimulant drug used in the treatment of ADHD—was added to the list.

Note on sedatives (barbiturates): This class of drugs was originally referred to as “barbiturates” because barbiturates tended to predominate among the sedative medications. As more nonbarbiturate sedatives came into common use, we changed all relevant survey questions to refer to “sedatives.” There was also a major interruption in the time series; as prevalence of sedative use became consistently low, the sedative use branching questions were dropped after 1989 to make space for other questions. The series was resumed in 2007 because the sedative problem had made a comeback. Some older sedatives (including Nembutal, Luminal, Desbutal, Amytal, and Adrenocal) were dropped in 1990 from the list of specific drugs and some newer ones (including Ambien, Lunesta, and Sonata) were added. In 2013, Tuinal was dropped and Dalmane, Restoril, Halcion, Intermezzo, and Zolpimist were added to the list of sedatives. All the specific sedatives in Table C-5 show an annual prevalence of zero in 2021.

Note on tranquilizers: In 2001, Xanax was added to the list of tranquilizers. In 2007, the list of drugs in the tranquilizer category was updated. Five seldom used drugs were dropped (Equanil, meprobamate, Atarax, Tranxene, and Vistaril) and three more commonly used drugs were added (Soma, Ativan, and Klonopin). From 2006 on, Xanax has been the most widely used of the tranquilizers without medical supervision.

Note on narcotics other than heroin: Because there had been considerable public comment on the diversion of OxyContin and Vicodin, in 2002 we added tripwire questions for these drugs in questionnaire forms different from the form containing the branching questions on the use of specific narcotics other than heroin. Once again, the absolute prevalence levels obtained for these drugs turned out to be higher on these stand-alone questions, asked of all respondents on that questionnaire form, than those obtained from the branching (tripwire) questions asked on a separate form. In 2013, the annual prevalence of OxyContin was estimated to be 3.6% in the tripwire question versus 2.2% in the branching question, while that of Vicodin was estimated to

be 5.3% in the tripwire question versus only 2.6% in the branching question. Note also that Percocet, another of the narcotic drugs introduced onto the list in 2002, has shown annual prevalence levels similar to those for OxyContin. In 2007, Ultram was added to the list of narcotic drugs, and Dilaudid was dropped. In 2013, Tramadol, MS Contin, Suboxone, Roxycodone, Tylox, and Hydrocodone (Lortab, Lorcet, Norco) were added. In 2015, the drug name Roxycodone was updated to Oxycodone.

Codeine has consistently been one of the narcotic drugs most widely used without medical supervision and has the highest prevalence in 2021. Since Vicodin was added to the list in 2002, it typically had either the highest prevalence in the class or one of the highest. In 2017, prevalence of both Vicodin and OxyContin fell (the decline was statistically significant for OxyContin), leaving Codeine as the drug with the highest prevalence in this class ever since, though OxyContin, Vicodin, and Percocet were not far behind up to 2019. In 2021 prevalence of all these substances was very low, at 0.3% or less.

TABLE C-1
SPECIFIC HALLUCINOGENS OTHER THAN LSD: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What hallucinogens other than LSD ^b have you taken during the last year?</i>	<i>Percentage of ALL SENIORS using drug indicated in last 12 months</i>															
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Mescaline	5.1	5.0	5.0	4.1	4.8	3.7	3.5	2.7	3.0	2.3	2.1	1.6	0.8	0.9	0.6	0.6
Peyote	1.8	1.4	1.5	1.1	1.1	0.9	0.6	0.6	0.6	0.5	0.4	0.5	0.3	0.4	0.9	0.1
Psilocybin (shrooms) ^b	1.7	1.0	1.3	1.0	1.5	1.6	0.9	0.7	0.7	0.6	0.9	0.6	0.9	0.3	0.7	0.3
PCP	2.9	3.3	4.5	4.2	3.5	2.2	1.4	1.5	1.2	0.9	0.8	1.0	0.6	0.4	0.8	0.5
Concentrated THC	5.6	5.7	5.3	4.6	2.6	2.1	1.5	1.4	0.9	1.1	0.8	1.0	0.7	0.4	0.4	0.4
Other	3.3	3.7	3.4	3.9	2.9	2.7	1.9	1.5	1.5	1.3	0.9	0.9	0.7	0.9	0.9	0.6
Don't know the names of some I have used	1.2	1.3	1.5	1.6	1.2	1.2	1.1	1.2	0.9	1.0	0.7	0.7	0.5	0.3	0.5	0.4
<i>Approximate weighted N =</i>	<i>2,800</i>	<i>3,000</i>	<i>3,500</i>	<i>3,100</i>	<i>3,100</i>	<i>3,400</i>	<i>3,500</i>	<i>3,200</i>	<i>3,100</i>	<i>3,100</i>	<i>3,000</i>	<i>3,200</i>	<i>3,200</i>	<i>2,700</i>	<i>2,500</i>	<i>2,500</i>

Table continued on next page.

TABLE C-1 (cont.)
SPECIFIC HALLUCINOGENS OTHER THAN LSD: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What hallucinogens other than LSD ^b have you taken during the last year?</i>	<i>Percentage of ALL SENIORS using drug indicated in last 12 months</i>														
	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Mescaline	0.6	0.8	0.5	1.1	1.2	0.8	1.3	0.9	1.3	0.9	0.8	0.5	0.6	0.7	0.4
Peyote	0.5	0.6	0.6	0.7	0.9	0.8	0.2	0.8	0.2	0.9	0.6	0.6	0.7	0.7	0.6
Psilocybin (shrooms) ^b	0.2	0.5	0.5	0.9	1.4	1.1	1.4	1.2	1.4†	4.9	4.0	4.6	5.7	4.4	3.6
PCP	0.6	0.7	0.9	1.2	1.1	0.9	0.8	1.1	1.2	0.9	1.0	0.9	1.0	0.7	0.6
Concentrated THC	0.2	0.5	0.4	0.9	1.5	1.2	1.1	1.3	0.9	1.3	0.8	0.9	1.3	0.8	0.9
Other	1.0	0.8	0.7	1.3	1.8	1.9	2.2	1.9	2.4	1.6	1.2	1.6	1.4	1.4	1.2
Don't know the names of some I have used	0.3	0.4	0.6	0.8	0.8	1.2	1.2	1.0	0.8	0.9	0.4	0.4	0.7	0.6	0.6
<i>Approximate weighted N =</i>	<i>2,600</i>	<i>2,600</i>	<i>2,500</i>	<i>2,500</i>	<i>2,300</i>	<i>2,500</i>	<i>2,500</i>	<i>2,200</i>	<i>2,100</i>	<i>2,100</i>	<i>2,100</i>	<i>2,400</i>	<i>2,400</i>	<i>2,400</i>	<i>2,300</i>

Table continued on next page.

TABLE C-1 (cont.)
SPECIFIC HALLUCINOGENS OTHER THAN LSD: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What hallucinogens other than LSD ^b have you taken during the last year?</i>	Percentage of ALL SENIORS using drug indicated in last 12 months															2019-2021 change
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019^c</u>	<u>2020</u>	<u>2021</u>	
Mescaline	0.4	0.4	0.5	0.7	0.6	0.5	0.2	0.2	0.2	0.3	0.4	0.3	0.3	§	0.1	-0.2
Peyote	0.5	0.4	0.4	0.7	0.8	0.5	0.2	0.2	0.2	0.1	0.5	0.4	0.3	§	0.1	-0.2
Psilocybin (shrooms) ^b	4.5	3.8	4.3	3.7	3.8	4.4	2.8	2.6	2.3	1.7	2.2	2.2	1.8	§	3.1	+1.3
PCP	0.7	0.5	0.6	1.0	0.7	0.9	0.3	0.4	0.3	0.2	0.3	0.6	0.2	§	0.2	0.0
Concentrated THC	1.0	1.3	1.2	1.1	1.2	1.5	1.0	1.3	1.0	0.6	1.1	1.1	1.3	§	1.7	+0.4
Other	1.3	1.8	1.2	1.6	1.9	1.1	0.9	0.7	0.4	0.6	0.6	0.7	0.7	§	0.4	-0.3
Don't know the names of some I have used	0.4	0.4	0.8	0.8	0.6	0.6	0.3	0.3	0.4	0.6	0.2	0.3	0.5	§	0.2	-0.3
<i>Approximate weighted N =</i>	<i>2,400</i>	<i>2,300</i>	<i>2,300</i>	<i>2,300</i>	<i>2,300</i>	<i>2,200</i>	<i>2,000</i>	<i>2,000</i>	<i>2,100</i>	<i>1,900</i>	<i>2,100</i>	<i>2,200</i>	<i>2,100</i>	§	<i>1,400</i>	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' ‡ ' indicates some change in the question.

See relevant footnote. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^aThese are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

^bIn 2001, the question asking about the prevalence of use of specific hallucinogens other than LSD was changed in several ways: (1) the wording of the screening question was changed from psychedelics other than LSD to hallucinogens other than LSD; (2) in the list of examples given in the screening question, psilocybin was expanded to shrooms or psilocybin; and (3) the specific question about psilocybin was expanded to shrooms or psilocybin. The inclusion of the term shrooms elicited a higher reported level of use in response to both the general category and the specific drug psilocybin. This question change likely explains some of the discontinuity in the 2000–2001 results.

^cDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE C-2
SPECIFIC AMPHETAMINES: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What amphetamines have you taken during the last year without a doctor's orders?</i>	Percentage of ALL SENIORS using drug indicated in last 12 months															
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Benzedrine	3.5	4.1	3.7	3.1	3.2	3.6	2.9	1.6	1.7	1.9	1.4	1.1	0.5	0.7	0.6	0.1
Dexedrine	2.9	3.5	3.7	4.0	4.0	5.1	2.8	1.4	1.6	1.2	0.9	0.6	0.4	0.6	0.5	0.3
Methedrine	3.4	4.2	3.9	4.7	4.4	5.6	4.7	3.2	3.0	2.9	2.0	1.5	1.2	0.7	0.5	0.3
Ritalin	0.5	0.7	0.6	0.4	0.6	0.7	0.5	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.1
Preludin ^b	0.6	1.0	1.1	1.3	1.1	1.7	0.8	0.6	0.5	0.4	0.3	0.1	0.2	0.3	0.1	0.1
Dexamyl ^b	1.3	1.5	1.1	1.3	1.3	1.1	1.2	0.6	0.9	0.6	0.8	0.5	0.4	0.3	0.2	0.1
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Concerta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vyvanse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine	1.9	2.3	2.3	2.4	2.7	3.7	2.8	1.8	2.1	2.0	1.5	1.3	1.2	0.6	0.6	0.8
Crystal methamphetamine (ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2	0.8	1.2
Other	4.6	5.9	6.5	6.4	6.4	7.6	4.6	4.2	4.3	3.3	3.7	2.6	1.5	2.1	1.6	1.2
Don't know the names of some I have used	6.8	7.2	6.8	7.5	8.7	11.1	9.2	8.4	8.1	7.0	5.3	4.4	3.3	2.9	2.9	2.3
<i>Approximate weighted N =</i>	<i>2,700</i>	<i>2,900</i>	<i>3,400</i>	<i>3,100</i>	<i>3,000</i>	<i>3,400</i>	<i>3,400</i>	<i>3,200</i>	<i>3,100</i>	<i>3,100</i>	<i>3,000</i>	<i>3,200</i>	<i>3,200</i>	<i>2,700</i>	<i>2,500</i>	<i>2,500</i>

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TABLE C-2 (cont.)
SPECIFIC AMPHETAMINES: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What amphetamines have you taken during the last year without a doctor's orders?</i>	Percentage of ALL SENIORS using drug indicated in last 12 months														
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Benzedrine	0.2	0.3	0.6	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.6	0.2	0.8	0.4	0.2
Dexedrine	0.2	0.2	0.5	0.4	0.3	0.9	0.6	0.6	0.6	0.8	1.0	0.7	1.3	0.6	0.3
Methedrine	0.4	0.4	0.5	0.3	0.3	0.5	0.3	0.3	0.3	0.5	0.2	0.2	0.4	0.6	0.2
Ritalin	0.1	0.4	1.0	0.8	1.2	2.8	2.8	2.4	2.2	2.4	2.6	2.3	3.9	2.3	2.3
Preludin ^b	0.1	0.1	0.3	0.1	0.5	0.2	0.3	0.2	*	0.2	0.1	0.1	0.2	0.2	0.1
Dexamyl ^b	0.2	0.3	0.5	0.2	0.4	0.3	0.4	0.2	0.2	0.5	0.2	0.1	0.5	0.3	0.3
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Concerta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vyvanse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine	0.4	0.6	0.6	0.7	0.7	1.1	1.3	0.9	0.9	1.5	1.3	1.9	1.5	1.5	1.1
Crystal methamphetamine (ice)	1.1	1.1	1.4	1.6	1.5	1.8	2.5	1.8	1.9	2.1	2.1	1.7	2.0	1.2	1.3
Other	1.5	2.0	2.3	2.0	2.3	2.5	3.1	2.6	2.9	2.7	3.2	3.2	3.4	2.5	3.4
Don't know the names of some I have used	1.9	2.2	2.1	2.6	2.3	2.8	3.1	2.5	2.1	2.2	2.3	2.3	2.9	1.7	1.6
<i>Approximate weighted N =</i>	2,600	2,600	2,500	2,500	2,300	2,500	2,500	2,200	2,100	2,000	2,100	2,400	2,400	2,400	2,300

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TABLE C-2 (cont.)
SPECIFIC AMPHETAMINES: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What amphetamines have you taken during the last year without a doctor's orders?</i>	Percentage of ALL SENIORS using drug indicated in last 12 months															2019-2021 change
	2007	2008	2009	2010	2011	2012	2013 ^d	2014 ^d	2015	2016	2017	2018	2019 ^e	2020	2021	
Benzedrine	0.5	0.4	0.4	0.2	—	—	—	—	—	—	—	—	—	—	—	—
Dexedrine	0.4	0.3	0.2	0.3	0.2	0.5	0.4	0.3	0.1	0.1	0.6	0.2	0.3	§	0.0	-0.2
Methedrine	0.2	0.0	0.1	0.2	—	—	—	—	—	—	—	—	—	—	—	—
Ritalin	1.7	1.5	1.3	1.5	2.0	1.9	2.0	1.3	0.9	1.2	0.7	0.8	0.4	§	0.3	0.0
Preludin ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dexamyl ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adderall	2.8	3.2	3.3	3.5	5.1	4.0	4.1	4.0	2.9	3.3	3.1	2.8	1.5	§	0.6	-0.9 s
Concerta ^c	0.8	0.9	0.8	1.0	1.0	0.9	0.6	0.4	0.8	0.2	0.4	0.2	0.3	§	0.1	-0.2
Vyvanse	—	—	—	—	—	—	1.3	1.6	1.4	1.5	1.1	1.1	0.7	§	0.1	-0.5 s
Methamphetamine	1.2	0.5	0.6	0.6	0.4	0.4	0.3	0.4	0.7	0.3	0.3	0.4	0.1	§	0.1	-0.1
Crystal methamphetamine (ice)	1.1	0.4	0.2	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.1	0.1	§	0.1	0.0
Other	1.4	1.5	1.1	0.8	2.0	1.4	0.6	0.7	1.3	1.0	0.3	0.7	0.5	§	0.1	-0.4 s
Don't know the names of some I have used	1.4	1.2	0.9	1.0	0.7	0.6	0.7	1.0	0.5	0.5	0.3	0.2	0.2	§	0.0	-0.2 s
<i>Approximate weighted N =</i>	2,400	2,300	2,300	2,300	2,300	2,200	2,000	2,000	2,100	1,900	2,000	2,100	2,100	§	1,400	

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TABLE C-2 (cont.)
SPECIFIC AMPHETAMINES: Trends in Annual Prevalence of Use for All Seniors^a

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available.

' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^bIn 2007 for the list of amphetamines, Preludin and Dexamyl were replaced with Adderall and Concerta.

^cIn 2013 "(Methylphenidate)" was added to Concerta.

^dIn 2013 the general amphetamine use question wording was changed slightly in the 12th grade questionnaires; Vyvanse was also added to the list of examples in this form. In 2014 the same form was changed; 'or other stimulant drug' was added to the question text and to the don't know' response.

^eDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE C-3
SPECIFIC TRANQUILIZERS: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What tranquilizers have you taken during the last year without a</i>	Percentage of ALL SENIORS using drug indicated in last 12 months															
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Librium	2.6	2.9	2.4	2.1	1.8	2.0	0.9	1.2	0.5	0.8	0.7	0.7	0.3	0.2	0.2	0.2
Valium	5.3	6.9	6.0	5.9	5.3	5.5	3.5	3.2	2.9	3.5	2.8	2.9	2.2	1.7	1.6	1.2
Miltown ^b	0.2	0.3	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0
Xanax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Equanil ^c	0.4	0.4	0.7	0.4	0.4	0.2	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.1
Meproamate ^c	0.6	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	*	0.1	0.2	*
Soma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Serax	0.2	0.2	0.1	0.2	0.1	0.2	*	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.2	0.0
Atarax ^c	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.2	*	*	0.1	0.1
Tranxene ^c	0.2	0.3	0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1
Vistaril ^c	0.1	0.2	0.4	0.3	0.3	0.3	0.1	0.1	0.2	0.4	0.2	0.1	0.0	*	0.3	0.0
Ativan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Klonopin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Don't know the names of some I have used	3.0	2.7	2.7	1.9	2.3	1.6	1.3	1.7	1.4	1.7	2.0	1.3	0.9	1.0	1.5	1.1
<i>Approximate weighted N =</i>																
	<i>2,700</i>	<i>2,900</i>	<i>3,400</i>	<i>3,100</i>	<i>3,000</i>	<i>3,300</i>	<i>3,400</i>	<i>3,200</i>	<i>3,100</i>	<i>3,100</i>	<i>3,000</i>	<i>3,100</i>	<i>3,200</i>	<i>2,700</i>	<i>2,500</i>	<i>2,400</i>

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TABLE C-3 (cont.)
SPECIFIC TRANQUILIZERS: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What tranquilizers have you taken during the last year without a</i>	Percentage of ALL SENIORS using drug indicated in last 12 months														
	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Librium	0.1	0.1	*	0.3	0.3	0.2	0.3	0.4	0.2	0.4	0.3	0.2	0.3	0.2	0.2
Valium	1.6	1.6	1.6	1.3	1.5	2.0	2.0	2.7	2.6	2.8	2.8	2.8	3.1	3.1	2.3
Miltown ^b	*	0.0	0.0	0.0	0.1	*	*	0.2	0.1	—	—	—	—	—	—
Xanax	—	—	—	—	—	—	—	—	—	1.9	2.6	2.7	2.7	2.3	2.8
Equanil ^c	*	0.1	*	*	0.2	0.2	0.1	0.1	0.2	0.1	0.4	*	0.1	*	*
Meproamate ^c	0.1	0.0	0.1	0.2	0.1	0.3	0.1	0.1	*	0.1	0.1	0.1	0.2	0.1	0.1
Soma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Serax	0.2	*	*	*	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	*
Atarax ^c	0.1	0.1	0.0	*	*	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.2
Tranxene ^c	0.2	*	*	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	*	0.1	0.1	0.1
Vistaril ^c	*	*	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.2	0.3
Ativan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Klonopin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	1.9	1.4	2.4	1.4	1.4
Don't know the names of some I have used	0.7	1.3	0.9	1.1	1.3	1.5	1.5	1.4	1.4	1.9	1.2	1.0	1.0	1.3	0.9
<i>Approximate weighted N =</i>															
	2,600	2,600	2,500	2,500	2,300	2,500	2,500	2,200	2,000	2,000	2,100	2,400	2,400	2,300	2,300

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TABLE C-3 (cont.)
SPECIFIC TRANQUILIZERS: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What tranquilizers have you taken during the last year without a</i>	Percentage of ALL SENIORS using drug indicated in last 12 months															2019-2021 change
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019^d</u>	<u>2020</u>	<u>2021</u>	
Librium	0.2	0.2	0.1	0.5	0.2	*	0.2	*	0.1	0.0	0.2	0.1	0.4	§	0.0	-0.3 s
Valium	2.4	1.9	1.9	1.9	1.6	1.1	1.4	1.0	0.9	0.6	0.6	0.3	0.5	§	0.1	-0.4 s
Miltown ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Xanax	3.3	3.3	3.6	3.7	2.8	3.1	2.6	3.4	2.5	2.8	2.4	2.2	2.6	§	0.5	-2.1 sss
Equanil ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Meprobamate ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Soma	1.3	1.4	0.7	1.4	0.4	1.0	0.4	0.3	0.1	0.3	0.1	0.3	0.2	§	0.0	-0.2
Serax	0.1	*	*	0.4	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.2	§	0.0	-0.2
Atarax ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranxene ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vistaril ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ativan	0.2	0.4	0.4	0.4	0.5	0.3	0.2	0.2	0.2	0.0	0.2	0.0	0.1	§	0.0	0.0
Klonopin	1.2	1.3	1.5	1.7	0.8	1.3	1.0	0.4	0.4	0.2	0.1	0.5	0.6	§	0.2	-0.4
Other	1.3	1.4	0.8	1.5	0.9	0.5	0.6	0.7	0.5	0.2	0.4	0.4	0.4	§	0.0	-0.4
Don't know the names of some I have used	0.5	0.9	0.3	0.6	0.9	0.4	0.4	0.2	0.6	0.1	0.3	0.3	0.3	§	0.0	-0.3
<i>Approximate weighted N =</i>																
	2,400	2,300	2,300	2,300	2,300	2,200	2,000	2,000	2,100	1,900	2,000	2,100	2,100	§	1,400	

Table continued on next page.

TABLE C-3 (cont.)
SPECIFIC TRANQUILIZERS: Trends in Annual Prevalence of Use for All Seniors^a

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' — ' indicates data not available.

' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^aThese are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

^bIn 2001 for the list of tranquilizers, Miltown was replaced with Xanax.

^cIn 2007 for the list of tranquilizers, Equanil, meprobamate, Atarax, Tranxene, and Vistaril were replaced with Soma, Ativan, and Klonopin.

^dDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE C-4
SPECIFIC NARCOTICS OTHER THAN HEROIN: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What narcotics other than heroin have you taken during the last year without a doctor's orders?</i>	<i>Percentage of ALL SENIORS using drug indicated in last 12 months</i>															
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Methadone	0.6	0.4	0.9	0.9	0.8	0.7	0.4	0.6	0.5	0.5	0.5	0.3	0.1	*	0.5	*
Opium	2.7	2.4	2.6	3.0	2.8	2.4	1.6	1.2	1.5	1.4	1.5	1.3	0.9	0.9	0.7	0.8
Morphine	0.6	0.8	0.7	0.8	1.0	1.1	0.7	0.8	0.8	0.9	0.7	0.4	0.6	0.2	0.7	0.4
Codeine	2.5	2.3	3.0	3.4	3.8	4.2	2.6	2.5	3.3	3.3	3.0	2.5	2.2	1.7	2.2	1.8
Demerol	0.7	0.6	1.1	0.9	1.2	1.4	0.9	0.9	0.7	0.9	1.0	0.8	0.7	0.4	0.7	0.5
Paregoric ^b	0.4	0.3	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1
Talwin ^b	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.2	0.3	0.1	0.1	0.1	*	*	0.1	0.0
Laudanum ^b	0.1	0.0	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	*	*	0.1	0.0
OxyContin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vicodin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Percocet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Percodan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dilaudid ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ultram	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tramadol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MS Contin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Suboxone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Roxycodone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oxycodone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tylox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydrocodone (Lortab, Lorcet, Norco)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	0.5	0.5	1.4	0.8	0.7	0.6	0.5	0.6	0.4	0.6	0.5	0.4	0.4	0.5	0.5	0.2
Don't know the names of some																
I have used	1.1	1.0	0.6	0.9	0.8	0.6	0.7	0.3	0.6	0.6	0.4	0.3	0.5	0.2	0.5	0.3
<i>Approximate weighted N =</i>	<i>2,700</i>	<i>2,800</i>	<i>3,400</i>	<i>3,000</i>	<i>3,000</i>	<i>3,300</i>	<i>3,400</i>	<i>3,100</i>	<i>3,000</i>	<i>3,100</i>	<i>2,900</i>	<i>3,100</i>	<i>3,100</i>	<i>2,600</i>	<i>2,500</i>	<i>2,400</i>

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TABLE C-4 (cont.)
SPECIFIC NARCOTICS OTHER THAN HEROIN: Trends in Annual Prevalence of Use for All Seniors ^a

<i>What narcotics other than heroin have you taken during the last year without a doctor's orders?</i>	<i>Percentage of ALL SENIORS using drug indicated in last 12 months</i>														
	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Methadone	0.3	0.2	0.1	0.1	*	0.4	0.3	0.8	0.7	0.7	0.9	0.4	0.9	0.8	1.2
Opium	0.5	0.4	0.6	1.0	1.1	1.8	2.0	1.7	2.1	2.1	2.1	2.4	2.2	1.6	1.2
Morphine	0.4	0.2	0.3	0.3	0.6	1.0	1.0	1.2	1.2	1.4	1.5	1.8	2.1	2.1	1.5
Codeine	2.5	1.7	1.6	1.0	2.6	2.5	3.0	3.1	3.7	2.8	4.4	4.1	4.6	4.3	3.4
Demerol	0.9	0.8	0.6	0.4	1.0	1.2	1.1	1.5	0.9	1.2	1.4	0.9	1.3	1.2	1.4
Paregoric ^b	0.2	0.0	*	0.1	*	0.0	0.0	*	0.0	0.1	—	—	—	—	—
Talwin ^b	0.0	0.0	0.1	0.0	0.0	0.0	0.1	*	0.0	0.1	—	—	—	—	—
Laudanum ^b	*	*	*	0.1	*	0.1	0.0	0.1	0.1	*	—	—	—	—	—
OxyContin	—	—	—	—	—	—	—	—	—	—	1.6	2.0	2.8	3.2	2.8
Vicodin	—	—	—	—	—	—	—	—	—	—	4.1	4.1	5.2	4.5	4.2
Percocet	—	—	—	—	—	—	—	—	—	—	1.9	3.1	2.9	2.5	2.2
Percodan	—	—	—	—	—	—	—	—	—	—	0.6	0.7	0.6	0.6	0.3
Dilaudid ^c	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.3	0.1	0.2
Ultram	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tramadol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MS Contin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Suboxone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Roxycodone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oxycodone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tylox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydrocodone (Lortab, Lorcet, Norco)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	0.5	0.3	0.6	0.3	0.7	0.6	1.2	1.6	1.4	0.9	1.6	1.8	1.7	1.6	2.0
Don't know the names of some															
I have used	0.1	0.5	0.4	0.3	0.4	0.5	0.8	0.6	0.6	0.5	0.7	0.4	0.5	0.4	1.1
<i>Approximate weighted N =</i>	<i>2,500</i>	<i>2,600</i>	<i>2,500</i>	<i>2,400</i>	<i>2,300</i>	<i>2,400</i>	<i>2,400</i>	<i>2,200</i>	<i>2,000</i>	<i>2,000</i>	<i>2,100</i>	<i>2,400</i>	<i>2,300</i>	<i>2,300</i>	<i>2,300</i>

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TABLE C-4 (cont.)
SPECIFIC NARCOTICS OTHER THAN HEROIN: Trends in Annual Prevalence of Use for All Seniors ^a

