

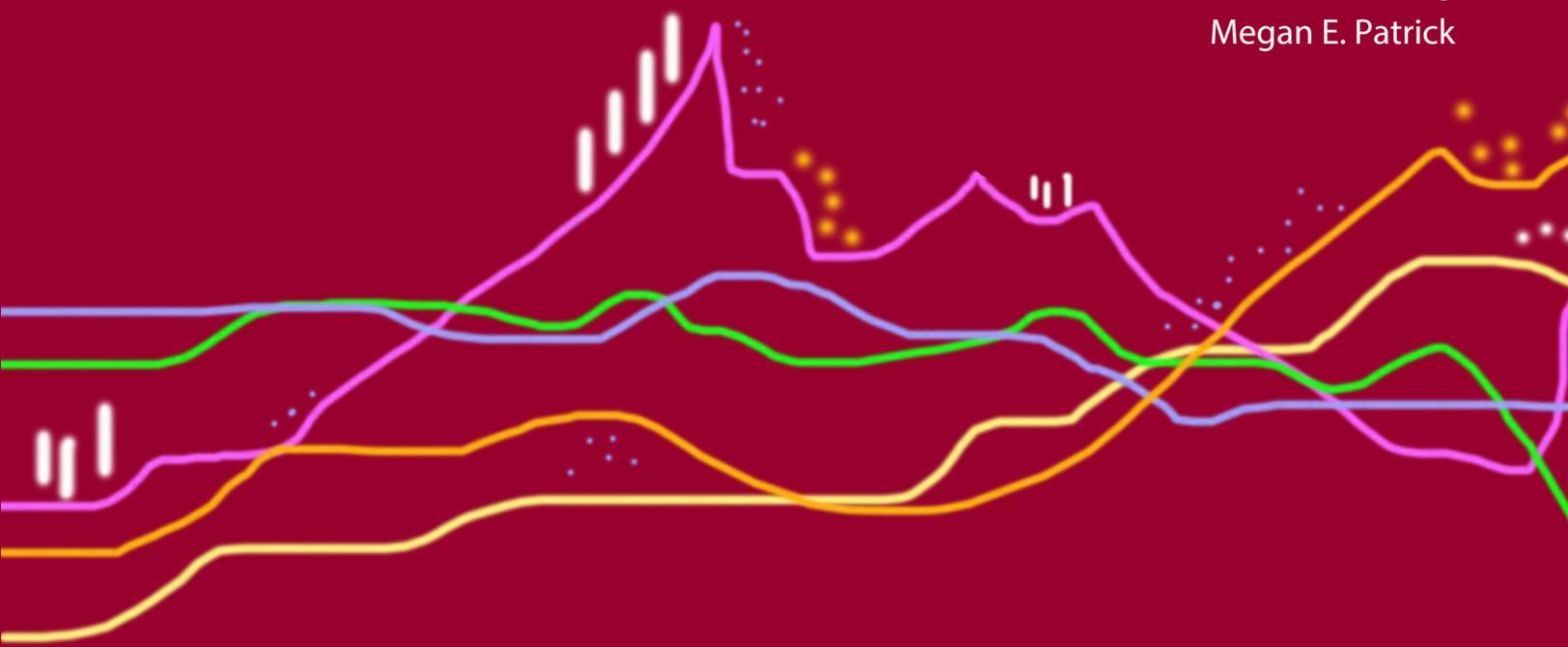
MONITORING *the* FUTURE

NATIONAL SURVEY RESULTS
ON DRUG USE
1975-2020

2020
Volume I

Secondary School Students

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

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The University of Michigan
Institute for Social Research

Sponsored by:
The National Institute on Drug Abuse
National Institutes of Health

This publication was written by the principal investigators and staff of the Monitoring the Future project at the Institute for Social Research, the University of Michigan, under Research Grant No. R01 DA 001411 from the National Institute on Drug Abuse.

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute on Drug Abuse or the National Institutes of Health.

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Recommended Citation

Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2021). Monitoring the Future national survey results on drug use, 1975–2020: Volume I, Secondary school students. Ann Arbor: Institute for Social Research, The University of Michigan. Available at <http://monitoringthefuture.org/pubs.html#monographs>

Institute for Social Research
The University of Michigan
Ann Arbor, Michigan
Published June 2021

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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 2020 survey, reported here, is the 46th consecutive survey of 12th grade students and the 30th such survey of 8th and 10th graders

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 (not under 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 has been a key vehicle for disseminating MTF's epidemiological findings. The next monograph in the series this year covers substance use 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; it will be the 41st and will be published later this year.³ The annual monograph on risk and protective behaviors for the spread of HIV/AIDS⁴ among young adults was added in 2009. (In years prior to 2009, findings from the study on risk and protective behaviors related to the spread of HIV/AIDS were contained in *Volume II*.) 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

³ Scheduled for publication August 1, 2021. Prior year versions are available at the [MTF website](#).

⁴ 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.

(such as “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 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 under medical supervision.

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 up to 2019 on alcohol use among demographic subgroups and for specific classes of alcoholic beverages in a separate, occasional paper.⁵ Because of the pandemic-curtailed data collection and resulting smaller sample in 2020 we do not update these trends for 2020, but will resume updating them in 2021.

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.

⁵ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2020). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2019](#) (Monitoring the Future Occasional Paper No. 94). Ann Arbor, MI: Institute for Social Research, University of Michigan.

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, 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.⁶ 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.⁷

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) helping to determine which young people are at greatest risk for developing various short- and long-term patterns of drug abuse; (b) gaining a better understanding of the lifestyles and value orientations associated with various patterns of drug use, and monitoring how subgroup differences shift over

⁶ Other major studies have adopted many of these measures including the National Survey on Drug Use and Health (NSDUH) and the European surveys of substance use in nearly forty European countries (ESPAD), which is largely modeled after Monitoring the Future.

⁷ 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.

time; (c) determining the immediate and more general aspects of the social environment associated with drug use and abuse; (d) 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; (e) determining the life course trajectories and comorbidity of the various drug-using behaviors from early adolescence to middle adulthood, and distinguishing such age effects from cohort and period effects; (f) evaluating possible explanations of period and age effects, including determining the effects of social legislation – for example, marijuana legalization – on various types of substance use; (g) examining possible consequences of using various drugs; (h) examining linkages between educational success or failure and substance use; and (i) determining the changing connotations of drug use and changing patterns of multiple drug use among youth.⁸ 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 constant 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.

⁸ 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	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 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 2020¹

Monitoring the Future (MTF), now having completed its 46th year of data collection, is 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 and a half 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 2020 are included in this series – the results of 46 national in-school surveys and 44 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; Volume II² focuses on the results from the follow-up surveys.

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. The key findings for 8th, 10th, and 12th graders surveyed across the coterminous U.S. in 2020 are summarized below.

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.

¹ Many of the findings in this chapter were previously reported in [Monitoring the Future national survey results on drug use, 1975-2020: Overview, key findings on adolescent drug use](#).

² Scheduled for publication August 1, 2021. Prior year versions are available at the [MTF website](#).

EXECUTIVE SUMMARY

Vaping Prevalence Finally Reverses Course

Nicotine vaping

The most important finding to emerge from the 2020 survey is that [nicotine vaping](#) leveled in 2020, after dramatic increases in the two prior years. The percentage of 12th grade students who vaped nicotine in the past 30 days dropped slightly from 25.5% to 24.7% from 2019 to 2020 (the change was not statistically significant). The parallel percentages for 10th grade students were 19.9% to 19.3% (difference not statistically significant). In 8th grade the change in prevalence from 2019 to 2020 was 9.6% to 10.5%, an increase that was not statistically significant. In a separate, peer-reviewed publication³ we have published detailed analysis of changes in nicotine vaping from 2017 to 2020, including analysis of concomitant trends in perceived risk of vaping and availability of vaping devices and flavors.

The levelling of vaping prevalence in 2020 contrasts with sharp increases in the past two years. From 2017 to 2019 prevalence of past 30-day nicotine vaping more than doubled in all three grades, rising from 11.0% in 2017 to 25.5% in 2019 among 12th graders. These increases are among the largest MTF has ever tracked for any substance. Given that nicotine is involved in most vaping, and given that nicotine is a highly addictive substance, this rise in vaping nicotine and vaping in general presents a serious threat to the hard-won progress that we have tracked since the mid-1990s in the reduction of cigarette smoking among adolescents.

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 were high in 2019, as expected; but they fell substantially in 2020 in all three grades – by about one-quarter in 8th grade (ns), about one-third in 10th grade, and about four-tenths in 12th grade. The 30-day prevalence levels in 2020 were 6.3% (-2.2%, ns), 12.3% (-6.3%, ss), and 12.9% (-7.9%, sss) in the three grades, respectively.⁴

Marijuana vaping

[Marijuana vaping](#) also levelled in 2020, after dramatic increases the previous two years. The percentage of 12th grade students who vaped marijuana in the past 30 days dropped from 14.0% to 12.2% from 2019 to 2020 (ns). For 10th grade students the parallel change was from 12.6% to 11.3% (ns), and in 8th grade it was from 3.9% to 4.2% (ns).

Previously, over the two-year interval from 2017 to 2019 prevalence of past 30-day marijuana vaping doubled or tripled in all three grades. For example, it rose from 4.9% in 2017 to 14.0% in 2019 among 12th graders.

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

⁴ Throughout the manuscript we use the abbreviation “ns” to indicated a change that was not statistically significant, “s” to indicate a change that was significant at the .05 level for a two-tailed test, “ss” to indicate a change significant at the .01 level for a two-tailed test, and “sss” to indicate a change significant at the .001 level for a two-tailed test.

Little Change in Marijuana or the Three Indexes of Overall Drug Use

In 2020, annual [marijuana](#) prevalence levels were 11.4% (-0.4, ns), 28.0% (-0.8, ns), and 35.2% (-0.5, ns) for 8th, 10th, and 12th graders. None of these changes were significant. In 2020, [daily marijuana](#) rates decreased slightly in the lower two grades and were at 1.1% (-0.2, ns), 4.4% (-0.3, ns), and 6.9% (+0.5, ns) for 8th, 10th, and 12th graders.

[Synthetic marijuana](#) use in the past 12 months decreased significantly in 8th grade in 2020 from 2.7% to 1.6% (s), and use declined a little in the upper grades (ns). Since first being measured in 2011 in 12th grade, use has fallen by more than two-thirds.

Annual use of [any illicit drug](#), which tends to be driven by marijuana – a high-prevalence drug – did not change significantly in any grade in 2020. Since 2006 there has been little systematic change in this index.

The index of [any illicit drug other than marijuana](#) showed no significant change in lifetime, annual, or 30-day prevalence in 2020. It has shown a very gradual decline since 2001 when past 12-month use for the three grades combined was 16% compared to 2020 when it was 9%.

Few Illicit Drugs Showing Declines in Use

Relatively few drugs exhibited a significant decline in use in 2020, although the use of most drugs is well below the peak levels recorded by the survey in previous years.

Annual prevalence of [crystal methamphetamine](#) declined significantly at 12th grade – the only grade in which it is asked – by 0.6% to 0.0 % (sss).

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

Use of Most Illicit Drugs Held Steady in 2020

The MTF study tracks many classes of drugs and the majority of them held relatively steady among secondary school students in 2020. These included [LSD](#), [hallucinogens other than LSD](#), [MDMA](#) (ecstasy, Molly), [cocaine](#), [crack](#), [heroin](#) (overall, and when used with or without a needle), [Oxycontin](#), [amphetamines](#) (taken as a class), [Ritalin](#), [Adderall](#), [sedatives](#) (reported at 12th grade only), [tranquilizers](#), [methamphetamine](#), [Rohypnol](#), [GHB](#), [Ketamine](#), and [steroids](#).

While not strictly speaking about illicit drugs, over the counter *cough and cold medications* used to get high (most of which contain dextromethorphan) increased nonsignificantly in each of the three grades but increased significantly for the three grades combined in 2020 to an annual prevalence of 3.7% (+0.9%).

Annual prevalence for [salvia](#) showed no change in 2020 with an annual prevalence of 0.8% for all grades combined. It appears that the use of this drug, which is not an illicit drug, is close to ending.

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 gradual decline in 2020 (-1.1 percentage points [ns]) to 7.6%, down from a high of 17% in 2005, when this index was first calculated.

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 2.1% after a nonsignificant drop of 0.6 percentage points in 2020.

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. This is good news 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 narcotic overdose deaths are currently most prevalent. In other words, a cohort effect may emerge.

Several Forms of Tobacco Use Continued to Decline, but Not Cigarettes

Cigarette smoking has had a long and very substantial decline since the mid-1990s, but showed almost no further decline in 2020 in the two lower grades and even a nonsignificant increase in 30-day prevalence among 12th graders (+1.8%). For the three grades combined, 30-day prevalence of cigarette use fell by 85% since its peak in the 1990s. Daily prevalence fell by 90% and current half-pack-a-day prevalence by 93%. In 2020 current prevalence of half-pack-a-day smoking stood at just 0.1% (-0.2 percentage points, s) for 8th graders, 0.6% (no change) for 10th graders, and 1.4% (+0.4 percentage points, ns) for 12th graders.

In 2020 the *initiation* of *cigarette* use did not continue its long-term and extremely important decline in 8th and 12th grades. Lifetime prevalence rose nonsignificantly in those grades to 11.5% (+1.5%, ns) and 24.0% (+1.7%, ns), respectively. This reversal of prevalence is important because the long-term decline in the initiation of smoking has been an important reason for the large declines in current use, at least up until 2020. The proportion of students who have ever

tried cigarettes had fallen from peak levels reached in 1996 or 1997 by roughly four-fifths, three-quarters, and three-fifths in 8th, 10th, and 12th grades, respectively.

Overall increases in perceived risk and disapproval appear to have contributed to the long-term downturn in cigarette use. Perceived risk of smoking one or more packs of cigarettes per day increased substantially and steadily in all grades from 1995 through 2004, with 62%, 68%, and 74% of 8th, 10th, and 12th graders seeing great risk in 2004. Since then, changes have been small and uneven.

It seems likely that some of the long-term attitudinal change surrounding cigarettes is attributable to the considerable adverse publicity aimed at the tobacco industry in the 1990s, as well as a reduction in cigarette advertising and an increase in antismoking campaigns reaching youth.

Various other attitudes toward smoking became more unfavorable during that interval as well, though most have since leveled off. For example, among 8th graders, the proportions saying that they “prefer to date people who don’t smoke” rose from 71% in 1996 to 81% by 2004, about where it remained through 2020. Similar changes occurred in 10th and 12th grades. Thus, at the present time, smoking is likely to make an adolescent less attractive to the great majority of potential romantic age-mates. Likewise, most of the other negative connotations of smoking and smokers have leveled off in the past few years after rising previously.

In addition to changes in attitudes and beliefs about smoking, price almost surely played an important role in the decline in use. Cigarette prices rose appreciably in the late 1990s and early 2000s as cigarette companies tried to cover the costs of the 1998 Master Settlement Agreement, and as many states increased excise taxes on cigarettes. A significant increase in the federal tobacco tax passed in 2009 may have contributed to the continuation of the decline in use since then.

The “Tobacco 21” legislation is a more recent development that would also be expected to reduce adolescent prevalence of tobacco use.⁵ Signed into law on December 20, 2019, this federal legislation now makes it illegal for a retailer to sell any tobacco product, including cigarettes, cigars, and e-cigarettes, to anyone under 21. If effective, this law may help to interrupt the supply of tobacco products to adolescents who obtained them from college-age siblings or friends.

Alcohol Use Trends Upward in 2020

Alcohol remains the substance most widely used by today’s teenagers. In 2020 it trended upward in each grade for lifetime, past 12-month, and past 30-day use. By the end of high school nearly two out of every three students in 2020 (61.5%) had consumed alcohol (more than just a few sips) at some time in their lives and a quarter (26%) had done so by 8th grade.

Prior to 2020, lifetime prevalence and annual prevalence of ***alcohol*** use for the three grades combined both declined by roughly 40-45% from the peak levels of use reached in the mid-1990s; 30-day prevalence was down by about one-half since then; and daily prevalence by three-

⁵ [Tobacco to 21 Act](#), 21 U.S.C. § 1258 (2019).

fourths. Similarly, *binge drinking* and *drunkenness* were at or near record lows. These were dramatic declines for such a culturally ingrained behavior and good news to parents.

While today's levels of adolescent alcohol use are far lower than the highs in the 1990s, the upward trend in 2020 warrants close monitoring in the coming years to determine if new and/or renewed efforts are needed to ensure that the historical declines in adolescent alcohol use remain.

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.

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 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.

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, 1975-2019: Volume II, college students and adults ages 19-60*. Ann Arbor: Institute for Social Research, The University of Michigan, 482 pp.

In what follows we describe in detail how we addressed these changes to data collection.

RESEARCH DESIGN AND PROCEDURES FOR THE 12th GRADE SURVEYS

Twelfth graders have been surveyed in the spring of each year since 1975. Until the year 2020 each year's data collection took place in 120-140 public and private high schools, which were selected to provide an accurate representative cross-section of 12th graders throughout the coterminous United States (see Figure 3-1).

In 2020 the project surveyed 3,770 12th grade students in 36 schools distributed throughout the contiguous U.S. before the COVID-19 pandemic halted data collection. Detailed analyses of the 2020 results indicate that the baseline, curtailed MTF 2020 sample did not differ from the nationally representative results from previous years in terms of sociodemographics and prevalence of substances that have had stable prevalence in recent years.⁴

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.

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

⁴ Miech, R., Leventhal, A., Johnston, L., O'Malley, P. M., Patrick, M. E., & Barrington-Trimis, J. (2020). [Trends in use and perceptions of nicotine vaping among US youth from 2017 to 2020](#). *JAMA Pediatrics*, 175(2):185-190.

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

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 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, much of 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.

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.

Until the year 2020, about 15,000 8th grade students in approximately 130 schools (mostly middle schools) and about 15,000 10th grade students in approximately 130 schools have been surveyed each year (see Table 3-1). As with the 12th grade surveys, informed consent (active or passive, per school policy) was obtained from parents for students in these grades.

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*.

In 2020, the project surveyed 4,890 10th grade students in 38 schools distributed throughout the U.S. and 3,161 8th grade students in 38 schools throughout the U.S. before the COVID-19 pandemic halted data collection. Detailed analyses of the 2020 results indicate that the curtailed MTF 2020 sample did not differ 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

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.

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.)

⁷ Miech, R., Leventhal, A., Johnston, L., O'Malley, P. M., Patrick, M. E., & Barrington-Trimis, J. (2020). [Trends in use and perceptions of nicotine vaping among US youth from 2017 to 2020](#). *JAMA Pediatrics*, 175(2):185-190.

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.

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.

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.

RESEARCH DESIGN AND PROCEDURES FOR THE 12th GRADE FOLLOW UP SURVEYS

In Volume II¹⁰ we consider prevalence and trends of substance use among 19-60 year olds, using the MTF panel samples drawn from previous MTF 12th grade classes. We summarize the follow-up survey procedures here to provide an integrated perspective on MTF. Beginning with the graduating class of 1976, some members of each 12th grade class have been selected to be surveyed by mail after high school. From the 12,000–19,000 twelfth graders originally surveyed in a given senior class, a representative sample of 2,450 is randomly chosen for follow-up. In order to ensure that drug-using populations are adequately represented in the follow-up surveys, 12th graders reporting 20 or more occasions of marijuana use in the previous 30 days (i.e., near daily users), or any use of the other illicit drugs in the previous 30 days, are selected with higher probability (by a factor of 3.0) than the remaining 12th graders. Differential weighting is then used in all follow-up analyses to compensate for these differential sampling probabilities. Because those in the drug-using stratum receive a weight of only 0.33 in the calculation of all statistics to correct for their overrepresentation at the selection stage, there are actually more follow-up respondents than are reported in the weighted numbers given in the tables; in recent years actual numbers average about 20% higher than the weighted numbers. The 2,450 participants selected from each 12th grade class are randomly split into two groups of 1,225 each—one group to be surveyed on even-numbered calendar years in a series of biannual follow-up surveys, and the other group to be surveyed on odd-numbered years also in a series of biannual follow-up surveys. By alternating the two half-samples, MTF collects data from every graduating class each year (through age 30), even though any given respondent participates only every other year.

Until 2002, each respondent was surveyed biennially up to seven times; at the seventh follow-up, which would occur either 13 or 14 years after graduation, the respondents had reached modal age 31 or 32. In 2002, as a cost-saving measure, the seventh biennial follow-up was discontinued, and since then each respondent is surveyed every other year until modal age 29 or 30. Additional follow-ups then occur at modal ages 35, 40, 45, 50, 55, and beginning in 2018, age 60. These data, gathered on national samples over such a large portion of the life span, are extremely rare and can

¹⁰ 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, 1975-2019: Volume II, college students and adults ages 19-60](#). Ann Arbor: Institute for Social Research, The University of Michigan, 482 pp.

provide needed insight into the etiology and life-course history of substance use and relevant behaviors.

For the past several years, we have been conducting experiments with extra panel samples of young adults, comparing our typical mail surveys to web-push survey strategies. Findings suggest that there are some mode differences in responses.^{11,12} Starting with 2018 data collections among young adults (19-30), one random half of the sample received our typical mail surveys, and half received web-based surveys through web-push strategies (in which paper surveys are available for those who request them and for those who do not respond to the web surveys). This splitting of the sample (which we have also done with 2019 data collections) allows us to calibrate our historical and developmental trends. More detail is provided in the 2020 Volume II,¹³ as well as the upcoming 2020 Volume II. In 2020, data collections with young adults are fully web-push, and for 35-60 year olds, one random half is receiving web-push strategies and the other half is receiving our typical paper mail surveys to allow a similar assessment of any mode effects that might exist at those ages.

Follow-Up Procedures

Newsletters are sent to respondents each year, providing a short summary of results on a variety of survey topics. Name and address corrections are requested from both the U.S. Postal Service and the individual. Questionnaires are sent in the spring to each individual biennially through age 30, then at 5-year intervals. Respondents receive \$25 for participation, which for mailed questionnaires is in the form of a check made out to the respondent and attached to the front of the mailed questionnaires, and for web surveys is attached to the log-in information.¹⁴ Reminder emails, texts, letters, and postcards are sent at fixed intervals thereafter; telephone callers attempt to gather up-to-date location information for those respondents with whom we are trying to make contact; and, finally, those whom we can contact but who have not responded receive a prompting phone call from the Survey Research Center's phone interviewing facility in Ann Arbor, Michigan. No questionnaire content is administered by phone. If a respondent asks not to be contacted further, that request is honored.

Follow-Up Questionnaire Format

The questionnaires used in the follow-up surveys of 19- to 30-year-olds parallel those used in 12th grade. Many of the questions are the same, including the core section dealing with drug use. Respondents consistently receive the same form of the questionnaire that they first received in 12th grade so that changes over time in their behaviors, attitudes, experiences, and so forth can be measured directly. Questions specific to high school status and experiences are dropped in the follow-ups, and questions relevant to post-high school status and experiences are added (mostly in the core section). The post-high school questions deal with issues such as college attendance,

¹¹ Patrick, M. E., Couper, M. P., Laetz, V. B., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Miech, R. A. (2018). [A sequential mixed mode experiment in the U.S. National Monitoring the Future study](#). *Journal of Survey Statistics and Methodology*, 6(1), 72-97. doi: 10.1093/jssam/smx011.

¹² Patrick, M. E., Couper, M. P., Jang, B. J., Laetz, V., Schulenberg, J. E., Johnston, L. D., Bachman, J., & O'Malley, P. M. (2019). [Two-year follow-up of a sequential mixed-mode experiment in the U.S. national Monitoring the Future study](#). *Survey Practice*, 12(1), 1-10.

¹³ 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, 1975-2019: Volume II, college students and adults ages 19-60](#). Ann Arbor: Institute for Social Research, The University of Michigan, 482 pp.

¹⁴ Until 1991, the follow-up checks were for \$5. After an experiment indicated that an increase was warranted, the check amount was raised to \$10 beginning with the class of 1992. The check amount was raised to \$20 in 2006, and to \$25 beginning in 2008.

military service, civilian employment, marriage, and parenthood. In the study's early follow-ups (through 1988), the sample size for a question appearing on a single form was one fifth of the total sample. A sixth form was introduced in 12th grade beginning with the class of 1989 and extended a year later beginning with the follow-up surveys of that same class. Therefore, since 1990, a question appearing on a single form has been administered to one sixth of the total sample in the 19-30 young adult age band. Single-form data from a single cohort are typically too small to make reliable estimates; therefore, in most cases where they are reported, single-form data from several adjacent cohorts are combined.

For the surveys conducted at five-year intervals, beginning at age 35, both half-samples from a high school senior class cohort surveyed in the same year are combined and only one questionnaire form is used. Much of the questionnaire content is maintained but streamlined with a focus on the major family and work issues relevant to respondents ages 35, 40, 45, 50, 55, and 60; we have also added measures of substance use disorders and a number of health outcomes.

REPRESENTATIVENESS AND SAMPLE ACCURACY

School Participation

Schools are invited to participate in the MTF study for a two-year period. For each school that declines to participate, a similar school (in terms of size, geographic area, urbanicity, etc.) is recruited as a replacement. With very few exceptions, each school participating in the first year has agreed to participate in the second year as well. Figure 3-2 provides the year-specific school participation rates and the percentage of units filled since 1977. As shown in the figure, replacements for schools that decline participation are obtained in the vast majority of cases. As also shown in the Figure, school participation levels were down in 2020 as a result of the pandemic and the halt of all survey administrations in 2020 on March 15.

Two questions are sometimes raised with respect to school participation rates: (a) Are participation rates sufficient to ensure the representativeness of the sample? (b) Does variation in participation rates over time contribute to changes in estimates of drug use?

With respect to participation rates ensuring that the sample is representative, the selection of a comparable replacement school that is demographically close to the original school occurs in practically all instances in which an original school does not participate. This should almost entirely remove problems of bias in region, urbanicity, and the like that might result from certain schools declining to participate.

An additional measure of the representativeness of the sample is the number of primary stage sample strata in which MTF has successfully surveyed a school. MTF draws a probability sample of one or more schools from population strata that are defined based on geographic location (Census Division and State) and urbanicity defined by the U.S. Census Metropolitan Statistical Area (MSA) classification of the county in which a school is located. Each public and private school in the coterminous 48 states is uniquely assigned to an MTF primary stage stratum. Collectively these geographic strata cover the entire population of schools in the contiguous U.S. Sample schools provide representation of all schools and students that are assigned to their stratum. As noted in Figure 3-3, MTF has successfully sampled a 12th grade school in 96%+ of the geographic strata every year (with the exception of 2020 due to the pandemic). This success helps

ensure that the MTF findings are informed by and are generalizable to the entire, contiguous United States.

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 most schools with “drug problems” refused to participate, the sample would be seriously biased. And if any other single factor were dominant in most refusals, that reason for refusal might also suggest a source of serious bias. However, the reasons schools 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 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.¹⁵ 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 differences related to factors such as region and urbanicity, which remain well controlled in the present sampling design.

With respect to participation rates and changes in estimates of drug use, it is extremely unlikely that results have been significantly affected by changes in school participation rates. If changes in participation rates seriously affected prevalence estimates, there would be noticeable bumps up or down in concert with the changing rates. But this series of surveys 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

¹⁵ 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.

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 the common factor of changes in school participation rates.

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 refusal rates 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 shifting participation rates. Of course, levels of absolute prevalence are not as precisely estimated when the sample is only half the usual size.

Student Participation

In 2020, completed questionnaires were obtained from 88% of all sampled students in 8th grade, 89% in 10th grade, and 79% 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. Of course, some students simply refuse, when asked, to complete a questionnaire. However, the proportion of explicit refusals amounts to less than 1.8% of the target sample for each grade.

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 $\pm 4.5\%$. 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 coterminous United States, 95 times out of 100 the sample would yield a result that would be less than 4.5% 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 are 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 is detectable as statistically significant is larger in 2020 than it was in earlier years.

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 Appendix C of earlier volumes for the information it provides about design effects and how their computational influence varies by substance.

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.¹⁶

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.¹⁷ In essence,

¹⁶ 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.

¹⁷ 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.

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.¹⁸ 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, and 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.¹⁹

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 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.

¹⁸ 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.

¹⁹ 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.

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

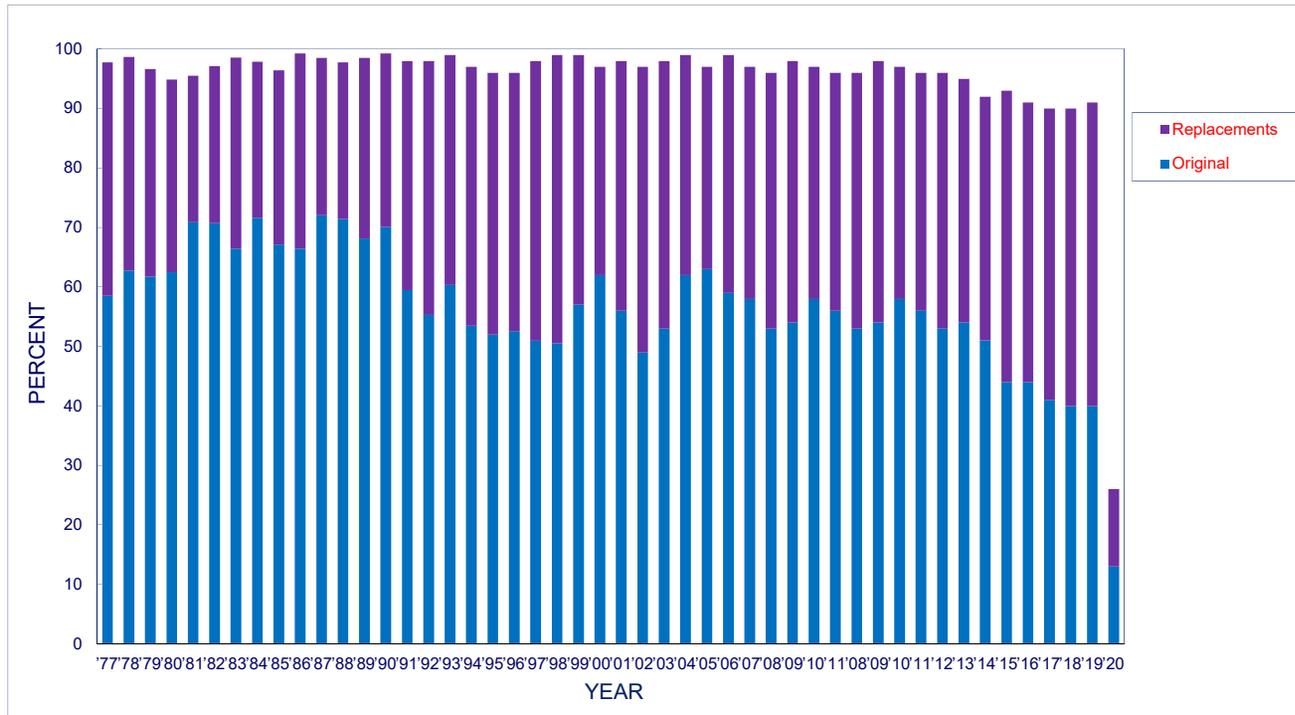
Source: The Monitoring the Future study, the University of Michigan.

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
School Participation Rates ^a



Percent of slots

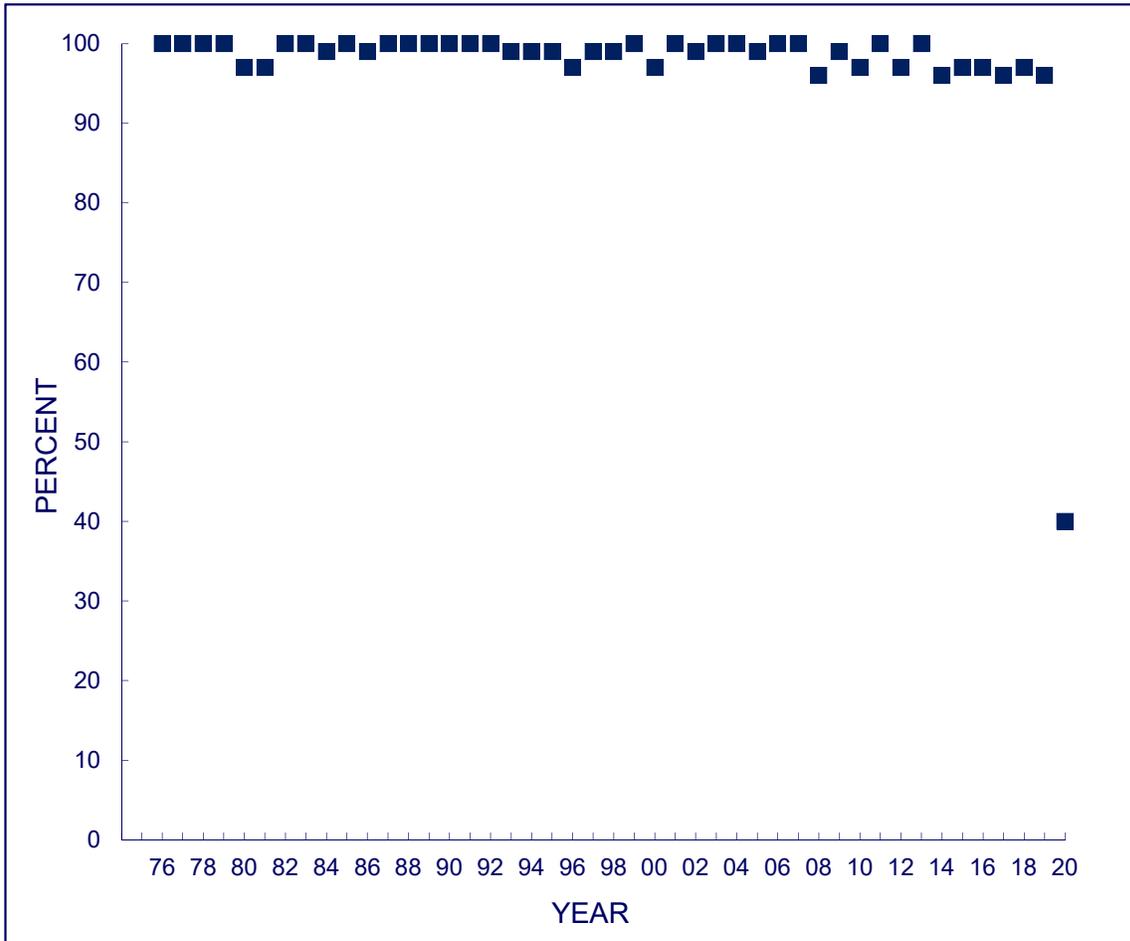
filled by...	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07
Original	59	63	62	63	71	71	66	72	67	66	72	71	68	70	59	55	60	53	52	53	51	51	57	62	56	49	53	62	63	59	58
Replacements	39	36	35	32	25	26	32	26	29	33	26	26	30	29	39	43	39	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	99	97	98	97	98	99	97	99	97

filled by...	'08	'09	'10	'11	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
Original	53	54	58	56	53	54	58	56	53	54	51	44	44	41	40	40	13
Replacements	43	44	39	40	43	44	39	40	43	41	41	49	49	50	51	13	
Total	96	98	97	96	96	98	97	96	95	92	93	91	91	90	90	26	

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. Detailed analysis supports the study results from this year as nationally representative (for more information see appendix to this [article](#)).