What narcotics other than heroin have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months															2019-2021 ^e change													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	2021														
Methadone	0.8	0.9	1.2	0.9	0.7	1.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	§	0.0	-0.1													
Opium	1.0	1.0	1.1	1.0	0.4	0.9	0.5	0.3	0.2	0.2	0.3	0.0	0.1	§	0.0	0.0													
Morphine	1.8	1.9	1.5	1.6	1.4	1.7	1.2	1.2	1.3	0.6	0.9	0.2	0.3	§	0.1	-0.2													
Codeine	4.2	3.4	4.0	3.7	3.4	3.5	2.6	2.3	2.2	2.2	1.5	1.6	0.8	§	0.3	-0.4													
Demerol	1.0	0.8	0.7	0.7	0.7	0.5	0.2	0.1	0.2	0.1	0.1	0.0	0.0	§	0.0	0.0													
Paregoric ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—													
Talwin ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—													
Laudanum ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—													
OxyContin	3.0	3.7	3.5	3.7	3.2	3.0	2.2	2.2	1.0	1.8	0.7	0.8	0.6	§	0.1	-0.5 ss													
Vicodin	5.8	5.7	4.6	4.6	4.3	4.3	2.6	1.9	1.8	1.3	0.5	0.5	0.5	§	0.1	-0.4 ss													
Percocet	3.2	2.9	3.3	2.8	2.5	2.7	1.5	1.6	0.9	1.4	0.8	0.7	0.5	§	0.1	-0.4 s													
Percodan	0.5	0.1	0.4	0.3	0.3	0.5	0.1	*	0.0	0.0	0.0	0.0	0.1	§	0.0	-0.1													
Dilaudid ^c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—													
Ultram	0.4	0.3	0.1	0.5	0.3	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	§	0.0	0.0													
Tramadol	—	—	—	—	—	—	0.8	0.6	1.1	0.5	0.2	0.1	0.1	§	0.0	0.0													
MS Contin	—	—	—	—	—	—	*	0.1	0.1	0.0	0.0	0.0	0.0	§	0.2	+0.2													
Suboxone	—	—	—	—	—	—	0.2	0.1	0.2	0.2	*	0.1	0.0	§	0.0	0.0													
Roxycodone	—	—	—	—	—	—	0.3	0.3	—	—	—	—	—	—	—	—													
Oxycodone	—	—	—	—	—	—	—	—	1.4	2.4	1.1	0.9	0.5	§	0.1	-0.4 s													
Tylox	—	—	—	—	—	—	0.0	*	0.1	0.0	0.0	0.1	0.0	§	0.0	0.0													
Hydrocodone (Lortab, Lorcet, Norco)	—	—	—	—	—	—	2.9	2.9	2.2	2.1	1.1	1.3	0.5	§	0.1	-0.4 s													
Other	1.5	1.5	0.7	1.4	1.4	1.5	0.8	0.7	0.5	0.2	0.3	0.3	0.1	§	0.0	-0.1													
Don't know the names of some I have used	0.7	0.8	0.6	0.9	0.3	0.4	0.4	0.6	0.4	0.5	0.4	0.1	0.1	§	0.0	-0.1													
Approximate weighted N =															2,400	2,300	2,300	2,200	2,200	2,100	2,000	1,900	2,100	1,800	2,000	2,100	2,000	§	1,400

Table continued on next page.

TABLE C-4 (cont.)

SPECIFIC NARCOTICS OTHER THAN HEROIN: Trends in Annual Prevalence of Use for All Seniors^a

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' — ' indicates data not available.

' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^aThese are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

^bIn 2002 for the list of narcotics other than heroin, paregoric, Talwin, and laudanum were replaced with OxyContin, Vicodin, Percocet, Percodan, and Dilaudid.

^cIn 2007 for the list of narcotics other than heroin, Dilaudid was replaced with Ultram.

^dDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE C-5
SPECIFIC SEDATIVES: Trends in Annual Prevalence of Use for All Seniors ^{a,b}

What sedatives have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months														
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1991-2006
Phenobarbital	2.7	2.4	2.2	1.8	1.6	1.8	1.2	1.0	0.8	1.0	0.7	0.6	0.3	0.2	—
Seconal	3.2	2.9	2.4	2.0	1.1	1.3	1.3	0.8	0.7	0.8	0.5	0.4	0.3	0.0	—
Dalmane	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Restoril	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Halcion	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuinal	1.8	1.7	0.8	1.3	0.9	0.9	0.4	0.4	0.4	0.3	0.5	0.2	0.2	*	—
Nembutal	0.9	1.0	0.9	0.8	0.7	0.7	0.5	0.3	0.2	0.4	0.4	0.3	0.1	0.1	—
Luminal	0.6	0.9	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.2	0.2	0.2	0.2	—
Desbutal	0.2	0.3	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.1	—
Amytal	0.6	0.8	0.5	0.3	0.4	0.5	0.4	0.4	0.2	0.4	0.4	0.2	0.3	0.1	—
Adrenocal	0.3	0.3	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	—
Ambien	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lunesta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sonata	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Intermezzo	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Zolpimist	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	3.2	3.2	3.5	2.7	2.2	2.2	1.5	1.5	1.0	1.2	1.2	0.8	0.7	0.7	—
Don't know the names of some I have used	3.8	3.0	3.1	2.8	2.3	2.3	2.4	2.2	2.2	1.9	1.5	1.5	1.1	0.8	—
Approximate weighted N =	2,700	2,900	3,400	3,100	3,000	3,300	3,400	3,200	3,100	3,100	3,000	3,100	3,100	2,700	—

Table continued on next page.

TABLE C-5 (cont.)
SPECIFIC SEDATIVES: Trends in Annual Prevalence of Use for All Seniors ^{a,b}

What sedatives have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months															2019-2021 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	2021	
Phenobarbital	0.1	0.1	0.08	0.4	0.3	0.2	0.1	*	0.1	0.3	0.1	0.1	0.2	§	0.0	-0.2
Seconal	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.1	0.2	0.2	*	0.0	0.2	§	0.0	-0.1
Dalmane	—	—	—	—	—	—	0.05	0.0	*	0.2	*	0.0	0.2	§	0.0	-0.2
Restoril	—	—	—	—	—	—	0.08	*	0.2	0.3	*	0.0	0.1	§	0.0	-0.1
Halcion	—	—	—	—	—	—	0.12	0.0	0.1	0.3	0.5	0.1	0.2	§	0.0	-0.2
Tuinal ^c	0.1	*	0.0	0.2	0.1	0.2	—	—	—	—	—	—	—	—	—	—
Nembutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luminal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Desbutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amytal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adrenocal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ambien	1.5	1.1	1.44	1.5	1.5	1.3	0.9	1.2	0.8	0.3	0.6	0.5	0.3	§	0.0	-0.3
Lunesta	0.8	0.8	0.71	0.8	0.4	0.5	0.2	0.3	*	0.2	0.2	0.0	0.2	§	0.0	-0.2
Sonata	0.2	0.2	0.21	0.3	0.2	0.2	0.2	0.0	*	0.2	0.1	0.1	0.1	§	0.0	-0.1
Intermezzo	—	—	—	—	—	—	0.11	0.0	*	0.2	*	0.0	0.2	§	0.0	-0.2
Zolpimist	—	—	—	—	—	—	0.21	0.1	0.1	0.2	0.1	0.1	0.2	§	0.0	-0.2
Other	2.1	1.9	1.62	1.7	1.6	1.6	1.2	0.8	1.1	0.5	1.2	0.5	0.3	§	1.1	+0.8
Don't know the names of some I have used	0.7	0.8	0.84	0.9	0.7	1.0	1.0	1.3	0.8	0.5	0.9	1.0	0.6	§	0.6	0.0
<i>Approximate weighted N =</i>																
	2,400	2,300	2,300	2,300	2,300	2,200	2,000	1,900	2,100	1,900	2,000	2,100	2,100	§	1,400	

Table continued on next page.

TABLE C-5 (cont.)

SPECIFIC SEDATIVES: Trends in Annual Prevalence of Use for All Seniors^{a,b}

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' — ' indicates data not available. ' * ' indicates less than 0.05% but greater than 0%. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

§ Insufficient data for 2020 estimate.

^aThese are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

^bThis question set was dropped in 1990, as sedative use had become quite low, to make room for other questions. Because of a rise in sedative use since then, it was reintroduced in 2007, and some new drugs were included in the listing.

^cIn 2013 Tuinal was dropped from the list of sedatives (barbiturates).

^dDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

Appendix D

TRENDS IN DRUG USE FOR THREE GRADES COMBINED

This appendix presents tables and figures showing usage trends of the various drugs covered in this monograph, in which the data from grades 8, 10, and 12 have been combined. (Data were first gathered on all three grades in 1991, so these tables cover the interval 1991–2021.) These combined figures provide simplicity, but in doing so lose some important distinctions. For example, inflections either up or down in use have sometimes occurred first among 8th graders and then radiated up the age spectrum on a lagged basis; such cohort effects are masked when the data are combined across grade. But for those seeking an easier way of summarizing the overall historical trend results, this simplification may be useful at times.

Combining data across grades increases sample size and therefore we are able to present estimates for all drugs measured in all three grades, even if in 2020 the pandemic-reduced sample size was too small to produce grade-specific estimates.

Figures D-1 through D-9 show general shifts occurring for most of the drugs under study in MTF, both licit and illicit. In Chapter 5 these trends are presented separately by grade and discussed at length. Only drugs reported for all three grades are included in the Figures and Tables in this Appendix.

Tables D-1 through D-4 provide the numerical estimates that underlie the figures. The averages across grades in the use of each drug are calculated using a weighting procedure that takes into account the estimated number of students in the 48 contiguous states and the District of Columbia who are enrolled in each of the three grade levels each year. The original sampling weights used at each grade level to correct for unequal probabilities of selection within grade have been retained.

These tables also show the absolute change in use between the most recent year and the recent peak level observed for each drug, along with the statistical significance of that change. Most of these changes from recent peaks are statistically significant, in part because the sample sizes are so large. The proportional change since the recent peak year is also provided. In addition, the two far right-hand columns show absolute and proportional changes from the recent lowest level to the most recent year.

It should be noted that two important classes of drugs on which MTF routinely reports are not included in these figures, because we report the data only for 12th graders—*narcotics other than heroin* (taken as a class) and *sedatives* (barbiturates). The 12th grade trend data for these drugs may be found in Chapter 5. Several other drugs for which we lack data for the lower grades are also not included here.

TABLE D-1
Trends in Lifetime Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Any Illicit Drug ^b	30.4	29.8	32.1	35.7	38.9	42.2	43.3	42.3	41.9	41.0	40.9	39.5	37.5	36.4	35.7	34.0
Any Illicit Drug other than Marijuana ^b	19.7	19.7	21.2	22.0	23.6	24.2	24.0	23.1	22.7	22.1‡	23.2	21.1	19.8	19.3	18.6	18.2
Any Illicit Drug including Inhalants ^b	36.8	36.3	38.8	41.9	44.9	47.4	48.2	47.4	46.9	46.2	45.5	43.7	41.9	41.3	41.0	39.3
Marijuana/Hashish	22.7	21.1	23.4	27.8	31.6	35.6	37.8	36.5	36.4	35.3	35.3	34.0	32.4	31.4	30.8	28.9
Inhalants	17.0	16.9	18.2	18.6	19.4	19.1	18.6	18.1	17.5	16.4	15.3	13.6	13.4	13.7	14.1	13.7
Hallucinogens	6.1	6.3	7.0	7.7	8.9	10.0	10.2	9.5	9.0	8.5‡	9.2	7.6	6.9	6.3	5.9	5.7
LSD	5.5	5.7	6.5	6.9	8.1	8.9	9.1	8.3	7.9	7.2	6.5	5.0	3.7	3.0	2.6	2.5
Hallucinogens other than LSD	2.4	2.5	2.7	3.6	3.9	4.8	4.9	4.8	4.4	4.5‡	6.7	6.0	5.8	5.6	5.4	5.2
Ecstasy (MDMA) ^c	—	—	—	—	—	4.9	5.2	4.5	5.3	7.2	8.0	6.9	5.4	4.7	4.0	4.3
Cocaine	4.6	4.0	4.1	4.5	5.1	6.0	6.6	7.0	7.2	6.5	5.9	5.7	5.3	5.5	5.5	5.3
Crack	2.0	1.9	2.0	2.5	2.8	3.2	3.4	3.8	3.8	3.5	3.2	3.2	2.9	2.9	2.8	2.6
Other cocaine	4.1	3.5	3.6	3.9	4.2	5.2	5.9	6.1	6.3	5.6	5.1	4.8	4.5	4.7	4.7	4.7
Heroin	1.1	1.3	1.3	1.6	1.9	2.1	2.1	2.2	2.2	2.1	1.7	1.7	1.5	1.5	1.5	1.4
With a needle	—	—	—	—	1.1	1.2	1.1	1.1	1.3	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Without a needle	—	—	—	—	1.3	1.7	1.7	1.6	1.6	1.8	1.3	1.3	1.3	1.2	1.1	1.0
Amphetamines ^b	12.9	12.5	13.8	14.3	15.2	15.5	15.2	14.5	14.0	13.5	13.9	13.1	11.8	11.2	10.3	10.1
Methamphetamine	—	—	—	—	—	—	—	—	6.5	6.2	5.8	5.3	5.0	4.5	3.9	3.4
Tranquilizers	5.5	5.3	5.4	5.5	5.8	6.5	6.6	6.9	7.0	6.9‡	7.9	7.9	7.3	7.1	6.8	7.0
Alcohol	80.1	79.2‡	68.4	68.4	68.2	68.4	68.8	67.4	66.4	66.6	65.5	62.7	61.7	60.5	58.6	57.0
Been drunk	46.3	44.9	44.6	44.3	44.5	45.1	45.7	44.0	43.7	44.0	43.4	40.5	38.9	39.4	38.4	37.6
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	54.7	54.7	53.1
Cigarettes	53.5	53.0	54.0	54.6	55.8	57.8	57.4	56.0	54.5	51.8	49.1	44.2	40.8	39.6	37.4	35.0
Smokeless tobacco	—	26.2	25.6	26.3	26.0	25.7	22.7	21.1	19.4	17.9	16.6	15.2	14.1	13.6	13.8	13.3
Any Vaping ^d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	1.9	1.8	1.8	2.1	2.1	1.8	2.1	2.3	2.8	3.0	3.3	3.3	3.0	2.5	2.1	2.0

Table continued on next page.