FIGURE 3-3
Percentage of Sampled Geographic Strata With At Least One School
Surveyed in 12th Grade



Source. The Monitoring the Future study, the 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 2020.

In 2020 MTF does not report prevalence levels for as many drugs as it has in past years, as a result of this year’s pandemic-curtailed sample size. In 12th grade questions on drug use appear on six different versions of the questionnaire, known as “forms,” that are randomly distributed in equal proportion. While questions on major drugs such as marijuana, nicotine vaping, and alcohol appear on all forms, questions on other drugs such as rohypnol are on only one form and therefore asked of only one sixth of the sample. This arrangement allows much greater measurement coverage than would be possible with only one form. However, drug questions that appear on only one form in 2020 have unusually small sample size; for example, such questions would have less than 40 positive responses for drugs with prevalence less than 5% ($.05 * 3770 / 6 = 31$). For drug use and other measures for which we judged the estimates too “noisy” we do not present estimates this year.

In 2020 small sample size was less likely to prevent reports of prevalence estimates in 8th and 10th grade than in 12th grade. In the two lower grades the questionnaires consist of four forms, of which two are each randomly distributed to 1/3 of the sample and the other two are each randomly distributed to 1/6 of the sample. In some cases drug questions that appear on only 1/6 of the questionnaires in 12th grade appear on 1/3 or more of the questionnaires in 8th and 10th grade. In these cases it is possible to report reliable prevalence estimates for these drugs, even if the level of drug prevalence may be lower in 8th and 10th grade than it is in 12th grade.

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 2020,

21% of 12th graders were absent. The adjustments are not particularly large and have virtually no effect on trend estimates. The absentee and dropout 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 2020: ALL STUDENTS

Prevalence of Lifetime, Annual, and 30-Day Use

Prevalence-of-use estimates for 2020 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

- About half of all 12th graders (47%) in 2020 reported ***any illicit drug use*** at some time in their lives.¹ Nearly two-fifths (37%) of 10th graders and one-fifth (21%) 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 28% for 8th graders, 40% for 10th graders, and 48% for 12th graders.

¹ For 12th graders, “any illicit drug use” includes any use of marijuana, 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 lead us to believe that some respondents were including nonprescription drugs in their answers, resulting in exaggerated prevalence levels.

- The proportions having used **any illicit drug other than marijuana** (or *inhalants*) in their lifetime were 13% in 8th grade, 13% in 10th grade, and 18% in 12th grade. Thus, about one in six of the 2020 high school seniors tried an illicit drug other than marijuana at some time.¹
- 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**: 41% of all 8th grade users of any illicit drug, which amounts to 9% of the total 8th grade sample; 65% of all 10th grade users of any illicit drug or 24% of the total 10th grade sample; and 62% of 12th grade users of any illicit drug or 29% of the total 12th 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, 59%, 35%, and 38%, respectively, of those 8th, 10th, and 12th graders 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. Nearly half of all 12th graders (44%), one third of 10th graders (33%), and about one in seven 8th graders (15%) reported some marijuana use in their lifetime. Among 12th graders, 35% reported some use in the past year, and 21% reported some use in the past month. Among 10th graders, the corresponding percentages were 28% and 17%, respectively, and among 8th grade students, 11% and 7%.
- 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 16 twelfth graders (6.9%) used marijuana daily in the month prior to the survey, as did one in 23 tenth graders (4.4%) and one in 90 eighth graders (1.1%).
- Use of **synthetic marijuana** in 2020 is fairly low, with annual prevalence levels at 1.6%, 2.5%, and 2.4% in 8th, 10th, and 12th grade, respectively.
- **Marijuana vaping** has emerged in recent years as a new way to use marijuana. In 2020 the portion of adolescents who had ever tried it was 28%, 23%, and 10% in 12th, 10th, and 8th grade, respectively. More than half 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 2020 the percentages of adolescents who reported that they had ever used marijuana because a doctor told them to do so were 1.0% in 8th grade and 2.0% in 10th grade. (Insufficient data for 2020 estimates in 12th grade.)

Other Illicit Drugs

- The ranking of **illicit** drugs by lifetime prevalence varies some by grade level (Figure 4-1). For 8th graders, **marijuana** and **inhalant** use are followed in the lifetime prevalence

rankings of illicit drugs by *amphetamines*, at 8.9%.² Among 10th graders, the ranking for lifetime prevalence of use is *marijuana* (33%), *inhalants* (7.4%), and *amphetamines* (7.0%). Among 12th graders, lifetime use is highest for *marijuana* (44%), followed in order by *hallucinogens* (7.5%), *amphetamines* (7.3%), *tranquilizers* (7.0%), *LSD* (5.9%), *narcotics other than heroin* (5.3%), *hallucinogens other than LSD* (4.7%), *sedatives (barbiturates)* (4.4%), *inhalants* (3.8%), and then *MDMA* (ecstasy, Molly) (3.6%).

- 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 ranks third in prevalence of illicit drugs for all three grades in 2020, behind marijuana and inhalants in 8th and 10th grade, and behind marijuana and hallucinogens in 12th grade. Lifetime prevalence levels in 8th, 10th, and 12th grade are 8.9%, 7.0%, and 7.3% respectively, and annual prevalence levels are 5.3% in 8th grade and 4.3% for both 10th and 12th grade.
- *Inhalants* rank second among the illicit drugs in lifetime prevalence for 8th graders (12.6%) and 10th graders (7.4%); but they rank ninth for 12th graders (3.8%). Inhalants also rank second-highest in 30-day prevalence among the illicit drugs for 8th graders (2.9%) and fourth (1.2%) among 10th graders, but they rank lower 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 3.9%, 4.9%, and 7.0% 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

² For findings on specific amphetamines, see Appendices.

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 as well.

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 high in lifetime prevalence among 12th graders at 5.3%. (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 2019 of 0.9%, 1.0%, and 2.4% for grades 8, 10, and 12, respectively. ***Vicodin*** use was lower, with the comparable prevalence levels of 0.5%, 0.9%, and 1.2% across the three respective grades. These levels of use are far higher than for heroin.
- Lifetime prevalence of ***sedative (barbiturate)*** use outside of medical supervision in 12th grade was 4.4% in 2020. 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 0.0%, 0.8%, and 1.7% of 8th, 10th, and 12th graders, respectively, reporting any lifetime use. ***Crystal methamphetamine*** (“ice”) also has a low lifetime prevalence among 12th graders (0.2%); its use is not asked in the lower grades.
- ***Hallucinogens*** form another fairly widely used class of illicit substances. Lifetime prevalence of use is 3.0% for 8th graders, 4.8% for 10th graders, and 7.5% for 12th graders. Until 2001, hallucinogen prevalence ranked this high primarily due to the prevalence of LSD use. But in 2020, similar proportions of students indicated lifetime use of ***hallucinogens other than LSD*** (particularly “shrooms” or psilocybin) – 2.0%, 3.4%, and 4.7% for 8th, 10th, and 12th grade, respectively – compared to 2.1%, 3.8%, and 5.9% 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 2020, the lifetime prevalence levels for this drug stood at 1.7%, 2.6%, and 3.6% in grades 8, 10, and 12, respectively, while annual prevalence stood at 0.8%, 1.2%, and 1.8%.
- 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

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.

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 2020 levels were at 0.5%, 1.2%, and 0.7% among 8th, 10th, and 12th graders, respectively.

- Lifetime prevalence levels for **cocaine** use by 8th, 10th, and 12th graders in 2020 were 1.6%, 1.6%, and 4.1%, 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 2020, it had lifetime prevalence levels of under 2.0% in all three grade levels: 0.9% for 8th, 0.7% for 10th, and 1.6% for 12th graders.

Of all students reporting any cocaine use in their lifetime, significant proportions have some experience with crack: Over half of 8th grade cocaine users (56%), but fewer 10th grade (44%) and 12th grade users (39%), reported having used crack (estimates derivable from Table 4-1a).

- **Heroin** is one of the least commonly used illicit drugs at each grade level. Lifetime use in 2020 was less than 1% in all grades and was 0.5% for 8th graders, 0.3% for 10th graders, and 0.4% for 12th graders. Annual prevalence levels were 0.2%, 0.2%, and 0.3% in 8th, 10th, and 12th grade. We found that significant proportions of those reporting any lifetime heroin use reported using **heroin without a needle**. In 2020, for 8th graders the proportions reporting lifetime use by each of the three methods were 0.2% without a needle, 0.2% with a needle, and 0.2% using both ways. The proportions of 10th graders using heroin among one of these two methods were 0.1%, and 0.1% using both ways. The proportions for 12th grade were 0.0%, 0.1%, and 0.2%, respectively. See Table 4-3 for more detail on heroin use in 2020 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 three fifths of 12th grade students (62%) have at least tried alcohol, and about one-third (34%) 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, a quarter (26%) reported any alcohol use in their lifetime, and one in ten (9.9%) 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 2020 more than two out of five 12th graders (42%), one quarter of 10th graders (29%), and one tenth of all 8th graders (10.1%) 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: 19.8%, 9.3%, and 3.4%, 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 2020

prevalence levels for one or more occasions of this behavior, which we refer to as *binge drinking*, were 16.8%, 9.6%, and 4.5% in the 12th, 10th, and 8th grade, respectively.⁵

- In 2020 past-year use of *alcoholic beverages containing caffeine* was considerable, at 5.7%, 8.3%, and 12% 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 quarter (24%) of 12th graders reported having tried cigarettes at some time, and one in fourteen (7.5%) smoked in the prior 30 days. Even among 8th graders, one tenth (11.5%) reported having tried cigarettes and 2.2% reported smoking in the prior 30 days. Among 10th graders, 13.9% reported having tried cigarettes, and 3.2% 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 2020 than the percentages reporting using *marijuana* in the prior 30 days: 2.2% for cigarettes versus 6.5% for marijuana in 8th grade; 3.2% versus 16.6% in 10th grade; and 7.5% versus 21.1% 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, lifetime prevalence of marijuana use in 2020 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 2020 lifetime prevalence was considerably higher than lifetime cigarette prevalence in all grades, and was 44%, 39%, and 23% 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 2.1% or less in all three grades. Similarly, both past 12-month and past 30-day prevalence was 2.0% 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.
- Prevalence of *JUUL* use is more than 50% of the prevalence of nicotine vaping using any brand in all three grades for lifetime, annual, and past 30-day use. This finding indicates that the majority of nicotine vapers use JUUL, either exclusively or in addition to their use of other vaping products.

⁵ We note that in 8th grade the portion who report having five more drinks in a row in the past two weeks is greater 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 the more accurate, at least for 8th graders.

- **Smokeless tobacco** is used by a substantial proportion of young people. Among 8th and 10th graders, lifetime prevalence levels are 7.8% and 9.3%, respectively, and past 30-day prevalence is 2.3% and 3.5%, respectively. (Insufficient data for 2020 estimates in 12th grade.)
- Prevalence of using a **hookah** water pipe in the last 12 months, an alternative to cigarette smoking, was 4.1% among 12th graders in 2020.
- 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 2020 was 1.6% and 2.2%, respectively. 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. Among 8th and 10th graders, the annual prevalence in 2020 was 0.6% and 1.3%, respectively. It appears that these dissolvable tobacco products have not yet made significant inroads among secondary school students. (Insufficient data for 2020 estimates in 12th grade.)

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 2020 were 2%, 1.7%, and 2%; *annual* prevalence levels were 1.1%, 0.9%, and 1.2%; and past *30-day* prevalence levels were 0.3%, 0.5%, and 1.2%.

- 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 2020, the prevalence of past-year creatine use was 2.5%, 4.5%, and 7.2% 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 7.3%, 9.3%, and 9.9% in grades 8, 10, and 12, respectively, in 2020. 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 5.0%, 6.0%, and 7.5% for 8th, 10th, and 12th graders, respectively, in 2020.
- In 2020 lifetime prevalence for **nonstimulant** drugs like Strattera was somewhat lower, but still appreciable, at 4.2%, 5.1%, and 4.8% 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 2.7%, 4.0%, and 4.2% in grades 8, 10, and 12, respectively, in 2020. 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 2020 for the three grades were 2.0%, 2.5%, and 3.1% respectively in 8th, 10th, and 12th grade; for **nonstimulant** drugs levels were lower, at 1.4%, 1.8%, and 1.7%.

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 2020 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 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 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](#) volumes 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 2020 was 15.5% for 12th grade students, 12.0% for 10th grade students, and 5.9% 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 2020 was 6.9% for 12th grade students, 5.5% for 10th grade students, and 1.8% for 8th grade students.
- The percentage of adolescents who reported they had regularly vaped “just flavoring” and never regularly vaped nicotine by 2020 was 1.1% for 12th grade students, 1.5% for 10th grade students, and 1.1% for 8th grade students (results not tabled). 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.
- The percentage of adolescents who report they had ever *vaped marijuana regularly* by 2020 was 6.9% for 12th grade students, 5.5% for 10th grade students, and 1.8% 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 2020 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 frequent use, with 18.2%, 13%, and 3.7% 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, 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.

- In 2020 *nicotine vaping* topped the list for daily use. The proportion reporting use every day in the last 30 days in 8th grade was 2.0%, in 10th grade was 5.6%, and in 12th grade was 8.6%.
- The percentages who reported using one or more *cigarettes* per day in the last 30 days were 0.8%, 1.2%, and 3.1% in grades 8, 10, and 12, respectively. Many of these daily smokers say that they currently smoke a half pack or more per day (0.1%, 0.6%, and 1.4% of all respondents in grades 8, 10, and 12, respectively).
- Daily use of *smokeless tobacco* is considerably lower than daily use of cigarettes, at 0.5% and 0.7% for 8th and 10th grade, respectively. The levels among males are quite a bit higher, however, as discussed later in this chapter. (Insufficient data for 2020 estimates in 12th grade.)
- Daily use of *marijuana* was high in 2020 with use on 20 or more occasions during the past 30 days at 1.1%, 4.4%, and 6.9% across 8th, 10th, and 12th grade, respectively. Thus about one in 14 high school seniors is a current daily marijuana user.

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 daily prevalence levels for *alcohol* in 2020 were 0.4%, 1.0%, and 2.7% in grades 8, 10, and 12, respectively.
- Daily use of each of the *other illicit drugs* is reported by 0.3% or less of 12th grade respondents (Table 4-2). While low, these figures are not inconsequential, because 1% of the high school class of 2020, for example, represents in excess of 30,000 individuals nationwide.
- Between 12 and 13 percent of students in 8th and 10th 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. (Insufficient data for 2020 estimates in 12th grade.)

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.

- Four to five percent of 8th and 10th grade students 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. (Insufficient data for 2020 estimates in 12th grade.)

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 (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.

This year MTF suspends its usual reports of noncontinuation rates for the year. In 2020 sample size is too small to support reliable estimates, which is limited to lifetime users in an already-curtailed analysis pool. We will resume updating estimates in 2021.

Noncontinuation rates for 1975 to 2019 are reported in Chapter 5.

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.

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. However, due to insufficient samples sizes in 2020 as a result of the pandemic, subgroup comparisons are not included for 2020. For 2019 subgroup comparisons, see last year's [volume](#) (Tables 4-5 through 4-8 provide statistics on levels of use for these various subgroups for all three grades in 2019). Additional information on demographic differences in drug prevalence and in trends in prevalence by demographic subgroup from 1975 to 2019 are presented in [Occasional Paper 94](#).

TABLE 4-1a
Lifetime Prevalence of Use for 8th, 10th, and 12th Graders, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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	17.7	21.3	24.9	33.5	37.3	41.0	42.2	46.6	50.9
Any Illicit Drug other than Marijuana ^a	9.6	12.5	15.5	11.7	13.2	14.7	15.3	17.5	19.6
Any Illicit Drug including Inhalants ^{a,b}	24.8	28.4	32.0	35.7	39.7	43.7	42.5	47.6	52.7
Marijuana/Hashish	12.1	14.8	17.6	29.4	33.3	37.1	39.2	43.7	48.2
Inhalants ^{b,c}	10.2	12.6	15.1	6.6	7.4	8.2	2.6	3.8	5.0
Hallucinogens ^l	2.0	3.0	4.1	4.1	4.8	5.6	5.4	7.5	9.6
LSD ^l	1.3	2.1	2.9	3.0	3.8	4.5	4.0	5.9	7.8
Hallucinogens other than LSD ^l	1.1	2.0	2.9	2.8	3.4	4.1	3.0	4.7	6.4
Ecstasy (MDMA) ^{e,f}	0.7	1.7	2.8	2.1	2.6	3.1	2.4	3.6	4.8
Cocaine	0.8	1.6	2.3	0.7	1.6	2.5	2.9	4.1	5.4
Crack	0.4	0.9	1.5	0.4	0.7	1.0	0.8	1.6	2.4
Cocaine other than Crack ^g	0.7	1.3	1.9	0.6	1.5	2.4	2.5	4.0	5.6
Heroin ^c	0.1	0.5	0.9	0.1	0.3	0.5	0.1	0.4	0.7
With a Needle ^{b,c}	0.0	0.3	0.5	0.0	0.2	0.3	0.0	0.2	0.5
Without a Needle ^{b,c}	0.0	0.4	0.8	0.1	0.2	0.4	0.0	0.1	0.3
Narcotics other than Heroin ^h	—	—	—	—	—	—	4.3	5.3	6.3
Amphetamines ^h	6.7	8.9	11.2	5.9	7.0	8.0	5.9	7.3	8.8
Methamphetamine ^{fi}	0.0	1.1	2.4	0.1	0.8	1.5	0.2	1.7	3.2
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.0	0.2	0.4
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	3.5	4.4	5.4
Tranquilizers ^h	2.3	3.9	5.4	4.2	4.9	5.6	5.5	7.0	8.6
Rohypnol ^{dj}	§	§	§	§	§	§	—	—	—
Alcohol	21.4	25.6	29.8	40.0	46.4	52.7	55.4	61.5	67.6
Been Drunk ^f	7.7	10.1	12.4	22.9	28.8	34.7	34.3	41.7	49.1
Flavored Alcoholic Beverages ^{dj}	14.2	18.3	22.4	28.2	36.4	44.5	§	§	§
Cigarettes	8.2	11.5	14.7	11.8	13.9	16.0	17.8	24.0	30.1
Smokeless Tobacco ^{d,e}	5.0	7.8	10.5	6.9	9.3	11.6	§	§	§
Any Vaping	19.7	24.1	28.6	35.4	41.0	46.6	40.3	47.2	54.2
Vaping Nicotine	18.1	22.7	27.3	33.2	38.7	44.2	36.9	44.3	51.6
Vaping Marijuana	8.1	10.2	12.4	19.1	22.7	26.3	24.0	27.9	31.9
Vaping Just Flavoring	14.6	17.8	21.1	23.4	27.7	31.9	25.3	29.8	34.2
Vaping Flavoring with no Nicotine Vaping	0.8	1.3	1.8	1.2	1.6	2.0	1.4	2.1	2.7

Table continued on next page.

TABLE 4-1a (cont.)
Lifetime Prevalence of Use for 8th, 10th, and 12th Graders, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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	13.4	16.9	20.3	24.3	30.7	37.1	28.2	36.2	44.2
Steroids ^{b,h}	1.3	2.0	2.8	1.0	1.7	2.4	0.9	2.0	3.2
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	\$	\$	\$
Stay-Awake Pills ^d	—	—	—	—	—	—	\$	\$	\$
Legal Use of Prescription ADHD Drugs									
Stimulant-Type ^f	3.2	5.0	6.8	4.4	6.0	7.6	5.6	7.5	9.5
Non-Stimulant-Type ^f	2.6	4.2	5.7	3.7	5.1	6.4	3.3	4.8	6.2
Either Type ^f	5.1	7.3	9.4	7.8	9.3	10.9	7.6	9.9	12.1

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, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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	12.8	15.6	18.4	26.6	30.4	34.2	32.6	36.8	41.0
Any Illicit Drug other than Marijuana ^a	5.2	7.7	10.2	7.4	8.6	9.8	9.5	11.4	13.3
Any Illicit Drug including Inhalants ^{a,b}	15.6	18.5	21.3	27.5	31.3	35.1	34.2	38.7	43.1
Marijuana/Hashish	8.9	11.4	13.9	24.0	28.0	32.0	31.0	35.2	39.4
Synthetic Marijuana ^{e,f}	0.9	1.6	2.4	1.8	2.5	3.3	0.7	2.4	4.0
Inhalants ^c	4.3	6.1	8.0	2.3	2.9	3.4	0.6	1.1	1.7
Hallucinogens ^l	0.9	1.7	2.5	2.6	3.4	4.1	3.5	5.3	7.1
LSD ^l	0.5	1.1	1.7	1.8	2.5	3.3	2.1	3.9	5.7
Hallucinogens other than LSD ^l	0.5	1.1	1.7	1.7	2.2	2.7	1.8	2.8	3.8
PCP ^d	—	—	—	—	—	—	§	§	§
Ecstasy (MDMA) ^{e,f}	0.2	0.8	1.5	0.8	1.2	1.7	1.1	1.8	2.6
Salvia ^{f,j}	0.0	0.5	0.9	0.7	1.2	1.8	0.0	0.7	1.6
Cocaine	0.2	0.5	0.7	0.5	1.1	1.6	1.6	2.9	4.1
Crack	0.0	0.2	0.4	0.3	0.5	0.8	0.5	1.2	1.9
Cocaine other than Crack ^g	0.2	0.5	0.8	0.4	1.0	1.6	1.4	2.9	4.4
Heroin ^c	0.0	0.2	0.4	0.0	0.2	0.3	0.1	0.3	0.6
With a Needle ^{b,c}	0.0	0.2	0.4	0.0	0.2	0.3	0.0	0.1	0.3
Without a Needle ^{b,c}	0.0	0.2	0.4	0.0	0.1	0.2	0.0	0.1	0.3
Narcotics other than Heroin ^h	—	—	—	—	—	—	1.5	2.1	2.7
OxyContin ^{b,h,i}	0.0	0.9	1.8	0.5	1.0	1.5	0.4	2.4	4.5
Vicodin ^{b,h,i}	0.0	0.5	1.0	0.3	0.9	1.4	0.2	1.2	2.3
Amphetamines ^h	3.8	5.3	6.7	3.3	4.3	5.3	3.0	4.3	5.5
Ritalin ^{f,h,j}	0.0	0.5	1.2	0.4	1.0	1.6	0.1	1.7	3.3
Adderall ^{f,h,j}	0.8	2.7	4.7	2.0	2.9	3.7	2.4	4.4	6.4
Methamphetamine ^{f,i}	0.0	0.5	0.9	0.0	0.3	0.6	0.0	1.4	2.8
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.0	0.0	0.1
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	1.7	2.4	3.2

Table continued on next page.

TABLE 4-1b (cont.)
Annual Prevalence of Use for 8th, 10th, and 12th Graders, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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	2.2	3.6	2.0	2.6	3.3	2.4	3.2	3.9
OTC Cough/Cold Medicines ^{f,i}	2.6	4.6	6.6	2.3	3.3	4.3	1.7	3.2	4.8
Rohypnol ^{d,j}	\$	\$	\$	\$	\$	\$	\$	\$	\$
GHB ^d	—	—	—	—	—	—	\$	\$	\$
Ketamine ^f	—	—	—	—	—	—	0.0	1.3	2.9
Alcohol	16.5	20.5	24.5	34.3	40.7	47.0	48.8	55.3	61.8
Been Drunk ^f	5.4	7.5	9.6	17.4	23.1	28.9	29.9	36.9	43.9
Flavored Alcoholic Beverages ^{d,i}	10.7	14.7	18.7	22.8	29.6	36.5	\$	\$	\$
Alcoholic Beverages containing Caffeine ^{f,i}	3.2	5.7	8.1	6.4	8.3	10.1	7.6	12.3	17.1
Tobacco using a Hookah ^b	—	—	—	—	—	—	2.0	4.1	6.2
Small cigars ^d	—	—	—	—	—	—	\$	\$	\$
Snus ^{d,i}	0.5	1.6	2.7	1.1	2.2	3.3	\$	\$	\$
Dissolvable Tobacco Products ^{d,i}	0.1	0.6	1.0	0.5	1.3	2.1	\$	\$	\$
Any Vaping	15.3	19.2	23.0	29.6	34.6	39.5	32.3	39.0	45.7
Vaping Nicotine	12.6	16.6	20.6	25.8	30.7	35.5	27.2	34.5	41.8
Vaping Marijuana	6.1	8.1	10.2	16.0	19.1	22.3	18.2	22.1	26.0
Vaping Just Flavoring	10.0	12.3	14.6	15.8	18.4	21.1	13.0	16.6	20.2
Vaping Flavoring with no Nicotine Vaping	1.4	2.0	2.7	1.4	2.0	2.6	1.1	1.9	2.7
JUUL	9.3	11.7	14.1	17.8	20.0	22.2	20.1	22.7	25.4
Steroids ^{b,h}	0.6	1.1	1.7	0.6	0.9	1.3	0.5	1.2	2.0
Androstenedione ^{f,i}	—	—	—	—	—	—	\$	\$	\$
Creatine ^{f,i}	0.7	2.5	4.3	3.1	4.5	5.9	3.9	7.2	10.4
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	\$	\$	\$
Stay-Awake Pills ^d	—	—	—	—	—	—	\$	\$	\$

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, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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	6.8	8.7	10.7	16.4	18.2	19.9	18.7	22.2	25.7
Any Illicit Drug other than Marijuana ^a	2.1	3.5	4.9	3.1	3.7	4.4	3.7	4.8	5.9
Any Illicit Drug including Inhalants ^{a,b}	8.4	10.2	12.1	16.9	18.7	20.5	19.9	23.8	27.7
Marijuana/Hashish	4.8	6.5	8.2	14.9	16.6	18.4	17.5	21.1	24.7
Inhalants ^c	1.7	2.9	4.1	0.8	1.2	1.6	0.3	0.7	1.1
Hallucinogens ^l	0.4	0.9	1.4	1.0	1.4	1.8	1.0	1.8	2.5
LSD ^l	0.2	0.6	1.0	0.6	1.0	1.5	0.7	1.4	2.0
Hallucinogens other than LSD ^l	0.3	0.6	1.0	0.5	0.9	1.3	0.3	0.7	1.1
Ecstasy (MDMA) ^{e,f}	0.1	0.3	0.5	0.2	0.5	0.8	0.3	0.8	1.3
Cocaine	0.0	0.1	0.3	0.1	0.4	0.6	0.3	0.8	1.4
Crack	0.0	0.1	0.2	0.1	0.3	0.4	0.1	0.4	0.7
Cocaine other than Crack ^g	0.0	0.1	0.2	0.1	0.3	0.5	0.2	1.0	1.9
Heroin ^c	0.0	0.2	0.5	0.0	0.1	0.3	0.0	0.3	0.6
With a Needle ^{b,c}	0.0	0.2	0.4	0.0	0.1	0.3	0.0	0.1	0.3
Without a Needle ^{b,c}	0.0	0.2	0.4	0.0	0.1	0.1	0.0	0.1	0.3
Narcotics other than Heroin ^h	—	—	—	—	—	—	0.5	0.7	1.0
Amphetamines ^{e,f,h}	1.4	2.2	3.1	1.3	1.9	2.5	1.2	1.7	2.3
Methamphetamine ^{f,i}	0.0	0.1	0.3	0.0	0.2	0.6	0.3	0.8	1.4
Crystal Methamphetamine (Ice) ^f	—	—	—	—	—	—	0.0	0.0	0.1
Sedatives (Barbiturates) ^h	—	—	—	—	—	—	0.7	1.2	1.8
Tranquilizers ^h	0.4	1.1	1.8	0.5	0.7	1.0	0.6	1.0	1.4
Rohypnol ^{d,j}	§	§	§	§	§	§	—	—	—
Alcohol	7.5	9.9	12.2	16.5	20.3	24.1	27.4	33.6	39.7
Been Drunk ^f	2.3	3.4	4.4	7.2	9.3	11.3	13.7	19.8	25.9
Flavored Alcoholic Beverages ^{d,i}	3.4	6.6	9.8	8.9	12.5	16.1	§	§	§
Cigarettes	1.4	2.2	2.9	2.4	3.2	4.1	3.5	7.5	11.4
Smokeless Tobacco ^{d,e}	1.4	2.3	3.1	2.1	3.5	4.9	§	§	§
Any Vaping	9.5	12.5	15.6	19.6	23.5	27.4	23.1	28.2	33.4
Vaping Nicotine	7.3	10.5	13.6	15.6	19.3	23.0	18.9	24.7	30.5
Vaping Marijuana	2.8	4.2	5.6	9.1	11.3	13.5	9.3	12.2	15.2
Vaping Just Flavoring	5.1	6.8	8.4	8.6	10.4	12.2	6.2	8.4	10.7
Vaping Flavoring with no Nicotine Vaping	0.7	1.2	1.6	1.4	2.0	2.5	0.5	0.8	1.2
JUUL	4.4	6.3	8.1	9.4	12.3	15.2	9.9	12.9	15.9
Large Cigars ^{f,m}	0.5	1.5	2.5	0.5	1.2	2.0	§	§	§
Flavored Little Cigar ^{f,m}	0.9	2.3	3.8	1.6	3.0	4.3	§	§	§
Regular Little Cigar ^{f,m}	0.2	1.4	2.5	1.3	2.4	3.6	§	§	§
Tobacco Using a Hookah ^{f,m}	0.2	0.7	1.2	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, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	8th Grade			10th Grade			12th Grade		
Any Nicotine Use ^d	7.6	11.2	14.9	15.5	18.8	22.1	\$	\$	\$
Any Nicotine Use other than Vaping ^d	2.6	4.7	6.8	5.0	6.6	8.2	\$	\$	\$
Steroids ^{b,h}	0.1	0.3	0.6	0.2	0.5	0.7	0.3	1.2	2.0
Legal Use of Over-the-Counter Stimulants									
Diet Pills ^d	—	—	—	—	—	—	\$	\$	\$
Stay-Awake Pills ^d	—	—	—	—	—	—	\$	\$	\$
Current, Legal Use of Prescription ADHD Drugs ⁿ									
Stimulant-Type ^f	0.7	2.0	3.3	1.5	2.5	3.6	1.9	3.1	4.2
Non-Stimulant-Type ^f	0.6	1.4	2.3	0.9	1.8	2.7	0.8	1.7	2.6
Either Type ^f	1.3	2.7	4.0	3.0	4.0	5.1	3.0	4.2	5.5

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, 2020,
With Ninety-Five Percent Confidence Limits

(Approximate weighted Ns: 8th grade = 3,100, 10th grade = 4,800, 12th grade = 3,500)

	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									
Used Daily in Past 30 Days ^k	0.4	1.1	1.8	3.2	4.4	5.6	4.9	6.9	8.9
Ever Used Daily for Month or More in Lifetime ^d	—	—	—	—	—	—	§	§	§
Alcohol									
Daily ^k	0.1	0.4	0.7	0.4	1.0	1.6	0.9	2.7	4.6
Been Drunk ^f	0.0	0.2	0.4	0.1	0.3	0.6	0.0	0.8	1.9
5+ Drinks in a Row in Last 2 Weeks	3.0	4.5	6.1	7.5	9.6	11.6	12.2	16.8	21.3
Cigarettes									
Daily	0.3	0.8	1.2	0.7	1.2	1.6	1.6	3.1	4.6
1/2 Pack+/Day	0.0	0.1	0.1	0.3	0.6	0.8	0.5	1.4	2.2
Vaping Nicotine ^o	0.3	0.8	1.3	1.8	3.0	4.3	3.3	5.2	7.0
Vaping Marijuana ^o	0.0	0.2	0.7	0.3	0.9	1.5	0.6	1.6	2.7
Vaping Just Flavoring ^o	0.0	0.4	0.8	0.5	1.2	1.9	0.8	1.4	2.1
Smokeless Tobacco ^{d,e}	0.1	0.5	0.9	0.2	0.7	1.2	§	§	§

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.

§ 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).

^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."

^o N is two thirds of N indicated.