TABLE D-1 (continued)
Trends in Lifetime Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020	2021	2020–2021 change	<u>Peak year–2021 change</u>		<u>Low year–2021 change</u>		
																	Absolute change	Proportional change (%) ^a	Absolute change	Proportional change (%) ^a	
Any Illicit Drug ^b	32.7	32.6	33.2	34.4	34.7	34.1	36.0†	34.9	34.3	32.6	33.4	33.9	34.8	34.7	<u>27.0</u>	-7.8 sss	-8.0 sss	-22.8	—	—	
Any Illicit Drug other than Marijuana ^b	17.7	16.8	16.5	16.8	16.1	15.5	16.8†	15.8	15.1	14.3	14.0	14.2	14.2	14.3	<u>10.1</u>	-4.2 sss	-5.7 sss	-36.0	—	—	
Any Illicit Drug including Inhalants ^b	38.0	37.9	37.9	38.8	38.7	37.9	39.3†	37.9	37.4	34.9	36.5	36.6	37.8	38.3	<u>31.0</u>	-7.3 sss	-7.3 sss	-19.1	—	—	
Marijuana/Hashish	27.9	27.9	29.0	30.4	31.0	30.7	32.0	30.5	30.0	28.6	29.3	29.7	30.6	30.2	<u>23.1</u>	-7.1 sss	-14.7 sss	-38.8	—	—	
Inhalants	13.5	13.1	12.5	12.1	10.6	10.0	8.9	8.8	7.5	<u>6.5</u>	6.7	6.6	7.3	8.1	7.9	-0.2	-11.5 sss	-59.3	+1.4 s	+21.8	
Hallucinogens	5.8	5.6	5.3	5.8	5.7	5.0	5.0	4.3	4.3	4.3	4.2	4.1	4.6	5.0	<u>4.0</u>	-1.0	-5.1 sss	-56.0	—	—	
LSD	2.6	2.7	2.5	2.8	2.7	2.5	2.6	<u>2.4</u>	2.8	3.1	3.1	3.0	3.5	3.9	2.8	-1.1 s	-6.3 sss	-69.1	+0.4	+16.1	
Hallucinogens other than LSD	5.1	4.8	4.7	5.0	4.9	4.3	4.1	3.5	3.1	3.0	2.9	<u>2.8</u>	3.1	3.3	3.0	-0.4	-3.7 sss	-55.8	+0.1	+4.3	
Ecstasy (MDMA) ^c	4.5	4.1	4.6	5.5	5.5	4.6	4.7†	5.0	4.0	3.1	3.0	2.7	2.7	2.6	<u>1.7</u>	-0.9	-3.3 sss	-66.3	—	—	
Cocaine	5.2	4.8	4.2	3.8	3.4	3.3	3.1	2.9	2.7	2.3	2.5	2.6	2.4	2.4	<u>1.4</u>	-1.0 ss	-5.8 sss	-80.5	—	—	
Crack	2.5	2.2	2.0	1.9	1.6	1.5	1.5	1.3	1.3	1.0	1.1	1.1	1.1	1.0	<u>0.9</u>	-0.2	-3.0 sss	-77.6	—	—	
Other cocaine	4.6	4.1	3.7	3.4	3.1	2.9	2.7	2.5	2.3	2.1	2.1	2.3	2.1	2.2	<u>1.2</u>	-1.0 ss	-5.1 sss	-80.9	—	—	
Heroin	1.4	1.3	1.4	1.4	1.2	1.0	1.0	0.9	0.7	0.6	0.6	0.6	0.6	<u>0.4</u>	0.4	0.0	-1.8 sss	-81.3	0.0	6.0	
With a needle	0.8	0.8	0.8	0.9	0.8	0.6	0.7	0.7	0.5	0.4	0.4	0.4	0.4	<u>0.2</u>	0.3	+0.1	-1.0 sss	-78.3	+0.1	+23.0	
Without a needle	1.0	0.9	0.9	1.0	0.9	0.7	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.3	<u>0.2</u>	-0.1	-1.6 sss	-89.7	—	—	
Amphetamines ^b	9.5	8.6	8.6	8.9	8.6	8.3	10.5†	9.7	9.1	8.1	7.7	7.7	7.6	7.8	<u>5.3</u>	-2.5 sss	-4.4 sss	-45.3	—	—	
Methamphetamine	2.5	2.5	2.2	2.2	1.8	1.6	1.5	1.4	1.1	0.8	0.9	0.7	0.8	1.2	<u>0.4</u>	-0.8 ss	-6.1 sss	-94.0	—	—	
Tranquilizers	6.7	6.3	6.5	6.6	6.0	5.8	5.2	5.3	5.2	5.5	5.6	5.4	5.3	5.2	<u>2.8</u>	-2.4 sss	-5.1 sss	-64.0	—	—	
Alcohol	56.3	55.1	54.6	53.6	51.5	50.0	48.4	46.4	45.2	41.9	41.7	41.2	41.5	44.0	<u>36.3</u>	-7.7 sss	-32.5 sss	-47.2	—	—	
Been drunk	36.6	35.1	35.9	34.2	32.5	32.8	31.7	29.2	28.2	26.4	26.0	25.6	25.0	26.4	<u>21.1</u>	-5.3 sss	-25.2 sss	-54.4	—	—	
Flavored alcoholic beverages	51.3	49.3	47.9	46.7	44.5	42.7	41.1	38.8	37.4	33.8	33.5	34.3	30.6	32.8	<u>26.9</u>	-5.8 sss	-27.7 sss	-50.7	—	—	
Cigarettes	33.3	31.3	31.2	30.9	28.7	27.0	25.6	22.9	21.1	18.2	17.0	16.1	15.3	16.2	<u>11.4</u>	-4.8 sss	-46.4 sss	-80.3	—	—	
Smokeless tobacco	12.9	12.3	13.5	14.5	13.8	13.5	12.8	12.1	11.3	10.3	8.7	8.8	8.7	12.0	<u>6.0</u>	-6.0 sss	-20.4 sss	-77.4	—	—	
Any Vaping ^d	—	—	—	—	—	—	—	—	—	29.9	26.6†	<u>28.2</u>	33.4	36.7	37.2	28.9	-8.3 sss	-8.3 sss	-22.3	+0.7	+2.4
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	<u>18.9</u>	25.2	32.3	35.0	27.6	-7.4 sss	-7.4 sss	-21.2	+8.7 sss	+46.2
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	<u>8.5</u>	11.7	18.1	20.1	15.9	-4.2 sss	-4.2 sss	-20.7	+7.4 sss	+87.6
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	24.9	28.3	25.3	25.0	<u>18.8</u>	-6.2 sss	-9.5 sss	-33.6	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	28.1	27.7	<u>19.3</u>	-8.5 sss	-8.8 sss	-31.5	—	—
Steroids	1.8	1.6	1.5	1.5	1.5	1.4	1.5	1.4	1.5	1.3	1.2	1.3	1.6	1.9	<u>0.9</u>	-1.0 sss	-2.4 sss	-71.4	—	—	

(Table continued on next page.)

TABLE D-1 (continued)
Trends in Lifetime Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

Source. The Monitoring the Future study, the University of Michigan.

Notes. '–' indicates data not available. '‡' indicates a change in the question text. When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

Values in bold equal peak levels since 1991. Values in italics equal peak level before wording change. Underlined values equal lowest level since recent peak level.

Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

^aThe proportional change is the percent by which the most recent year deviates from the peak year [or the low year] for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

^bIn 2013, for the questions on the use of amphetamines, the text was changed on two of the questionnaire forms for 8th and 10th graders and four of the questionnaire forms for 12th graders. This change also impacted the any illicit drug indices. Data presented here include only the changed forms beginning in 2013.

^cIn 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

^dIn 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

^eDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE D-2
Trends in Annual Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Any Illicit Drug ^c	20.2	19.7	23.2	27.6	31.0	33.6	34.1	32.2	31.9	31.4	31.8	30.2	28.4	27.6	27.1	25.8
Any Illicit Drug other than Marijuana ^c	12.0	12.0	13.6	14.6	16.4	17.0	16.8	15.8	15.6	15.3‡	16.3	14.6	13.7	13.5	13.1	12.7
Any Illicit Drug including Inhalants ^c	23.5	23.2	26.7	31.1	34.1	36.6	36.7	35.0	34.6	34.1	34.3	32.3	30.8	30.1	30.1	28.7
Marijuana/Hashish	15.0	14.3	17.7	22.5	26.1	29.0	30.1	28.2	27.9	27.2	27.5	26.1	24.6	23.8	23.4	22.0
Synthetic marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inhalants	7.6	7.8	8.9	9.6	10.2	9.9	9.1	8.5	7.9	7.7	6.9	6.1	6.2	6.7	7.0	6.9
Hallucinogens	3.8	4.1	4.8	5.2	6.6	7.2	6.9	6.3	6.1	5.4‡	6.0	4.5	4.1	4.0	3.9	3.6
LSD	3.4	3.8	4.3	4.7	5.9	6.3	6.0	5.3	5.3	4.5	4.1	2.4	1.6	1.6	1.5	1.4
Hallucinogens other than LSD	1.3	1.4	1.7	2.2	2.7	3.2	3.2	3.1	2.9	2.8‡	4.0	3.7	3.6	3.6	3.4	3.3
Ecstasy (MDMA) ^d	—	—	—	—	—	3.1	3.4	2.9	3.7	5.3	6.0	4.9	3.1	2.6	2.4	2.7
Salvia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	2.2	2.1	2.3	2.8	3.3	4.0	4.3	4.5	4.5	3.9	3.5	3.7	3.3	3.5	3.5	3.5
Crack	1.0	1.1	1.2	1.5	1.8	2.0	2.1	2.4	2.2	2.1	1.8	2.0	1.8	1.7	1.6	1.5
Other cocaine	2.0	1.8	2.0	2.3	2.8	3.4	3.7	3.7	4.0	3.3	3.0	3.1	2.8	3.1	3.0	3.1
Heroin	0.5	0.6	0.6	0.9	1.2	1.3	1.3	1.2	1.3	1.3	0.9	1.0	0.8	0.9	0.8	0.8
With a needle	—	—	—	—	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Without a needle	—	—	—	—	0.9	0.9	1.0	0.9	1.0	1.1	0.7	0.7	0.6	0.7	0.7	0.6
OxyContin	—	—	—	—	—	—	—	—	—	—	—	2.7	3.2	3.3	3.4	3.5
Vicodin	—	—	—	—	—	—	—	—	—	—	—	6.0	6.6	5.8	5.7	6.3
Amphetamines ^c	7.5	7.3	8.4	9.1	10.0	10.4	10.1	9.3	9.0	9.2	9.6	8.9	8.0	7.6	7.0	6.8
Ritalin	—	—	—	—	—	—	—	—	—	—	4.2	3.8	3.5	3.6	3.3	3.5
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine	—	—	—	—	—	—	—	—	4.1	3.5	3.4	3.2	3.0	2.6	2.4	2.0
Bath salts (synthetic stimulants)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers	2.8	2.8	2.9	3.1	3.7	4.1	4.1	4.4	4.4	4.5‡	5.5	5.3	4.8	4.8	4.7	4.6
OTC Cough/Cold Medicines	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.4
Rohypnol	—	—	—	—	—	1.1	1.1	1.1	0.8	0.7	0.9‡	0.8	0.8	0.9	0.8	0.7
GHB ^b	—	—	—	—	—	—	—	—	—	1.4	1.2	1.2	1.2	1.1	0.8	0.9
Ketamine ^b	—	—	—	—	—	—	—	—	—	2.0	1.9	2.0	1.7	1.3	1.0	1.1
Alcohol	67.4	66.3‡	59.7	60.5	60.4	60.9	61.4	59.7	59.0	59.3	58.2	55.3	54.4	54.0	51.9	50.7
Been drunk	35.8	34.3	34.3	35.0	35.9	36.7	36.9	35.5	36.0	35.9	35.0	32.1	31.2	32.5	30.8	30.7
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	44.5	43.9	42.4
Alcoholic beverages containing caffeine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dissolvable tobacco products	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Snus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	1.2	1.1	1.0	1.2	1.3	1.1	1.2	1.3	1.7	1.9	2.0	2.0	1.7	1.6	1.3	1.3

Table continued on next page.

TABLE D-2 (continued)
Trends in Annual Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020	2021	2020–2021 change	<u>Peak year–2021 change</u>		<u>Low year–2021 change</u>	
																Absolute change	Proportional change (%) ^a	Absolute change	Proportional change (%) ^a	
Any Illicit Drug ^f	24.8	24.9	25.9	27.3	27.6	27.1	28.6†	27.2	26.8	25.3	26.5	27.1	27.7	27.3	19.9	-7.4 sss	-7.8 sss	-28.1	—	—
Any Illicit Drug other than Marijuana ^c	12.4	11.9	11.6	11.8	11.3	10.8	11.4‡	10.9	10.5	9.7	9.4	9.3	9.0	9.2	5.6	-3.6 sss	-5.3 sss	-48.7	—	—
Any Illicit Drug including Inhalants ^c	27.6	27.6	28.5	29.7	29.8	29.0	30.5‡	28.5	28.4	26.3	28.3	28.8	29.0	29.2	21.5	-7.8 sss	-7.8 sss	-26.6	—	—
Marijuana/Hashish	21.4	21.5	22.9	24.5	25.0	24.7	25.8	24.2	23.7	22.6	23.9	24.3	25.2	24.6	17.9	-6.7 sss	-12.1 sss	-40.3	—	—
Synthetic marijuana	—	—	—	—	—	8.0	6.4	4.8	4.2	3.1	2.8	2.6	2.9	2.2	1.6	-0.6 ss	-6.4 sss	-80.3	—	—
Inhalants	6.4	6.4	6.1	6.0	5.0	4.5	3.8	3.6	3.2	2.6	2.9	2.9	2.9	3.4	2.9	-0.5	-7.3 sss	-71.6	+0.2	+9.3
Hallucinogens	3.8	3.8	3.5	3.8	3.7	3.2	3.1	2.8	2.8	2.8	2.7	2.7	2.9	3.4	2.4	-1.0 s	-3.6 sss	-60.4	—	—
LSD	1.7	1.9	1.6	1.8	1.8	1.6	1.6	1.7	1.9	2.0	2.1	2.0	2.2	2.5	1.5	-0.9 ss	-4.8 sss	-75.6	+0.1	+9.6
Hallucinogens other than LSD	3.3	3.2	3.0	3.3	3.1	2.7	2.5	2.1	1.9	1.8	1.8	1.7	1.9	2.0	1.7	-0.3	-2.4 sss	-58.3	—	—
Ecstasy (MDMA) ^d	3.0	2.9	3.0	3.8	3.7	2.5	2.8‡	3.4	2.4	1.8	1.7	1.5	1.6	1.3	0.8	-0.5 s	-2.6 sss	-76.0	—	—
Salvia	—	—	—	3.5	3.6	2.7	2.3	1.4	1.2	1.2	0.9	0.8	0.8	0.8	0.5	-0.3 s	-3.1 sss	-85.1	—	—
Cocaine	3.4	2.9	2.5	2.2	2.0	1.9	1.8	1.6	1.7	1.4	1.6	1.5	1.4	1.4	0.7	-0.8 ss	-3.8 sss	-85.0	—	—
Crack	1.5	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.8	0.6	0.7	0.6	0.7	0.6	0.4	-0.2	-2.0 sss	-82.6	—	—
Other cocaine	2.9	2.6	2.1	1.9	1.7	1.7	1.5	1.5	1.5	1.2	1.3	1.3	1.3	1.4	0.5	-0.9 sss	-3.5 sss	-86.6	—	—
Heroin	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	-0.1	-1.1 sss	-85.5	—	—
With a needle	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.0	-0.6 sss	-84.3	—	—
Without a needle	0.7	0.6	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0	-1.0 sss	-92.7	—	—
OxyContin	3.5	3.4	3.9	3.8	3.4	2.9	2.9	2.4	2.3	2.1	1.9	1.7	1.7	1.4	0.9	-0.5	-3.0 sss	-77.3	—	—
Vicodin	6.2	6.1	6.5	5.9	5.1	4.3	3.7	3.0	2.5	1.8	1.3	1.1	1.0	0.9	0.6	-0.2	-5.9 sss	-90.6	—	—
Amphetamines ^c	6.5	5.8	5.9	6.2	5.9	5.6	7.0‡	6.6	6.2	5.4	5.0	5.0	4.6	4.6	2.7	-1.9 sss	-3.9 sss	-59.5	—	—
Ritalin	2.8	2.6	2.5	2.2	2.1	1.7	1.7	1.5	1.4	1.1	0.8	0.8	0.9	1.0	0.5	-0.6	-3.7 sss	-88.3	—	—
Adderall	—	—	4.3	4.5	4.1	4.4	4.4	4.1	4.5	3.9	3.5	3.5	3.1	3.3	1.7	-1.6 sss	-2.8 sss	-61.3	—	—
Methamphetamine	1.4	1.3	1.3	1.3	1.2	1.0	1.0	0.8	0.6	0.5	0.5	0.5	0.5	0.7	0.2	-0.5 ss	-3.9 sss	-96.1	—	—
Bath salts (synthetic stimulants)	—	—	—	—	—	0.9	0.9	0.8	0.7	0.8	0.5	0.7	—	—	—	—	—	—	—	—
Tranquilizers	4.5	4.3	4.5	4.4	3.9	3.7	3.3	3.4	3.4	3.5	3.6	3.2	3.1	2.7	1.2	-1.4 sss	-4.3 sss	-77.8	—	—
OTC Cough/Cold Medicines	5.0	4.7	5.2	4.8	4.4	4.4	4.0	3.2	3.1	3.2	3.0	3.2	2.8	3.7	2.7	-1.1 s	-2.7 sss	-50.3	—	—
Rohypnol	0.8	0.7	0.6	0.8	0.9	0.7	0.6	0.5	0.5	0.7	0.5	0.4	0.5	1.0	0.2	-0.7 sss	-0.7 sss	-71.3	—	—
GHB ^b	0.7	0.9	0.9	0.8	0.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketamine ^b	1.0	1.2	1.3	1.2	1.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol	50.2	48.7	48.4	47.4	45.3	44.3	42.8	40.7	39.9	36.7	36.7	36.1	35.9	38.3	30.2	-8.1 sss	-31.1 sss	-50.7	—	—
Been drunk	29.7	28.1	28.7	27.1	25.9	26.4	25.4	23.6	22.5	20.7	20.4	20.0	19.5	22.1	15.5	-6.6 sss	-21.4 sss	-57.9	—	—
Flavored alcoholic beverages	40.8	39.0	37.8	35.9	33.7	32.5	31.3	29.4	28.8	25.3	25.9	26.1	24.6	26.5	20.0	-6.5 sss	-24.5 sss	-55.1	—	—
Alcoholic beverages containing caffeine	—	—	—	—	19.7	18.6	16.6	14.3	13.0	11.2	10.6	10.1	9.2	8.6	7.8	-0.8 sss	-11.9 sss	-60.3	—	—
Any Vaping	—	—	—	—	—	—	—	—	—	—	21.5	28.9	31.9	30.7	22.1	-8.6 sss	-9.9 sss	-30.9	+0.6	+2.6
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	13.9	21.6	27.3	27.1	19.2	-7.9 sss	-8.1 sss	-29.7	+5.3 sss	+37.7
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	6.8	9.9	15.6	16.3	11.6	-4.7 ss	-4.7 ss	-28.9	+4.8 sss	+69.7
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	17.2	21.8	18.6	15.8	10.0	-5.8 sss	-11.8 sss	-54.3	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	23.8	20.6	9.1	-11.5 sss	-14.7 sss	-61.7	—	—
Dissolvable tobacco products	—	—	—	—	—	1.4	1.4	1.2	1.1	0.9	0.9	1.0	1.0	0.9	0.7	-0.2	-0.7 s	-48.7	—	—
Snus	—	—	—	—	—	5.6	4.8	4.1	3.8	3.6	2.6	3.0	2.2	2.7	1.6	-1.1 ss	-4.0 sss	-72.0	—	—
Steroids	1.1	1.1	1.0	0.9	0.9	0.9	0.9	0.9	1.0	0.8	0.8	0.8	0.9	1.1	0.4	-0.7 sss	-1.6 sss	-79.5	—	—

(Table continued on next page.)

TABLE D-2 (continued)
Trends in Annual Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

Source. The Monitoring the Future study, the University of Michigan.

Notes. '–' indicates data not available. '‡' indicates a change in the question text. When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

Values in bold equal peak levels since 1991. Values in italics equal peak level before wording change. Underlined values equal lowest level since recent peak level.

Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

^aThe proportional change is the percent by which the most recent year deviates from the peak year [or the low year] for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

^bQuestion was discontinued among 8th and 10th graders in 2012.

^cIn 2013, for the questions on the use of amphetamines, the text was changed on two of the questionnaire forms for 8th and 10th graders and four of the questionnaire forms for 12th graders. This change also impacted the any illicit drug indices. Data presented here include only the changed forms beginning in 2013.

^dIn 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

^eDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE D-3
Trends in 30-Day Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Any Illicit Drug ^b	10.9	10.5	13.3	16.8	18.6	20.6	20.5	19.5	19.5	19.2	19.4	18.2	17.3	16.2	15.8	14.9
Any Illicit Drug other than Marijuana ^b	5.4	5.5	6.5	7.1	8.4	8.4	8.4	8.2	7.9	8.0†	8.2	7.7	7.1	7.0	6.7	6.4
Any Illicit Drug including Inhalants ^b	13.0	12.5	15.4	18.9	20.7	22.4	22.2	21.1	21.1	21.0	20.8	19.5	18.6	17.5	17.5	16.5
Marijuana/Hashish	8.3	7.7	10.2	13.9	15.6	17.7	17.9	16.9	16.9	16.3	16.6	15.3	14.8	13.6	13.4	12.5
Inhalants	3.2	3.3	3.8	4.0	4.3	3.9	3.7	3.4	3.3	3.2	2.8	2.7	2.7	2.9	2.9	2.7
Hallucinogens	1.5	1.6	1.9	2.2	3.1	2.7	3.0	2.8	2.5	2.0‡	2.3	1.7	1.5	1.5	1.5	1.3
LSD	1.3	1.5	1.6	1.9	2.8	2.1	2.4	2.3	2.0	1.4	1.5	0.7	0.6	0.6	0.6	0.6
Hallucinogens other than LSD	0.5	0.5	0.7	1.0	1.0	1.2	1.2	1.2	1.1	1.1‡	1.4	1.4	1.2	1.3	1.2	1.1
Ecstasy (MDMA) ^c	—	—	—	—	—	1.5	1.3	1.2	1.6	2.4	2.4	1.8	1.0	0.9	0.9	1.0
Cocaine	0.8	0.9	0.9	1.2	1.5	1.7	1.8	1.9	1.9	1.7	1.5	1.6	1.4	1.6	1.6	1.6
Crack	0.4	0.5	0.5	0.7	0.8	0.9	0.8	1.0	0.9	0.9	0.9	1.0	0.8	0.8	0.8	0.7
Other cocaine	0.7	0.7	0.8	1.1	1.2	1.3	1.5	1.6	1.7	1.4	1.3	1.3	1.2	1.4	1.3	1.4
Heroin	0.2	0.3	0.3	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.5	0.4	0.5	0.5	0.4
With a needle	—	—	—	—	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Without a needle	—	—	—	—	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3
Amphetamines ^b	3.0	3.3	3.9	4.0	4.5	4.8	4.5	4.3	4.2	4.5	4.7	4.4	3.9	3.6	3.3	3.0
Methamphetamine	—	—	—	—	—	—	—	—	1.5	1.5	1.4	1.5	1.4	1.1	0.9	0.7
Tranquilizers	1.1	1.1	1.1	1.3	1.6	1.7	1.7	1.9	1.9	2.1‡	2.3	2.4	2.2	2.1	2.1	2.1
Alcohol	39.8	38.4‡	36.3	37.6	37.8	38.8	38.6	37.4	37.2	36.6	35.5	33.3	33.2	32.9	31.4	31.0
Been drunk	19.2	17.8	18.2	19.3	20.3	20.4	21.2	20.4	20.6	20.3	19.7	17.4	17.7	18.1	17.0	17.4
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	23.0	21.6	21.7
Cigarettes	20.7	21.2	23.4	24.7	26.6	28.3	28.3	27.0	25.2	22.6	20.2	17.7	16.6	16.1	15.3	14.4
Smokeless tobacco	—	9.2	9.1	9.7	9.6	8.5	8.0	7.0	6.3	5.8	6.1	5.2	5.3	5.1	5.3	5.1
Any Vaping ^d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Large Cigars	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored Little Cigars	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regular Little Cigars	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tobacco using a hookah	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	0.6	0.6	0.6	0.7	0.6	0.5	0.7	0.7	0.9	0.9	0.9	1.0	0.9	0.9	0.7	0.7

Table continued on next page.

TABLE D-3 (continued)
Trends in 30-Day Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^a	2020	2021	2020–2021 change	Peak year–2021 change		Low year–2021 change	
																	Absolute change	Proportional change (%) ^a	Absolute change	Proportional change (%) ^a
Any Illicit Drug ^b	14.8	14.6	15.8	16.7	17.0	16.8	17.3†	16.5	15.9	15.5	16.1	16.3	17.2	16.2	<u>12.2</u>	-4.0 sss	-4.3 sss	-25.9	—	—
Any Illicit Drug other than Marijuana ^b	6.4	5.9	5.7	5.7	5.7	5.2	5.4†	5.4	5.1	4.6	4.4	4.4	4.3	4.0	<u>2.6</u>	-1.4 sss	-2.9 sss	-52.8	—	—
Any Illicit Drug including Inhalants ^b	16.5	16.1	17.3	18.0	18.3	17.6	18.4†	17.3	16.8	16.0	17.2	17.1	17.9	17.4	<u>12.8</u>	-4.5 sss	-5.1 sss	-28.3	—	—
Marijuana/Hashish	12.4	12.5	13.8	14.8	15.2	15.1	15.6	14.4	14.0	13.7	14.5	14.6	15.6	14.6	<u>11.0</u>	-3.6 sss	-7.0 sss	-38.9	—	—
Inhalants	2.6	2.6	2.5	2.4	2.1	1.7	1.5	1.4	1.3	1.2	1.3	1.1	1.4	1.6	<u>1.1</u>	-0.5 s	-3.2 sss	-73.6	0.0	+0.7
Hallucinogens	1.4	1.4	1.3	1.4	1.3	1.1	1.1	1.0	1.0	1.0	1.0	0.9	1.2	1.3	<u>0.7</u>	-0.7 ss	-1.6 sss	-69.3	—	—
LSD	0.6	0.7	0.5	0.7	0.7	0.5	0.6	0.6	0.7	0.7	0.8	0.6	0.9	1.0	<u>0.4</u>	-0.6 sss	-2.4 sss	-86.7	—	—
Hallucinogens other than LSD	1.1	1.1	1.0	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.6	0.6	0.7	0.8	<u>0.5</u>	-0.2	-0.9 sss	-61.6	—	—
Ecstasy (MDMA) ^c	1.1	1.2	1.2	1.5	1.4	0.8	1.0†	1.1	0.8	0.6	0.6	0.5	0.6	0.5	<u>0.2</u>	-0.4 sss	-0.9 s	-84.2	—	—
Cocaine	1.4	1.3	1.0	0.9	0.8	0.8	0.8	0.7	0.8	0.5	0.7	0.7	0.6	0.4	<u>0.3</u>	-0.2	-1.6 sss	-82.8	—	—
Crack	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	<u>0.2</u>	-0.1	-0.8 sss	-77.0	—	—
Other cocaine	1.1	1.1	0.8	0.8	0.7	0.7	0.6	0.6	0.7	0.4	0.6	0.6	0.5	0.5	<u>0.2</u>	-0.3 s	-1.5 sss	-89.9	—	—
Heroin	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	<u>0.1</u>	-0.1 s	-0.5 sss	-74.9	—	—
With a needle	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.2	<u>0.1</u>	-0.1	-0.3 sss	-71.7	—	—
Without a needle	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	<u>0.1</u>	-0.1	-0.4 sss	-88.2	—	—
Amphetamines ^b	3.2	2.6	2.7	2.7	2.8	2.5	3.2†	3.2	2.7	2.5	2.2	2.2	2.2	2.0	<u>1.4</u>	-0.6 s	-1.8 sss	-57.0	—	—
Methamphetamine	0.5	0.7	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.4	<u>0.1</u>	-0.3 s	-1.4 sss	-94.3	—	—
Tranquilizers	2.0	1.9	1.9	1.9	1.7	1.5	1.5	1.5	1.5	1.4	1.4	1.2	1.2	0.9	<u>0.4</u>	-0.5 sss	-1.9 sss	-81.3	—	—
Alcohol	30.1	28.1	28.4	26.8	25.5	25.9	24.3	22.6	21.8	19.8	19.9	18.7	18.2	20.9	<u>15.1</u>	-5.8 sss	-23.7 sss	-61.1	—	—
Been drunk	16.5	14.9	15.2	14.6	13.5	14.7	13.5	11.9	11.0	10.1	9.8	9.1	9.4	10.5	<u>7.4</u>	-3.1 sss	-13.8 sss	-65.3	—	—
Flavored alcoholic beverages	20.4	18.6	17.9	17.0	15.2	14.9	14.0	12.9	12.8	10.9	12.3	11.4	11.2	11.9	<u>9.0</u>	-2.8 ss	-14.0 sss	-60.8	—	—
Cigarettes	13.6	12.6	12.7	12.8	11.7	10.6	9.6	8.0	7.0	5.9	5.4	4.6	3.7	4.2	<u>2.3</u>	-1.9 sss	-26.0 sss	-91.9	—	—
Smokeless tobacco	5.2	4.9	6.0	6.5	5.9	5.6	5.7	5.4	4.7	4.1	3.5	3.4	3.1	4.9	<u>1.8</u>	-3.1 sss	-7.8 sss	-81.1	—	—
Any Vaping ^d	—	—	—	—	—	—	—	—	12.8	9.9†	<u>12.0</u>	19.2	22.5	21.2	15.9	-5.3 sss	-6.6 sss	-29.2	+3.9 sss	+32.9
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	<u>7.5</u>	14.2	18.1	18.0	13.3	-4.7 sss	-4.9 sss	-26.9	+5.8 sss	+77.3
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	<u>3.6</u>	5.7	10.1	9.2	7.8	-1.4 sss	-2.3 sss	-22.9	+4.2 sss	+115.8
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	8.0	11.5	9.6	8.5	<u>6.1</u>	-2.5 sss	-5.5 sss	-47.4	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	15.8	10.4	<u>4.8</u>	-5.6 sss	-11.0 sss	-69.3	—	—
Large Cigars	—	—	—	—	—	—	—	3.9	4.2	3.3	3.2	3.2	2.8	1.8	<u>1.5</u>	-0.3	-2.6 sss	-62.9	—	—
Flavored Little Cigars	—	—	—	—	—	—	—	7.4	7.1	5.6	5.4	5.5	4.5	3.1	<u>1.5</u>	-1.6 sss	-6.0 sss	-80.1	—	—
Regular Little Cigars	—	—	—	—	—	—	—	4.5	4.9	3.6	3.6	3.4	3.0	2.4	<u>1.3</u>	-1.1 sss	-3.6 sss	-74.3	—	—
Tobacco using a hookah	—	—	—	—	—	—	—	—	—	4.3	3.4	2.7	2.5	1.1	<u>0.9</u>	-0.2	-3.4 sss	-78.1	—	—
Steroids	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.6	<u>0.2</u>	-0.4 sss	-0.8 sss	-76.6	—	—