TABLE 4-2
Prevalence of Use of Various Drugs
for 8th, 10th, and 12th Graders, 2020

	Lifetime			Annual			30-Day			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	3,100	4,800	3,500	3,100	4,800	3,500	3,100	4,800	3,500	3,100	4,800	3,500
Any Illicit Drug ^a	21.3	37.3	46.6	15.6	30.4	36.8	8.7	18.2	22.2	—	—	—
Any Illicit Drug other than Marijuana ^a	12.5	13.2	17.5	7.7	8.6	11.4	3.5	3.7	4.8	—	—	—
Any Illicit Drug including Inhalants ^{a,b}	28.4	39.7	47.6	18.5	31.3	38.7	10.2	18.7	23.8	—	—	—
Marijuana/Hashish	14.8	33.3	43.7	11.4	28.0	35.2	6.5	16.6	21.1	1.1	4.4	6.9
Ever Used Daily for Month or More in Lifetime ^f	—	—	—	—	—	—	—	—	—	—	—	§
Synthetic Marijuana ^{c,d}	—	—	—	1.6	2.5	2.4	—	—	—	—	—	—
Inhalants ^b	12.6	7.4	3.8	6.1	2.9	1.1	2.9	1.2	0.7	—	—	*
Hallucinogens ^{e,m}	3.0	4.8	7.5	1.7	3.4	5.3	0.9	1.4	1.8	—	—	0.1
LSD ^m	2.1	3.8	5.9	1.1	2.5	3.9	0.6	1.0	1.4	—	—	0.1
Hallucinogens other than LSD ^m	2.0	3.4	4.7	1.1	2.2	2.8	0.6	0.9	0.7	—	—	*
PCP ^f	—	—	—	—	—	§	—	—	—	—	—	—
Ecstasy (MDMA) ^{b,n}	1.7	2.6	3.6	0.8	1.2	1.8	0.3	0.5	0.8	—	—	0.1
Salvia ^{c,d}	—	—	—	0.5	1.2	0.7	—	—	—	—	—	—
Cocaine	1.6	1.6	4.1	0.5	1.1	2.9	0.1	0.4	0.8	—	—	0.2
Crack	0.9	0.7	1.6	0.2	0.5	1.2	0.1	0.3	0.4	—	—	0.1
Cocaine other than Crack ^h	1.3	1.5	4.0	0.5	1.0	2.9	0.1	0.3	1.0	—	—	0.1
Heroin ^o												
Any Use ^o	0.5	0.3	0.4	0.2	0.2	0.3	0.2	0.1	0.3	—	—	*
With a Needle ^{b,o}	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	—	—	0.0
Without a Needle ^{b,o}	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	—	—	0.0
Narcotics other than Heroin ⁱ	—	—	5.3	—	—	2.1	—	—	0.7	—	—	0.1
OxyContin ^{b,d,i}	—	—	—	0.9	1.0	2.4	—	—	—	—	—	—
Vicodin ^{b,d,i}	—	—	—	0.5	0.9	1.2	—	—	—	—	—	—
Amphetamines ⁱ	8.9	7.0	7.3	5.3	4.3	4.3	2.2	1.9	1.7	—	—	0.3
Ritalin ^{c,d,i}	—	—	—	0.5	1.0	1.7	—	—	—	—	—	—
Adderall ^{c,d,i}	—	—	—	2.7	2.9	4.4	—	—	—	—	—	—
Methamphetamine ^{c,d}	1.1	0.8	1.7	0.5	0.3	1.4	0.1	0.2	0.8	—	—	*
Crystal Methamphetamine (Ice) ^c	—	—	0.2	—	—	*	—	—	*	—	—	0.0
Sedatives (Barbiturates) ⁱ	—	—	4.4	—	—	2.4	—	—	1.2	—	—	0.1
Tranquilizers ⁱ	3.9	4.9	7.0	2.2	2.6	3.2	1.1	0.7	1.0	—	—	0.1
Any Prescription Drug ^j	—	—	14.2	—	—	7.6	—	—	3.3	—	—	—
Over-the-Counter Cough/Cold Medication ^{c,d}	—	—	—	4.6	3.3	3.2	—	—	—	—	—	—
Rohypnol ^{f,k}	§	§	—	§	§	§	§	§	—	—	—	—
GHB ^f	—	—	—	—	—	§	—	—	—	—	—	—
Ketamine ^c	—	—	—	—	—	1.3	—	—	—	—	—	—
Alcohol												
Any Use	25.6	46.4	61.5	20.5	40.7	55.3	9.9	20.3	33.6	0.4	1.0	2.7
Been Drunk ^c	10.1	28.8	41.7	7.5	23.1	36.9	3.4	9.3	19.8	0.2	0.3	0.8
Flavored Alcoholic Beverages ^{d,f}	18.3	36.4	§	14.7	29.6	§	6.6	12.5	§	—	—	§
Alcoholic Beverages containing Caffeine ^{c,d}	—	—	—	5.7	8.3	12.3	—	—	—	—	—	—
5+ Drinks in a Row in Last 2 Weeks	—	—	—	—	—	—	—	—	—	4.5	9.6	16.8

(Table continued on next page.)

TABLE 4-2 (cont.)
Prevalence of Use of Various Drugs
for 8th, 10th, and 12th Graders, 2020

	Lifetime			Annual			30-Day			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
<i>Approximate weighted N =</i>	3,100	4,800	3,500	3,100	4,800	3,500	3,100	4,800	3,500	3,100	4,800	3,500
Cigarettes												
Any Use	11.5	13.9	24.0	—	—	—	2.2	3.2	7.5	0.8	1.2	3.1
1/2 Pack+/Day	—	—	—	—	—	—	—	—	—	0.1	0.6	1.4
Tobacco using a Hookah ^b	—	—	—	—	—	4.1	—	1.0	§	—	—	—
Small cigars ^f	—	—	—	—	—	§	—	—	—	—	—	—
Dissolvable Tobacco Products ^{d,f}	—	—	—	0.6	1.3	§	—	—	—	—	—	—
Snus ^{d,f}	—	—	—	1.6	2.2	§	—	—	—	—	—	—
Smokeless Tobacco ^{f,g}	7.8	9.3	§	—	—	—	2.3	3.5	§	0.5	0.7	§
Any Vaping	24.1	41.0	47.2	19.2	34.6	39.0	12.5	23.5	28.2	—	—	—
Vaping Nicotine ^p	22.7	38.7	44.3	16.6	30.7	34.5	10.5	19.3	24.7	0.8	3.0	5.2
Vaping Marijuana ^p	10.2	22.7	27.9	8.1	19.1	22.1	4.2	11.3	12.2	0.2	0.9	1.6
Vaping Just Flavoring ^p	17.8	27.7	29.8	12.3	18.4	16.6	6.8	10.4	8.4	1.4	1.2	1.4
Flavoring Vaping with no Nicotine Vaping	1.3	1.6	2.1	2.0	2.0	1.9	1.2	2.0	0.8	—	—	—
JUUL	16.9	30.7	36.2	11.7	20.0	22.7	6.3	12.3	12.9	—	—	—
Large Cigars ^{c,i}	—	—	—	—	—	—	1.5	1.2	§	—	—	—
Flavored Little Cigars ^{c,i}	—	—	—	—	—	—	2.3	3.0	§	—	—	—
Regular Little Cigars ^{c,i}	—	—	—	—	—	—	1.4	2.4	§	—	—	—
Any Nicotine Use ^{d,f}	—	—	—	—	—	—	11.2	18.8	§	—	—	—
Any Nicotine Use other than Vaping ^{d,f}	—	—	—	—	—	—	4.7	6.6	§	—	—	—
Steroids ^b	2.0	1.7	2.0	1.1	0.9	1.2	0.3	0.5	1.2	—	—	0.5
Androstenedione ^c	—	—	—	—	—	§	—	—	—	—	—	—
Creatine ^{c,d}	—	—	—	2.5	4.5	7.2	—	—	—	—	—	—
Legal Use of Over-the-Counter Stimulants												
Diet Pills ^f	—	—	3.1	—	—	1.8	—	—	0.8	—	—	—
Stay-Awake Pills ^f	—	—	2.0	—	—	1.3	—	—	0.8	—	—	—
Legal Use of Prescription ADHD Drugs												
Stimulant-Type ^{c,p}	5.0	6.0	7.5	—	—	—	2.0	2.5	3.1	—	—	—
Non-Stimulant-Type ^{c,p}	4.2	5.1	4.8	—	—	—	1.4	1.8	1.7	—	—	—
Either Type ^{c,p}	7.3	9.3	9.9	—	—	—	2.7	4.0	4.2	—	—	—

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

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

§ 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).

^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 daily estimates only: *N* is two thirds of *N* indicated.

TABLE 4-3
Prevalence of Use of Heroin *with* and *without* a Needle
for 8th, 10th, and 12th Graders, 2020

(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	0.1	*	*
Used heroin only <i>without</i> a needle	0.2	0.0	0.0
Used heroin both ways	0.2	0.2	0.2
Used heroin at all	0.5	0.2	0.2
<i>Approximate weighted N =</i>	<i>2,100</i>	<i>2,100</i>	<i>2,100</i>
10th Graders			
Used heroin only <i>with</i> a needle	0.1	0.1	0.1
Used heroin only <i>without</i> a needle	0.1	0.0	0.0
Used heroin both ways	0.1	0.1	0.1
Used heroin at all	0.3	0.2	0.1
<i>Approximate weighted N =</i>	<i>3,200</i>	<i>3,200</i>	<i>3,200</i>
12th Graders			
Used heroin only <i>with</i> a needle	0.1	0.0	0.0
Used heroin only <i>without</i> a needle	0.0	0.0	0.0
Used heroin both ways	0.1	0.1	0.1
Used heroin at all	0.2	0.1	0.1
<i>Approximate weighted N =</i>	<i>1,800</i>	<i>1,800</i>	<i>1,800</i>

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, 2020

(Entries are percentages.)

Approximate weighted N =	Marijuana			Synthetic Marijuana ^{a,b}			Inhalants ^{c,k}			Hallucinogens ^{d,j}			LSD ^l			Hallucinogens other than LSD ^l			PCP ^e		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
	3,100	4,800	3,500	1,000	1,600	1,200	2,100	3,200	1,800	3,100	4,800	2,900	3,100	4,800	2,900	3,100	4,800	2,900	—	—	§
Lifetime Frequency																					
No occasions	85.2	66.7	56.3	—	—	—	87.4	92.6	96.2	97.0	95.2	92.5	97.9	96.2	94.1	98.0	96.6	95.3	—	—	—
1–2 occasions	6.0	9.6	9.4	—	—	—	6.9	4.6	2.6	1.6	2.0	2.6	1.4	2.5	3.1	1.3	2.4	3.2	—	—	—
3–5 occasions	2.1	4.7	7.3	—	—	—	2.2	1.5	0.5	0.7	1.8	2.8	0.2	0.7	1.2	0.5	0.5	0.8	—	—	—
6–9 occasions	1.5	3.8	4.2	—	—	—	2.0	0.3	0.3	0.4	0.2	0.7	0.4	0.2	0.6	0.1	0.3	0.4	—	—	—
10–19 occasions	1.5	3.2	4.6	—	—	—	0.4	0.5	0.2	0.1	0.4	0.5	*	0.1	0.3	*	0.2	0.2	—	—	—
20–39 occasions	1.1	2.5	3.5	—	—	—	0.6	0.2	0.1	0.1	0.1	0.5	0.1	*	0.4	0.1	0.1	0.1	—	—	—
40 or more	2.6	9.5	14.7	—	—	—	0.5	0.2	*	0.1	0.3	0.2	0.0	0.2	0.2	0.0	0.1	*	—	—	—
Annual Frequency																					
No occasions	88.6	72.0	64.8	98.4	97.5	97.6	93.9	97.1	98.9	98.3	96.6	94.7	98.9	97.5	96.1	98.9	97.8	97.2	—	—	§
1–2 occasions	4.3	8.9	9.8	0.6	1.2	1.7	3.2	1.4	0.6	0.9	1.7	3.0	0.7	1.6	2.8	0.8	1.3	2.3	—	—	§
3–5 occasions	2.0	3.6	5.3	0.2	0.5	0.3	1.4	0.8	0.3	0.4	0.9	1.3	0.1	0.5	0.4	0.1	0.5	0.2	—	—	§
6–9 occasions	1.4	3.5	3.8	0.3	0.4	0.2	0.6	0.2	0.1	0.3	0.2	0.5	0.3	0.1	0.5	0.1	0.3	0.2	—	—	§
10–19 occasions	1.1	3.0	3.6	0.4	0.3	0.1	0.4	0.3	0.1	*	0.4	0.3	0.1	0.1	0.1	*	0.1	0.1	—	—	§
20–39 occasions	1.2	2.4	3.3	0.2	0.2	0.2	0.4	0.1	*	0.1	0.1	*	0.0	*	*	*	0.1	*	—	—	§
40 or more	1.5	6.7	9.5	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.2	0.0	*	*	—	—	§
30-Day Frequency																					
No occasions	93.5	83.4	78.9	—	—	—	97.1	98.8	99.3	99.1	98.6	98.2	99.4	99.0	98.6	99.4	99.1	99.3	—	—	—
1–2 occasions	2.9	5.6	7.1	—	—	—	2.0	0.6	0.4	0.4	0.8	0.9	0.3	0.7	0.8	0.5	0.6	0.5	—	—	—
3–5 occasions	1.0	2.8	3.0	—	—	—	0.4	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	*	0.2	0.1	—	—	—
6–9 occasions	0.8	1.7	2.0	—	—	—	0.2	0.1	0.1	0.3	*	0.4	0.2	*	0.3	0.1	0.1	0.1	—	—	—
10–19 occasions	0.7	2.2	2.2	—	—	—	0.2	0.2	0.1	*	0.1	0.1	0.0	*	0.1	0.0	0.1	*	—	—	—
20–39 occasions	0.5	1.2	2.2	—	—	—	0.1	0.1	*	0.0	0.1	0.1	0.0	0.1	0.1	0.0	*	*	—	—	—
40 or more	0.6	3.2	4.7	—	—	—	0.0	0.1	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, 2020

(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 2,600	10th 4,000	12th 1,800	8th 1,000	10th 1,600	12th 1,200	8th 3,100	10th 4,800	12th 3,500	8th 3,100	10th 4,800	12th 3,500	8th 3,100	10th 4,800	12th 2,300	8th 2,100	10th 3,200	12th 3,500	8th 2,100	10th 3,200	12th 1,800
Lifetime Frequency																					
No occasions	98.3	97.4	96.4	—	—	—	98.4	98.4	95.9	99.1	99.3	98.4	98.7	98.5	96.0	99.5	99.7	99.6	99.7	99.8	99.8
1–2 occasions	1.0	1.7	1.8	—	—	—	0.8	0.7	2.1	0.8	0.4	0.6	1.1	1.0	1.9	0.2	0.1	0.1	*	*	0.1
3–5 occasions	0.3	0.6	1.0	—	—	—	0.5	0.6	0.6	*	*	0.1	*	0.2	0.9	0.1	*	*	0.1	0.1	0.1
6–9 occasions	0.3	0.2	0.3	—	—	—	0.2	0.1	0.1	*	*	0.7	0.2	0.2	0.3	*	0.1	*	*	*	*
10–19 occasions	0.1	*	0.3	—	—	—	*	0.1	0.7	*	0.1	0.1	*	*	0.2	*	*	0.2	0.1	*	0.0
20–39 occasions	*	*	0.1	—	—	—	*	0.1	0.4	*	*	0.1	*	*	0.7	0.1	0.1	*	0.0	0.0	0.0
40 or more	*	0.1	0.1	—	—	—	*	*	0.2	*	*	0.1	0.0	*	0.1	0.0	0.0	*	0.0	0.0	0.0
Annual Frequency																					
No occasions	99.2	98.8	98.2	99.5	98.8	99.3	99.5	98.9	97.1	99.8	99.5	98.8	99.5	99.0	97.1	99.8	99.8	99.7	99.8	99.8	99.9
1–2 occasions	0.6	0.8	0.9	0.2	0.5	0.2	0.2	0.4	1.3	0.1	0.3	0.3	0.4	0.5	1.6	*	*	*	*	*	0.1
3–5 occasions	*	0.3	0.3	*	0.2	0.6	0.1	0.3	0.8	0.1	0.1	0.5	0.1	0.2	0.5	*	0.1	0.1	*	0.1	0.0
6–9 occasions	0.2	*	0.2	0.2	0.1	0.0	0.1	0.1	0.3	*	0.2	0.1	*	0.2	0.5	*	*	*	*	*	0.0
10–19 occasions	*	0.1	0.1	0.1	0.2	0.0	*	0.2	0.2	*	*	0.1	*	*	0.2	0.1	*	0.2	0.1	*	0.0
20–39 occasions	0.0	*	0.2	0.0	0.3	0.0	*	*	*	*	*	*	0.0	*	0.1	0.0	0.0	*	0.0	0.0	0.0
40 or more	0.0	*	0.1	0.0	0.0	0.0	*	*	0.2	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	99.7	99.5	99.2	—	—	—	99.9	99.6	99.2	99.9	99.7	99.6	99.9	99.7	99.0	99.8	99.9	99.7	99.8	99.8	99.9
1–2 occasions	0.2	0.3	0.3	—	—	—	0.1	0.1	0.4	0.1	0.2	0.1	0.1	0.1	0.5	0.1	0.1	*	*	*	0.1
3–5 occasions	*	0.2	0.2	—	—	—	*	0.2	0.1	*	*	*	*	0.1	0.2	*	*	0.1	*	*	0.1
6–9 occasions	*	*	*	—	—	—	*	*	*	*	*	0.1	*	0.1	0.1	0.2	*	0.2	0.1	*	0.0
10–19 occasions	0.0	*	0.1	—	—	—	*	*	0.1	*	*	0.1	*	0.0	0.1	0.0	*	*	0.0	0.0	0.0
20–39 occasions	0.0	0.0	0.1	—	—	—	*	*	*	*	0.0	*	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
40 or more	0.0	0.0	0.1	—	—	—	0.0	0.0	0.1	0.0	0.0	*	0.0	0.0	0.1	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, 2020

(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 =	2,100	3,200	1,800	—	—	3,500	1,000	1,600	1,800	1,000	1,600	1,800	3,100	4,800	3,500	1,000	1,600	1,200	1,000	1,600	1,200
Lifetime Frequency																					
No occasions	99.6	99.8	99.9	—	—	94.7	—	—	—	—	—	—	91.1	93.0	92.7	—	—	—	—	—	—
1–2 occasions	0.2	0.1	0.1	—	—	3.0	—	—	—	—	—	—	4.9	3.8	3.0	—	—	—	—	—	—
3–5 occasions	*	*	*	—	—	0.5	—	—	—	—	—	—	2.0	1.1	1.4	—	—	—	—	—	—
6–9 occasions	*	*	0.0	—	—	0.7	—	—	—	—	—	—	0.8	0.4	0.6	—	—	—	—	—	—
10–19 occasions	0.1	0.0	0.0	—	—	0.3	—	—	—	—	—	—	0.3	0.7	1.0	—	—	—	—	—	—
20–39 occasions	0.0	0.0	0.0	—	—	0.2	—	—	—	—	—	—	0.1	0.2	0.5	—	—	—	—	—	—
40 or more	0.0	0.0	0.0	—	—	0.6	—	—	—	—	—	—	0.9	0.9	0.9	—	—	—	—	—	—
Annual Frequency																					
No occasions	99.8	99.9	99.9	—	—	97.9	99.1	99.0	97.6	99.5	99.1	98.8	94.7	95.7	95.7	99.5	99.0	98.3	97.3	97.1	95.6
1–2 occasions	*	*	0.1	—	—	1.1	0.4	0.6	1.1	0.2	0.3	0.8	3.4	2.1	1.9	0.2	0.5	1.1	1.2	1.5	2.8
3–5 occasions	0.1	*	*	—	—	0.5	0.2	0.1	0.8	*	0.4	*	0.9	0.8	0.8	0.2	0.1	0.3	1.0	0.7	0.6
6–9 occasions	0.0	*	0.0	—	—	0.2	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.6	0.5	*	0.2	0.1	0.1	0.4	0.3
10–19 occasions	0.0	0.0	0.0	—	—	0.3	0.1	0.1	0.2	0.2	*	*	0.1	0.3	0.4	0.1	*	0.1	0.1	0.2	0.2
20–39 occasions	0.0	0.0	0.0	—	—	*	*	0.0	0.2	*	*	*	0.3	0.2	0.2	*	0.1	0.1	*	0.0	0.2
40 or more	0.0	0.0	0.0	—	—	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.3	0.0	0.0	0.0	0.3	0.0	0.3
30-Day Frequency																					
No occasions	99.8	99.9	99.9	—	—	99.3	—	—	—	—	—	—	97.8	98.1	98.3	—	—	—	—	—	—
1–2 occasions	*	*	0.1	—	—	0.3	—	—	—	—	—	—	1.1	1.2	0.8	—	—	—	—	—	—
3–5 occasions	0.1	*	*	—	—	0.1	—	—	—	—	—	—	0.5	0.3	0.4	—	—	—	—	—	—
6–9 occasions	0.0	*	0.0	—	—	0.1	—	—	—	—	—	—	0.1	0.2	0.2	—	—	—	—	—	—
10–19 occasions	0.0	0.0	0.0	—	—	0.1	—	—	—	—	—	—	0.2	0.1	0.1	—	—	—	—	—	—
20–39 occasions	0.0	0.0	0.0	—	—	*	—	—	—	—	—	—	0.2	0.1	0.1	—	—	—	—	—	—
40 or more	0.0	0.0	0.0	—	—	0.1	—	—	—	—	—	—	0.2	0.1	0.2	—	—	—	—	—	—

(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, 2020

(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
	1,000	1,600	1,200	—	—	1,200	1,000	1,600	1,200	—	—	3,500	3,100	4,800	3,500	1,000	1,600	1,200	§	§	§
Lifetime Frequency																					
No occasions	98.9	99.2	98.3	—	—	99.8	—	—	—	—	—	95.6	96.1	95.1	93.0	—	—	—	§	§	—
1–2 occasions	0.9	0.5	0.2	—	—	0.1	—	—	—	—	—	2.4	2.5	3.3	4.4	—	—	—	§	§	—
3–5 occasions	0.1	*	0.8	—	—	*	—	—	—	—	—	0.6	0.8	0.8	1.3	—	—	—	§	§	—
6–9 occasions	*	*	0.3	—	—	*	—	—	—	—	—	0.5	0.2	0.4	0.4	—	—	—	§	§	—
10–19 occasions	0.1	0.1	*	—	—	0.0	—	—	—	—	—	0.5	0.2	0.1	0.4	—	—	—	§	§	—
20–39 occasions	0.1	0.2	0.3	—	—	0.0	—	—	—	—	—	0.2	0.1	0.1	0.3	—	—	—	§	§	—
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.3	0.0	0.3	0.2	—	—	—	§	§	—
Annual Frequency																					
No occasions	99.5	99.7	98.6	—	—	100.0	—	—	—	—	—	97.6	97.8	97.4	96.8	95.4	96.7	96.8	§	§	§
1–2 occasions	0.3	*	0.9	—	—	*	—	—	—	—	—	1.2	1.4	1.9	2.1	2.1	1.5	1.9	§	§	§
3–5 occasions	*	*	0.2	—	—	0.0	—	—	—	—	—	0.4	0.7	0.3	0.7	0.5	1.0	0.3	§	§	§
6–9 occasions	0.1	0.1	0.1	—	—	0.0	—	—	—	—	—	0.4	0.1	0.2	0.2	0.9	0.5	0.6	§	§	§
10–19 occasions	0.0	0.2	0.1	—	—	0.0	—	—	—	—	—	0.2	0.1	0.2	0.1	1.1	0.1	0.1	§	§	§
20–39 occasions	0.0	0.0	*	—	—	0.0	—	—	—	—	—	0.1	0.0	*	0.1	*	*	0.3	§	§	§
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.1	0.0	0.0	0.1	0.0	0.2	0.0	§	§	§
30-Day Frequency																					
No occasions	99.9	99.8	99.2	—	—	100.0	—	—	—	—	—	98.8	98.9	99.3	99.0	—	—	—	§	§	—
1–2 occasions	*	0.1	0.3	—	—	*	—	—	—	—	—	0.6	0.7	0.4	0.6	—	—	—	§	§	—
3–5 occasions	*	0.2	0.3	—	—	0.0	—	—	—	—	—	0.2	0.3	0.2	0.2	—	—	—	§	§	—
6–9 occasions	0.1	0.0	0.2	—	—	0.0	—	—	—	—	—	0.3	0.1	0.1	0.1	—	—	—	§	§	—
10–19 occasions	0.0	0.0	*	—	—	0.0	—	—	—	—	—	0.1	*	*	*	—	—	—	§	§	—
20–39 occasions	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	*	*	0.1	*	—	—	—	§	§	—
40 or more	0.0	0.0	0.0	—	—	0.0	—	—	—	—	—	0.1	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, 2020

(Entries are percentages.)

	<u>GHB^e</u>			<u>Ketamine^b</u>			<u>Alcohol</u>			<u>Been Drunk^b</u>			<u>Flavored Alcoholic Beverages^{a,e}</u>			<u>Alcoholic Beverages containing Caffeine^{a,b}</u>			<u>Tobacco using a Hookah^e</u>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Approximate weighted N =	—	—	§	—	—	1,200	3,100	4,800	3,500	3,100	4,800	1,200	1,000	1,600	§	1,000	1,600	1,200	—	—	1,200
Lifetime Frequency																					
No occasions	—	—	—	—	—	—	74.4	53.6	38.5	89.9	71.2	58.3	81.7	63.6	§	—	—	—	—	—	—
1–2 occasions	—	—	—	—	—	—	8.5	10.4	9.6	5.2	13.4	9.2	7.2	11.0	§	—	—	—	—	—	—
3–5 occasions	—	—	—	—	—	—	5.2	9.9	10.3	1.9	6.4	8.9	5.1	8.2	§	—	—	—	—	—	—
6–9 occasions	—	—	—	—	—	—	4.5	8.0	8.9	1.4	3.6	4.9	1.0	6.5	§	—	—	—	—	—	—
10–19 occasions	—	—	—	—	—	—	3.0	8.1	8.9	0.6	3.0	6.3	2.2	5.3	§	—	—	—	—	—	—
20–39 occasions	—	—	—	—	—	—	1.4	4.4	8.7	0.4	1.2	5.8	1.1	2.4	§	—	—	—	—	—	—
40 or more	—	—	—	—	—	—	3.0	5.6	15.1	0.7	1.3	6.6	1.7	2.9	§	—	—	—	—	—	—
Annual Frequency																					
No occasions	—	—	§	—	—	98.7	79.5	59.3	44.7	79.5	76.9	63.1	85.3	70.4	§	94.3	91.7	87.7	—	—	95.9
1–2 occasions	—	—	§	—	—	0.8	9.7	15.1	15.1	9.7	12.5	13.2	7.5	11.1	§	3.0	4.3	4.8	—	—	2.3
3–5 occasions	—	—	§	—	—	0.1	4.9	9.5	11.2	4.9	5.3	7.5	3.1	8.3	§	1.9	1.9	2.7	—	—	0.7
6–9 occasions	—	—	§	—	—	*	2.2	6.6	7.9	2.2	2.8	5.7	1.9	4.3	§	0.3	0.7	1.9	—	—	0.7
10–19 occasions	—	—	§	—	—	*	1.9	5.4	10.2	1.9	1.5	4.7	1.0	3.4	§	0.1	0.3	2.0	—	—	0.1
20–39 occasions	—	—	§	—	—	0.3	1.0	2.1	5.2	1.0	0.5	3.4	0.7	0.9	§	0.1	0.3	0.4	—	—	0.3
40 or more	—	—	§	—	—	0.0	0.7	1.9	5.8	0.7	0.6	2.4	0.4	1.6	§	0.2	0.8	0.5	—	—	0.0
30-Day Frequency																					
No occasions	—	—	—	—	—	—	90.1	79.7	66.4	96.6	90.7	80.2	93.4	87.5	§	—	—	—	—	—	—
1–2 occasions	—	—	—	—	—	—	6.3	12.0	17.2	2.5	6.5	10.9	3.8	7.7	§	—	—	—	—	—	—
3–5 occasions	—	—	—	—	—	—	1.9	4.6	8.0	0.5	1.5	4.8	1.9	1.4	§	—	—	—	—	—	—
6–9 occasions	—	—	—	—	—	—	0.7	1.7	3.9	0.2	0.6	2.4	0.2	1.5	§	—	—	—	—	—	—
10–19 occasions	—	—	—	—	—	—	0.5	1.0	1.8	0.2	0.3	0.8	0.4	1.1	§	—	—	—	—	—	—
20–39 occasions	—	—	—	—	—	—	0.2	0.3	0.7	0.0	0.1	0.5	0.3	0.3	§	—	—	—	—	—	—
40 or more	—	—	—	—	—	—	0.3	0.6	2.0	0.0	0.3	0.3	0.1	0.5	§	—	—	—	—	—	—

(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, 2020

(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
	—	—	§	1,000	1,600	§	1,000	1,600	§	3,100	4,800	1,200
<i>Approximate weighted. N =</i>												
Lifetime Frequency												
No occasions	—	—	—	—	—	—	—	—	—	98.0	98.3	98.0
1–2 occasions	—	—	—	—	—	—	—	—	—	1.3	0.9	0.6
3–5 occasions	—	—	—	—	—	—	—	—	—	0.4	0.4	0.2
6–9 occasions	—	—	—	—	—	—	—	—	—	*	0.2	0.6
10–19 occasions	—	—	—	—	—	—	—	—	—	0.2	*	0.6
20–39 occasions	—	—	—	—	—	—	—	—	—	0.1	0.1	0.0
40 or more	—	—	—	—	—	—	—	—	—	0.0	0.0	0.0
Annual Frequency												
No occasions	—	—	§	99.4	98.7	§	98.4	97.8	§	98.9	99.1	98.8
1–2 occasions	—	—	§	0.2	0.4	§	1.1	0.8	§	0.6	0.5	0.3
3–5 occasions	—	—	§	0.1	0.4	§	*	0.2	§	0.2	0.1	0.3
6–9 occasions	—	—	§	0.2	0.3	§	0.2	0.1	§	*	0.2	0.2
10–19 occasions	—	—	§	*	0.2	§	0.1	0.3	§	0.2	*	0.5
20–39 occasions	—	—	§	0.1	0.0	§	0.2	0.2	§	0.1	*	0.0
40 or more	—	—	§	0.0	0.0	§	0.0	0.6	§	0.0	0.1	0.0
30-Day Frequency												
No occasions	—	—	—	—	—	—	—	—	—	99.7	99.5	98.8
1–2 occasions	—	—	—	—	—	—	—	—	—	0.2	0.2	0.3
3–5 occasions	—	—	—	—	—	—	—	—	—	*	*	0.3
6–9 occasions	—	—	—	—	—	—	—	—	—	*	0.1	0.1
10–19 occasions	—	—	—	—	—	—	—	—	—	0.1	*	*
20–39 occasions	—	—	—	—	—	—	—	—	—	0.0	0.1	0.5
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, 2020

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

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

§ Insufficient data for 2020 estimate.

^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.

TABLE 4-4b
Frequency of Occasions of Heavy Drinking,
for 8th, 10th, and 12th Graders, 2020

(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	95.5	90.4	83.2
Once	2.9	5.0	7.1
Twice	0.9	2.9	5.4
3 to 5 times	0.6	1.1	2.7
6 to 9 times	*	0.2	0.5
10 or more times	0.2	0.4	1.1
<i>Approximate weighted N =</i>	3,100	4,800	3,500
 <i>During the last two weeks, how many times (if any) have you had 10 or more drinks in a row?</i>			
None	99.1	97.5	§
Once	0.5	1.2	§
Twice	0.3	0.9	§
3 to 5 times	*	0.2	§
6 to 9 times	0.1	0.2	§
10 or more times	0.0	0.0	§
<i>Approximate weighted N =</i>	1,000	1,600	§
 <i>During the last two weeks, how many times (if any) have you had 15 or more drinks in a row?</i>			
None	—	—	§
Once	—	—	§
Twice	—	—	§
3 to 5 times	—	—	§
6 to 9 times	—	—	§
10 or more times	—	—	§
<i>Approximate weighted N =</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%.

§ Insufficient data for 2020 estimate.

TABLE 4-4c
Frequency of Use for Selected
Tobacco and Vaping Outcomes
for 8th, 10th, and 12th Graders, 2020

(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>Have you ever smoked cigarettes?</i>			
Never	8.3	86.1	76.0
Once or twice	1.9	9.5	13.7
Occasionally but not regularly	0.8	2.6	5.4
Regularly in the past	0.5	1.3	3.0
Regularly now	0.0	0.5	1.8
<i>Approximate weighted N =</i>	3,100	4,800	3,500
<i>How frequently have you smoked cigarettes during the past 30 days?</i>			
Not at all (includes “never” category from question above)	1.4	96.8	92.5
Less than one cigarette per day	0.7	2.1	4.4
One to five cigarettes per day	*	0.6	1.7
About one-half pack per day	*	0.1	0.7
About one pack per day	*	0.2	0.3
About one and one-half packs per day	*	*	0.1
Two packs or more per day	0.0	0.3	0.4
<i>Approximate weighted N =</i>	3,100	4,800	3,500
<i>Have you ever taken or used smokeless tobacco (snuff, plug, dipping tobacco, chewing tobacco)?</i>			
Never	5.9	96.5	§
Once or twice	0.6	1.1	§
Occasionally but not regularly	0.8	0.6	§
Regularly in the past	0.5	1.2	§
Regularly now	0.0	0.3	§
<i>Approximate weighted N =</i>	1,600	2,400	§
<i>How frequently have you taken smokeless tobacco during the past 30 days?</i>			
Not at all (includes “never” category from question above)	1.1	96.5	§
Once or twice	0.4	1.1	§
Once or twice per week	0.3	0.6	§
Three to five times per week	0.5	1.2	§
About once a day	0.0	0.3	§
More than once a day	0.0	0.4	§
<i>Approximate weighted N =</i>	1,600	2,400	§

(Table continued on next page.)

TABLE 4-4c (cont.)
Frequency of Use for Selected
Tobacco and Vaping Outcomes
for 8th, 10th, and 12th Graders, 2020
(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? ^a</i>			
Never	77.6	60.7	55.1
Once or twice	9.9	14.1	15.6
Occasionally but not regularly	6.5	13.2	13.0
Regularly in the past	3.6	6.5	8.3
Regularly now	2.4	5.5	8.0
<i>Approximate weighted N =</i>	<i>2,100</i>	<i>3,200</i>	<i>2,400</i>
<i>On how many DAYS (if any) during the LAST 30 DAYS have you vaped nicotine? ^a</i>			
No days	89.0	79.1	74.2
1–2 days	3.6	6.6	7.9
3–5 days	1.8	3.3	3.7
6–9 days	1.5	2.3	2.5
10–19 days	2.3	2.9	3.6
20–29 days	1.1	2.8	3.0
30 days	0.8	3.1	5.2
<i>Approximate weighted N =</i>	<i>2,100</i>	<i>3,200</i>	
<i>In your LIFETIME, how often have you vaped marijuana? ^a</i>			
Never	89.9	76.5	72.0
Once or twice	5.5	10.3	10.0
Occasionally but not regularly	2.8	7.7	10.8
Regularly in the past	1.1	3.1	4.0
Regularly now	0.8	2.5	3.2
<i>Approximate weighted N =</i>	<i>2,100</i>	<i>3,200</i>	<i>2,400</i>
<i>On how many DAYS (if any) during the LAST 30 DAYS have you vaped marijuana? ^a</i>			
No days	96.2	88.3	87.3
1–2 days	1.8	3.7	4.4
3–5 days	0.4	2.8	2.9
6–9 days	0.5	1.7	1.6
10–19 days	0.7	1.9	1.7
20–29 days	0.2	0.6	0.5
30 days	0.2	0.9	1.7
<i>Approximate weighted N =</i>	<i>2,100</i>	<i>3,200</i>	<i>2,400</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, 2020
(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? ^a</i>			
Never	82.0	69.9	67.1
Once or twice	10.0	15.6	18.8
Occasionally but not regularly	4.4	8.9	8.4
Regularly in the past	2.8	3.6	3.7
Regularly now	0.8	2.0	2.1
<i>Approximate weighted N =</i>	2,100	3,200	2,400

On how many DAYS (if any) during the LAST 30 DAYS have you vaped just flavoring? ^a

No days	92.3	88.1	90.1
1–2 days	3.3	4.9	4.1
3–5 days	1.7	2.7	1.2
6–9 days	1.1	1.2	1.3
10–19 days	1.1	1.3	1.3
20–29 days	0.1	0.7	0.6
30 days	0.4	1.2	1.4
<i>Approximate weighted N =</i>	2,100	3,200	2,400

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

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

§ Insufficient data for 2020 estimate.