(Table continued on next page.)

TABLE D-3 (continued)
Trends in 30-Day Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined
(Entries are percentages.)

Source. The Monitoring the Future study, the University of Michigan.

Notes. '–' indicates data not available. '‡' indicates a change in the question text. When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

Values in bold equal peak levels since 1991. Values in italics equal peak level before wording change. Underlined values equal lowest level since recent peak level.

Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

^aThe proportional change is the percent by which the most recent year deviates from the peak year [or the low year] for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

^bIn 2013, for the questions on the use of amphetamines, the text was changed on two of the questionnaire forms for 8th and 10th graders and four of the questionnaire forms for 12th graders. This change also impacted the any illicit drug indices. Data presented here include only the changed forms beginning in 2013.

^cIn 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

^dIn 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

^eDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

TABLE D-4
Trends in Daily Prevalence of Use of Selected Drugs and Heavy Use of Alcohol and Tobacco
for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Marijuana	0.9	0.9	1.2	2.1	2.7	3.2	3.4	3.4	3.5	3.5	3.7	3.5	3.4	3.0	2.9	2.8
Alcohol	1.7	1.6†	2.0	1.8	1.9	2.0	2.1	2.2	2.0	1.7	2.0	1.9	1.7	1.5	1.5	1.5
5+ drinks in a row in last 2 weeks	20.0	19.0	19.5	20.3	21.1	21.9	21.9	21.5	21.7	21.2	20.4	18.9	18.6	18.8	17.5	17.4
Been drunk	0.4	0.4	0.5	0.6	0.7	0.7	0.9	0.8	0.9	0.8	0.7	0.6	0.7	0.7	0.6	0.7
Cigarettes	12.4	11.9	13.5	14.0	15.5	16.8	16.9	15.4	15.0	13.4	11.6	10.2	9.3	9.0	8.0	7.6
1/2 pack+/day	6.5	6.1	6.9	7.2	7.9	8.7	8.6	7.9	7.6	6.4	5.7	4.9	4.5	4.1	3.7	3.4
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless tobacco	—	3.0	2.7	2.9	2.5	2.3	2.5	2.1	1.7	1.9	2.0	1.4	1.6	1.7	1.6	1.5

Table continued on next page.

TABLE D-4 (continued)
Trends in Daily Prevalence of Use of Selected Drugs and Heavy Use of Alcohol and Tobacco
for Grades 8, 10, and 12 Combined

(Entries are percentages.)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2021	2020–2021 change	Peak year–2021 change		Low year–2021 change	
																change	Proportional change (%) ^a	change	Proportional change (%) ^a	
Marijuana	2.7	2.8	2.8	3.4	3.6	3.6	3.7	3.3	3.3	3.0	3.1	3.2	4.1	4.1	3.1	-0.9	-1.0 sss	-24.0	+0.4	+14.6
Alcohol	1.6	1.4	1.3	1.4	1.0	1.2	1.1	1.0	0.8	0.7	0.6	0.8	0.8	1.3	<u>0.5</u>	-0.8	-1.7 sss	-75.5	—	—
5+ drinks in a row in last 2 weeks	17.2	15.5	16.1	14.9	13.6	14.3	13.2	11.7	10.7	9.4	9.9	8.6	8.7	10.1	<u>6.6</u>	-3.5	-15.3 sss	-69.7	—	—
Been drunk	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.3	0.3	0.4	0.3	0.4	0.4	<u>0.2</u>	-0.2	-0.7 sss	-78.2	—	—
Cigarettes	7.1	6.4	6.4	6.4	5.7	5.2	4.7	3.6	3.2	2.5	2.3	2.0	1.5	1.6	<u>1.0</u>	-0.6	-15.9 sss	-94.0	—	—
1/2 pack+/day	3.0	2.7	2.6	2.5	2.1	1.9	1.8	1.4	1.1	0.9	0.8	0.8	0.5	0.6	<u>0.4</u>	-0.2	-8.3 sss	-95.1	—	—
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	9.2	2.9	<u>2.9</u>	0.0	-6.3 sss	-68.3	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	2.4	<u>0.9</u>	1.1	+0.2	-1.3 sss	-54.6	+0.2	+20.4
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	2.0	1.0	<u>0.7</u>	-0.3	-1.3 sss	-64.4	—	—
Smokeless tobacco	1.6	1.6	1.8	2.1	1.8	1.9	1.7	1.8	1.7	1.4	1.0	1.0	0.8	1.6	<u>0.5</u>	-1.1	-2.5 sss	-83.9	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. '—' indicates data not available. '‡' indicates a change in the question text. When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

Values in bold equal peak levels since 1991. Values in italics equal peak level before wording change. Underlined values equal lowest level since recent peak level.

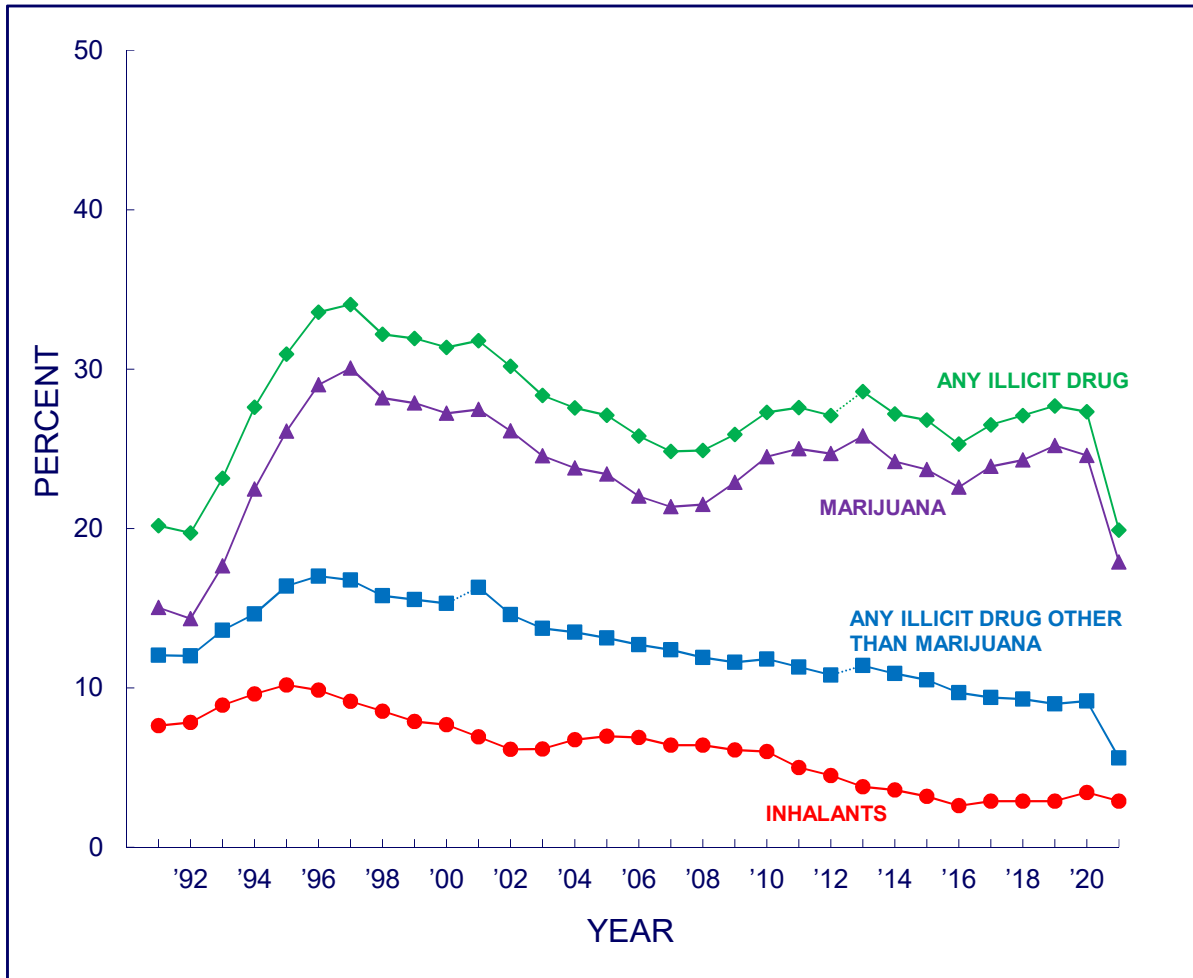
Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

^aThe proportional change is the percent by which the most recent year deviates from the peak year [or the low year] for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

^bDrug prevalence results in 2019 combine results from paper-and-pencil surveys with those completed using electronic tablets. In 2019, students in a randomly-selected half of schools completed MTF surveys on paper-and-pencil and students in the other half completed the surveys using electronic tablets. Analysis of this randomized controlled trial demonstrated that these results did not significantly differ across survey mode (Miech, R.A., Couper, M.P., Heeringa, S.G., and Patrick, M.E. The Impact of Survey Mode on US National Estimates of Adolescent Drug Prevalence: Results from a Randomized Controlled Study, *Addiction*). Results for student attitudes and beliefs in 2019 are based on answers from paper-and-pencil surveys only because these appear more susceptible to survey mode effects.

FIGURE D-1
ANY ILLICIT DRUG, MARIJUANA, AND INHALANTS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined

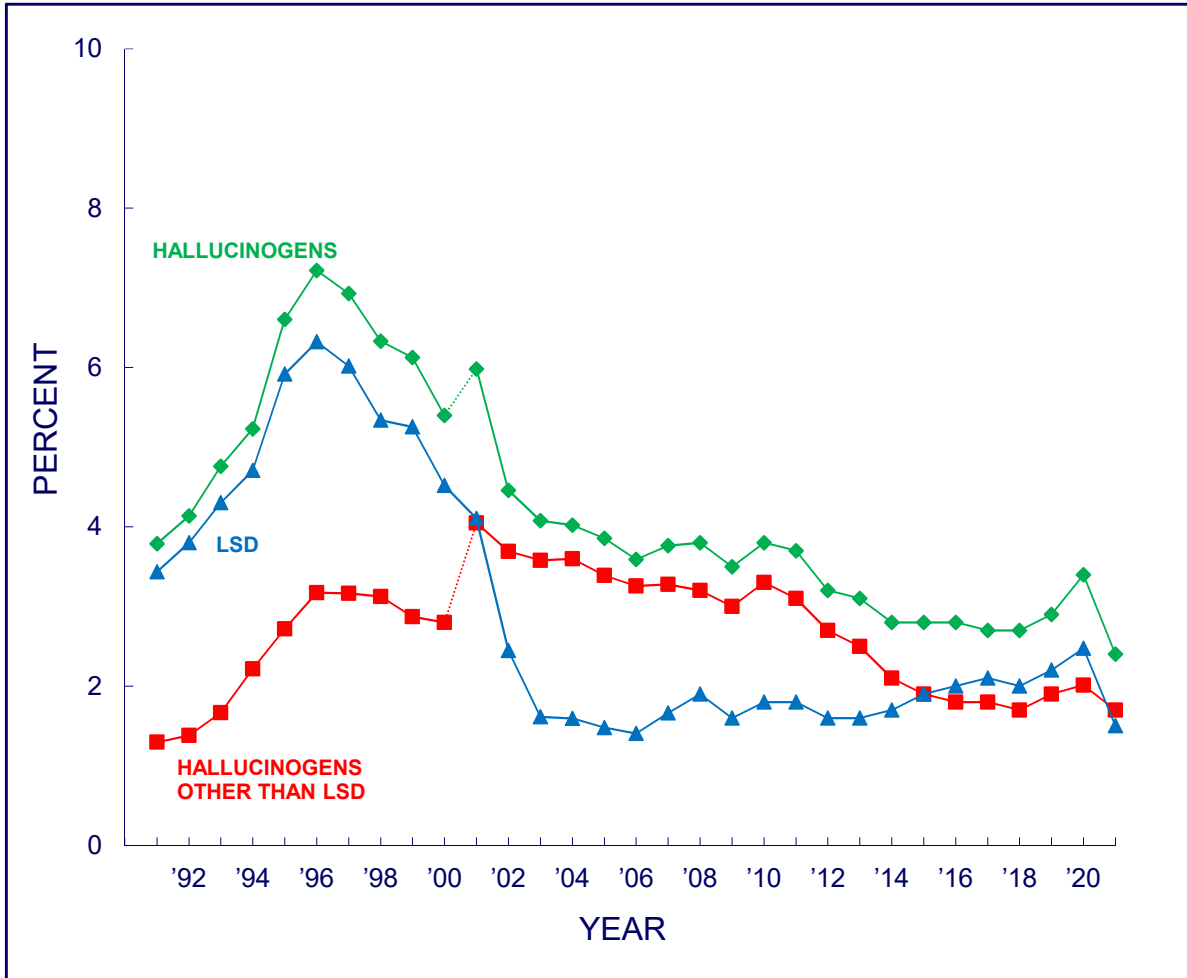


Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

In 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are slightly affected by these changes. In 2013, a revised set of questions on amphetamine use were introduced. Data for any illicit drug and any illicit drug other than marijuana were affected by this change.

FIGURE D-2
HALLUCINOGENS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined

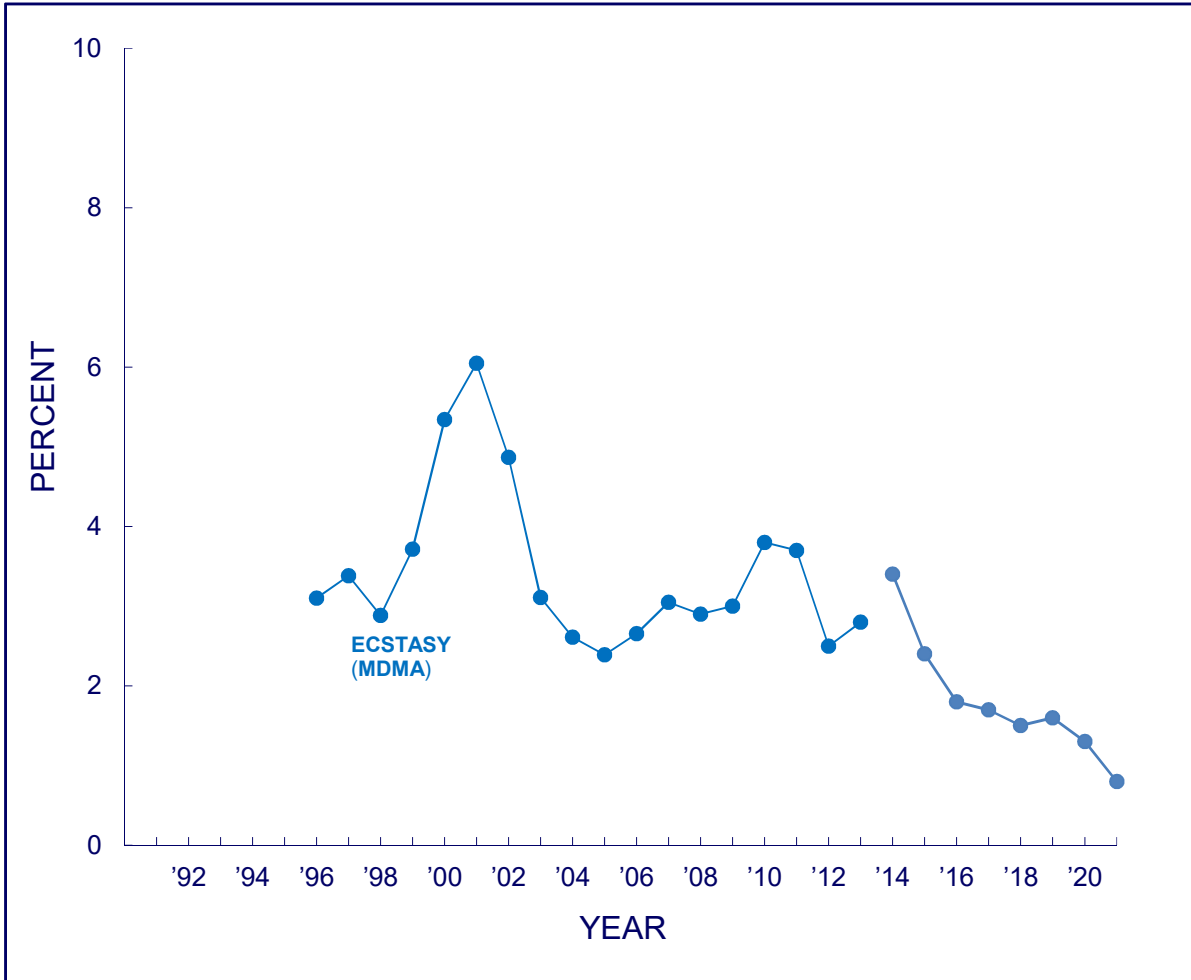


Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

Beginning in 2001, a revised set of questions on other hallucinogens was introduced in which shrooms was added to the list of examples. Data for hallucinogens were also affected by this change. From 2001 on, data points are based on the revised questions.

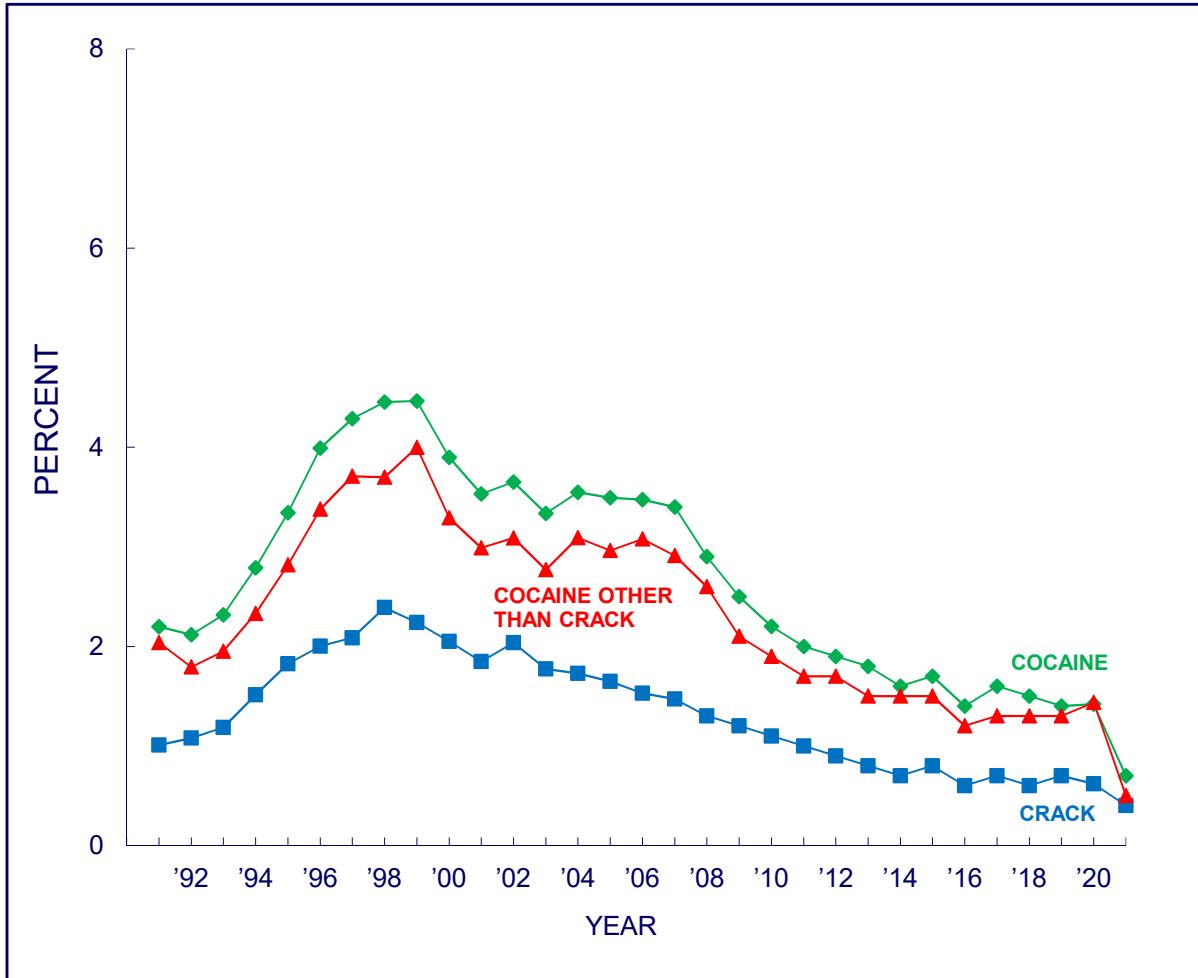
FIGURE D-3
ECSTASY (MDMA)
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

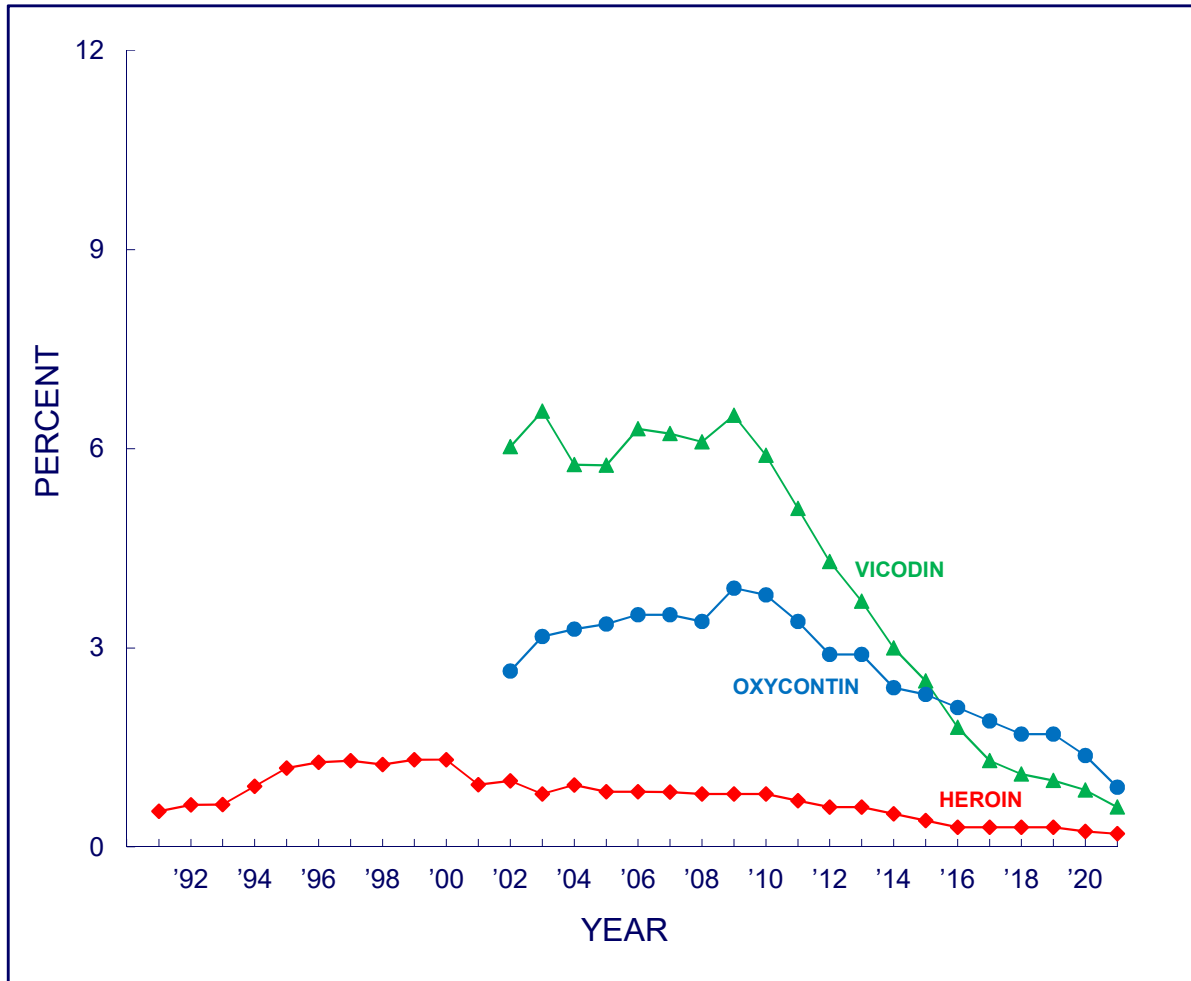
Notes. In 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

FIGURE D-4
COCAINE AND CRACK
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



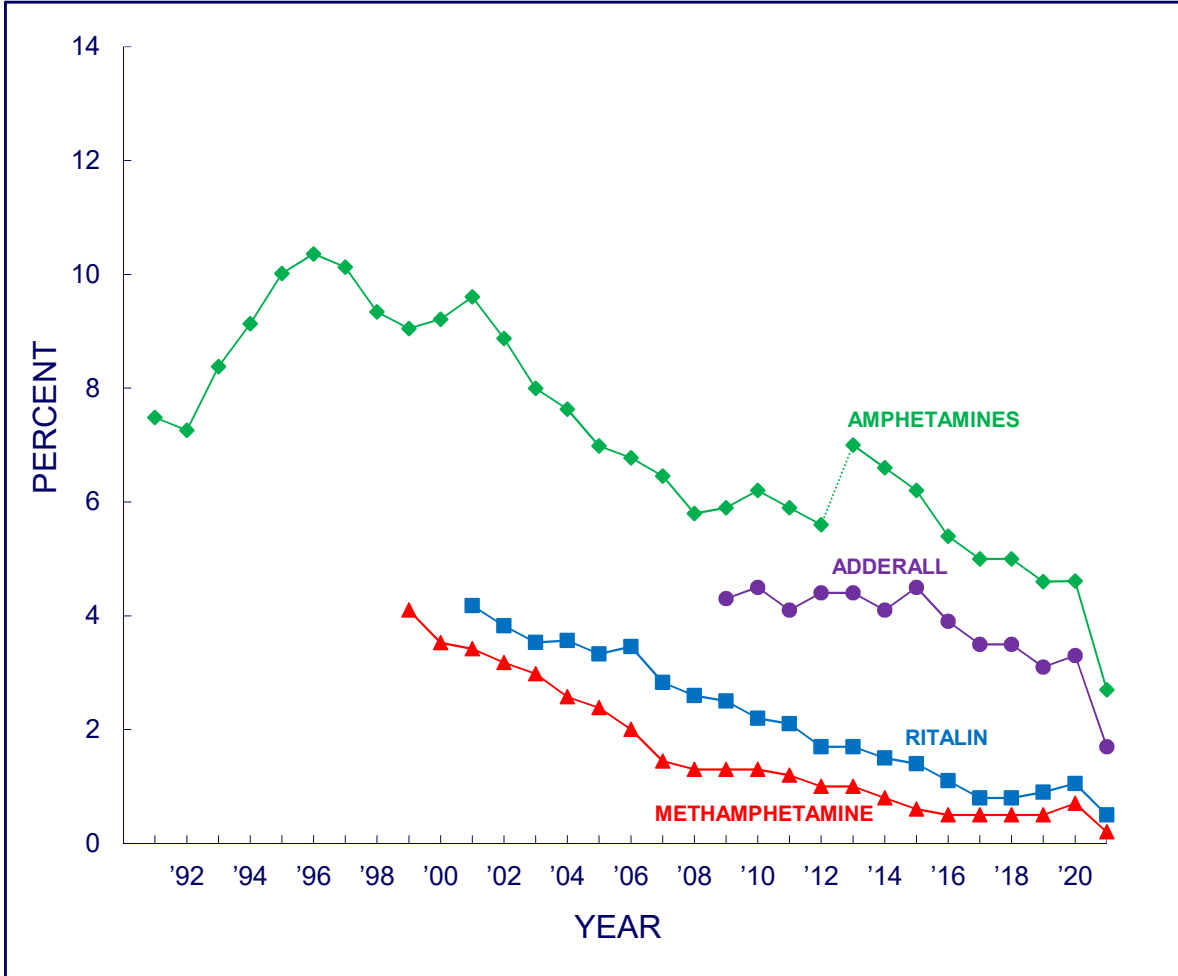
Source. The Monitoring the Future study, the University of Michigan.