TABLE 4-4d
Frequency of Days Used in the Past 30 Days for Various Tobacco and Other
Substances for 8th, 10th, and 12th Graders, 2020

(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	1.2	98.8	§	1.9	97.0	§	0.9	97.6	§	0.5	99.0	§
1–2 days	*	0.3	§	0.1	0.8	§	0.4	0.5	§	0.1	0.5	§
3–5 days	0.2	0.2	§	0.1	1.0	§	0.1	0.7	§	*	*	§
6–9 days	*	0.5	§	0.2	0.7	§	0.0	0.6	§	0.1	0.2	§
10–19 days	0.0	0.2	§	0.0	0.4	§	0.0	0.6	§	0.0	0.2	§
20–30 days	0.0	0.1	§	0.0	*	§	0.0	*	§	0.0	0.1	§

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

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

§ Insufficient data for 2020 estimate.

TABLE 4-4e
Frequency of Use Per Day for Energy Drinks and Energy Shots
for 8th, 10th, and 12th Graders, 2020

(Entries are percentages.)

	Energy Drinks			Energy Shots		
	8th	10th	12th	8th	10th	12th
Number of drinks/shots						
per day						
None	73.3	72.1	§	89.7	91.0	§
Less than 1	14.4	15.4	§	6.3	3.9	§
One	6.1	7.6	§	2.8	1.8	§
Two	4.7	1.9	§	0.7	2.0	§
Three	0.4	1.6	§	0.1	0.8	§
Four	0.7	0.6	§	0.1	0.2	§
Five or six	0.3	0.2	§	*	0.3	§
7 or more	*	0.6	§	0.3	0.0	§

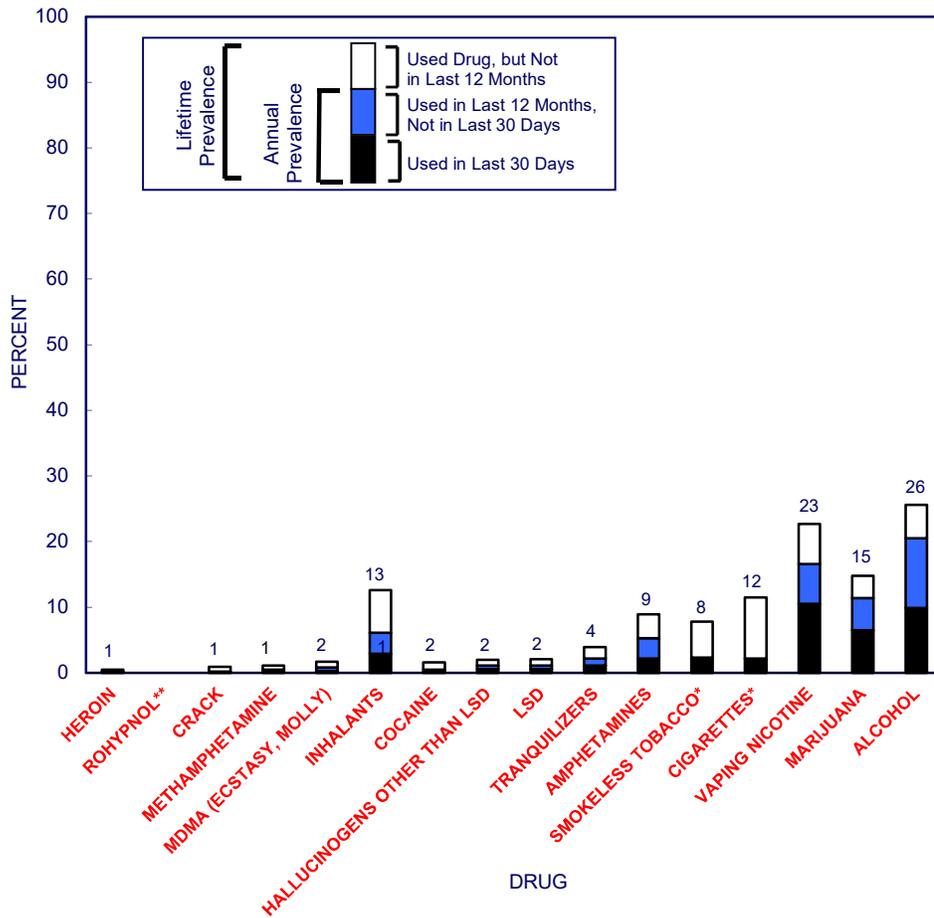
Source. The Monitoring the Future study, the University of Michigan.

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

§ Insufficient data for 2020 estimate.

FIGURE 4-1
Prevalence and Recency of Use of
Various Types of Drugs in Grades 8, 10, and 12
2020

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.

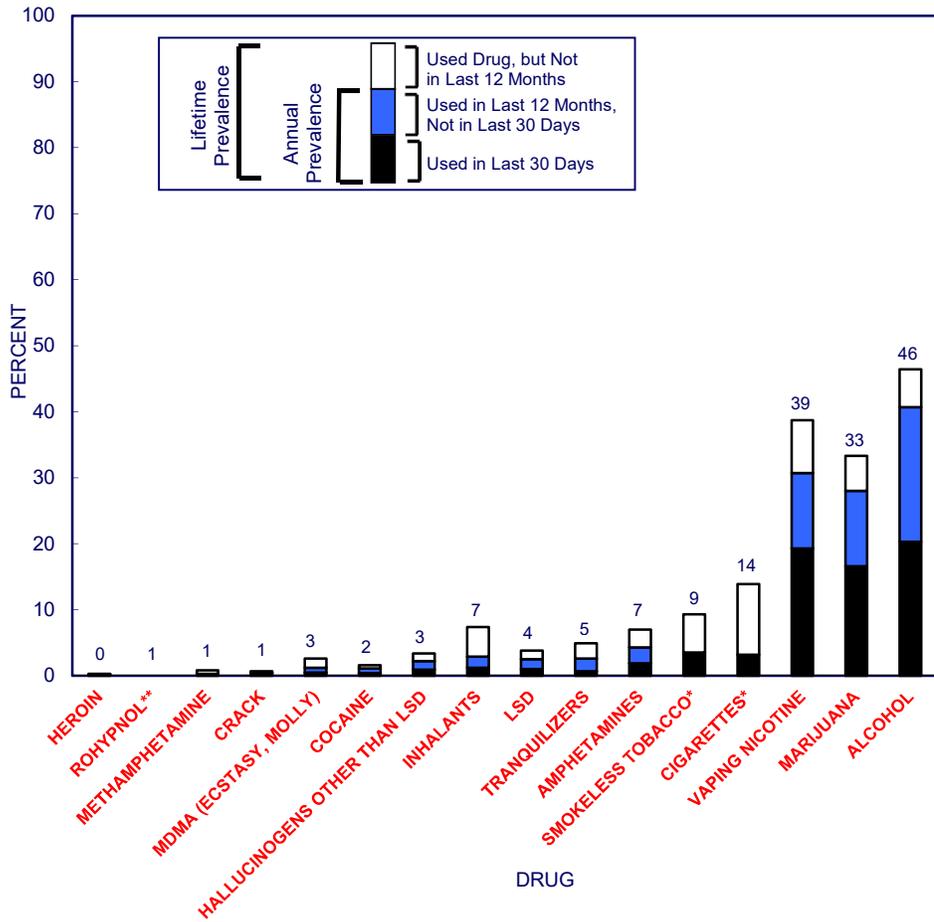
*Annual use not measured for cigarettes and smokeless tobacco.

**This estimate not presented in 2020 due to insufficient data.

(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
2020

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.

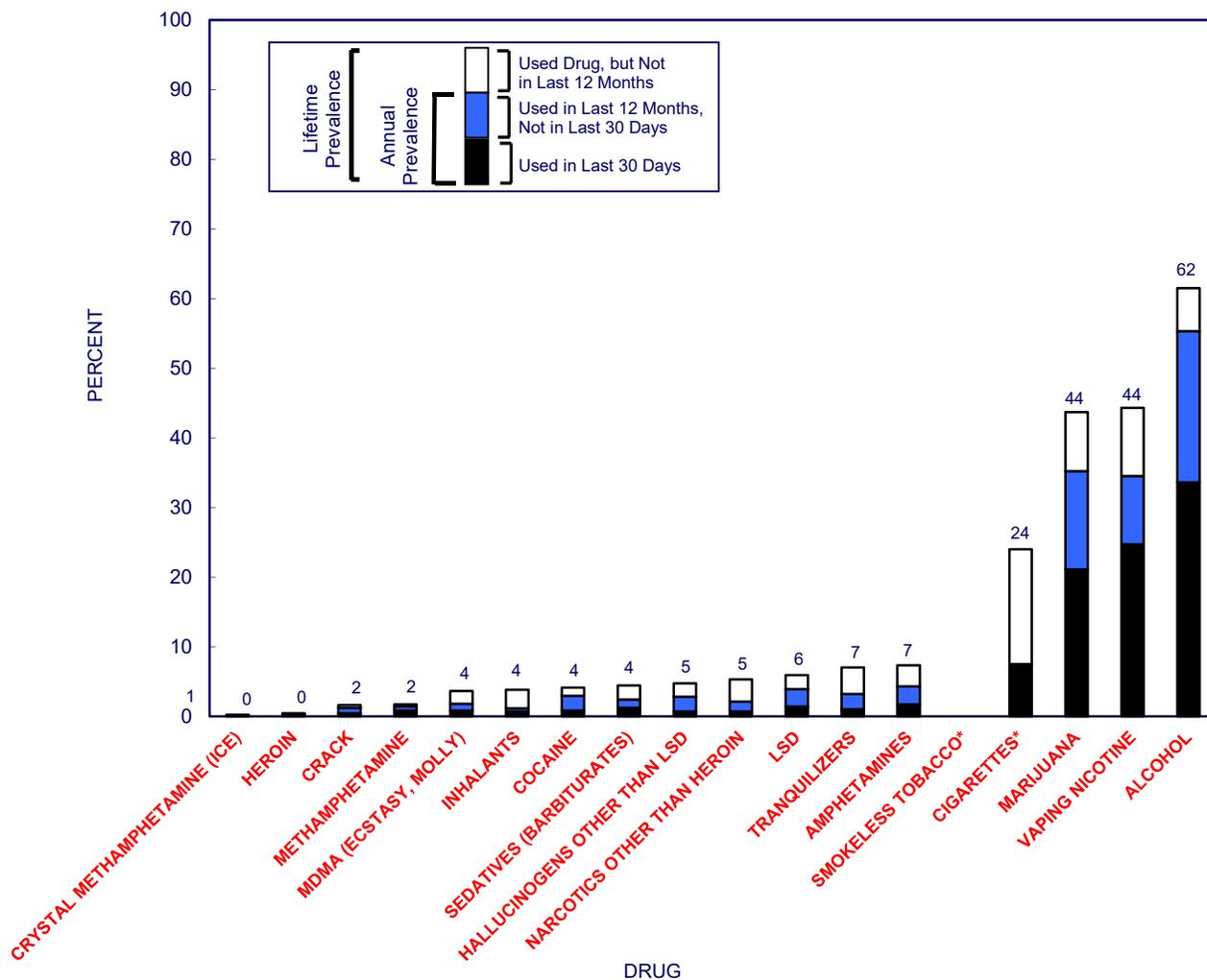
*Annual use not measured for cigarettes and smokeless tobacco.

**This estimate not presented in 2020 due to insufficient data.

(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
2020

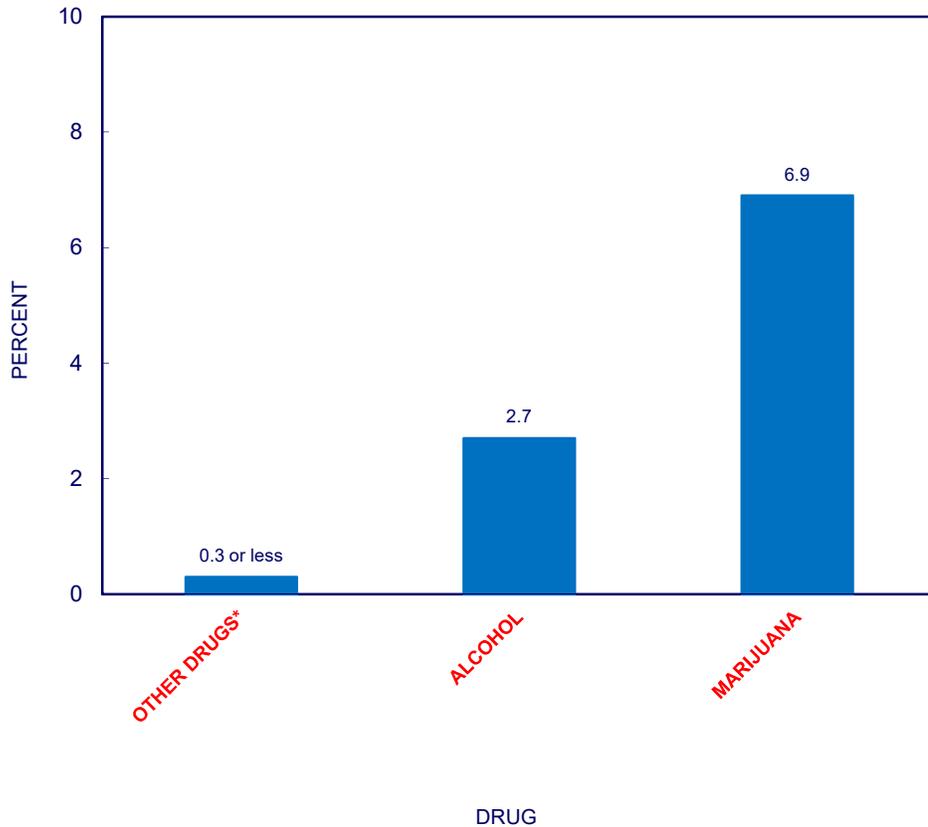
12th Graders



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

*Annual use not measured for cigarettes and smokeless tobacco. For smokeless tobacco only: This estimate not presented in 2020 due to insufficient data.

FIGURE 4-2a
Thirty-Day Prevalence of Daily Use of
Marijuana, Alcohol, and Other Drugs ^a in Grade 12
2020

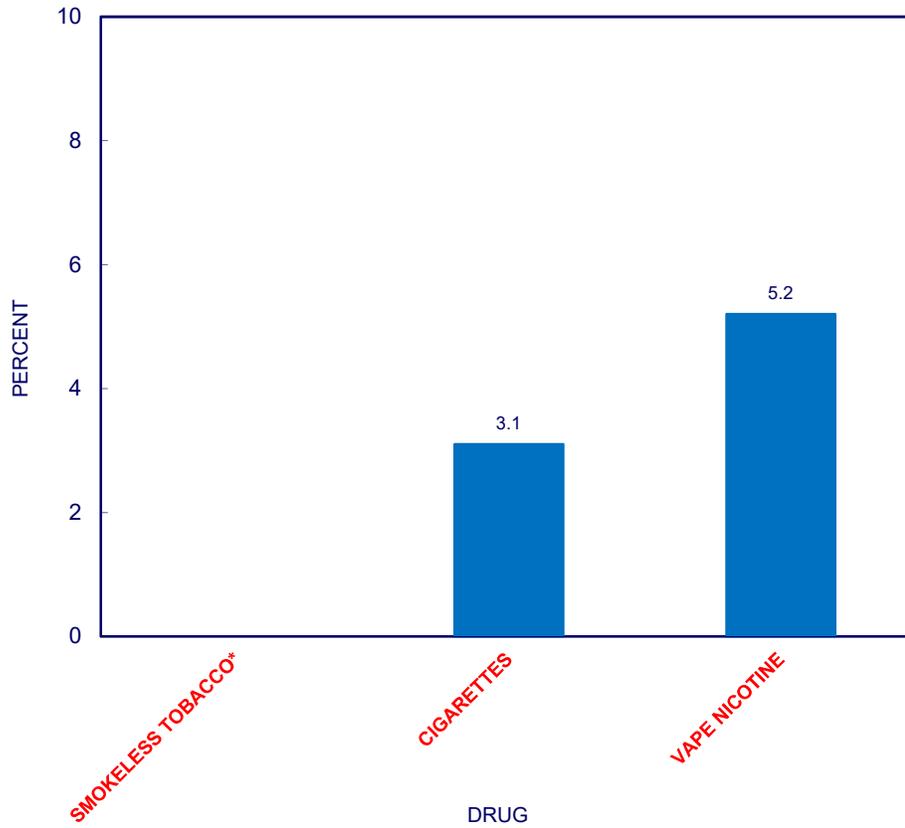


Source. *The Monitoring the Future study, the University of Michigan.*

*Each of the following drugs was 0.3% or less in 2019: 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
2020

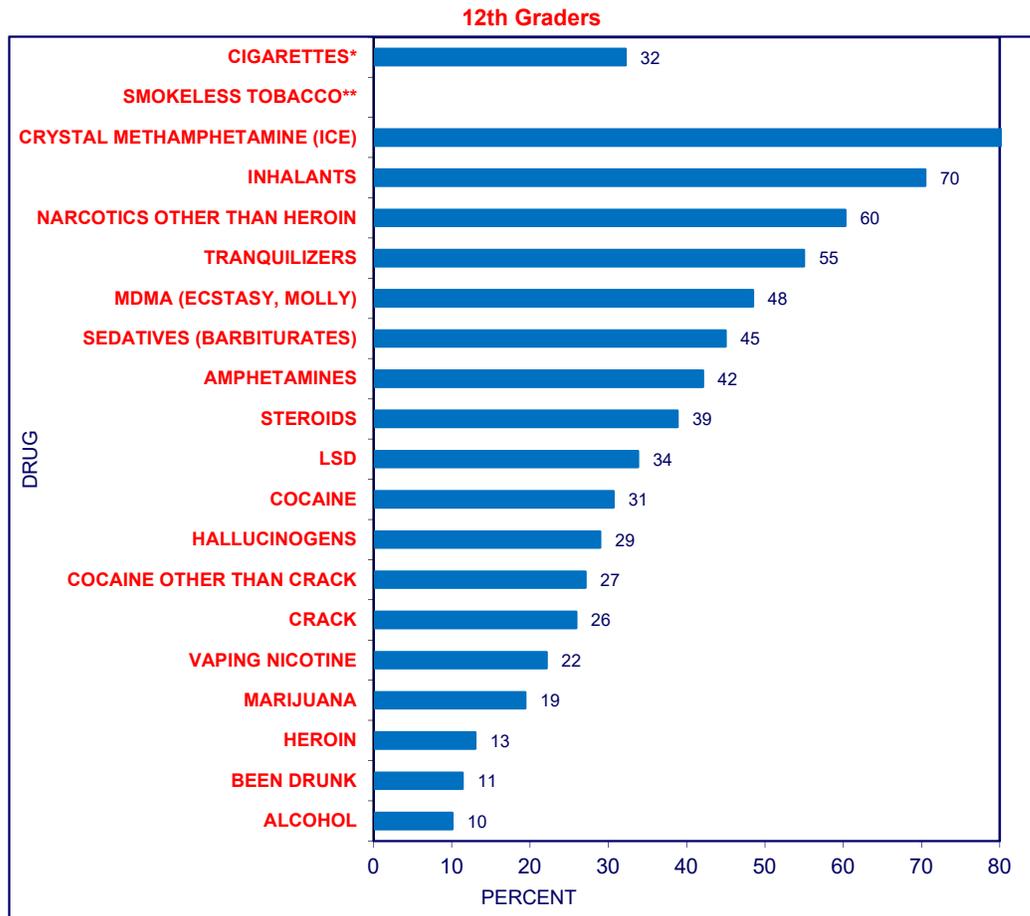


Source. *The Monitoring the Future study, the University of Michigan.*

*This estimate not presented in 2020 due to insufficient data.

^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
2020



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

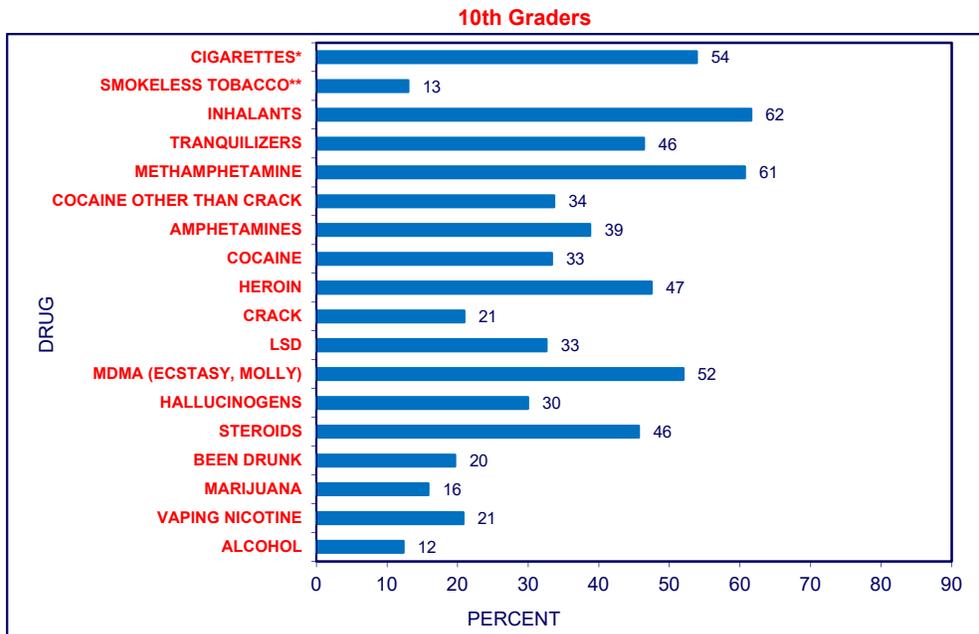
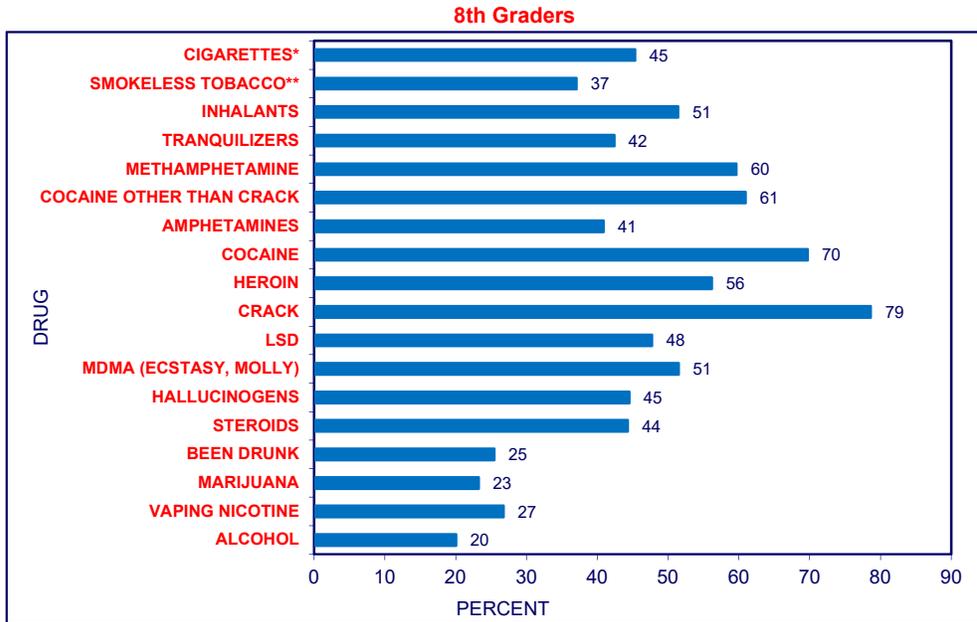
*Percent of regular smokers (ever) who did not smoke at all in the last 30 days.

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

This estimate not presented in 2020 due to insufficient data.

(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
2020



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

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

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

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 46 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 46 national surveys conducted between 1975 and 2020, while data for the 8th and 10th graders come from 30 national surveys conducted between 1991 and 2020. 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).

Due to the three-quarter reduction in sample size in 2020 (as discussed earlier in Chapter 3), this year we do not present updated 2020 estimates for two topics that this chapter typically covers. The first topic is noncontinuation rates of drug use among 12th grade students. Sample size is too small to support reliable estimates for this outcome, which is limited to lifetime users in an already-curtailed analysis pool. The second topic is trends among key subgroups defined on the dimensions of gender, college plans, region of the country, population density, socioeconomic status (as indicated by parental education), and race/ethnicity. The number of respondents in these subgroups – within a sample size reduced by three-quarters – is also too small to support reliable estimates. For both of these topics we present trends up to 2019, and we will resume updated estimates in 2021.

TWO THEMES IN DRUG TRENDS FROM 1975–2020

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 nadir 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, 1975–2020

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 2020. 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.

Drug prevalence trends were not altered by MTF’s transition to use of electronic tablets from 2019 to 2020. To measure the size of any potential survey mode effects, in 2019 a randomly selected half of schools were assigned electronic tablets for students to record their answers and the other half were assigned traditional, paper-and-pencil response sheets. Detailed analyses indicated that any differences in drug prevalence across these two survey modes were negligible.¹ Accordingly, in this chapter the 2019 estimates use all students regardless of survey mode. In 2020 all students provided answers using electronic tablets.

Trends in Indices of Overall Illicit Drug Use

- ***Any illicit drug use*** is a measure of the percentage of youth who have engaged in at least one type of illicit drug use in their life. Table 5-5a and Figure 5-1a show that in 2020 the percentages of youth who had ever used any illicit drugs in their life were 47% for 12th graders, 37% for 10th graders, and 21% for 8th graders. In 10th and 8th grade a slight increase is apparent since 2016. These increases in the lower grades contrast with a steady decline in use of any illicit drug that began in 2013, and bear watching in the years to come to see if they mark the beginning of a turnaround in the prevalence of illicit drug use.

There have been gradual albeit bumpy declines for all grades since the peak of the 1990s drug 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

¹ Miech, Richard A., Couper, M.P., Heeringa, S. G. and Parick, M. E. 2020. “The impact of survey mode on U.S. national estimates of adolescent drug prevalence: Results from a randomized controlled study.” *Addiction*

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 the most 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 use, attitudes, and beliefs into later grades as they age; in this volume we discuss a number of such cohort effects, not only in behaviors but in attitudes as well.

Prior to the 1990s, a period when Monitoring the Future surveys were limited to 12th grade students, the 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, the lowest level these surveys ever recorded.

- *Any illicit drug use in the past 12 months* and *any illicit drug use in the past 30 days* trended upward in 2020 in 8th grade, continuing an upturn that started in 2016, although the increases in 2020 were not statistically significant (Figures 5-2a and 5-3a). In 12th grade prevalence has trended downward since 2017, and in 10th grade no clear direction is apparent. The percentages of youth who used any illicit drug in the past 12 months in 8th, 10th, and 12th grade were 16%, 30%, and 37%, respectively, in 2020. The parallel percentages for drug use in the past 30 days were 9%, 18%, and 22%. As with the lifetime measure, both of these measures reached historic highs around 1980 and historic lows at the start of the 1990s among 12th graders. The declines in the 1980s were dramatic, and the increases that followed during the 1990s were nearly as dramatic (see Figures 5-1a through 5-3a).

In sum, historical trends in *any illicit drug use* show that the overall level of illicit drug use today is at neither a floor nor a ceiling. It is possible for levels of illicit drug use in every grade to be lower than they are today, as evidenced by the lower levels observed at the start of the 1990s. At the same time, the historical record also provides examples of how the proportions of youth who use illicit drugs can rise much higher than current levels if the factors that promote illicit drug use are left unchecked.

- Trends in use of *any illicit drug other than marijuana* in the past 12 months are provided in Table 5-5b and Figure 5-2b; in 2020 levels of use were at or near record lows in 12th and 10th grade. In 8th grade levels continued a slight increase that began in 2017. Levels of use for any illicit drug other than marijuana have been in an overall, long-term decline since the peak of the 1990s relapse, and the prevalence levels for students in 8th, 10th, and 12th grade are now 8%, 9%, and 11%, respectively. In 2001 these levels were at or near peak levels, and stood at 11%, 18%, and 22% respectively, so the proportion of these age groups using illicit drugs other than marijuana has declined by nearly half since then.

Most of the earlier rise in 12th graders' reported use of *any illicit drug other than marijuana* resulted from the increasing popularity of cocaine between 1976 and 1979 and, then, to the increasing use of amphetamines between 1979 and 1981. As stated elsewhere

in this volume, we believe that the upward shift in amphetamine use at that time was exaggerated because some respondents included use of over-the-counter stimulants in their reports of amphetamine use.

- Although the overall proportion of 12th graders using illicit drugs other than marijuana has changed gradually and steadily over the years, much greater fluctuations have occurred for specific drugs within this general class. (See Tables 5-1 through 5-3 for the long-term trends in 12th graders' lifetime, annual, and 30-day prevalence for each class of drugs. Figures 5-4a through 5-4v graph these trends since 1991, along with the trends for 8th and 10th graders.) These fluctuations for some drugs within overall use trends are important to recognize because they show that, while the proportion willing to try any illicit drug may put outer limits on the amplitude of fluctuations for any single drug, the various subclasses of drugs must have important determinants specific to them. In particular, they include variables such as perceived risk, disapproval, peer behaviors and normative attitudes, assumed benefits, and availability, as well as novelty. (Many of these variables are discussed in chapters 8 and 9.) Next we describe the trends in these specific classes of drugs.

Trends in Use of Specific Drugs

- Figure 5-4a and Table 5-5b provide the trends in [marijuana](#) use. In 12th grade, the 35% prevalence of annual marijuana use today is only slightly lower than it was two decades ago, at the end of the 1990s drug relapse phase, when it reached 39% in 1997. In 10th and 8th grade prevalence has increased somewhat over the past four years. Past 12-month prevalence in 10th grade was 28% in 2020 as compared to 24% in 2016. The prevalence in 8th grade was 11% in 2020, compared to 9% in 2016.

It is important to note that 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. As mentioned above, 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). The increases in marijuana use over the past few years in 8th and 10th grade raise concern about a possible cohort effect, which if present will appear in 12th grade in the next year or two.

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.²

Important changes in young people's attitudes and beliefs about marijuana use have occurred over the study period, and these changes can account for much of the long-term

² National Commission on Marihuana and Drug Abuse. (1973). *Drug use in America: Problem in perspective*. Washington DC: U.S. Government Printing Office. See also Johnston, L. D. (1973). *Drugs and American youth*. Ann Arbor, MI: Institute for Social Research.

decline in use, as well as the increase in use during the 1990s drug relapse. Chapter 8 addresses these changes at some length.

- Figure 5-4a and Table 5-5d provide trends in [daily marijuana](#) use, defined as using marijuana on 20 or more occasions in the prior 30 days. Among 12th grade students, the 2020 level of 6.9% is the highest level recorded by the survey since 1981. About one in every 15 twelfth grade students in 2020 was a daily or near-daily marijuana user. Daily marijuana use changed little in 8th and 10th grade in 2020, at prevalence levels of 1.1% and 4.4%, respectively.

In context, the percentage of youth using marijuana on a daily or near-daily basis today remains substantially lower than its peak in the late 1970s, when it reached a high of 10.7% among 12th grade students, or about one in every nine students. As discussed in Chapter 8, we think much of the decline from this peak is attributable to a very substantial increase in teens' concerns about possible adverse effects from regular use and to a growing perception that peers disapproved of marijuana use, particularly regular use. In recent years teens have reported less concern about marijuana's potential adverse effects and less disapproval of it (reported in Chapter 8), and daily use has risen considerably since the early 1990s.

- **Medical marijuana prescriptions** for adolescents have been included in the survey since 2017 and are rare. In all grades and in all years, fewer than 2.0% of adolescents reported that they had ever used marijuana because a doctor told them to do so. (Insufficient data for 2020 estimates in 12th grade.)
- Annual prevalence of [synthetic marijuana](#) has decreased dramatically since it was first tracked by Monitoring the Future in 2011 for 12th graders and 2012 for 8th and 10th graders (Table 5-5b and Figure 5-4b). For 12th graders, annual prevalence declined from 11.4% in 2011 to 2.4% in 2020, a drop of more than two-thirds. For 10th graders, annual prevalence declined from 8.8% in 2012 to 2.5% in 2020. For 8th graders the decline was from 4.4% in 2012 to 1.6% in 2020.

Very likely part of the reason for overall, current low levels of use is that the Drug Enforcement Agency (DEA) scheduled various forms of synthetic marijuana in March 2011, thereby substantially reducing their availability by making over-the-counter sales illegal.

- In 2020, lifetime [inhalant](#) use significantly increased in 8th grade, from 9.5% to 12.6% from 2019 to 2020 (see Table 5-5a). In this grade past 12-month and past 30-day use also increased in 2020, although these increases were not statistically significant. These increases continue an upswing in 8th grade inhalant prevalence that started in 2017.

In 10th grade inhalant use was little changed in 2020, and in 12th grade it decreased, significantly so for lifetime use.

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.³

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 (Figure 5-4c). 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 perceived risk of inhalant use increased sharply between the 1995 and 1996 MTF surveys, as discussed in Chapter 8.) 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 versions of this volume presented an additional 12th grade inhalant trend for measures without nitrites (e.g., see the [version of this report published in 2014](#) for a detailed description). Since that time youth’s use of nitrites has fallen to very low levels and thus is no longer tracked by Monitoring the Future.

- In 2020 past-year *hallucinogen* use held steady or increased slightly, and prevalence levels were at or near the lowest level ever recorded by the survey in each grade (see Figure 5-4d and Table 5-5b). The percentages reporting use in the past year among 8th, 10th, and 12th grade students were 1.7%, 3.4% and 5.3%, respectively. Hallucinogen use followed the typical pattern of an increase during the 1990s relapse, followed by a gradual but bumpy 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, discussed next.
- Past-year use of *LSD*, one of the major drugs in the hallucinogen class, has been increasing slowly but gradually among 12th grade students (Figure 5-4e). Prevalence in 2020 was 3.9%, which is more than twice the level of 1.7% in 2006. In broader context, the current

³ It is important to note that *lifetime* inhalant use is lower at the higher grades, which is not logically consistent. The seemingly anomalous finding 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 (see Table 5-5a), 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 as well.

level of 3.9% is less than half of the 8.8% level recorded in 1996, in the middle of the 1990s drug relapse. In 8th and 10th grade, prevalence has been hovering at low levels for about a decade, with 2020 levels at 1.1% and 2.5%, respectively. 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; since then it has been steady in 8th grade, but has increased slightly in 10th grade, especially since 2013.

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.⁴

We believe that the decline prior to 2002 might have resulted in part from a displacement of LSD by sharply rising use of MDMA (ecstasy, 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.