FIGURE D-5
HEROIN AND NARCOTICS OTHER THAN HEROIN
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

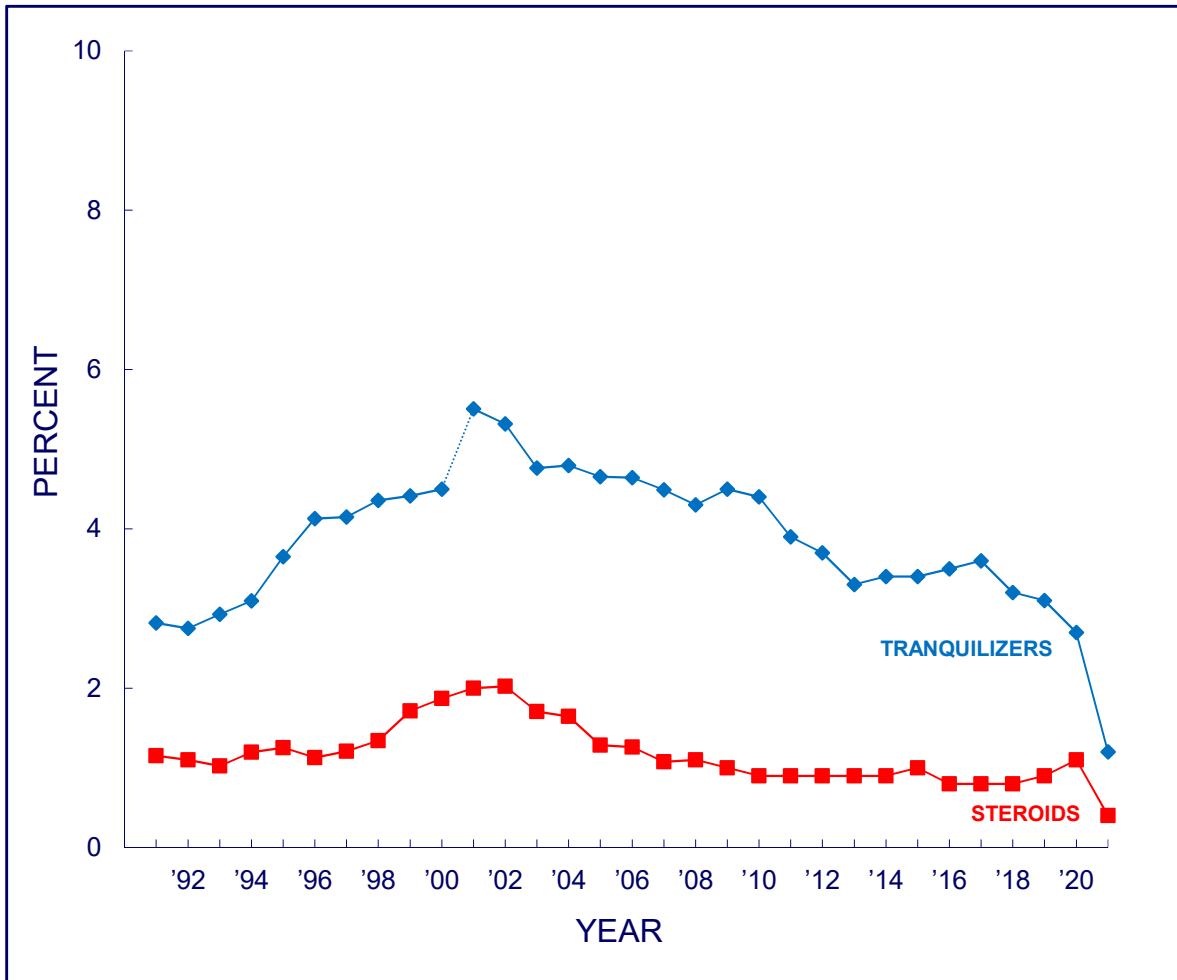
FIGURE D-6
STIMULANT DRUGS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects. Beginning in 2013, a revised set of questions on use of amphetamines was introduced. From 2013 on, data points are based on the revised questions.

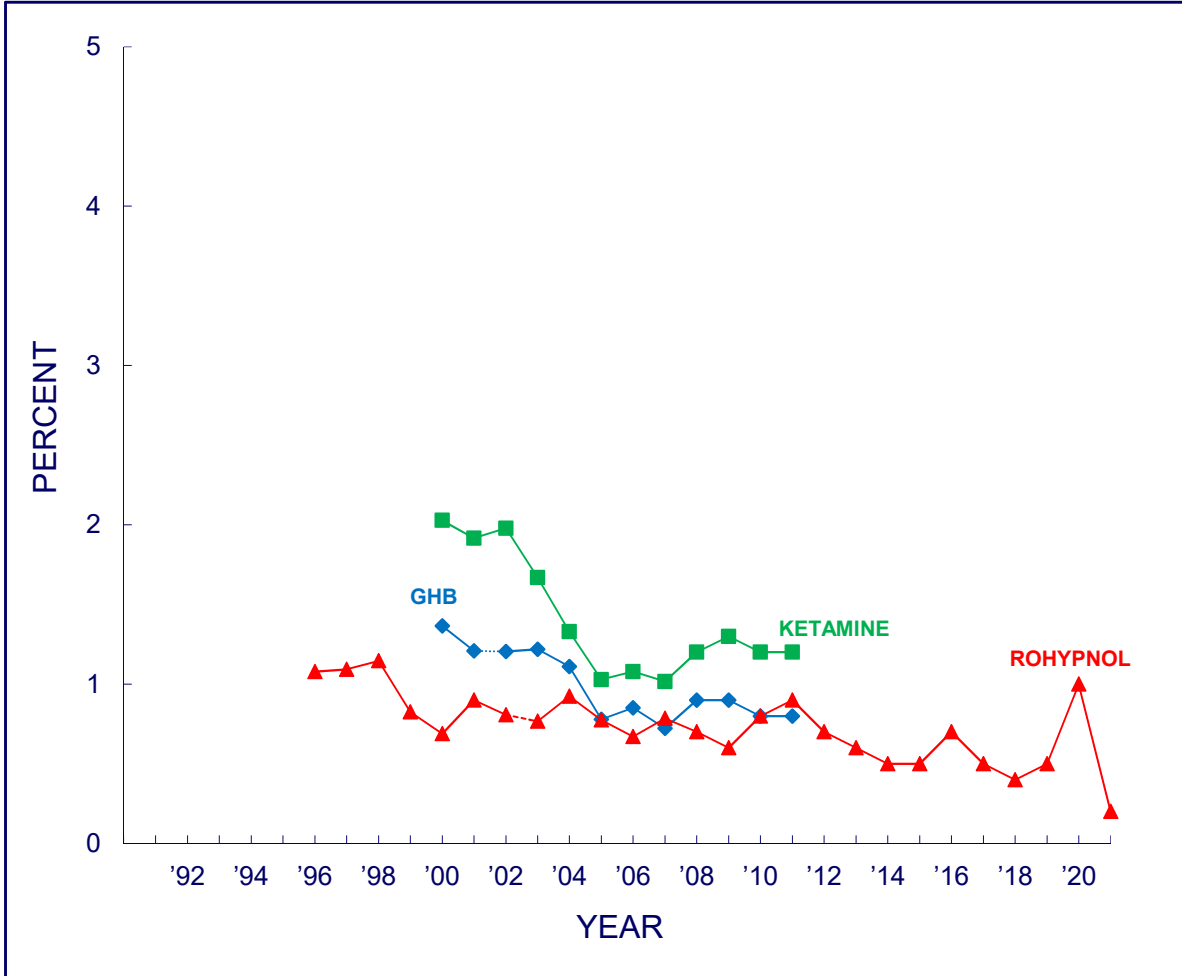
FIGURE D-7
TRANQUILIZERS AND STEROIDS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects. Beginning in 2001, a revised set of questions on use of tranquilizers was introduced in which Xanax replaced Miltown in the list of examples. From 2001 on, data points are based on the revised questions.

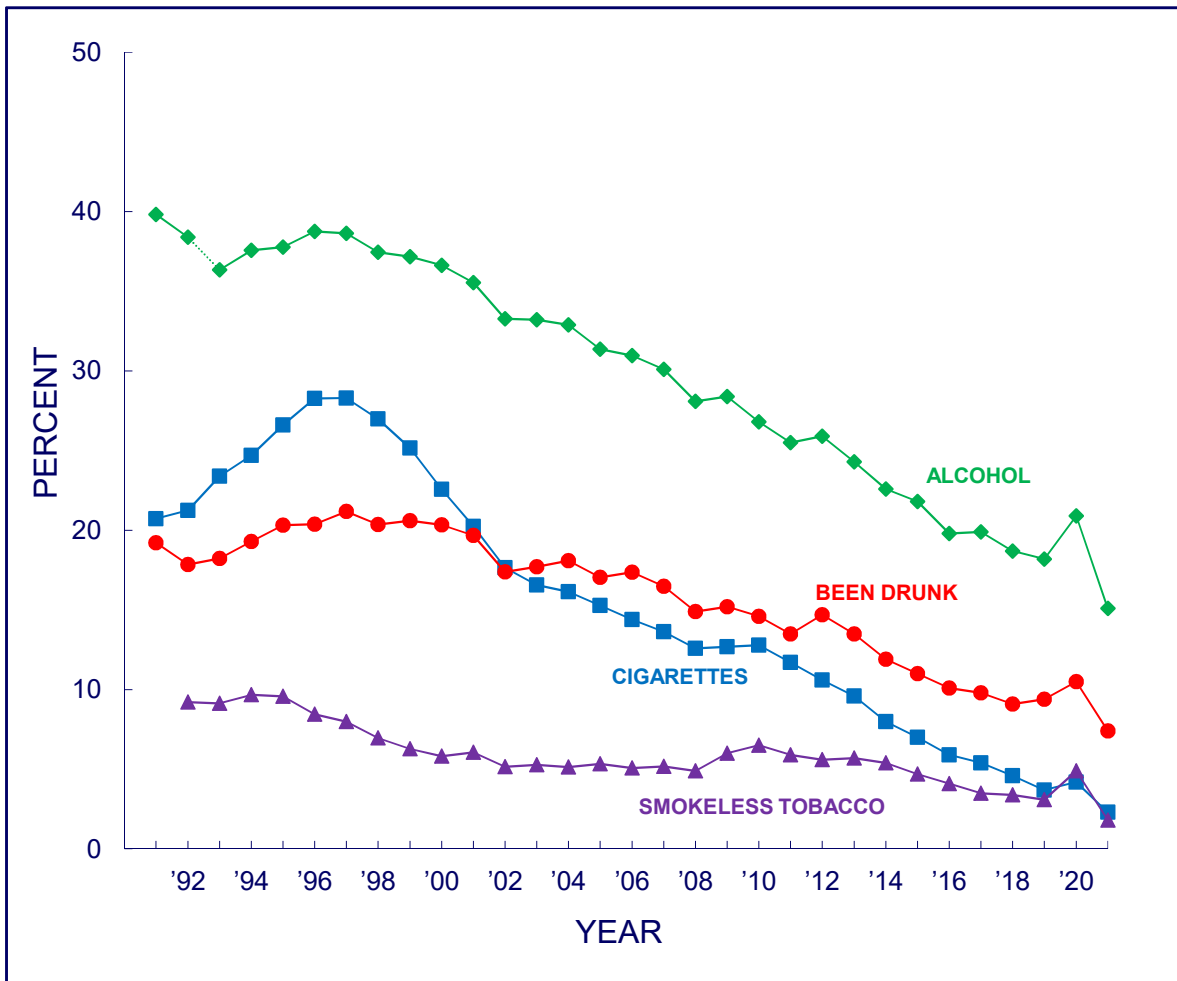
FIGURE D-8
CLUB DRUGS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects. Beginning in 2002, for 12th graders only, the lifetime and 30-day questions on Rohypnol were eliminated from the questionnaire. As a result, the 2001 and 2002 data are not entirely comparable because of the change in context of the question about annual use. Questions on use of GHB and Ketamine were discontinued in 2012.

FIGURE D-9
ALCOHOL AND TOBACCO
Trends in 30-Day Prevalence
for Grades 8, 10, and 12 Combined



Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects. Beginning in 1993, a revised set of questions on use of alcohol was introduced in which a drink was defined as more than just a few sips. From 1993 on, data points are based on the revised questions.



**Monitoring the Future website:
<http://www.monitoringthefuture.org>**