- Past-year use of [*hallucinogens other than LSD*](#), of which psilocybin or “shrooms” have been a major component, changed little in 2020 and were 1.1%, 2.2% and 2.8% in 8th, 10th, and 12th grade, respectively. Use of these substances has plateaued since 2015, following a gradual decline since the early 2000s (see Figure 5-4e).
- The prevalence of past-year [*PCP*](#) is reported only for 12th grade students and, in 2019 it was 1.1%, where it has hovered for about a decade (see Figure 5-4d). We do not report an updated estimate in 2020 because the sample size was too small to produce a reliable estimate. 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.
- In 2020 past-year use of [*MDMA*](#) (Ecstasy and more recently Molly) stayed at historic lows in 12th grade (see Figure 5-4f). In 8th and 10th grade its prevalence is near a record low. Prevalence levels among 8th, 10th, and 12th grade students in 2020 were 0.8%, 1.2%, and 1.8%, respectively. 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

⁴ 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 Associates.

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.

Chapter 8 shows that 12th 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. (As *Volume II*⁵ shows, this dramatic increase in use through 2001 was not confined to teenagers.) 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 (see Chapter 9). 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 so many 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 mass 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.

- Table C-1 in Appendix C shows trends for a number of *specific hallucinogenic drugs* among 12th grade students up to 2019 (insufficient data for 2020 estimates in 12th grade). In the early years of MTF, *mescaline*, *concentrated THC*, *peyote*, and *PCP* were used far more widely than they are today. As is explained in Appendix C, prevalence when estimated using a branching question tends to be lower than when the question is stand-alone. However, we believe that the trending results accurately reflect the nature of changes taking place. Of the several hallucinogenic drugs discussed next, only salvia use has been assessed using a stand-alone question.

⁵ Schulenberg, J. E., Johnston, L. D., O’Malley, P. M., Bachman, J. G., Miech, R. A., and 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.

- ***Psilocybin***, derived from mushrooms, had a past-year prevalence of 1.8% in 2019 for 12th grade students (Table C-1 in Appendix C; insufficient data for 2020 estimates in 12th grade). It is clear from the 2001 modification of the psilocybin question stem to include the popular term “shrooms” that many users no longer know the drug by the name “psilocybin.” Self-reports of use more than tripled between 2000 and 2001, jumping from 1.4% to 4.9%, even though use levels were stable immediately before and after the wording change. We believe that all of this increase was an artifact of the revision of the question, which clarified the meaning of psilocybin and led users to answer more accurately (for both the psilocybin question and the question about their use of hallucinogens other than LSD). Use reached a peak of 5.7% in 2004, then declined some and was at about 4% for five years before declining to its current low level. Psilocybin has been the most widely reported drug in the general class of hallucinogens other than LSD after the question on use of the class was revised in 2001, and by a considerable margin.
- ***Concentrated THC*** past-year prevalence stood at 1.3% in 2019 for 12th grade students (Table C-1 in Appendix C). It was at a peak annual prevalence of 5.7% in 1977, but fell to about 1% by 1984; it has varied relatively little since then, although there was a slight upward surge in the mid-1990s. (Insufficient data for 2020 estimates in 12th grade.)
- Annual prevalence of ***mescaline*** was 0.3% in 2019 for 12th grade students (Table C-1 in Appendix C). It was at a 5% peak from 1976 through 1978 (and possibly earlier), but its prevalence fell below 1% by 1988 and has varied rather little since. (Insufficient data for 2020 estimates in 12th grade.)
- ***Peyote*** use in the past year was 0.3% in 2019 for 12th grade students (Table C-1 in Appendix C). It had a 1.8% annual prevalence at the first measurement in 1976 and by 1982 had fallen to 0.6%. Its use increased during the 1990s drug relapse but has since fallen to today’s low level. (Insufficient data for 2020 estimates in 12th grade.)
- ***Salvia*** use in the past year currently stands at less than 1.2% in all grades (Table 5-2). Use of this drug has been declining since it was first measured in 2009, when prevalence among 12th grade students was 5.7%.
- In 2020 past-year use of ***cocaine*** was near the lowest levels ever recorded by Monitoring the Future (Figure 5-4g). The percentages of students reporting use in the past year in 8th, 10th, and 12th grade in 2020 were 0.5%, 1.1%, 2.9%, respectively. 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 – reaching its nadir in 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 13.1% (in 1985). Reasons for this steep decline in cocaine use – in particular the role of perceived risk – are discussed in Chapter 8.

- In 2020 past-year use of [crack cocaine](#) was at or near historic lows (see Figure 5-4g). Prevalence levels among 8th, 10th, and 12th grade students were all 1.2% or less at 0.2%, 0.5%, and 1.2%, respectively. 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. (Insufficient data for 2020 estimates in 12th grade.)

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 active *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.

When use of crack cocaine was first measured directly in 1986, it was with a single question contained in one questionnaire form, and it was asked only of respondents who had reported any use of cocaine in the past 12 months. It simply asked if crack was one of the forms of cocaine they had used. It was thus an estimate of the annual prevalence of crack use. In 1987, stand-alone questions about crack use were introduced into two questionnaire forms, using our standard set of three questions that ask separately about frequency of use in lifetime, past 12 months, and past 30 days. These were subsequently added to all questionnaire forms beginning in 1990.

- 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 (Figure 5-4h). In 2020 the level of annual use was 0.3% 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, discussed next.
- [Heroin use 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, and in 2020 its annual prevalence was 0.2% or less in all three grades. The advent of new, very pure, non-injectable heroin that can be sniffed or smoked is documented in Tables 5-6a through 5-

6c, which show for each grade the proportion of students (based on several prevalence periods) who used heroin either with or without a needle, or both. For the period from 1995 to 1999, among 12th graders, about one fourth of the users had used heroin both ways, but of the remainder, in general about two to five times as many have used heroin without a needle. Among 10th graders over the same time interval, somewhat more used heroin without than with a needle, and among 8th graders the tables show a rough equivalence between the two methods of administration. But in 2001 all three grade levels showed significant declines in the proportion of students using heroin without a needle. Annual prevalence of heroin use without a needle has declined in all three grades since 2000, with levels of use in 2020 less than half their 2000 levels.

- 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 (Figure 5-4h).
- Nonmedical use of **any prescription drug** (including amphetamines, sedatives, narcotics other than heroin, or tranquilizers “...without a doctor telling you to use them”) by 12th graders decreased in 2020 for lifetime, annual, and 30-day use, and all three measures are now at the lowest levels recorded by the survey (Tables 5-5a, 5-5b, and 5-5c; reported for 12th grade students only). These record lows come despite the fact that updates to the questions increased prevalence levels in 2013. In 2020 prevalence was 14.2%, 7.6%, and 3.3% for lifetime, annual, and 30-day use, respectively, indicating that a substantial portion of adolescents still use prescription drugs nonmedically. The declines in recent years have been modest but a welcome development, as levels of nonmedical prescription use had remained stubbornly high in previous years.
- Past 12-month year use of narcotics other than heroin is reported only for 12th grade students; in 2020 it continued a decline that began in 2010 (Figure 5-4i). In 2020 past-year prevalence declined to 2.1%, down more than two-thirds from a high of 9.5% in 2003. 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 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 provides encouragement that efforts to reduce use are taking effect among adolescents.

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.

- Past 12-month, nonmedical use of [Oxycontin](#) has declined by at least half over the past decade. From 2010 to 2020 prevalence decreased from 2.1% to 0.9% in 8th grade, from 4.6% to 1.0% in 10th grade (including a significant decline from 2019 to 2020), and from 5.1% to 2.4% in 12th grade.
- Past 12-month, nonmedical use of [Vicodin](#) has declined to near zero prevalence in 2020, with prevalence 1.2% or less in all grades. 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.
- Table C-4 in Appendix C shows the trends for additional, *specific narcotic drugs* that make up the class of “[narcotics other than heroin](#)” among 12th grade students. Results are reported up to 2019 and do not contain updated, 2020 estimates due to insufficient data.

These detailed questions on specific narcotic drugs 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 must first indicate that he or she used narcotics in the prior 12 months before being 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 (such as the results reported in the two bullets immediately above this one). Still, these branched questions 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.

- The only significant changes in annual prevalence in 2019 were a decline in Codeine use (to 0.8%) and Hydrocodone use (to 0.5%), which does not leave much room for them to fall further.
- This table shows some of the drugs responsible for the considerable rise in the overall class during the 1990s: *codeine*, the annual prevalence of which rose from a low point of 1.0% in 1995 to 4.6% by 2004; *opium*, which rose from a low of 0.4% in 1993 to 2.4% in 2003; and *morphine*, which rose from a low of 0.2% in 1993 to 2.1% in 2004. The use of *methadone* and *Demerol* also rose during the 1990s, though their annual prevalence levels generally remained lower than the other three drugs.
- Some additional drugs were added to this list in the 2002 questionnaire, including OxyContin, Vicodin, Percocet, Percodan, and Dilaudid. In the 2002 questionnaire form that asks about the larger set of specific narcotics as part of a branching question, *Vicodin* had a prevalence level (4.1%) similar to codeine (4.4%), while the levels of the other new drugs on the list were lower – *OxyContin*, 1.6%;

Percocet, 1.9%; *Percodan*, 0.6%; and *Dilaudid*, 0.1%. Since then, Vicodin use rose slightly and was at 4.3% in 2012, prior to declining to 0.5% by 2019. OxyContin use rose more and was at 3.0% in 2012 before falling significantly and is now at a level of 0.6% in 2019; Percocet rose to 2.7% in 2012, but is now at a level of 0.5% in 2019. Percodan use was at near-zero prevalence in 2019; and Dilaudid use remained at negligible levels and, therefore, it was dropped from the questionnaires in 2007 (Table C-4).

- Past 12-month [amphetamine](#) use has declined since highs recorded in earlier decades (in the 1980s for 12th grade students and the 1990s for 10th and 8th grade students). In 2020 12th grade prevalence was 4.3%, which is the lowest level recorded by the survey and continues a decline that commenced in 2014 (Figure 5-4j). In 10th grade prevalence was 4.3%, a record low that resulted from a decline that dates back to 2014. In 8th grade prevalence trended upward from 4.1% in 2019 to 5.3% in 2020. Despite a slight prevalence increase in 2013 that resulted from an expansion of the amphetamine examples given in the question, 2020 past-year prevalence levels in all three grades are lower than they were in 1991, at the start of the 1990s drug relapse.

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.⁶ 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.⁷

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 (see Figure 5-4j). 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](#) (revised) 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.

- Nonmedical use of the amphetamine [Ritalin](#) has declined substantially since first tracked in 2001 and past 12-month prevalence was less than 2% in all grades. From 2001 to 2020 it declined from 2.9% to 0.5% in 8th grade, from 4.8% to 1.0% in 10th grade, and from 5.1% to 1.7% in 12th grade.

⁶ These were added to only three of the five forms of the questionnaire being used at the time; the amphetamine questions were left unchanged in the other two forms until 1984.

⁷ The unadjusted estimates for the earliest years of MTF were probably little affected by the improper inclusion of nonprescription amphetamines, since sales of the latter did not burgeon until after the 1979 data collection.

- Nonmedical use of the amphetamine *Adderall* in 2020 had an annual prevalence of 2.7%, 2.9%, and 4.4% in grades 8, 10, and 12 (Table 5-5b). In all grades prevalence has hovered within a small window since 2009 when it was first measured. In 2020, for 8th grade this window was 1% to 3%, for 10th grade 3% to 6%, and for 12th grade 3% to 8%. In general, use has declined some in recent years among 10th and 12th graders. In 8th grade 2020 prevalence was at a low level of 2.7%, although in this grade this is the highest level recorded since the project began tracking use in 2009.
- Nonmedical use of *methamphetamine* and *crystal methamphetamine* has declined to near-zero prevalence over the past two decades. From 1999 (when it was first tracked) to 2020 methamphetamine use declined from 3.2% to 0.5% in 8th grade, from 4.6% to 0.3% in 10th grade, and from 4.7% to 1.4% in 12th grade. Prevalence of crystal methamphetamine, tracked only in 12th grade, declined from 1.9% in 1999 to 0.0% in 2020.
- Table C-2 in Appendix C gives trends for additional, *specific amphetamines* among 12th grade students up to 2019 (insufficient data for 2020 estimates in 12th grade). These detailed questions on specific amphetamine drugs 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 must first indicate that he or she used amphetamines in the prior 12 months before being branched to the more detailed questions about which specific drugs were used. As discussed above, 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 (such as the results reported in the three bullets immediately above this one). Still, these branched questions 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.
 - In recent years *Adderall* and *Vyvanse* have been the amphetamines or amphetamine-like stimulant drugs most widely used nonmedically by 12th graders. On the basis of the single form with detailed questions on specific amphetamines, Adderall has been the most commonly used stimulant in all years surveyed (insufficient data for 2020 estimates in 12th grade).
 - These drugs have replaced *Ritalin*, which had highest annual prevalence relative to the other amphetamines from in the early 2000s, as well as *Benzedrine*, *Methedrine*, and *Dexedrine*, which had the highest annual prevalence at the beginning of the study in 1976. Benzedrine and Methedrine were at such low levels of use that they were dropped from the MTF questionnaires in 2011. (Insufficient data for 2020 estimates of Ritalin and Dexedrine in 12th grade.)
 - Past-year use of *methamphetamine* and *crystal methamphetamine* (ice) have been declining steadily since they were first added to the survey in 1999. In 2019 they had the lowest level of use among amphetamine users (insufficient data for 2020 estimates in 12th grade).

- Levels of past-year *sedative (barbiturate)* use (Figure 5-4l) 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 and by 2020 annual prevalence was at a historic low of 2.4%. 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 abuse of many 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.
- Past-year use of *tranquilizers* in 12th and 10th grade continued an overall decline that began after 2001, when the question was modified to include Xanax as an example of a tranquilizer (Figure 5-4m). In 2020 the percentages reporting use in the past year declined to 3.2% in 12th grade and to 2.6% in 10th grade. Among 8th grade students past-year use of tranquilizers has varied rather little since 1996. 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. The halt of the 1990s relapse appeared first in the lower grades and then later in the higher grades, suggesting a cohort effect.
- Table C-3 in Appendix C gives trends up to 2019 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 must first indicate that he or she used the general class of drugs (e.g., tranquilizers) in the prior 12 months before being branched to the more detailed questions about which specific tranquilizers were used. Because the 2020 sample size was reduced by three-quarters, data were insufficient to produce estimates for these measures this year.

As discussed above, 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.

- In recent years *Xanax* has been the tranquilizer most commonly used by 12th grade students. Since 2016 its prevalence has been higher than the prevalence of all other tranquilizers combined and in 2019 was at 2.6%. Xanax displaced *Valium* as the most common tranquilizer used by 12th graders in 2006. Within this branching question valium had the highest level of use ever recorded at 6.9% in 1977 but has since dropped to 0.5% in 2019. Use levels of other tranquilizers have been less than 1%, with the exceptions of *Soma* which reached a level of 1.4% in 2008 and 2010 and *Klonopin* which reached a level of 1.7% in 2010.
- *Rohypnol*, a “club drug,” was added to MTF in 1996, in part because of the extensive publicity it received as a date rape drug (Figure 5-4n). Past-year levels of use have never

exceeded 2% in any grade, and in 2019 were at or less than 0.6% in all grades. (Insufficient data for 2020 estimates in 12th grade.)

As a questionnaire space economy measure, in 2002 the standard triplet question (asking about lifetime, past-year, and past-month use of Rohypnol) was replaced with a tripwire question asking only about use in the past year. (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. Figure 5-4n shows the impact of that change for 12th graders.

- Prevalence of past-year ***Ketamine*** and ***GHB*** use among 12th grade students has been below 2% for the past decade, and in 2019 stood at 1.3% and 0.4%, respectively (Table 5-5b; sample size insufficient for updated estimates in 2020). These “club drugs” were added to the survey in 2000. Both showed little change in their relatively low usage levels through 2003. Since then use has declined in all grades. Because of the very low levels of use of these drugs by 2011, questions about their use were dropped from the questionnaires administered to 8th and 10th graders.
- Past 12-month ***alcohol*** use has trended upward in recent years. Consistent with a cohort effect, the upward trend first appeared among 8th grade students in 2017 and in 2020 in the upper grades (Figure 5-4o). 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. This decline then resumed at the close of the 1990s through 2016 for 8th graders and 2019 for 12th graders. With the recent uptick in all three grades levels, the 2020 percentages reporting any use in the past year among 8th, 10th, and 12th grade students were 21%, 41%, and 55%, respectively. The corresponding levels of use for past month prevalence stood at 10%, 20%, and 34% in 2020.
- ***Daily drinking*** (drinking alcoholic beverages on 20 or more occasions in the past 30 days) increased in all grades in 2020, although the increases were not statistically significant. In 8th grade prevalence increased from 0.2% to 0.4%, in 10th grade from 0.6% to 1.0%, and in 12th grade from 1.7% to 2.7%.
- In 2020 levels of having ***been drunk*** increased in all three grades, an upturn that marks the end of almost a decade of decline (Tables 5-5a-d and Figure 5-4o). Consistent with a cohort effect, an upturn was first apparent in 8th grade in 2017 and is now becoming apparent in the 10th and 12th grades. From 2019 to 2020 the percentages reporting being drunk in the past 12 months increased from 6.6% to 7.5% in 8th grade, from 20.2% to 23.1% in 10th grade, and from 32.8% to 36.9% in 12th grade.
- ***Binge drinking*** (having five or more drinks in a row one or more times in the prior two weeks) followed a pattern similar to the other alcohol measures, with an upward trend in all three grades that follows the general pattern of a cohort effect. A slight increase first appeared in around 2017 in 8th grade and is now making its way to the upper grades. From 2019 to 2020 prevalence of binge drinking increased from 3.8% to 4.5% in 8th grade, from

8.5% to 9.6% in 10th grade, and from 14.4% to 16.8% in 12th grade. (Figure 5-4p and Table 5-5d; increases not statistically significant).

Binge drinking increased some in the 1990s coincident with the relapse in illicit drug use. Since then prevalence of this behavior has dropped considerably, with levels in 2018 half of or less than the levels recorded during the late 1990s. Obviously some important and substantial reductions in teenage binge drinking occurred in the 1980s along with further declines after 1999. We discuss some of the likely reasons for these important changes in Chapter 8.

- **Extreme binge drinking**, also known as **high intensity drinking**,⁸ is defined here at two levels, having 10 or more drinks in a row as well as 15 or more drinks in a row one or more times in the prior two weeks (Table 5-5e). The 2020 sample size allows estimation of 10+ drinks in 8th and 10th grade, but is insufficient to produce estimates of 10+ and 15+ drinks in 12th grade (15+ drinks is assessed only in 12th grade). In 8th and 10th grade prevalence of 10+ drinking has varied little since first measured in these grades in 2016, with a range between 0.9% and 1.7% in 8th grade and 2.5% and 3.6% in 10th grade. In 2020 prevalence levels were at the lowest end of the range for both these grades.
- Annual use of [alcoholic beverages containing caffeine](#) has been in steady decline and among 12th and 10th grade students has decreased about 50% overall since first introduced into the survey in 2011. In 2020 annual prevalence levels in 12th and 10th grade were 12% and 8%, respectively. In 8th grade use trended downward in 2020, with a nonsignificant decrease of 1.7 percentage points to 5.7%.
- Past 12-month use of [flavored alcoholic beverages](#) edged upward in 8th and 10th grade in 2020 (insufficient data for 12th grade estimates). Use has been in decline in recent years, although levels remain high (Table 5-5b). These beverages are also known as “alcopops” or “malternatives” (because their alcohol content often derives from malt). In 2020 the past 12-month use level was 14.7% in 8th grade, up from 10.7% in 2019. In 10th grade the level was 29.6%, up from 26.8% in 2019. This upward trending marks a turnaround from a gradual decline that has taken place over the past decade. Despite the long-term decline, use levels today remain high and this class of alcoholic beverage made substantial inroads into the youth market.

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 (Table 5-5b). (The question text was: “During the last 12 months, on how many occasions [if any] have you drunk flavored alcoholic beverages, sometimes called ‘alcopops’ [like Mike’s Hard Lemonade, Skyy Blue, Smirnoff Ice, Zima]? Do not include regular liquor, beer, wine, or wine coolers.”) 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 question text was revised: “On how many occasions, if any, have you had flavored alcoholic beverages like

⁸ For an expert discussion of terminology for this behavior see [here](#).

Mike’s Hard Lemonade, Skyy Blue, Smirnoff Ice, Zima, Bacardi Silver, wine coolers, etc. to drink – more than just a few sips. Do not include regular liquor, beer, or wine.”) 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 down to 38% by 2019 (Table 5-5b). Thirty-day prevalence among 12th grade students fell to 19% by 2019 (Table 5-5c), while lifetime prevalence fell a significant 5.7 points to 45% (Table 5-5a; insufficient data for 2020 estimates in 12th grade). It should be noted that females are somewhat more likely than males to drink these beverages, though significant numbers of both genders drink them.

- Prevalence of drinking [*beer*](#) in the last 12 months increased for 8th and 10th grade students in 2020. From 2019 to 2020 prevalence increased from 13.5% to 17.5% in 8th grade, and from 27.2% to 30.8% in 10th grade. These increases mark a turnaround from a long and steady decrease since 1991, when use levels were more than twice as high as they are now. [*Binge drinking beer*](#) (having five or more cans or bottles of beer in a row at least once in the prior two weeks) followed the same pattern seen for beer consumption, with slight increases in 8th and 10th grade that mark a turnaround from a long and steady decline. (Insufficient data for 2020 estimates in 12th grade.)
- Use levels of other specific classes of alcoholic beverages are asked of a one in six, randomly selected subsample of 12th grade students, and sample size is insufficient in 2020 to provide estimates. Below we report trends in use of these substances up to 2019.
 - In 2019 consumption of [*hard liquor*](#) increased slightly from the historic low in 2018. In 2019 thirty-day prevalence was 22%, which is a decline of more than half from the peak of 48% in 1980 and is lower than the previous nadir of 28% that was recorded in 1992, before the start of the 1990s drug relapse. The proportion reporting [*binge drinking liquor*](#) (five or more drinks in a row in the prior two weeks) increased slightly to 15% in 2019 following the historic low of 13% set in 2018. While seniors in the 1970s and 1980s were much more likely to report binge drinking beer than binge drinking liquor, seniors in the class of 2019 reported slightly higher levels of binge drinking liquor (15%) than binge drinking beer (12%).
 - The trend results for [*wine*](#) stayed level in 2019 among 12th graders, with 30-day use at 10%, where it has hovered for the past ten years. This is about half the peak level of 18.3% in 1996. Since 1988, prevalence of wine use had been on an overall decline, although use rose during the 1990s drug relapse. In 1988 MTF added a question on wine coolers, which had the effect of sharply reducing self-reported wine use. (No doubt, up to that point many users of wine coolers reported such use under wine.) Lower proportions of 12th graders engage in [*binge drinking wine*](#) (five or more drinks in a row in the prior two weeks) than binge drinking beer or liquor. In 2019 the prevalence of binge drinking wine was 3.6%, which is the same as the previous year. Overall, prevalence has hovered at around 4% over the past decade.

- [Wine coolers](#) have lost much of their appeal among the adolescent population since the survey began tracking their use in the 1980s. Prevalence in 2019 was close to a record low at 10.5%. As with wine, occasions of [binge drinking wine coolers](#) in the past two weeks were not as common as binge drinking beer or liquor. In 2019 prevalence was 4.9%, which compares to the high of 14% observed in 1988, and a low of 4.3% observed in 2016.
- [Alcohol](#) and [marijuana](#) are the two most commonly used substances by teenagers to get high, and a question that is often asked is to what extent does change in one lead to a change in the other. If the substances co-vary negatively (an increase in one is accompanied by a decrease in the other) they are said to be substitutes; if they co-vary positively, they are said to be complements.

Interestingly, the answer may differ by historical era. Before 2007 patterns of use for the two substances suggested they acted as complements. When marijuana use increased in the late 1970s, so too did alcohol use. Between 1979 and 1992 marijuana use declined and a parallel decline took place in annual, monthly, and daily alcohol use, as well as in binge drinking among 12th graders. As marijuana use increased again in the 1990s, alcohol use again increased with it, although not as sharply. In sum, before 2007 there was little evidence from MTF to support what we have termed “the displacement hypothesis,” which asserts that an increase in marijuana use will lead to a decline in alcohol use, or vice versa.⁹

However, since 2007 a new trend has emerged that would be consistent with the “displacement” hypothesis. From 2007 through 2020 alcohol use declined markedly for lifetime, past 12-month, and past 30-day use. Meanwhile, for most of this time period marijuana use has stayed steady or increased for all age groups. For the first time trends in alcohol and marijuana use are substantially diverging, suggesting that the historical relationship between these two drugs may have changed.

- [Nicotine](#) used in the form of past 30-day use of [cigarettes](#) trended upward in 12th grade in 2020 (Figure 5-4q and Table 5-5c). The increase to 7.5% prevalence from 5.7% in 2019 marks a turnaround of a decline that started in 2000 and saw prevalence decline more than fourfold. In 10th and 8th grade the decades-long decline continued. Parallel trends were apparent for [daily cigarette](#) use (also in Figure 5-4q; annual prevalence of cigarette use is not asked).

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 also by state-level taxing decisions; (b) substantially increased prevention activities, including antismoking ad campaigns in a

⁹ DiNardo, J. & Lemieux, T. (2001). [Alcohol, marijuana, and American youth: The unintended consequences of government regulation](#). *Journal of Health Economics*, 20, 991–1010.

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 reported availability by 8th and 10th 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 grade, 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.

Because of this general parallel movement, which is more characteristic of a secular trend, we are inclined to look for some contemporaneous historical correlates to explain the changes in this period. One possible explanation is that use rose because cigarette prices dropped on average due to increased price competition among brands. Another is that cigarette advertising and promotion had grown and/or become more effective at reaching youth. Still a third possibility is that the portrayal of smoking had increased appreciably in the entertainment media, particularly in movies. Some evidence points to all three of these changes in the social environment as possible influences; but whatever the specific causes, they seemed to have reached young people across the age spectrum. Therefore, we infer that the changes observed in cigarette use during this time were part of a secular trend. 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.

- [Vaping](#) plateaued in 2020 in all three grades, which marks a departure from the steep, significant increases in 2018 and 2019. Vaping involves the use of a battery-powered device to heat a liquid or plant material that releases chemicals in an inhalable aerosol. Examples of vaping devices include e-cigarettes such as the popular brand JUUL and “mods.” The aerosol may contain any of the following: nicotine, the active ingredients of marijuana, flavored propylene glycol, and/or flavored vegetable glycerin. Liquids that are

vaporized come in hundreds of flavors, many of which are likely to be attractive to teens (e.g., bubble gum and milk chocolate cream).

- Past 12-month [nicotine vaping](#) levelled in 2020 after sharp increases in 2018 and 2019 (Figure 5-4u and Tables 5-5a to 5-5c). Nicotine vaping prevalence levels in 2020 were 17%, 31%, and 35%, respectively across 8th, 10th, and 12th graders. Levels of nicotine vaping in the past 30 days were 11%, 19%, and 25%, respectively, which are far higher than current levels of cigarette use.

In 2020 the FDA placed restrictions on flavoring of cartridge-based vaping systems in an effort to reduce the prevalence of teen nicotine vaping. These restrictions went into force on February 7, 2020, four days before the first school was surveyed in MTF that year. Prevalence of cartridge-based devices such as [JUUL](#) declined dramatically for past 12-month and past 30-day use across all three grades. For example, in 12th grade past 12-month JUUL prevalence declined 9 points from 28.7% to 20.0%. However, overall nicotine vaping prevalence remained steady, as the downturn in JUUL prevalence was countered by increased use of disposable vaping devices,¹⁰ which are currently exempt from the FDA flavoring restrictions.

Low perceived risk of nicotine vaping no doubt plays a role in its popularity among adolescents. MTF asks separately about regular use of “e-cigarettes” and also regular vaping of nicotine. Levels of perceived risk for these behaviors rank near the lowest of all substances (see Chapter 8).

- [Marijuana vaping](#) (Figure 5-4v and Tables 5-5a to 5-5c) did not significantly increase in 2020, after sharp increases in 2018 and 2019. In 2020 prevalence of use in the last 12 months was 8.1%, 19.1%, and 22.1% in 8th, 10th, and 12th grades respectively. Overall marijuana prevalence was little changed from 2017 to 2020, suggesting that youth who were vaping marijuana may have already been using it in other forms as well.
- Vaping [just flavoring](#) (Tables 5-5a to 5-5c) in the past year decreased in 2020 to prevalence levels of 12.3%, 18.4%, and 16.6% in 8th, 10th, and 12th grades.
- In all grades the percent reporting **flavoring vaping with no nicotine vaping** has decreased dramatically in recent years. From 2017 (when first measured) to 2020 it decreased from 8% to 1% in 8th grade, 9% to 2% in 10th grade, and 10% to 2% in 12th grade. 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.
- **Any nicotine use** in the past 30 days decreased in 8th and 10th grade in 2020. In 8th grade it declined from 12.0% to 11.2%, and in 10th grade it declined from 24.0% to 18.8% (a statistically significant decrease). (Insufficient data for 2020 estimates in 12th grade.)

¹⁰ Miech, R., Leventhal, A., Johnston, L., O'Malley, P. M., Patrick, M. E., & Barrington-Trimis, J. (2020). [Trends in use and perceptions of nicotine vaping among US youth from 2017 to 2020](#). *JAMA Pediatrics*, 175(2):185-190.

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](#).

- Levels of [smokeless tobacco](#) use in the past 30 days (Figure 5-4r and Table 5-5c) were at or near record lows in 2020 in the lower grades, at 2.3% in 8th and 3.5% in 10th grade. (Insufficient data for 2020 estimates in 12th grade.)

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 over the past 10 years. 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.

- Past-year use of [steroids](#), specifically anabolic steroids, has always been below 3% in all grades since it was first monitored by the survey, and has been in a general decline since peaks established in the early 2000s (Figure 5-4s). In 2020, levels of use in the last 12 months for 8th, 10th, and 12th grade students were at or near historic lows of 1.1%, 0.9%, and 1.2%, respectively. A surge in use among 12th graders in 2001 was preceded by an earlier surge in use among 10th grade students, likely representing a cohort effect.

Until 2009, the question on steroid use was preceded by an introduction that stated, “Steroids, or anabolic steroids, are sometimes prescribed by doctors to promote healing from certain types of injuries. Some athletes, and others, have used them to try to increase muscle development.” Since 2009, the slightly revised introduction has been, “Anabolic steroids are prescription drugs sometimes prescribed by doctors to treat certain conditions. Some athletes, and others, have used them to try to increase muscle development.” The question then asks, “On how many occasions have you taken steroids on your own – that is, without a doctor telling you to take them?” Because the earlier version did not explicitly state that they must be prescription-controlled substances, we believe it likely that some respondents included what had been over-the-counter compounds like androstenedione in their answers prior to 2009.

- [*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 much 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.
- [*Androstenedione*](#) 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 use has declined markedly. In 2019 prevalence in the past 12 months among 12th grade students was 0.5%, the lowest ever recorded by the survey. The survey stopped tracking this drug among 8th and 10th graders after 2014, when prevalence levels were less than 1% in these grades. In the upper grades its use has been in overall decline since 2017 (insufficient data for 2020 estimates in 12th grade).

Legal Stimulants

- In 2019 both classes of *over-the-counter stimulants* – [*diet pills*](#) and [*stay-awake pills*](#) – were at the lowest ever levels recorded by the study among 12th graders (Table 5-5b; insufficient data for 2020 estimates in 12th grade).
- The proportion of 12th grade students who use nonprescription [*diet pills*](#) in the past year was 3.1% in 2019. Today’s levels 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 determined have health risks for the user, and in 2005 removed from over-the-counter sale. Nearly all the decline occurred among those who had used illicit drugs other than marijuana. 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 nadir of 3.1%.
- Annual prevalence of [*stay-awake pills*](#) was at a historical low among 12th grade students in 2019 and stood at 1.8% (Table 5-5b). This is more than fourteen times lower than the peak level of 26% in 1988. Since then prevalence of stay-awake pills has gradually declined with no periods of sustained increases. This long-standing decrease in prevalence, as well as the increase that took place before 1998, was observed most strongly among illicit drug users.
- Levels of daily use of *energy drinks* have converged across the three grades. Results are reported up to 2019 and do not contain updated, 2020 estimates due to insufficient data. In 2019 between 10% and 12% of students in 8th, 10th, and 12th grade reported using one or more energy drinks per day. When first assessed in 2010, prevalence of daily use was substantially higher for 8th grade students at 19% as compared to 14% in 10th grade and 12% in 12th grade. Since then more rapid declines in prevalence among 8th grade students

have equalized levels of use. (The MTF survey asks about daily use of energy drinks and not about less frequent levels of use.)

- Between four and five percent of students in all three grades reported daily use of one or more **energy shots**, which typically come in containers that are just two or three ounces. Results are reported up to 2019 and do not contain updated, 2020 estimates due to insufficient data. In 10th and 12th grade this level of use in 2019 was the same as it was in 2010, when the survey first included questions on energy shots. In 8th grade the 4% level was down from 6% in 2010.

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

- Lifetime prevalence levels for taking either a **stimulant** or **non-stimulant** drug for the treatment of **ADHD** (Attention Deficit Hyperactivity Disorder) were at the lowest levels of use ever recorded by the survey in each grade in 2020. The percentage of teens who had taken either a stimulant or a non-stimulant drug for the treatment of ADHD in their life was 7.3% in 8th grade, 9.3% in 10th grade, and 9.9% in 12th grade. Prevalence of past 30-day use was also at or near the lowest levels since first measured by the project in 2005.
- Lifetime use of **stimulant** ADHD drugs in 2020 was at the lowest levels ever recorded by the survey in each grade (Table 5-5a). This class of drugs includes Ritalin and more recently Adderall and Concerta. Eighth grade use has declined from a high of 9.3% in 2006 to 5.0% in 2020. In 10th grade lifetime prevalence dropped from 8.7% when first measured in 2005 to 6.0% in 2020. In 12th grade lifetime prevalence in 2020 was at 7.5%, which compares to a high of 9.9% in 2015. *Current* use has changed rather little, varying between 2% and 4% in all grades since first tracked in 2005.
- Lifetime and current prevalence of taking **non-stimulant** ADHD drugs declined overall between 2005 and 2020 in 8th and 10th grades, and in 2020 lifetime prevalence levels were at or near the lowest levels recorded by the survey at 4.2% and 5.1%, respectively, versus about 8% in 2006 (Tables 5-5a and 5-5c). In 12th grade lifetime prevalence has held fairly steady at between 5% and 7%. These types of drugs are sometimes prescribed when stimulants have proven ineffective or not well tolerated.

DRUGS NO LONGER TRACKED ANNUALLY

The drugs listed below did not appear on the 2020 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.

- 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 (Table 5-5b). 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 question was discontinued to make room for questions on other drugs.

- ***Powdered alcohol***, as the name suggests, can be added to water to form an alcoholic drink. MTF has monitored this substance since 2016, and annual prevalence has been below 2% in all grades in all years. As of 2020 this product is not yet commercially available, although the U.S. Alcohol and Tobacco Tax and Trade Bureau approved labels for its sale with the brand name Palcohol in 2014. Questions on powdered alcohol were added to the survey in 2016 to assess baseline levels of use before the product becomes commercially available, if it ever does. MTF discontinued its questions on powdered alcohol in 2020 but may reintroduce these questions in the future if concern about powdered alcohol arises.
- The study tracked use of ***look-alikes*** from 1982 to 2017. The annual 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 down to 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 non-medically-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 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.
- 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.
- 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.’

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. Since then, 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 UP TO 2019: 12th GRADERS

In what follows we present noncontinuation rates up to the year 2019. Sample size, which is limited to lifetime users in an already-curtailed analysis pool, is too small to support reliable estimates for 2020 estimates. We will resume updating these estimates in 2021.

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](#) dropped in recent years, from 25% in 2017 to 14% in 2019. This noncontinuation has contributed to the prevalence increases among 12th grade students, which were large both in 2018 and 2019.
- 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 2019, 74% of 12th graders who had ever smoked regularly reported no smoking at all in the past 30 days.
- Noncontinuation of [smokeless tobacco](#) use also increased considerably in 2019, by six points to 65%. 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](#) dropped sharply in recent years, from 20% in 2017 to 12% in 2019. This drop corresponds with recent, large increases in past-year prevalence, with the increase in 2019 ranking as the second largest ever recorded by the study for any substance. These results suggest that part of the reason for the prevalence increases is that students who try marijuana vaping are now more likely to continue it.
- Overall [marijuana](#) use by any method has one of the lowest rates of noncontinuation of any of the illicit drugs (Table 5-7a). In 2019, the noncontinuation rate was only 18%. Previously the noncontinuation rate had been higher, at about 20% since 2011 and 25% in the ten years before 2011. Today’s lower noncontinuation rate indicates more long-term marijuana use, and less experimental use, which is also seen in higher daily marijuana use for the same period (reported earlier in this chapter).

During the 1990s marijuana noncontinuation rates fell by half, from a high of 35% in 1992 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 2019 among the 3.8% of 12th graders who had ever used [cocaine](#), about two out of five (41%) did not use (i.e., were noncontinuers) in the past 12 months. This noncontinuation rate has shown an uneven decline since 2010 when it was 46%. 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](#) has fluctuated between 37% and 45% for the past decade; in 2019 it was at 37%. 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 42% in 2019, the highest level it has been in two decades. Previous to 1995, it 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 41% in 2019, where it has hovered for the past five years, even as annual prevalence has been falling.

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 61% by 1988 and falling off thereafter. 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 has fluctuated between 29% and 45% for the past two decades and is currently at the high end of the range at 45%. 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 have varied between 24% and 37%; in 2019 it was 34%.
- [Alcohol](#) has had the lowest rate of noncontinuation in every year of the survey and in 2019 it was 11%. 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 2019 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 2019 noncontinuation rates jumped substantially, to 43% from 30% the previous year. This high level of noncontinuation contributes to the lowest prevalence levels of 12th grade cigarette use in 2019 ever recorded by the study.

The noncontinuation level in 2019 is more than triple 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 cigarettes as a particularly addictive drug.

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 UP TO THE YEAR 2019

One reason MTF surveys a large sample size every year is so that we can produce estimates of substance use for specific demographic subgroups. Regrettably, in 2020 it is not possible to produce reliable estimates for demographic subgroups because of the three-quarters reduction in sample size due to the COVID-19 pandemic. **In what follows we present substance use trends across demographic subgroups up to 2019, and in 2021 MTF will resume updating these estimates.**

This section provides trend comparisons for 12th grade students among key population subgroups defined on the following six dimensions: gender, college plans, region of the country, population density, socioeconomic status as indicated by parental education, and race/ethnicity. Earlier versions of Appendix D contained tables providing trends for these various subgroups for all three grades and on nearly all drugs; but Appendix D now refers the reader to an occasional paper ([Occasional Paper 94](#)¹⁰) that contains the same, detailed tables. 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, for all three grade levels, each drug's usage trends by subgroup. We recommend use of the graphic versions to anyone who plans to spend much time examining subgroup differences. The table of contents in that document contains live links to each of the figures to facilitate look-up.

Trend Differences by Gender

As illustrated in the rest of this section and discussed in the previous chapter, for a number of licit and illicit substances, the differences between males and females in their levels of use tend to grow by 12th grade. In 8th grade there is often little or no gender difference in levels of use. There are exceptions as noted below.

- While males have traditionally had higher levels than females of using [any illicit drug](#) in the past 12 months, this difference has reversed in recent years (Figure 5-7; see also Tables 1-3 and Figure 1 in [Occasional Paper 94](#)). This trend follows a classic cohort pattern. Among 8th graders, females first ranked higher than males in 2014 and have been higher ever since. In 2019 the gap grew as prevalence increased significantly for females to 16.7% and prevalence decreased slightly for males to 12.6%. Among 10th graders, females first ranked higher than males two years later in 2016, and their levels have remained higher in 2017, 2018, and 2019. Among 12th graders, males still have higher levels of use than females but this could change in future years as the younger cohorts age.
- Gender differences in use of [any illicit drug other than marijuana](#) in the past 12 months vary by grade level (Figure 7 and Tables 4 through 6 in [Occasional Paper 94](#)). Among 12th grade students, males consistently have had slightly higher levels of use than females since the early 1980s, and in 2019 prevalence of use was 12% for males and 10% for females. In 10th grade, there has been little consistent difference in use levels by gender since 2002, and in 2019 the levels were close for males and females, at 9.5% and 8.6%, respectively;

¹⁰ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E., and Patrick, M. E. (2020). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2019](#) (Monitoring the Future Occasional Paper No. 94). Ann Arbor, MI: Institute for Social Research, University of Michigan.

prior to 2002 females consistently had higher levels than males. In 8th grade, the positions are reversed and females have consistently had higher levels of use than males, although the differences have been small.

Most of the gender differences in prevalence mentioned in Chapter 4 for individual classes of drugs have remained relatively unchanged throughout the study – that is, any trends in overall use have been fairly parallel for males and females. There are, however, some exceptions as noted below.

- The historically higher levels of [marijuana](#) use for males as compared to females have narrowed in recent years (Tables 10-12 and Figure 19 in [Occasional Paper 94](#)). In 8th grade, females edged ahead of males in past-year marijuana prevalence in 2019 as their use significantly increased while among males it declined slightly, resulting in prevalence levels of 13% and 10%, respectively. This is a departure from past trends in which males had higher prevalence levels than females by about two to three percentage points since this grade was first tracked in 1991. In 10th grade, prevalence has been slightly higher for females as compared to males since 2016, a reversal of gender rankings in all previous years.

In 12th grade females had a slightly higher level of past-year marijuana use than males in 2019, at 36% and 35%, respectively. Males have had higher levels of use than females in every year of survey except for this year (for 44 years). The narrowing difference in recent years suggests a continuation of marijuana use patterns formed earlier, as the younger cohorts, among whom gender differences have disappeared, have aged into 12th grade.

- There are larger gender differences in current [daily marijuana use](#) (Figure 5-5a; see also Tables 16–18 and Figure 31 in [Occasional Paper 94](#)), with considerably higher prevalence for males; these differences exist at all three grade levels. This gender difference narrowed in 2019, with significant increases in prevalence for females in all three grades, and no significant increase for males. Overall, the absolute differences are greatest when overall prevalence is higher, although the *proportional* differences are fairly similar with male prevalence generally twice that of females in 12th grade. It is worth noting that between 2006 and 2011 daily marijuana use among 12th grade males rose sharply, while among females there was rather little increase; and a similar phenomenon was observed among 10th graders with slightly different timing.
- The proportions of 12th graders who report [daily use of marijuana for a month or more](#) at some point in their lives have been higher for males than for females in every year (Table 160 and Figure 403 in [Occasional Paper 94](#)). On average, the prevalence for males has run about 5 points higher than for females.
- As the annual prevalence of [synthetic marijuana](#) has declined in recent years, so too have gender differences (Tables 19-21 and Figure 37 in [Occasional Paper 94](#)). In 2019 prevalence levels for males and females in 12th grade were similar, at 2.6% for males and 3.8% for females. These levels represent a substantial decline from a difference of 6.8% difference in 2011 (14.7% for males and 7.9% for females), when the drug was first included in the survey. This drug follows the common pattern of declining gender

differences as overall prevalence declines, although in this instance there is also a sharp decline in *proportional* difference. In the lower grades, the differences have consistently been small.

- Past-year [*inhalant*](#) use has typically been higher for females in 8th grade, varied little by gender in 10th grade, and been higher for males in 12th grade (Tables 22-24 and Figure 43 in [Occasional Paper 94](#)). In 12th grade the peak gender differences were in the mid 1990s, when prevalence also peaked. Since then the gender difference has attenuated to near zero in 12th grade as prevalence has declined. In 8th grade the slightly higher levels of use by females have persisted.
- Males consistently have had higher levels of past-year [*cocaine*](#) use than females in 12th grade (Tables 40–42 and Figure 79 in [Occasional Paper 94](#)) in every year of the survey, with the difference greatest in the peak years of use (1979 through 1986). After 1992, the gender difference widened a bit as use increased more among males; this difference remains in recent years. In 10th grade the slightly higher level of use among males as compared to females widened somewhat after 2007; this difference has since narrowed and in 2019 is very small (a difference of 0.2% points). In 8th grade no gender differences have been discernible.
- The gender differences in past-year [*crack*](#) use (Tables 43–45 and Figure 85 in [Occasional Paper 94](#)) are very similar to those for cocaine use overall among 12th graders, with consistently higher levels of use in 12th grade among males since 1986, when crack use data were first collected in this study. Use grew a bit more among 12th grade males after 1992, during the relapse phase of the drug epidemic; it then declined more among males than females since the turnaround after 1998. Little gender difference has been observed among 8th and 10th graders in either levels or trends. All three grades have shown substantial declines for both genders since the late 1990s.
- In 2019, no large gender differences are apparent in past-year use of [*amphetamines*](#) outside of medical supervision (Tables 65–67 and Figure 133 in [Occasional Paper 94](#)). In 12th grade, the trends in amphetamine use for both genders have tracked on top of each other throughout the life of the survey until 2008, after which use among males has been slightly and consistently higher. In 10th grade, females were slightly more likely than males to use amphetamines from the time use was first tracked (in 1991) to 2006, after which the gender differences have been small and inconsistent. In 8th grade, females have consistently had higher levels of use than males.
- Use of over-the-counter [*diet pills*](#) by 12th graders (the only grade asked this question) started out much higher among females as compared to males, and has remained higher throughout the life of the study (Table 161 and Figure 409 in [Occasional Paper 94](#)). As overall use has declined this gap has narrowed since first measured in 1982, from an absolute difference of 19% in 1982 to 2% in 2019.
- At 12th grade, past-year use of [*Ritalin*](#) without medical direction (Tables 68–70 and Figure 139 in [Occasional Paper 94](#)) has generally been slightly higher among males for the years

on which we have data (i.e., since 2001). A sharp decline in annual prevalence among males from 2005 to 2007 temporarily eliminated most of that difference, which then re-emerged as use by females subsequently declined. As of 2019, past-year use in 12th grade was only slightly higher among males (1.5% for males and 0.7% for females). In 10th grade the absolute difference was about the same as it was in 12th grade, at 1.1% for males and 0.2% for females. In 8th grade annual prevalence levels were below 1.5% for both females and males, and no consistent gender difference has been observed at this grade. The overall change since 2001 has been one of decline for both genders in all three grades.

- Questions about use of [Adderall](#) were added in 2008 (Tables 71-73 and Figure 145 in [Occasional Paper 94](#)). In 12th and 10th grades use has been slightly higher among males and use among both genders has been declining in recent years. Gender differences have not shown consistent trends in 8th grade, but use has been low and fairly comparable across males and females.
- Past-year use of [crystal methamphetamine](#) or *ice* (data available only for 12th graders) has been very low, but in most years a bit lower among females than males. Prior to 2005 males had considerably higher levels of use, but the genders have been much closer since then as overall use declined substantially. In the last four years differences across males and females have not shown a consistent pattern, in part because overall prevalence has been less than 1% and estimates are based on very small numbers (Table 78 and Figure 163 in [Occasional Paper 94](#)).
- [Methamphetamine](#) use has generally been very slightly higher for males at 12th grade but very slightly lower at 8th grade, with no consistent gender differences at 10th grade. The sharp declines in use since this drug was first measured in 1999 have been observable in both genders in all three grades and the small gender differences have narrowed to near-zero by 2019 (Tables 75-77 and Figure 157 in [Occasional Paper 94](#)).
- Among 10th and 12th graders, [heroin](#) use ([with](#) and [without](#) a needle), although quite rare, has been consistently higher among males, particularly in 12th grade. Gender differences among 8th graders have been very small and not consistent across time (Tables 49-51 and Figure 97 in [Occasional Paper 94](#)).
- Annual use of [narcotics other than heroin](#) outside of medical supervision (reported only for 12th graders) has been consistently higher for males than for females (Table 58 and Figure 115 in [Occasional Paper 94](#)). This gender difference narrowed to almost zero by 1992, during the decline phase in use, but then reemerged during the 1990s drug relapse and has persisted since. From 2006 to 2011 the difference narrowed as use among males decreased while use among females held steady. Since about 2010 the two genders have declined in parallel, with males continuing to have higher use.
- Use of the specific narcotic drugs [Vicodin](#) and [OxyContin](#) has always been higher among males at 12th grade, although the differences have been narrowing in recent years as overall use has declined (Tables 59-64 and Figures 127 and 121 in [Occasional Paper 94](#)). There have not been large or consistent gender difference at the lower grades. The narrowing of the gender difference in 12th grade is consistent with the general pattern that subgroup

differences narrow as use declines. The declines in Vicodin use since 2008 have been very substantial for both genders in grades 10 and 12, and have also been substantial for OxyContin.

- Past-year [tranquilizer](#) use outside medical supervision among 12th grade students has not differed consistently across gender in 12th grade (Tables 83-85 and Figure 181 in [Occasional Paper 94](#)). Males and females have traded places as the users with highest prevalence many times throughout the survey; they have shown very similar trends across time with the exception that use among males increased more during the interval 1992-1999 (i.e. during the relapse phase) before declining more than among females. Among 8th graders, tranquilizer use has been consistently higher for females since the first survey in 1991; among 10th graders, it has tended to be about the same or higher for females.
- Past-year use of [sedatives \(barbiturates\)](#) outside of medical supervision (reported only for 12th grade) has not consistently differed by gender since 2004 (Table 82 and Figure 175 in [Occasional Paper 94](#)). Prior to 2004 use was slightly higher for males, a difference that temporarily narrowed in the early 1990s when use was at the lowest levels ever recorded by the survey; but use by males came to exceed that by females during the relapse phase in the 1990s through 2004. There was virtually no gender difference thereafter.
- Use of [rohypnol](#) has been slightly higher among males in 12th grade, although the difference has narrowed and in 2019 prevalence for both genders was less than 1%, at 0.7% for males and 0.3% for females. There has been no consistent gender difference in the lower grades since 1996, when use was first measured (Tables 90-92 and Figure 199 in [Occasional Paper 94](#)).
- In all grades [alcohol](#) use in the past 30 days differs little by gender (Tables 93-95 and Figure 205 in [Occasional Paper 94](#)) in 2019. Among 12th grade students males had higher prevalence than females at the start of the survey in 1975 and these differences have gradually and steadily shrunk to zero as overall prevalence has declined. In 10th and 8th grade few differences in alcohol use by gender have been present since these grades were first added to the survey in 1991.
- In 2019 few gender differences are present in levels of [binge drinking](#) or [daily alcohol](#) use (see Figures 5-5b and 5-6a in this volume, and Tables 96-98 and 102-104 plus Figures 211 and 223 in [Occasional Paper 94](#)). In 12th grade binge drinking was 16.1% for males and 12.4% for females. This disparity has been gradually and steadily shrinking since first recorded in 1975, when prevalence for males was 49.0% and for females was 26.4%. Daily alcohol use has followed a similar pattern, albeit with lower prevalence; in 2019 prevalence for 12th grade males was 2.4% and 0.9% for females, which compares to parallel levels in 1976 of 8.1% and 2.7%. Tenth and 8th grade follow similar patterns.
- Among 12th graders, gender differences in *extreme binge drinking*, also known as *high intensity drinking*, are similar to those for binge drinking discussed immediately above (Tables 105 and 106, and Figures 229 and 235 in [Occasional Paper 94](#)), with lower prevalence. In 2019 males as compared to females were more likely to have had in the past

two weeks (a) 10 or more drinks in row and (b) 15 or more drinks in a row. However, these differences have narrowed dramatically as overall prevalence has declined, a decline that has been substantially steeper for males.

Questions on use of 10+ drinks in a row were asked of 8th and 10th graders starting in 2016. The disparity across gender observed in 12th grade is substantially smaller in 10th grade, with a prevalence of 3.8% for males and 2.8% for females in 2019. In 8th grade a slight disparity opened up in 2019 as prevalence significantly increased among females to 2.4% and declined slightly among males to 1.0%. Overall, these recently added questions suggest that the disparity in extreme binge drinking emerges in the high school years.

- Self-reports of [*being drunk*](#) in the past 30 days show similar patterns by gender as observed for binge drinking (Tables 99-101 and Figure 217 in [Occasional Paper 94](#)). Among 12th graders, 30-day prevalence of being drunk was substantially higher among males than females. The difference has decreased substantially as overall prevalence of being drunk has declined, and in 2019 the difference was gone, with percentages drunk in the past 30 days for males and females in 12th grade at 17.2% and 17.4%, respectively. Among 10th graders, males generally have had slightly higher prevalence of being drunk, but the difference narrowed starting in 2000 and by 2014 the difference was gone; since 2016 females have had slightly higher prevalence levels. Among 8th graders the prevalence of being drunk in the past 30 days has historically been very low and very similar for males and females since it was first measured in 1991.
- In sum, while the various measures of alcohol use in general have all shown considerable long-term declines, the declines have been substantially larger among males, in many cases eliminating long-standing gender differences in the upper grades.
- With regard to specific types of alcohol use, one of the six questionnaire forms administered to 12th graders asks separately about the use of [*beer*](#), [*wine*](#), [*hard liquor*](#), and [*wine coolers*](#) (Tables 107-120 and Figures 241, 247, 253, 259, 265, 271, 277 and 283 in [Occasional Paper 94](#)). The answers to these questions reveal that differences in [*beer*](#) consumption account for much of the large gender difference in occasions of binge drinking: 16% of 2019 twelfth grade males (vs. 8% of females) reported having had five or more beers in a row during the prior two weeks (although this gender difference has narrowed over the years as beer consumption has declined sharply – particularly in the lower grades, where there is no difference at 8th grade and very little at 10th).

Thirty-day prevalence for hard liquor generally was somewhat higher among males until 2016, when the trend lines merged. Males had consistently been slightly more likely than females to report having had five or more drinks of [*hard liquor*](#) until 2018. The gap has been narrowing since 2013 and a significant decline of 7.1 percentage points in 2018 brought levels of this outcome lower for males (12%) as compared to females (14%) for the first time in the survey, even though both genders have been showing declines in liquor binge drinking since the early 2000s. The 2019 liquor binge drinking levels were similar for males (14.7%) and females (14.4%).

In the past, binge drinking of [wine](#) (Table 116 and Figure 271 in [Occasional Paper 94](#)) was equally distributed by gender; however, females have been somewhat more likely to engage in this behavior in the past six years, with levels of use 5% for females and 3% for males in 2019.

- In 1988, questions on [wine coolers](#) were added, and past 30-day prevalence in 2019 was higher in 12th grade among females at 13.0% for females vs. 8.0% for males. In 2003, a single question on annual use of [flavored alcoholic beverages](#) (“alcopops”) was added, and then in 2004 the full set of three questions (lifetime, annual, and 30-day) was added (Tables 121-123 and Figure 289 in [Occasional Paper 94](#)). Here, too, females had slightly higher levels of use than males, a difference that has narrowed over time and in 2019 was essentially the same, at 19% for females and 18% for males. Levels of use were very close for the genders in the lower grades, as well, but females remain slightly higher as overall use continues to decline.
- After about 2001, 12th grade males have been slightly more likely than females to smoke [cigarettes](#) in the past 30 days (Figure 5-5c; Tables 127-135 and Figures 301, 307, and 313 in [Occasional Paper 94](#)). This gender gap grew wider as smoking level fell more among females than among males through about 2012, and has since narrowed somewhat as the decline in cigarette prevalence has accelerated among males. In the decade previous to 2001, 12th grade males were consistently slightly more likely than females to be 30-day smokers. Going back another decade, from 1981 to 1991, it was female 12th graders who consistently had a higher prevalence of smoking than males. This gap diminished during the Joe Camel advertising campaign from 1987 through 1997, which targeted boys and may have contributed to a greater increase in cigarette prevalence among males as compared to females. In 10th grade a slight gender gap in cigarette smoking opened up around 2006 as prevalence increased for males but held steady and later decreased for females. In recent years the prevalence of cigarette smoking has diminished more for males than females, erasing the gender gap by 2017. In 8th grade there has been no consistent gender difference in smoking prevalence, and both genders have shown a sharp decrease in smoking since about 1996.
- Extremely large gender differences in the use of [smokeless tobacco](#) during the past 30 days have been observed consistently at all grade levels, with much higher prevalence among males (Tables 145-150 and Figure 373 in [Occasional Paper 94](#)). Over the course of the survey these gender differences have become much smaller as prevalence has declined very substantially among males in all grades, but they remain considerable in 2019, particularly at 12th grade. After 1994 there was a large decline in overall use of smokeless tobacco among 8th grade males (their 30-day prevalence dropped from 12.8% in 1994 to 4.7% by 2007), a considerable drop among 10th grade males (from 19% in 1994 to 9% in 2004), and, since 1995, a similar decline for males in 12th grade (from 24% in 1995 to 11% in 2006). In 2008, there was a further significant decline in smokeless tobacco use for 10th graders, though not in 8th or 12th grades. These declines had the effect of greatly narrowing the gender differences, because use by females changed very little, remaining at fairly negligible levels. However, use among males in all three grades began rising after 2007, suggesting that the decline in smokeless tobacco use may have been over; but in 2011 a

decline was observed for males in all three grades – quite possibly as a result of the increase in the federal tobacco tax in 2009. Because smokeless tobacco use by females is so low and fluctuates so little, the gender differences rise and fall with the changes in the use by males. The changes since 2007 certainly appear to be secular trends, in which all three grades are simultaneously responding to environmental changes, two of which could well be the introduction and promotion of new forms of smokeless tobacco and the change in the federal tobacco tax. The death in 2014 of the famous baseball player Tony Gwynn, who publicly and adamantly ascribed his cancer to his use of smokeless tobacco, may have served as what we have termed an “unfortunate role model” and contributed to the decline in smokeless tobacco prevalence among students in all grades.

- Similar to smokeless tobacco, smoking of [*small cigars*](#) in the past 12 months is higher among males (Table 137 and Figure 325 in [Occasional Paper 94](#)). Data on 12th graders’ small cigar use have been collected since 2010. In 2019 the annual prevalence of use was 12% for males vs. 4% for females. A long-term decline in use has occurred among both genders, and a relatively faster decline for males has narrowed the gender gap.
- Smoking tobacco using a [*hookah*](#) (a type of water pipe) in the past 12 months has typically been higher for males than females. The disparity was highest when hookah smoking was first tracked in 2011, receded considerably afterwards, and opened up somewhat again in 2019. The widening of the disparity in 2019 resulted from a significant decrease in prevalence among females by 3.3 points to 4.4% in contrast to a much smaller decrease of 0.5 points among males to 6.6% (Table 136 and Figure 319 in [Occasional Paper 94](#)).
- Like smokeless tobacco, past-year use of [*dissolvable tobacco*](#) and [*snus*](#) is more common among males than females (Tables 151-156 and Figures 385 and 391 in [Occasional Paper 94](#)). Dissolvable tobacco had an annual prevalence of 1.8% vs. 0.4% among 12th grade males and females, respectively, in 2019. [*Snus*](#) showed annual 12th grade prevalence levels of 4.5% for males vs. 0.7% for females. These substances have only been tracked since 2011, and no long-term time trends are yet apparent for dissolvable tobacco; but for snus, the prevalence among males has dropped sharply at 10th and 12th grades, greatly reducing the gender difference because use among females has stayed at very low levels (less than 2.1% in all grades in all years).
- In 2014 the survey began tracking use of [*large cigars*](#), [*flavored little cigars*](#), and [*regular little cigars*](#) (Tables 138-140 and Figures 331, 337, and 343 in [Occasional Paper 94](#)). For all of these substances past-year use is higher for males than females, the gender differences are larger at the higher grades, and use tends to be trending down.
- [*Steroid*](#) use in the past 12 months has been higher for [*males*](#) than [*females*](#) in grades 10 and 12 (Tables 157-159 and Figure 397 in [Occasional Paper 94](#)). In grade 8 steroid use had generally been nearly twice as high for males as compared to females until recent years; however, in the last three years levels of use for both genders have converged, and in 2019 were 0.7% for males and 0.9% for females. Prevalence levels for females were 0.6% and 0.6% in grades 10 and 12, respectively, whereas for males they were 1.1%, and 1.4%. Males showed a sharp spike in use in 1999 to 2001 in grades 8, 10, and 12, but they have

had a considerable fall-off in use since then. Use by females reached a peak a few years later but has since shown a considerable fall-off in 10th grade (followed by a leveling after 2007) and 12th grade (followed by a leveling after 2005), with a slight resurgence in 8th grade in recent years.

- **Vaping** involves the use of a battery-powered device to heat a liquid or plant material that releases chemicals in an inhalable aerosol. Examples of vaping devices include e-cigarettes such as the popular brand JUUL and “mods.” The aerosol may contain any of the following: nicotine, the active ingredients of marijuana, flavored propylene glycol, and/or flavored vegetable glycerin.

Beginning in 2017 MTF included separate questions on vaping nicotine, vaping marijuana, vaping ‘just flavoring,’ and a combination index indicating vaping of any of these three substances. These questions are not directly comparable to previous questions on e-cigarettes that were included on the survey in 2015 and 2016. MTF revamped the vaping questions in 2017 in light of evidence from our surveys that youth vape substances other than nicotine, and at considerable levels.¹¹ The new questions ask about 30-day, 12-month, and lifetime vaping of each substance.

- In 12th grade more males than females engaged in [nicotine vaping](#), [marijuana vaping](#), and [‘just flavoring’ vaping](#) during the past 30 days, and this difference persisted after a large overall increase in vaping for all substances in 2019 (Tables 142-144 and Figures 355, 361, and 367 in [Occasional Paper 94](#)). In 8th and 10th grades, the differences are much smaller.
- **Any nicotine use** and **any nicotine use other than vaping** in the last 30 days among 12th graders were higher for males than for females, with substantial gender differences present since these measures were included in the survey in 2017 (Tables 181 and 182 and Figures 457 and 463 in [Occasional Paper 94](#)). “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.

Trend Differences by College Plans

In this section we compare college-bound students (those who say they “definitely will” or “probably will” graduate from a *four-year college*) with those we term noncollege-bound students (i.e., 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 4-year college have risen dramatically over the more than four decades covered by MTF.¹² In the mid-1970s, only about half of 12th graders expected to complete college, compared to 80% of 2019 seniors. This means that the two groups compared here (using the convenient, if not entirely precise, terms college-bound and noncollege-bound) are changing proportions of the total population and, therefore, do not represent equally-sized segments of the population across time.

¹¹ Miech, Richard A., Megan E. Patrick, Patrick M. O’Malley, and Lloyd D. Johnston. [What are kids vaping? Results from a national survey of U.S. adolescents](#). 2016 *Tobacco Control*, 26(4), 386-391. PMID: 5326604. doi: 10.1136/tobaccocontrol-2016-053014

¹² 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.

Rather little such upward drift in college plans was seen during the 1990s at lower grade levels, but generally 78–90% of each class expected to graduate from a 4-year college. In 2019, 85% of 10th graders and 88% of 8th graders expected they would graduate from a 4-year college. These expectations are not realistic for all, but as we show below they are real in their correlations with drug using behaviors. The reader is reminded that at the lower grades, those aspiring to complete a four-year college program constitute a much larger proportion of the whole class than those who do not (with far smaller sample sizes for the noncollege-bound); thus the trend lines for the noncollege-bound are much less smooth (i.e., are subject to much more in the way of random sample fluctuation). Graphic presentation of all subgroup trends for all forms of substance use may be found in [Occasional Paper 94](#).

- College-bound and noncollege-bound students have shown fairly parallel trends in past-year use of [any illicit drug](#) (Figure 5-8; also Tables 1-3 and Figure 2 in [Occasional Paper 94](#)), with the noncollege-bound consistently having much higher levels of use than the college-bound in the lower grades and somewhat higher levels of use in grade 12.

Changes in use of other drugs, and in the index of [any illicit drug other than marijuana](#), have also been fairly parallel for the two groups since 1976, with large differences in the lower grades and smaller ones in grade 12 ([Occasional Paper 94](#), Figure 8).

- Changes in [marijuana](#) use have been fairly parallel for the two groups at all three grade levels, maintaining fairly large differences between them, particularly in the lower grades (Tables 7-15 and Figures 14, 20, and 26 in [Occasional Paper 94](#)). The noncollege-bound have consistently had higher levels of use.
- There is a very large difference between the college-bound and the noncollege-bound in their level of [daily marijuana](#) use, with the latter having the higher prevalence (Tables 16-18 and Figure 32 in [Occasional Paper 94](#)). During the relapse in the drug epidemic in the 1990s, daily use rose much more sharply among the noncollege-bound, opening a wide gap in all three grades, which remains today although we have seen some decline among the noncollege-bound at 8th grade. The 2019 comparisons for the college-bound versus the noncollege-bound were 0.9% vs. 3.7% in 8th grade, 3.5% vs. 10.3% in 10th grade, and 4.7% vs. 11.1% in 12th grade, respectively. Of interest, Figure 32 shows that daily marijuana use levels among the college-bound are higher among the 12th graders than the 10th graders, whereas among the noncollege-bound the two grades are quite similar (although it should be kept in mind that the 10th grade noncollege-bound samples include most of those who will drop out of high school, whose substance use levels are well above average).
- [Daily use of marijuana for a month or more](#) has been about twice as common for the noncollege-bound as compared to the college-bound (question asked only of 12th graders, Table 160 and Figure 404 in [Occasional Paper 94](#)). The difference between these two groups was at its smallest in the early 1990s, when prevalence was at its lowest, and has since grown, albeit unevenly.

- Prevalence of past-year [synthetic marijuana](#) use has changed substantially across the two groups for 12th grade students since 2011 (Tables 19-21 and Figure 38 in [Occasional Paper 94](#)). Among noncollege-bound students prevalence dropped by nearly three-fourths from 2011 to 2019 and thereby substantially reduced what had been their much higher level of use compared to college-bound students. A similar dynamic occurred among 8th and 10th graders.
- Past-year use of [inhalants](#) has been substantially higher among the noncollege-bound, especially in 8th grade (where use is highest); differences are smaller in 10th grade, and smaller still in 12th grade (Tables 22-24 and Figure 44 in [Occasional Paper 94](#)). These differences have diminished in the lower grades as overall prevalence has declined over the past decade.
- [Cocaine](#) use in the prior 12 months has been considerably higher among the noncollege-bound throughout the period studied – particularly so in the two lower grades (Tables 40-42 and Figure 80 in [Occasional Paper 94](#)). The difference tends to enlarge in periods of increasing use and diminish in periods of decreasing use, as is true for a number of drugs. Because cocaine use has been declining for some time, the gap between these two groups has been narrowing (particularly in the lower grades). For [crack cocaine](#) (Tables 43-45 and Figure 86 in [Occasional Paper 94](#)), the differences have been less pronounced in absolute percentages but still show two or more times higher levels among the noncollege-bound. The already-large differences in crack use grew considerably during the drug relapse of the early to mid-1990s, when cocaine use among the noncollege-bound rose very sharply, and then diminished considerably during the decline phase since 1998.
- As the overall prevalence of many drugs fell through 1992 among 12th graders, there was some convergence of prevalence between the college-bound and noncollege-bound due to a greater drop in use among the noncollege-bound. This has just been illustrated for cocaine and crack, and it was also true for [tranquilizers](#), [sedatives \(barbiturates\)](#), [methaqualone](#), [amphetamines](#), [nitrite inhalants](#), [LSD](#), [hallucinogens other than LSD](#), and [narcotics other than heroin](#) (see Tables and Figures Index in [Occasional Paper 94](#) for relevant Table and Figure numbers for each drug class). But, as the use of several of these drugs increased after 1992, the differences grew larger for many of them at all grade levels (e.g., LSD, hallucinogens other than LSD, amphetamines, and tranquilizers). The increases were sharper, and in some cases started earlier, among the noncollege-bound. In more recent years, use of a number of these drugs has declined, and with that decline has come a narrowing of the differences once again. This has been particularly true for [sedatives \(barbiturates\)](#), for example.
- In the 12th grade the noncollege-bound have slightly higher levels of past-year [heroin](#) use, with a prevalence of 0.8% as compared to 0.3% for the college bound in 2019 (Tables 49-51 and Figure 98 in [Occasional Paper 94](#)). This relative difference has not changed much over the course of the survey, although the absolute difference peaked in 1990s when overall heroin use was at higher levels.

At the lower grade levels differences across the two groups are near zero. In past years there have been much larger proportional and absolute differences, and in both grades the noncollege-bound showed sharper rises in heroin use in the 1990s. That increase was particularly sharp among the noncollege-bound 8th graders.

These trends for heroin use are also seen for [heroin use with a needle](#) and [heroin use without a needle](#) (see Tables 52-57 and Figures 104 and 110 in [Occasional Paper 94](#)).

- Use of [narcotics other than heroin](#), taken as a class, is reported only for 12th grade. In 2019 prevalence was higher for the noncollege-bound, at 3.7% versus 1.8 for the college-bound (Table 58 and Figure 116 in [Occasional Paper 94](#)). With the revision of this survey question in 2002 to include Vicodin, OxyContin, and Percocet the difference widened dramatically; prevalence rose for both groups, but by much more among the noncollege-bound. Since about 2008, use has dropped sharply for both groups, once again narrowing the difference between them..
- Past-year use of the narcotic drugs [Vicodin](#) and [OxyContin](#) outside of medical supervision have both shown large differences in prevalence between the college- and noncollege-bound, with the latter having substantially higher levels of use (see Tables 59-64 and Figures 122 and 128 in [Occasional Paper 94](#)). Over the past five years these differences have narrowed somewhat as prevalence has declined considerably more among the noncollege-bound. For Vicodin, 2019 past-year prevalence among noncollege- and college-bound students in 12th grade was, respectively, 2.4% and 0.7%, and for OxyContin, relative prevalence was 3.5% and 1.2%. These two drugs have moved pretty much in parallel since they were first measured in 2002, but Vicodin use has declined more sharply in recent years among both the college-bound and the noncollege-bound, narrowing the difference between them.
- Past-year use of [MDMA](#) (ecstasy, and more recently Molly) among 12th graders was higher for the college-bound in 2019 in all grades, as it has been for most years that it has been measured since 1996 (Tables 34-36 and Figure 68 in [Occasional Paper 94](#)). In 8th and 10th grade the gap between the college- and noncollege-bound has remained steady as overall prevalence has declined over the past decade. In 12th grade the gap between the two groups has reemerged after almost closing in 2016, with 2019 levels at 4.1% for the noncollege-bound and 1.7% for the college-bound. Estimates for MDMA are based on relatively low case counts – particularly in recent years as use has declined – making one-year subgroup differences quite variable from year to year.
- Past-year use of [Ritalin](#), a stimulant drug used in the treatment of ADHD, outside of medical supervision had been much higher among noncollege-bound 8th and 10th graders, and to a smaller degree among noncollege-bound 12th graders. (Use was first measured in 2001; see Tables 68-70 and Figure 140 in [Occasional Paper 94](#)). Annual prevalence has been trending down in all grades among both groups since about 2003, and the differences have narrowed overall. Again, the small numbers of cases have led to considerable variability in the estimates for the noncollege-bound.

- Past-year use of [Adderall](#), another stimulant drug used in the treatment of ADHD, outside of medical supervision has been measured only since 2009 (Tables 71-73 and Figure 146 in [Occasional Paper 94](#)). The 2019 differences were largest in 8th grade, with levels among the noncollege- and college-bound at 6% and 2%, respectively. In 10th grade the differences between the two groups were smaller, at 4% and 2%, respectively, which reflects a very substantial narrowing in the difference between the two groups in the past few years as use among the non-college bound has declined steeply. The differences across the groups have been small at 12th grade, quite possibly as a result of an increase in use among college-bound students seeking to improve their academic performance. Among 12th grade students the noncollege-bound have had levels of use 1.4 to 3 percentage points higher than the college-bound over the past three years.
- Past-year nonmedical use of *any prescription drug* has been higher for the non-college as compared to college bound students in all years since first tracked in 2005 (Table 86 and Figure 188 in [Occasional Paper 94](#)); specifically, this is defined as nonmedical use of amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers.
- In 2019 past-year use of [methamphetamines](#) was slightly higher among the noncollege-bound in 12th and 8th grades (Tables 75-77 and Figure 158 in [Occasional Paper 94](#)). In all grades differences across the two groups were much larger when first measured in 1999, and have diminished as overall prevalence has declined.
- [Crystal methamphetamine](#) use in the last 12 months showed quite parallel trends for the two groups, with the noncollege 12th graders fairly consistently higher, though the differences have just about ended since 2005. (Table 78 and Figure 164 in [Occasional Paper 94](#)). Question on this specific drug are not included in the 8th and 10th grade surveys.
- Past-year use of [sedatives](#) (including [barbiturates](#)), reported only for 12th graders, and [tranquilizers](#) outside of medical supervision have both been higher among the noncollege-bound, with the absolute differences generally expanding during periods of rising use and shrinking during periods of declining use (Table 82-85 and Figures 176 and 182 in [Occasional Paper 94](#)). For sedatives (barbiturates) the difference in prevalence between the college- and noncollege-bound has diminished considerably as overall prevalence has declined in recent years; and the large differences for tranquilizers – particularly in the lower grades – have diminished somewhat, though there remains a substantial difference in use in the lower grades and a moderate difference in grade 12.
- For 30-day [alcohol](#) prevalence, the noncollege-bound have been consistently higher than the college-bound in all grades, though the differences have generally been much smaller at 12th grade than in the lower grades (Tables 93-95 and Figure 206 in [Occasional Paper 94](#)). In general, both groups have moved in parallel, though after 1996, the gap in 12th grade widened a bit due to a greater drop in drinking among the college-bound. The proportional differential in all of the alcohol measures is greatest at 8th grade, smaller but still substantial at 10th grade, and smallest at 12th grade. From 2009 to 2019 the gap between the two groups in 12th grade narrowed as the percent of youth who used alcohol in the past 30 days significantly dropped to 31% from 51% among the noncollege-bound, while it changed

less among the college-bound, to 28% from 42% over the same period. As a result at 12th grade the long-standing difference has been close to eliminated.

- **Binge drinking** prevalence in the past two weeks has been higher for the noncollege-bound as compared to the college-bound. (Tables 102-104 and Figure 224 in [Occasional Paper 94](#)). In recent years, the two groups have been converging and the differences diminishing, though differences remain in all grades. In both 8th and 10th grades, there were very large and growing differences in binge drinking prevalence between the college-bound and the noncollege-bound during much of the 1990s, because the noncollege-bound exhibited a larger increase in binge drinking; but after that they exhibited a sharper decrease in binge drinking. Binge drinking has been declining in both groups in all three grades for some years.
- **Extreme binge drinking**, also known as ***high intensity drinking***, among 12th graders follows a pattern similar to binge drinking, although at lower prevalence levels (Tables 105 and 106, and Figures 230 and 236 in [Occasional Paper 94](#)). The noncollege-bound are more likely than the college-bound to have had (a) 10 or more drinks in a row and (b) 15 or more drinks in a row during the past two weeks. Steeper declines in prevalence for the noncollege-bound have diminished the difference between the two groups over the course of the survey for 10 or more drinks, but not so much for 15 or more drinks.

Questions on use of 10+ drinks in a row were added to the 8th and 10th grade surveys in 2016. Substantially higher prevalence levels of this behavior for noncollege-bound compared to college-bound youth are present in all grades, indicating that the factors driving this difference are at work even before high school.

- At all three grade levels there have been very large differences in the current prevalence of **cigarette** smoking between the noncollege-bound (who have much higher levels of use) and the college-bound (Tables 127-135 and Figures 302, 308, 314 in [Occasional Paper 94](#)). By 2019 these differences (in terms of absolute percentages) had narrowed as overall use declined in all grades for the outcomes of **past 30-day smoking**, **daily smoking**, and use of a **half pack a day or more**. In general, the broad contours of change have been fairly similar for the two groups at all three grade levels, except for the fact that the noncollege-bound groups showed larger percentage declines since the late 1990s, when they were at much higher levels. From 1991 to 2019, smoking a half-pack or more per day averaged 5 to 10 times higher among noncollege-bound than college-bound 8th and 10th graders.
- Past-year **hookah** smoking has typically been slightly higher for the noncollege-bound over the course of the survey (Table 136 and Figure 320 in [Occasional Paper 94](#), question asked only of 12th grade students). Prevalence for both groups has declined more than threefold since a high in 2014, and in 2019 levels stand at 5% for college-bound and 8% for noncollege-bound.
- The use of **smokeless tobacco** has been consistently two to six times higher among the noncollege-bound at all grade levels, though it has been declining in both groups in all

grades in recent years (see Tables 145-150 and Figures 374 and 380 in [Occasional Paper 94](#)).

- Use of [dissolvable tobacco](#) (first measured in 2012), and particularly [snus](#), are higher among the noncollege-bound. For dissolvable tobacco this difference has been decreasing in recent years in the lower two grades as levels of use among the noncollege-bound have declined. For snus the same pattern is apparent, but for all three grades (Tables 151-156 and Figures 386 and 392 in [Occasional Paper 94](#)).
- The survey began tracking use of [small cigars](#) by 12th grade students in 2010 (Table 137 and Figure 326 in [Occasional Paper 94](#)). Past-year prevalence has been somewhat higher among the noncollege-bound in every year. Prevalence has declined overall since tracking started, a decline of about equal size for both groups, as they move in parallel.
- In 2014, the survey began tracking use of [large cigars](#), [flavored little cigars](#), and [regular little cigars](#) (Tables 137-140 and Figures 332, 338, and 344 in [Occasional Paper 94](#)). For all of these substances, past-year use has been higher for noncollege- as compared to college-bound students, and this difference has changed little as use levels for both groups have declined in recent years.
- Large and fairly consistent differences in the prevalence of past-year [anabolic steroid](#) use have been seen for the two groups at all three grade levels, with the noncollege-bound typically about twice as likely to use steroids (Tables 157-159 and Figure 398 in [Occasional Paper 94](#)). As with other demographic variables, between-group differences in absolute percentages have tended to enlarge during periods of rising use (e.g., during the late 1990s for steroid use) and diminish during period of declining use (e.g. during the early 2000s), whereas the ratios between the percentages have changed much less. Some convergence is occurring in the lower grades but the difference across the two groups has grown since 2015 in 12th grade.
- In the three years it has been measured, [vaping](#) is more common among noncollege-bound youth. This difference appears in all grades, with differences larger in the younger grades for the four vaping behaviors of [nicotine vaping](#), [marijuana vaping](#), [‘just flavoring’ vaping](#), and the combination measure of [any vaping](#) (Tables 141-144 and Figures 350, 356 362, and 368 in [Occasional Paper 94](#)).
- Past 30-day *any nicotine use* has been higher for noncollege- as compared to college-bound youth in the three years it has been tracked (Table 181 and Figure 458 in [Occasional Paper 94](#)). The gap between the two groups diminished slightly in 2019; level of use for noncollege-bound youth was 38% as compared to 31% among college-bound youth. “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.

In sum, students who do not expect to complete four years of college have consistently been a high-risk group for involvement with substances including the licit drugs (alcohol and tobacco), vaping of all substances, nearly all of the illicit drugs, and even steroids. As with other

demographic variables, the between-group percentage differences generally have tended to enlarge during periods of rising use and diminish during periods of declining use.

Trend Differences by Region of the Country

Data on subgroup trends for the four regions of the country may be found in tabular and graphic forms in [Occasional Paper 94](#) on the [MTF website](#).

- In 2019 the proportions of 12th graders using [any illicit drug](#) during the prior 12 months were slightly higher in the West and Northeast (39-42%) than in the Midwest and South (36-37%) (Figure 5-10a; also Tables 1-3 and Figure 3 in [Occasional Paper 94](#)). In general, regional differences have been more pronounced when use levels are high and smaller when use levels are low. In the late 1970s and early 1980s, among 12th graders the Northeast region was consistently highest; the South, the lowest; and the Midwest and West, in between. Through the 1980s and continuing through 1992, use declined overall as did regional differences. During the “relapse phase” in the drug epidemic, from 1992 to 1997, the annual use of any illicit drug increased in all four regions by roughly equivalent amounts, with use in the South remaining lowest, but not by a great deal. Since then use levels have generally been higher in the Northeast and lower in the South, although these differences have not been entirely consistent. Among 8th and 10th graders, the regional differences in annual prevalence of any illicit drug have generally been fairly minor, except that at 8th grade the Northeast has consistently ranked lowest and the South has ranked at or near the highest—a reversal of the situation at 12th grade. These rankings are largely due to regional differences in marijuana use, discussed next.
- The long-term [marijuana](#) use trends among 12th graders have generally been similar in all four regions since 1975, with the Northeast usually having the highest annual prevalence and the South having the lowest (Tables 7-15 and Figures 15, 21, and 27 in [Occasional Paper 94](#)). Past-year marijuana use rose substantially in all four regions after 1991 for 8th graders and after 1992 for 10th and 12th graders. In 12th grade peak levels of use were highest in the Northeast and in the lower grades highest in the West, with use in the South ranking at or near the highest at 8th grade. Between 1996 and 2005, all regions showed a leveling or turnaround at all grade levels. From 1999 to 2005, marijuana use was lowest in the South among 12th graders, but not among 8th or 10th graders. (In fact, among 8th graders the Northeast has generally ranked lowest.) After the late 1990s, the Northeast stood out because it did not show as sharp a decline in marijuana use in 12th grade as did the other three regions, leaving it with a considerably higher level of use by 2010. After 2009 use in the Northeast leveled among 12th graders. In 2019, 12th graders in both the Midwest and South had the lowest annual prevalence level at 34%, and the other two regions were similar and ranged between 38% and 40%.
- With regard to [daily marijuana use](#), the West had the highest prevalence in all three grades in 2019 (Tables 16-18 and Figure 33 in [Occasional Paper 94](#)). In 12th grade the West has not held the top position for two decades (since 2000) up until the last two years. Previously it was the Northeast that often held the top spot. In the lower grades there have been few consistent differences among the regions in daily use.

- There are few discernible differences across regions in past-year use of [hallucinogens](#) since 2001 (Tables 25-27 and Figure 51 in [Occasional Paper 94](#)). In previous years, the Northeast had the highest levels of use for 12th grade students and the South clearly had the lowest, particularly in mid-1980s and the mid-1990s; however, the regions have since converged as hallucinogen use has fallen in all three grades. Much the same is true for the specific hallucinogen [LSD](#) (Tables 28-30 and Figure 57 in [Occasional Paper 94](#)), except that all grades in all regions showed an unusually sharp decline in use after 2000, likely due to diminished supply.
- Past-year [cocaine](#) use in 2019 among 12th graders has been essentially the same across regions and varied between 1.3% and 2.1%, with the exception that the West has stood out in the past couple years and in 2019 prevalence was 4.4% (Figure 5-10b; also Tables 40-42 and Figure 81 in [Occasional Paper 94](#)). In past years, regional variation in cocaine use was the largest observed for any of the drugs. Large regional differences in cocaine use emerged when the nation's epidemic grew in the late 1970s and early 1980s. By 1981, annual use had roughly tripled in the West and Northeast and nearly doubled in the Midwest, while it increased only by about one quarter in the South. This pattern of large regional differences held for about six years, until much sharper declines in the Northeast and West reduced the differences substantially. In recent years, use has been in a fairly steady decline in all regions in all grades through 2019, with the exception that levels of use for 12th graders in the West have not been declining and in 2019 were at about the same level as in 2012. For most of the years of the study, the West had the highest level of cocaine use at all three grade levels, and it was joined by the Northeast among 12th graders prior to 1991; in recent years use levels in the West have again surpassed those in other regions.
- In all three grades, past-year [crack](#) use has almost always been highest in the West, a position it held again in 2019 after regional differences briefly disappeared in 2017 (Tables 43-45 and Figure 87 in [Occasional Paper 94](#)). When crack use was first measured among 12th graders in 1986, there were large regional differences, with the West and Northeast again having far higher prevalence than the Midwest and South. Crack use dropped appreciably in all four regions over the next several years (though prevalence did not peak in the Midwest until 1987 or in the South until 1989, perhaps due to continued diffusion of the drug to areas that previously did not have access). Because the declines were large and very sharp in the West and Northeast, little regional difference remained by 1991, although the West still had the highest level of use. After 1991 or 1992, during the relapse phase of the drug epidemic, there were increases in all regions, but particularly in the West. Again, the West showed the largest increases and the highest levels of use at all three grades, while the other three regions were fairly similar in their annual prevalence of use. In general, all regions showed evidence of a leveling or decline in crack use at all three grade levels in recent years, along with an elimination of regional differences.
- Past-year [amphetamine](#) use outside of medical supervision has varied little by region of the country; in 2019 it was between 3% and 5% among all regions in 12th grade (Tables 65-67 and Figure 135 in [Occasional Paper 94](#)). In earlier years (1975-1986) the South consistently had the lowest levels of amphetamine use among 12th grade students, but that

difference diminished as overall use declined from a peak established in 1981. In essence, the South was least affected by both the rise and the fall in reported amphetamine use in the 1970s and 1980s. In the lower grades, however, the South had among the highest levels of use, while the Northeast tended to have the lowest.

- There has been little consistent difference among the regions in past-year use of [Ritalin](#) outside of medical supervision, as use has declined substantially in all three grades (Tables 68-70 and Figure 141 in [Occasional Paper 94](#)).
- Past-year use of [Adderall](#) outside of medical supervision has shown more regional variation, with a general trend of highest or second-highest use in the Midwest in all three grades (Tables 71-73 and Figure 147 in [Occasional Paper 94](#)). In 2019 this difference diminished and in 12th grade all four regions varied within the small window of 3% to 5%.
- Past-year use of [crystal methamphetamine \(ice\)](#), measured in 12th grade only, has varied little by region in recent years. (Table 78 and Figure 165 in [Occasional Paper 94](#)). The West had the highest or second-highest level of use from 1991 (when it was first tracked) until just the past few years. Usage levels in all regions have been very low, so none of the differences are large. All regions have shown a considerable decline in use since around 2002.
- Past-year use of [methamphetamine](#), which was added in 1999 for all grades, also has shown little difference by region in recent years (Tables 75-77 and Figure 159 in [Occasional Paper 94](#)). The Northeast generally had the lowest prevalence of use for this drug in earlier years.
- Some classes of drugs have shown little systematic difference by region over the years in which their use has been measured. This is especially true among substances with low prevalence (e.g. 3% or lower). These include [inhalants](#), [heroin](#), [heroin with a needle](#), [heroin without a needle](#), and [bath salts](#).
- Past-year use of [MDMA](#) (ecstasy and more recently Molly) has varied little by region in recent years, and among 12th grade students in 2019 annual prevalence varied from 1% to 3% (Tables 34-36 and Figure 69 in [Occasional Paper 94](#)). However, there was more variation in the peak years of use, 2000 and 2001, with use the highest in the West among 12th graders (14.4%) in 2000 and in the Northeast among 10th graders (8.2%) in 2001. The West showed a later spike in use, which reached its height in 2011, and the fact that it appeared in all three grades (which are sampled separately) makes it more plausible. This regional difference receded by 2013.
- Past-year use of [narcotics other than heroin](#) (reported only for grade 12) shows few consistent differences by region over time, although in recent years the Northeast has stood out with the lowest levels of use (Table 58 and Figure 117 in [Occasional Paper 94](#)). In the early years of the study (1975-1991) the South also stood out as having the lowest prevalence of use, a difference that vanished during the drug epidemic of the 1990s when

it caught up with the other regions. Interestingly, the South, which had the lowest level of use from 1975-1982 later showed the highest level of use from about 2005-2008.

- Past-year use of [*Vicodin*](#) outside of medical supervision has tended to be highest in the West and Midwest in all three grades, with the differences diminishing as use has fallen substantially in all grades and regions in recent years (Tables 62-64 and Figure 129 in [Occasional Paper 94](#)). Past-year use of [*OxyContin*](#) outside of medical supervision does not appear to have differed much by region and shows no systematic trends in regional differences over time (Tables 59-61 and Figure 123 in [Occasional Paper 94](#)).
- Past-year use of [*sedatives \(barbiturates\)*](#) outside of medical supervision is reported only for 12th graders (Table 82 and Figure 177 in [Occasional Paper 94](#)). In general, regional differences have been small with no consistent ranking of regions. The one exception is that during the relapse phase in the drug epidemic of the 1990s, use in the South increased somewhat more than in the other regions. As a result, the South had above-average prevalence from 1994 through 2007. The South reclaimed the highest levels of use in 2013 and 2014, but today there is virtually no difference among the regions.
- Past-year [*tranquilizer*](#) use outside of medical supervision has generally been highest in the South in the two lower grades (Tables 83-85 and Figure 183 in [Occasional Paper 94](#)). In 12th grade prevalence levels were consistently highest in the South from 1994 through 2007, although this difference has since diminished.
- The [*30-day prevalence of alcohol*](#) among 12th grade students has typically been higher in the Northeast and the Midwest and lower in the South and the West – particularly in the earlier years of the study – but the regions have been converging as use declines (Table 95 and Figure 207 in [Occasional Paper 94](#)). In general, differences by region were small in 2019. At 8th and 10th grades, there have been few regional differences in prevalence since 1991, when these data were first collected, and trends have generally been quite similar across regions (Tables 93-94 and Figure 207 in [Occasional Paper 94](#)).
- [*Binge drinking*](#) in the past two weeks among 12th grade students has typically been higher in the Northeast and the Midwest and lower in the South and the West (Table 104 and Figure 225 in [Occasional Paper 94](#)). These regional differences were particularly acute from 1975 to 1985 but have diminished considerably since then as overall prevalence has declined. In 8th and 10th grade few regional differences in binge drinking have been apparent.
- Levels of self-reported [*drunkenness*](#) in the prior 30 days show a very similar profile, not surprisingly. They have typically been highest in the Northeast and the Midwest, although these regional differences have diminished to near-zero as overall prevalence has fallen in recent years (Tables 99-101 and Figure 219 in [Occasional Paper 94](#)). At the lower grades, there have been no consistent regional differences in levels or trends on this measure.
- In 2019 among 12th grade students there was little variation in past 30-day [*cigarette*](#) smoking by region, with a high of 7% in the South and a low of 4% in the West (Figure 5-

10c; also Tables 127-129 and Figure 303 in [Occasional Paper 94](#)). Regional differences have diminished as use of cigarettes has declined dramatically to the lowest levels ever recorded by the survey. When levels of cigarette use were higher, such as from 1975-1985 and during the 1990s drug relapse, there were greater regional differences and use was typically lowest in the West in all grades. The lack of a substantial increase in the West during the 1990s may well be due to the fact that California conducted a major antismoking campaign in those years. Thirty-day prevalence of [half-pack a day or more](#) smoking (Tables 133-135 and Figure 315 in [Occasional Paper 94](#)) has shown larger and more consistent regional differences, with levels for the West generally about half to two thirds of those in other regions in 12th grade. Again, regional differences have diminished as smoking has declined.

- [Hookah](#) smoking of tobacco in the past 12 months was first measured in 2010 among 12th graders only (Table 136 and Figure 321 in [Occasional Paper 94](#)). Prevalence started out highest in the West and has usually been lowest in the South; these differences have largely vanished as overall use has declined substantially.
- Use of [small cigars](#) in the past year was also first measured in 2010 (Table 137 and Figure 327 in [Occasional Paper 94](#)). Past-year use had always been highest in the Midwest until 2015, when use declined to 17.6%. Since then there have been few consistent differences by region, all of which are showing a rapid decline in use.
- The use of [smokeless tobacco](#) in the past 30 days had generally been highest in the South and the Midwest for all grades, but regional differences were negligible in 2019 as overall use has declined. Among 12th graders, however, the South has often traded places with the Midwest as the region with the highest prevalence, although in recent years little systematic difference by region has been discernable (Tables 145-147 and Figure 375 in [Occasional Paper 94](#)). During the late 1990s, use of smokeless tobacco fell in all regions in all three grades. The decline was particularly steep in the South and the Midwest in the lower grades and in the Midwest in grade 12. The regional estimates are somewhat unstable for this drug due to the limited numbers of cases.
- The use of [dissolvable tobacco](#) in the past year by 12th graders was very low in 2019 at 2.3% or less in all four regions (Tables 151-153 and Figure 387 in [Occasional Paper 94](#)). There is limited trend information because the measure was added only in 2012. To date use levels have differed little by region.
- In 2014 the survey began tracking use of [large cigars](#), [flavored little cigars](#), and [regular little cigars](#) (Tables 138-140 and Figures 345, 333, and 339 in [Occasional Paper 94](#)). In the five years of data for these substances no region stands out as consistently having particularly high or low prevalence relative to the other regions.
- In general, the regions have shown fairly parallel movement in past-year [anabolic steroid](#) use at all three grade levels (Tables 157-159 and Figure 399 in [Occasional Paper 94](#)). In particular, the sharp increase in steroid use that occurred at grades 8 and 10 between 1998 and 1999 was observed in all regions, suggesting that a culture-wide influence was at work

– quite possibly the well-publicized use of a steroid precursor by Mark McGwire, a highly visible professional athlete who set a new home run record in 1998. (Note that the steroid trend curves for 12th grade are more uneven than for the other grades because the steroid questions are asked of a smaller sample in 12th grade.)

- No strong differences by region of country are apparent for [nicotine vaping](#) in the past 30 days since it was added to the survey in 2017 (Table 142 and Figure 357 in [Occasional Paper 94](#)). In all grades substantial increases in prevalence have occurred in tandem across the four regions.
- [Marijuana vaping](#) in the past 30 days has been slightly higher in the West and the Northeast than in the South and Midwest in all grades since 2017, when it was first tracked (Table 143 and Figure 363 in [Occasional Paper 94](#)).
- Past 30-day *any nicotine use* among 12th graders has not varied consistently by region since 2017, when it was first tracked (Table 181 and Figure 459 in [Occasional Paper 94](#)).

Trend Differences by Population Density

[Occasional Paper 94](#) contains tabular trend data on all drugs for the three levels of population density of the area where the school is located. They are: (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). A complete set of figures, which are far easier to read than tables, also may be found in [Occasional Paper 94](#).

- In 2019 [any illicit drug](#) use in the past year differed little by population density (Figure 5-11a; also Tables 1-3 and Figure 4 in [Occasional Paper 94](#)). Non-MSAs had the lowest levels of use in 12th grade for most years, but by 2019 prevalence in these areas had caught up with the others. In 2019 annual prevalence in the non-MSA areas was 36%, a little below the 38% level in both the large MSAs and other MSAs. Differences by population density were smallest and virtually zero at the start of the 1990s, when overall prevalence of illicit drug use was at its lowest level recorded by the survey. Differences at 12th grade were largest in the decade from 1975 to 1985, when use levels were highest, and were particularly high in large MSAs.

In the lower grades there has not been much difference among the three strata, which have moved in parallel for the most part. The one exception was that, during the period of ascending use in the first half of the 1990s, use rose most quickly in the other MSA stratum; but the two other strata caught up by 1996 at 8th grade and by 1999 at 10th grade. No such divergence occurred in 12th grade during that period.

- The overall proportion of 12th grade students involved in the past-year use of [any illicit drug other than marijuana](#) has been similar across areas of different population density strata, at least in recent decades (Figure 5-11a; see also Tables 4-6 and Figure 10 in [Occasional Paper 94](#)). Since the mid-1980s the difference between the MSA with the highest versus lowest prevalence has been 6 percentage points or less. In 2019 the

difference was 1 point. Prior to the mid-1980s use of any illicit drug other than marijuana was consistently highest in the large MSAs and lowest in the non-MSAs.

In the lower grades the large MSAs have historically had the lowest prevalence in almost every year of the survey, although differences by population density are not large. In 2019 levels of use in the large, other, and non-MSAs for 8th grade students were 6%, 7%, and 6%, respectively. In 10th grade the corresponding percentages were 8%, 10%, and 9%, respectively.

- During the relapse years of the early 1990s in which the use of many drugs generally increased, significant differences emerged across the three community types in the use of several specific classes of drugs. Figures 5-11b and 5-11c show the trends for the annual prevalence of use of [alcohol](#), [marijuana](#), and [cocaine](#) in 12th grade. The differences among the three population density strata were greatest (with large cities at the top) in the peak years of use for each drug, but the three strata have since converged.
- In 2019 the percentage of 12th graders using [marijuana](#) was virtually the same across the three levels of population density (Figure 5-11b; see also Tables 7-15 and Figures 16, 22, and 28 in [Occasional Paper 94](#)). In past years levels of use were lowest in the non-MSA strata. When overall prevalence of marijuana was high, these differences were most pronounced, and when prevalence was low, as it was in the early 1990s, these differences diminished and almost disappear. This trend is apparent for the outcomes of lifetime use, annual use, and use in the past 30 days. Starting in 2008, a rise in marijuana use occurred primarily in large and “other” MSAs, widening their difference from non-MSAs. By 2019 these difference diminished as marijuana use increased in the non-MSA areas and stayed steady in the others.

At the lower grades, the differences among strata have been small and have tended to trend in parallel.

- Trends for [daily marijuana](#) use are similar to the patterns for annual use, described above (Tables 16-18 and Figure 34 in [Occasional Paper 94](#)). In 2019 there was little difference in this outcome by population density. The two MSA strata had stood out with higher levels of daily use in 2008-2013, but this disparity was short lived. Prior to that, in the late 1970s and early 1980s, levels of daily use were much higher among 12th graders, and the differences between the non-MSAs and the two more urban strata were larger.
- In 2019 the percentage of adolescents in all grades who have used [cocaine](#) in the past year varied little by population density (Figure 5-11c; see also Tables 40-42 and Figure 82 in [Occasional Paper 94](#)); the absolute difference between the MSA group with the highest as compared to the lowest prevalence was 1% or less in all grades. In past years cocaine use showed some of the largest differences in population density of all drugs among 12th grade students and was consistently twice as high in large as compared to non-MSAs during the height of the cocaine epidemic between 1979 and 1989. Since that time differences by population density have diminished as overall prevalence has fallen.

The community-size differences in cocaine use at the 8th and 10th grade levels have been very small since 1991, when data for them were first available.

- By 2019 use of [crack cocaine](#) in the past year was at low levels, with little variation by population density (Tables 43-45 and Figure 88 in [Occasional Paper 94](#)). Use levels were at 1.2% or lower for all MSA groups in all grades in 2019, leaving little room for variation by population density. Differences by type of MSA have not shown a consistent pattern, as each of the three population density strata has had the highest level of crack use at least once in the past 12 years among 12th grade students. When the drug was first tracked by the survey from 1986-88 the large MSAs had by far the highest levels of use among 12th grade students. In 1997, the non-MSAs showed a sharp rise in crack use in all three grades and showed the highest levels of use for several years (ten years in the case of the 12th graders). Since that time, differences by population density have diminished as overall use declined appreciably.
- In general, [heroin](#) use in the past 12 months has been fairly equivalent across the three sizes of community – a fact that may surprise many – and has exhibited quite parallel time trends across all three grades (Tables 49-51 and Figure 100 in [Occasional Paper 94](#)). Similarly, there have not been any appreciable differences linked to population density in the two subcategories of heroin use – [with](#) and [without using a needle](#) (Tables 52-57 and Figures 106 and 112 in [Occasional Paper 94](#)).
- In 2019 past-year use of [narcotics other than heroin](#) without medical supervision among 12th graders differed little by population density (use of this class of drugs is reported only for 12th grade students; see Table 58 and Figure 118 in [Occasional Paper 94](#)). In 2019 levels of use stood at 2.5% in large MSAs, 2.8% in "other" MSAs, and 2.6% in non-MSAs. The rise in prevalence in all three strata from 1992 through 2002 is noteworthy. The large MSAs stand out because they showed the greatest increase in use during this period, followed by the greatest amount of decline since then. From 2005 through 2008 the non-MSAs had the highest levels of use, but since that time these levels have fallen and non-MSAs no longer stand out. Put another way, it appears that the use of other narcotics started out in the early years of MTF more as an urban phenomenon, but for several years after 2002 it appeared to be more of a non-urban one. However, since this reversal coincided with the addition in 2002 of three drugs to the definition of other narcotics in the question, it might be explained by population density differences in the use of the particular narcotic drugs.
- Past-year use of [OxyContin](#) outside of medical supervision was first included in MTF in 2002. In recent years differences by population density have diminished and in 2019 showed no consistent pattern (Tables 59-61 and Figure 124 in [Occasional Paper 94](#)). In past years at all three grades the highest levels of use had been in the non-MSAs and the lowest in the large MSAs. Because of the low numbers of cases the trend lines are uneven.
- [Vicodin](#) use in the past year outside of medical supervision, which was also first included in 2002, has shown little difference by population density and highly parallel trends, with sharp declines in use for all three grades in all three strata since about 2009 (Tables 62-64

and Figure 130 in [Occasional Paper 94](#)). Prevalence was 1.5% or less in all three grades in 2019, leaving little room for variation by population density.

- Past-year use of [hallucinogens](#) has for most years been lowest in non-MSA areas for 12th graders, but by 2019 use varied little by population density (Tables 25-27 and Figure 52 in [Occasional Paper 94](#)). In 8th and 10th grade there has been no consistent difference in use by population density. Because the 12th grade data go back further in time, it can be seen that in the late 1970s and the 1980s there were large differences, with large MSAs highest and non-MSAs lowest in their prevalence of hallucinogen use. The same patterns for all three grades in hallucinogen use also holds for [LSD](#) (Tables 28-30 and Figure 58 in [Occasional Paper 94](#)).
- For [MDMA](#) (ecstasy, Molly), past-year prevalence among 12th grade students was lowest among non-MSA in years past; but this difference has dissipated and in 2019 all three population density areas had similar levels of use, which varied only between 1.7% and 2.5% (Tables 34-36 and Figure 70 in [Occasional Paper 94](#)). The difference was most pronounced in 2000-2001 when use spiked up for a few years. Variation in [MDMA](#) prevalence by population density has been minimal in 8th and 10th grade except for the periods when use spiked.
- Past-year use of [amphetamines](#) without medical supervision differed little by population density in 2019 (Table 65-67 and Figure 136 in [Occasional Paper 94](#)). Large MSAs have had the lowest prevalence in all three grades since 1991 (and since 1985 for 12th graders for whom earlier data are available) and non-MSAs had the highest levels of use in all three grades from about 1991-2005, but the differences across population density areas have always been modest and in recent years only a small difference remains as overall use has declined. In 2019 prevalence across the population density groups varied only between 3.7% and 4.7% in 12th grade.
- The differences for past-year use of [Ritalin](#) outside of medical supervision have been small and inconsistent across the population density strata in all three grades (Tables 68-70 and Figure 142 in [Occasional Paper 94](#)). The differences for past-year [Adderall](#) use outside medical supervision also have been minor and inconsistent over time (Tables 71-73 and Figure 148 in [Occasional Paper 94](#)).
- [Methamphetamine](#) use in the last 12 months did not differ across population density strata in 2019 (Tables 75-77 and Figure 160 in [Occasional Paper 94](#)). Among 12th grade students use had been highest in non-MSA areas in the early 2000s, a difference that dissipated by 2005.
- Past-year use of [crystal methamphetamine \(ice\)](#) currently varies little by population density (reported only for 12th grade; see Table 78 and Figure 166 in [Occasional Paper 94](#)). Questions on the drug were added to the survey for 12th graders in 1990, and during the 1990s drug relapse, use rose most in the large cities, leading large MSAs to have the highest prevalence in 1996. Thereafter, however, use in the large cities declined rapidly, and since

1998 there has been little difference in use of crystal methamphetamine across the three strata as use has continued to decline.

- Past-year [*sedative \(barbiturate\)*](#) use outside of medical supervision is reported only for 12th graders (Table 82 and Figure 178 in [Occasional Paper 94](#)). In 2019, it varied little by population density, with the highest prevalence of 2.7% in the non-MSA category and the lowest prevalence of 2.3% in the large MSAs. In the mid-1980s, large MSAs tended to have the lowest use, a difference that has diminished considerably as overall prevalence has declined.
- Past-year [*tranquilizer*](#) use outside of medical supervision also was generally lowest in the large MSAs in all grades since 1991, but this difference has attenuated and in 2019 all three strata had similar prevalence levels (Tables 83-85 and Figure 184 in [Occasional Paper 94](#)).
- Differences in use of [*alcohol*](#) in the past 30 days have not shown a consistent pattern by population density and differences have been slight over the course of the survey in all three grades (Table 95 and Figure 208 in [Occasional Paper 94](#)). Larger differences were seen among 12th graders from 1975 through 1982 (with large MSAs highest and non-MSAs lowest in use), but they virtually disappeared after that.
- No strong differences have emerged across the three strata for [*binge drinking*](#) – having five or more drinks in a row at least once in the two weeks prior to the survey – except that the non-MSAs tended to have the highest prevalence of this behavior in the 1990s at all grade levels, and particularly in the lower grades (Tables 102-104 and Figure 226 in [Occasional Paper 94](#)). This higher prevalence emerged at 8th grade due to a greater increase in binge drinking in the non-MSAs versus the other strata during the 1990s. It already existed in 10th grade at the time of the first measurement in 1991. No such pattern is clear at 12th grade, although the prevalence of binge drinking has tended to be slightly lower in large MSAs than in the other two strata until about 2005. Since 2005, the differences among strata have become small for all three grades as overall prevalence levels have declined appreciably.
- In 2019 levels of [*cigarette*](#) smoking in the past 30 days were highest in the non-MSAs, as they have been since at least the mid-1990s in all grades (Tables 127-129 and Figure 304 in [Occasional Paper 94](#)). The emergence of non-MSAs as the leaders in cigarette prevalence emerged during the 1990s relapse in the drug epidemic and has persisted since. When smoking levels began to drop toward the end of the 1990s, in the lower grades the two more urban strata started dropping two to three years before the non-MSA stratum. While levels of cigarette use in non-MSAs today are only one third of what they were in the late 1990s, levels of cigarette use have shown equal declines in the two MSA strata, leaving non-MSAs with the highest relative prevalence in all three grades. Prior to the increase in smoking during the 1990s, the three population density strata had roughly equivalent levels of smoking in all grades.

Similar patterns are also observable for [*daily*](#) and [*half-pack-a-day smoking*](#) (Tables 130-135 and Figures 310 and 316 in [Occasional Paper 94](#)).

- Smoking tobacco using a [hookah](#) in the past year has in most years been lowest in the non-MSA group, as it was in 2019 (reported for 12th grade students only, starting in 2010; Table 136 and Figure 322 in [Occasional Paper 94](#)). Differences by population density have diminished as overall prevalence has declined dramatically in all strata in recent years.
- Use of [small cigars](#) in the past year has been asked of 12th graders since 2010 (Table 137 and Figure 328 in [Occasional Paper 94](#)). A difference by population density emerged in 2014 as levels of use decreased more rapidly in large MSAs. This difference has persisted as use levels in all three groups have since declined in tandem.
- [Smokeless tobacco](#) use is strongly related to population density at all three grade levels, with by far the highest levels of use in non-MSAs and generally the lowest levels in the large cities (Tables 145-150 and Figure 376 and 382 in [Occasional Paper 94](#)). The trends in 30-day use have been fairly parallel across communities of different sizes, with all strata showing a long-term decline in use through about 2002, an increase in the ensuing years in 10th and 12th grade, and then an overall decline in all three grades that has continued through 2019. The overall levels of daily use in non-MSAs are generally two to three times higher than those for the other two MSA groups.
- Use of [dissolvable tobacco](#) in the past 30 days was added to the study in 2011. The prevalence has been very low and never higher than 2.1% in any strata in any grade, about the same across the community-size strata, and it shows little signs of trending (Tables 151-153 and Figure 388 in [Occasional Paper 94](#)). In the earlier years of tracking, the non-MSAs had higher prevalence, but their use declined to match the other two strata.
- Use of [Snus](#) in the past year was also added to the 12th grade survey in 2011 and to the surveys of the lower grades in 2012 (Tables 154-156 and Figure 394 in [Occasional Paper 94](#)). In every year and in every grade level, use has been highest in the non-MSAs – consistent with the findings for smokeless tobacco generally – and lowest in the large cities. All three population density strata have shown an overall decline in use in all grades since 2011.
- For the past five years the survey has tracked use of [large cigars](#), [flavored little cigars](#), and [regular little cigars](#) (Tables 138-140 and Figures 346, 334, and 340, respectively, in [Occasional Paper 94](#)). Prevalence of all these substances is generally highest in the non-MSA areas in 10th and 12th grade, and differs little by population density in 8th grade. No strong trends are yet apparent with the five years of data available, though most trend lines appear to be pointing down similarly in all three population size groupings.
- Past-year use of [steroids](#) shows little difference in prevalence as a function of population density nor any systematic variation in trends related to population density, though the large MSAs have tended to be very slightly lower than the other two strata in most years in 8th and 10th grade (Tables 157-159 and Figure 400 in [Occasional Paper 94](#)).
- [Nicotine vaping](#) in the past 30 days was substantially higher in the non-MSA stratum as compared to the other two strata in 2019 in all three grades (Table 142 and Figure 358 in [Occasional Paper 94](#)). This is an abrupt development, given that nicotine vaping differed

little by population density in 2017 and 2018. Consequently, in 2019 nicotine vaping has joined most other tobacco products with its concentration in non-MSA areas.

- In direct contrast to nicotine vaping, [*marijuana vaping*](#) in the past 30 days has been *least* common in non-MSAs in 10th and 12th grades in every year assessed (Table 143 and Figure 364 in [Occasional Paper 94](#)). This is consistent with the distribution of combustible marijuana in these grades (Figure 28 in [Occasional Paper 94](#)). In 8th grade, prevalence of marijuana vaping differed little by population density, ranging from 3% to 5%.
- Past 30-day *any nicotine use* in 2019 among 12th grade students has been highest in non-MSA areas for all three years measured (Table 181 and Figure 460 in [Occasional Paper 94](#)). The large MSAs and Other MSAs showed a leveling in use in 2019, following a sharp increase the previous year. “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.

Trend Differences by Socioeconomic Status

The measure of socioeconomic status (SES) used in MTF – namely, the average educational attainment level of the respondent’s parents – is described in the previous chapter and in Appendix B (note that when respondents report educational level of only one parent, that level is used). Five different strata are distinguished. It should be noted that, because the average educational level of parents has risen considerably since MTF began, the five strata contain changing proportions of the sample. Figures 5-12a through 5-12f show trends for six selected measures of drug use by average level of parents’ education. Trend data by subgroup for all drugs may be found in tabular form and graphic form in [Occasional Paper 94](#) on the [MTF website](#).

In general, there has been little change over time in the relationship between family SES, as measured by parents’ education, and prevalence of use for most of the drugs.

Among 8th graders, all 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, past year prevalence of [*any illicit drug use*](#) has shown rather little association with SES as far back as 1975. Until 2005 the lowest SES stratum generally has shown slightly lower levels of use than the other four strata, but this difference has since dissipated. At 8th and 10th grades, however, there have been fairly consistent differences among the different SES strata, with use being inversely related to SES (Tables 1-3 and Figure 5 in [Occasional Paper 94](#)). In other words, at these lower grades (before much dropping out has occurred) the lowest SES stratum has shown the highest levels of use and the differences have been considerable.

- Likewise, using [*any illicit drug other than marijuana*](#) has shown little consistent difference in usage levels among 12th graders since 1975, though use generally had been lowest in the lowest economic stratum in the early years of the study (Tables 4-6 and Figure 11 in [Occasional Paper 94](#)). Among 8th and 10th graders, however, there has generally been an inverse relationship with SES.
- [*Marijuana*](#) use in 8th and 10th grade has long had a rather strong and consistent ordinal, negative correlation with parental education – with use highest in the lowest SES stratum (Tables 7-8 and 10-11, as well as Figures 17 and 23 in [Occasional Paper 94](#)). The association grew stronger during the relapse phase in the drug epidemic, and the differences among the SES strata grew much larger after 1996. Put another way, in the two lower grade levels, the decline occurring from 1996 through about 2006 was steeper (and began earlier) among students from more highly educated families.

A similar inverse association is present in 12th grade for lifetime use, although it is somewhat weaker (Tables 9 and 12 and Figures 17 and 23 in [Occasional Paper 94](#)). In 2019, the percentages of 12th grade students who had ever tried marijuana in their lifetime was lowest in the two highest socioeconomic strata. For annual prevalence, use does not follow a pattern by parental education. A 12th grade pattern in which the lower SES groups generally have the highest levels of marijuana use and the higher SES groups generally have lowest levels began to emerge at the end of the 1990s, after the 1990s drug relapse. In recent years these differences have diminished.

- The story for [*daily marijuana*](#) use is much the same with regard to its association with SES in the lower grades (Tables 16-18 and Figure 35 in [Occasional Paper 94](#)). There has been a fairly consistent negative association with SES since the relapse in the drug epidemic in the early 1990s in the 8th and 10th grades. In the 12th grade this trend has not been present until recent years, when in 2013 prevalence in the three lowest SES levels increased while prevalence in the two highest SES levels remained level. The resulting gap has persisted since.
- [*Synthetic marijuana*](#) use in the past year has not shown a consistent association with SES but does show some negative association in all grades in the last three years, with use lowest in the higher social strata and highest in the lower social strata (Tables 19-21 and Figure 41 in [Occasional Paper 94](#)). In general, all strata in all grades have shown steep declines in use, and differences by SES have attenuated as overall prevalence has diminished.
- [*Inhalant*](#) use in the past 12 months has not varied greatly by SES among 12th graders (Tables 22-24 and Figure 47 in [Occasional Paper 94](#)). Throughout most of the study, the association at 12th grade has been weakly positive, particularly during the early-to-mid-1990s when inhalant use was increasing. In both lower grades, there has been some negative association, particularly since about 1995, as the strata diverged in their use patterns with highest use in the lowest SES stratum. This trend has weakened in recent years, and in 10th grade variation in inhalant use by 2019 was negligible. Recall that inhalant use is highest at 8th grade and tends to decline with age; and in the 8th grade there

has been the clearest negative association with SES, particularly since 1995, though the differences have been diminishing in recent years as overall use has fallen considerably.

- [Hallucinogen](#) use in the past 12 months has tended to be negatively related to SES in the lower two grades, and the association became clearer in the years after 2000 in the 10th grade (Tables 25-27 and Figure 53 in [Occasional Paper 94](#)). In 12th grade the reverse has been true – the annual prevalence of hallucinogen use has been positively related to SES – until recently; since about 2014, little association between hallucinogen use and SES has been apparent in the three grades.
- [LSD](#) use in the past 12 months and SES have not shown any consistent association among 12th grade students since the late-1990s (Tables 28-30 and Figure 59 in [Occasional Paper 94](#)). During the 1990s drug relapse, a positive association emerged, but this association disappeared when LSD use plunged at the end of the 1990s decade. However, among 8th graders, those in the lowest SES stratum consistently have exhibited the *highest* levels of use (although the overall prevalence, and thus differences by SES, are very small), with hardly any differences among the other strata. Among 10th graders, the differences have been negligible.
- At 12th grade there is not a clear association between [MDMA](#) (ecstasy, Molly) use and SES (Tables 34 through 36 and Figure 71 in [Occasional Paper 94](#)). However, at 8th and 10th grades, a bit of a negative association emerged until about 2013, when the association at 10th grade became blurred as use declined. In 8th grade a small, inverse association reemerged around 2016 and has persisted since then.
- In 2019 [cocaine](#) use in the past 12 months showed little variation by SES among 12th grade students (Figure 5-12b; see also Tables 40-42 and Figure 83 in [Occasional Paper 94](#)). But in past years cocaine use has shown the largest and most interesting change in its association with SES of any of the drugs. After the 1990s drug relapse cocaine use showed a strong inverse association with SES with prevalence at 9% in the lowest SES stratum and 5% in the highest stratum in 1999. This 1999 inverse association is noteworthy because it reversed the positive association two decades earlier, with prevalence at 9% in the lowest SES stratum and 16% in the highest stratum in 1980. This change in the SES distribution of cocaine use likely reflects changes in its cultural reputation, which shifted from a glamorous drug of the wealthy at the start of the 1980s to a dangerous drug of the disadvantaged by the 1990s. The change in reputation was brought about in large part by the well-publicized, cocaine-related death of basketball star Len Bias as well as the increasingly publicized dangers of cocaine use. In recent years cocaine has shown little association with SES as use has dropped to the lowest levels in more than forty years.

In 8th and 10th grades cocaine has an inverse association with SES that has been robust and substantial in all years surveyed since 1991, with the lowest stratum showing considerably higher annual prevalence than any of the other strata. The differences by SES have shrunk in recent years as overall prevalence has declined.

- Since 1991, when 8th and 10th grades were first surveyed, SES trends in their use of both [crack](#) and [cocaine other than crack](#) in the past 12 months have been similar (Tables 43-48 and Figures 89 and 95 in [Occasional Paper 94](#)). Notably, use in the lowest SES stratum was considerably higher for both forms of cocaine use than use in any of the other strata until recent years when the difference narrowed as overall prevalence declined. At 12th grade this same pattern holds for crack, but there is little difference by SES for cocaine other than crack. Crack use has been exceptionally high among those in the lowest socioeconomic stratum – often more than double the prevalence for the other strata in the lower two grades. And, in general, there has been an inverse relationship between SES and crack use in grades 8 and 10. In 12th grade the lowest socioeconomic stratum emerged as the group with the highest levels of crack use in the early 1990s and has remained the highest in most years since then, including 2019.
- Overall, among 12th graders, little difference has existed among the SES groups in their trends in past-year [amphetamine](#) use without medical supervision (see Figure 5-12d; Tables 65-67 and Figure 137 in [Occasional Paper 94](#)). In 8th and 10th grades, amphetamine use has generally been slightly negatively correlated with SES; while the increases in use through 1995 or 1996 occurred in all groups, they were sharpest in the lower two SES strata. More recently, 8th and 10th graders in most strata showed a decline in use, but only small differences among them remain.
- Since it was first included in the study in 1999, [methamphetamine](#) use in the last 12 months has tended to be highest in the lowest SES stratum at all three grades and lowest in the two top SES strata (Tables 75-77 and Figure 161 in [Occasional Paper 94](#)). This pattern has weakened over time, as use declined substantially, and is only nominally present in 8th and 10th grades, where prevalence has dropped to 1.3% or less in all SES groups. In recent years, past-year use of [crystal methamphetamine \(ice\)](#) by 12th graders (8th and 10th graders are not asked about its use) has followed the same pattern with those in the lowest SES stratum slightly more likely to use than those in the other strata (Table 78 and Figure 167 in [Occasional Paper 94](#)).
- Since 1991, when the surveys of the lower grades began, [heroin](#) use, including use with and without a needle, generally has been considerably higher in the lowest SES group for 8th and 10th graders, a difference that has nearly disappeared in recent years as heroin use declined (Tables 49-51 and Figure 101 in [Occasional Paper 94](#)). A similar pattern emerged for heroin use among 12th graders – though not until after 1994 and it has continued into 2019 with the lowest SES stratum standing well above the other strata. The differences are similar for [heroin use with a needle](#) and [heroin use without a needle](#) in the past year (Tables 52-57 and Figures 107 and 113 in [Occasional Paper 94](#)). All of these differences are very small and need to be interpreted with caution, given that virtually all percentages are lower than 3% and most are lower than 2%.
- By way of contrast, the use of [narcotics other than heroin](#) among 12th graders (the only grade for which this behavior is reported) had generally been lowest in the lowest SES stratum, with relatively little difference among the other strata; since 2005 all of these other strata have shown some decline, as has the lowest SES stratum since 2011, which has had

the effect of eliminating the differences between them and the lowest SES stratum (Table 58 and Figure 119 in [Occasional Paper 94](#)).

- The use of [OxyContin](#) in the past 12 months outside of medical supervision differs little by SES in recent years, as a very slight negative association with SES in all three grades since 2002 has diminished (Tables 59-61 and Figure 125 in [Occasional Paper 94](#)). The same was largely true for [Vicodin](#) with a negative association in the lower grades that has largely dissipated with declining use. At 12th grade the association started out slightly negative but then it also dissipated as use declined sharply (Tables 62-64 and Figure 131 in [Occasional Paper 94](#)).
- [Tranquilizer](#) use in the past 12 months without medical supervision at 12th grade has shown little systematic association with SES; use by all strata has been falling in recent years after increasing during the relapse in drug use in the 1990s (Tables 83-85 and Figure 185 in [Occasional Paper 94](#)). In 8th grade, the lowest SES stratum has tended to have the highest prevalence while the two top SES strata have had the lowest prevalence; these differences widened after 2003 as use in the lowest SES stratum rose considerably through 2010. In 10th grade the differences between the lower and upper SES strata increased after the question was revised to include Xanax in the examples; use by the two upper strata has been consistently below the others since then, similar to the 8th grade.
- In almost every year since the start of the survey [alcohol](#) use in the past 30 days among 12th graders has been lowest in the lowest SES level with little difference among the other SES strata (Tables 93-95 and Figure 209 in [Occasional Paper 94](#)).

At the lower grade levels, however, the story is quite different. Alcohol use has generally been inversely correlated with SES, and the association has been strongest in 8th grade. Trends for the various strata have generally been parallel, nonetheless, in all grades, with all strata showing a long-term decline in use.

- In 2019 [binge drinking](#) in the past two weeks among 12th grade students increased steadily going from the lowest to the highest SES stratum, from 12% to 18%, but the lowest stratum was most separated from the rest until the past few years as the strata converged (Figure 5-12e; also Tables 102-104 and Figure 227 in [Occasional Paper 94](#)). In almost every year of the survey, the lowest SES stratum among 12th graders had the lowest level of binge drinking.

At the lower grade levels there have been systematic differences among strata, with an inverse relationship between binge drinking and SES, though these differences have been narrowing while all strata have been showing ongoing declines for some years.

- Past 30-day use of [cigarettes](#) among 12th graders is lowest among those in the highest strata, with the exception of the mid-1990s (Tables 127-129 and Figure 305 in [Occasional Paper 94](#)). In an unusual pattern, this inverse association diminished at the height of the 1990s drug relapse – unusual because typically associations of drug use with sociodemographic characteristics became stronger with increasing drug prevalence. From 1975 through the

1980s, previous to the 1990s drug relapse, cigarette smoking was inversely related to SES, particularly in the late 1970s and early 1980s, when smoking levels were substantially higher than they are today.

It is possible that the introduction of the Joe Camel advertising campaign in 1988 helped account for the closing of the socioeconomic gap that started in the late 1980s, and that the termination of that campaign in 1997 helped account for the re-emergence of that gap. We know that between 1986 and 1997, the rise in smoking was sharper among 12th grade boys than 12th grade girls, and the Camel brand was particularly popular among boys and those whose parents had higher than average education.¹³ The Joe Camel ad campaign appears to have been particularly effective with boys who had more educated parents, raising the smoking levels of their SES strata and nearly eliminating the relationship between SES and smoking that existed before and after the years of the campaign for that brand.

In 8th and 10th grade, 30-day smoking prevalence has shown a substantial, inverse association with SES in all years since it was first measured for these grades in 1991. This association has weakened in recent years as overall smoking prevalence has declined substantially.

- [Daily smoking](#) follows a pattern similar to 30-day prevalence (Figure 5-12f; see also Tables 130-132 and Figure 311 in [Occasional Paper 94](#)). Among 12th grade students a substantial, inverse association with SES is present in all years except during the 1990s drug relapse (also the period of the Joe Camel campaign). Among 8th and 10th grade students, an inverse association of daily smoking is present in all years since first measured in 1991, even as prevalence has fallen. Differences in daily smoking have disappeared among 8th grade students as prevalence has dropped to extremely low levels and was less than 2.3% in all SES levels in 2019.
- Smoking [small cigars](#) in the past 12 months has been slightly, positively correlated with SES in 12th grade, an association that has diminished as overall prevalence has dropped dramatically over the past decade (the only grade from which data were gathered; Table 137 and Figure 329 in [Occasional Paper 94](#)).
- Use of [smokeless tobacco](#) in the past 30 days is negatively correlated with SES at 8th grade but not in the two higher grades (Tables 145-147 and Figure 377 in [Occasional Paper 94](#)). The 12th grade correlations were slightly positive from 2007 to 2012 when the lowest SES stratum had the lowest levels of use, a pattern that has begun to re-emerge in recent years.
- For the past four years the survey has tracked use of [large cigars](#), [flavored little cigars](#), and [regular little cigars](#) (Tables 138-140 and Figures 347, 335, and 341 in [Occasional Paper 94](#)). Prevalence of all these substances is typically highest among the lowest two SES strata in 8th grade, indicating that the general, inverse association of SES with smoking extends to these combustible tobacco products. In 10th and 12th grade the association with

¹³ Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (1999). [Cigarette brand preferences among adolescents](#) (Monitoring the Future Occasional Paper No. 45). Ann Arbor, MI: Institute for Social Research.

SES is less consistent or not present. Percentage differences across SES are becoming smaller as overall prevalence declines.

- ***Nicotine vaping*** during the prior 30 days in 12th grade is lowest among students in the lowest socioeconomic stratum (Table 142 and Figure 359 in [Occasional Paper 94](#)). At the lowest socioeconomic level prevalence was 15%, while in all the higher ones it varied between 26% and 28%. In 8th grade the association is the opposite, with prevalence highest among students at the two lowest socioeconomic levels, at 12% in the lowest and 13% in the second-lowest, and prevalence lowest at the highest socioeconomic level, at 7%. In 10th grade the distribution of nicotine vaping varies little by parental education.
- ***Marijuana vaping*** in the past 30 days differed little by SES in 12th grade in 2019 (Table 143 and Figure 365 in [Occasional Paper 94](#)). Among 12th graders prevalence varied between only 12% and 15%. In 10th and 8th grade prevalence was substantially lower in the higher socioeconomic strata; in 8th grade the difference was more than twofold, with prevalence of 2.4% in the highest stratum and 6.1% in the lowest.
- Past 30-day ***any nicotine use*** for 12th grade students did not systematically differ by socioeconomic strata in 2019, a change from 2017 and 2018 when prevalence was lowest in the lowest socioeconomic stratum (Figure 467 in [Occasional Paper 94](#)). “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.

Racial/Ethnic Differences in Trends

While the three major racial/ethnic groups examined here – Whites, African Americans, and Hispanics – have tended to be quite different in their level of drug use, they have usually exhibited parallel trends.¹⁴ (Cigarette and marijuana use are exceptions, as discussed later in this section.) Data have been examined here for these three groups using two-year moving averages of prevalence to provide smoother and more reliable trend lines.¹⁵ 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. See [Occasional Paper 94](#) for the racial/ethnic trend data on all classes of drugs.

¹⁴ We earlier 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.

¹⁵ A given year’s value in a two-year moving average is based on the mean of the observed values for that year and the previous year.

A summary of the findings for race/ethnicity follows:

- 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 taken as a class, LSD, other hallucinogens, MDMA (ecstasy), cocaine other than crack, narcotics other than heroin, amphetamines, Adderall, methamphetamine, sedatives (barbituates), any prescription drug and tranquilizers. Further, for the past decade, their cigarette smoking and use of most tobacco products, drinking, and binge drinking also have been lower than the use levels among Whites and Hispanics. African Americans also have lowest levels of use of the vaping devices that have recently arrived on the scene, 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, 2010 among 10th graders, and 2007 among 12th graders due to increases in their use.
- In 8th grade, Hispanic students have tended to have the highest levels of use of a number of drugs, including any illicit drug, cocaine, crack, cocaine other than crack, methamphetamine, and binge drinking. The elevated use for Hispanics has diminished in recent years as overall use of all these substances has declined. By 12th grade, the differences between Hispanic and White students narrow considerably or are reversed. In 2019, however, Hispanic 12th graders still tended to have the highest level of use for synthetic marijuana, cocaine, crack, and cocaine other than crack. As we have said earlier, we believe that Hispanics’ 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 tended to have the highest level of use of hallucinogens, hallucinogens other than LSD, narcotics other than heroin, amphetamines, Adderall, tranquilizers, any prescription drug, 30-day alcohol use, drunkenness, binge drinking, 30-day liquor use, binge drinking of liquor, wine, flavored alcoholic beverages, alcoholic beverages containing caffeine, cigarette smoking (by a large margin), smokeless tobacco (by an even larger margin), vaporizers, small cigars, large cigars, flavored little cigars, snus, nicotine vaping, , ‘just flavoring’ vaping, nonprescription diet pills, and stimulant ADHD drugs.

Below is a detailed discussion of these trends by race/ethnicity for specific substances:

- In 2019, marijuana use in the last 12 months did not differ much by race/ethnicity among 12th grade students, with prevalence ranging only from 33% to 36% across the three racial/ethnic categories (Figure 5-13a; also Tables 10-12 and Figure 24 in [Occasional Paper 94](#)). Racial/ethnic differences have narrowed to near zero in recent years, which marks a substantial change from the previous four decades when Whites had the highest prevalence, African Americans the lowest, and Hispanics fell in between. This ordering stayed consistent as the overall prevalence of annual marijuana use rose and fell over the years. In recent years (through 2013), marijuana prevalence among White 12th graders held steady

while increases occurred among African Americans and Hispanics, and levels of use have remained fairly consistent since then.

This narrowing disparity in marijuana use in recent years stems in part from changes in cigarette use, which is a strong predictor of marijuana use. Adolescents who have ever smoked a cigarette are five times more likely to use marijuana than those who have not. Over the past two decades the relatively higher level of cigarette smoking for white as compared to black adolescents has declined as overall prevalence of cigarette smoking has diminished (see Figure 306 in [Occasional Paper 94](#)), thus reducing a major driver of the black-white disparity in marijuana use.¹⁶

In the 8th grade Hispanics have generally ranked highest for annual marijuana use, as they did in 2019 with prevalence at 14%. Their levels have been similar to those of African American students in recent years (at 12% in 2019), as a result of a long-term decline in use among Hispanics as compared to African-Americans. In the 10th grade, prevalence has been highest among Hispanic students in almost all years and lowest among African American students until 2011, when they overtook White students. By 2019 all three groups were very close to each other in both 10th and 12th grades.

- In 2019 [daily marijuana](#) use differed little by race/ethnicity (Tables 16-18 and Figure 36 in [Occasional Paper 94](#)). While White students in 12th grade had higher levels of daily marijuana use in almost all years of the survey, African Americans have replaced Whites as the group with the highest level of daily use since 2015. Differences between the groups are small and range from 5% to 7%. Among 10th grade students, African Americans had the lowest prevalence of daily marijuana use until about 2003, then crossed over Hispanics and later Whites to achieve very slightly higher prevalence by 2011 and through 2014. In 2019, there was very little difference among the three groups, although African Americans again emerged with the highest levels of use. At 8th grade, all three groups have shown almost identical trend lines, with very little difference among the groups in 2019.
- [Synthetic marijuana](#) use in the last 12 months has been tracked only since 2012 (Tables 19-21 and Figure 42 in [Occasional Paper 94](#)). In 12th grade the level of use has decreased fastest among White students, who had the highest prevalence of 13% in 2012 but by 2019 fell to 3%, similar to African American (2%) and Hispanic (5%) students, both of whom also had shown considerable declines in use. In 10th grade and 8th grade little difference is apparent across the three groups, with a narrow range from 2% to 4% among both. In both grades Hispanic students started out highest in 2012 but declined substantially in their use by 2019.
- Racial/ethnic differences in the use of [inhalants](#) in the past 12 months have steadily and gradually been diminishing in the last two decades and in 2019 these differences approached zero (Tables 22-24 and Figure 48 in [Occasional Paper 94](#)). In all grades, levels of use among White and Hispanic adolescents have been the highest for most of the life of the study (and substantially above African Americans) but have fallen considerably and

¹⁶ Miech, Richard A., Yvonne M. Terry-McElrath, Patrick M. O'Malley, and Lloyd D. Johnston. 2019. [Increasing marijuana use for black adolescents in the United States: A test of competing explanations](#). *Addictive Behaviors*, 93, 59-64. doi: 10.1016/j.addbeh.2019.01.016

have reached the low levels of use that were consistently found among African Americans. White and Hispanic adolescents have often traded places over the years as the group with the highest prevalence of inhalant use. The differences across race/ethnicity are negligible at present, but they were quite large in the past, primarily due to the fact that use among African Americans has consistently been low.

- Levels of use of over-the-counter [*diet pills*](#) have been highest for Whites in most years, including 2019 (Table 161 and Figure 414 in [Occasional Paper 94](#)). In most years African Americans had the lowest levels of use and Hispanics were in the middle. These racial/ethnic differences have diminished in recent years to near zero as overall prevalence has declined.
- Use of over-the-counter [*stay-awake pills*](#) in the past year differed little by racial and ethnic groups in 2019 and varied within the narrow range of 2% and 3% (Table 162 and Figure 420 in [Occasional Paper 94](#)). Differences in these groups were much larger in past years when overall prevalence was higher, with levels of use much higher for Whites than Hispanics, who in turn had higher levels of use than African Americans. Use of these drugs has declined sharply in all three groups since about 1989.
- Differences across racial and ethnic groups in use of [*hallucinogens*](#) in the last 12 months have steadily diminished since the late 1990s for all grades (Tables 25-27 and Figure 54 in [Occasional Paper 94](#)). In 2019 these differences still remained among 12th grade students, albeit diminished, with levels of use lowest among African Americans (1.9%) and substantially higher among Hispanics and Whites (4.0% and 4.5%, respectively). In 10th grade the pattern was similar with prevalence among African Americans (1.0%) one third the levels among Hispanics and Whites (3% in both groups). In 8th grade overall prevalence was less than 2%, which leaves little room for substantial differences by race/ethnicity. In the past two decades levels of use have declined among White and Hispanic 8th graders, and these levels are now reaching the low prevalence among African Americans that has been found in all survey years. Clearly, hallucinogenic drugs never caught on among African American youth, much as was the case for inhalants.
- African Americans have shown rather little change over time in their very low levels of past-year [*LSD*](#) use in all three grades, and disparities by race/ethnicity have waxed and waned as a result of changing prevalence among Whites and Hispanics (Tables 28-30 and Figure 60 in [Occasional Paper 94](#)). In 2019 levels of use among 12th grade students were highest for Whites (3.4%), followed closely by Hispanics (3.2%) and then African Americans (1.6%).

In 8th grade Whites and Hispanics again had higher levels of use than African Americans throughout the 1990s, but this difference has since diminished to near zero as overall use declined. A similar pattern is found among 10th grade students, although slight differences by race/ethnicity remained in 2019, with prevalence at 0.7% for African Americans and at 2.5% and 2.2% for Hispanics and Whites, respectively.

- Past-year use of [MDMA](#) (ecstasy, Molly), another drug used for its hallucinogenic effects, has also remained relatively unpopular among African American students at all grade levels, though it has shown some small fluctuations over time among them (Tables 34-36 and Figure 72 in [Occasional Paper 94](#)). In 2019 use levels for African Americans (1.1%) in 12th grade were lower than the levels for Hispanics and Whites (1.8% and 2.4%, respectively). This ranking of groups is apparent in all years of the survey, and was particularly large at the start of the 1990s. In 10th grade, Hispanics and Whites have traded positions multiple times as the group with the highest prevalence, although both groups have consistently stayed higher than African Americans. Use in general has been very low at 8th grade, and the groups differed little from one another by 2019, although there were considerable differences among them in earlier years.
- Past-year use of [cocaine](#) has almost always been lowest for African Americans in all grades and all years (Figure 5-13a; also Tables 40-42 and Figure 84 in [Occasional Paper 94](#)). In 12th grade, Whites and Hispanics have taken turns as the group with highest prevalence, but their trend lines are quite parallel. The gap between the racial/ethnic groups has narrowed in recent years and current prevalence is 2.7% among Hispanics, 2.2% among Whites, and 0.9% among African Americans. In 10th grade, Hispanics have always had the highest prevalence, and over the last two decades use among Whites declined to the point where it is now similar to the low levels observed among African Americans. These trends among 10th grade students are paralleled among 8th grade students, although differences among groups have approached zero as overall prevalence has declined. During the peak years of cocaine use in the first half of the 1980s – for which we have data only from 12th graders – African American use did spike, but not as much as it did among Whites and Hispanics, and their use declined considerably by 1992 along with use by Whites and Hispanics and then remained low, rather than increasing during the 1990s as occurred with Whites and Hispanics.
- Hispanic students have had the highest prevalence of [crack](#) use in all three grades since being tracked by the survey (Tables 43-45 and Figure 90 in [Occasional Paper 94](#)). African American students have had historically the lowest prevalence until recent years when slight increases have led them to pass Whites in all grades and converge with Hispanics. Differences among these three groups have narrowed considerably to near zero in all three grades as use has declined long-term among both Whites and Hispanics.
- In 2019 past-year use of [heroin](#) was 0.7% or less across all grades, and varied little by race/ethnicity (Tables 49-51 and Figure 102 in [Occasional Paper 94](#)). In the past, African Americans ranked lowest in heroin use through 2009 in the lower two grades, with very little change in their use until then. At 12th grade, both Whites and African American students had similarly low and unchanging prevalence from 1977 through 1992, when use among Whites and Hispanics began very slight increases and continued to rise through 2000. After 2009 (2010 in the case of 10th graders), use among African Americans increased some, bringing their level of heroin use close to that of Whites, who had shown a considerable decline in use by then (since 1997 among 8th graders, 2000 among 10th graders, and 2001 among 12th graders, suggesting a cohort effect). While use has been declining since 2009 among 12th grade Whites and Hispanics, it has risen among African

Americans, and since 2012 they have had the highest prevalence of heroin use. The trends have been similar for both use of heroin with a needle and more labile for use without using a needle, with differences across groups falling to near zero as overall prevalence has declined. (Tables 52-57 and Figures 108 and 114 in [Occasional Paper 94](#)). It appears that much of the change in heroin use has been attributable to changes in use without a needle, given that this outcome shows more change over time than heroin use with a needle.

- Use of [narcotics other than heroin](#) among 12th graders (the only grade for which data are reported) has fairly consistently been much higher among White students, considerably lower among Hispanic students, and lowest among African American students (Table 58 and Figure 120 in [Occasional Paper 94](#)). In the past three years, levels of use among Hispanics and African Americans have converged to essentially the same level. In 2015 a sharp drop in prevalence among Hispanics brought their levels lower than African Americans for the first time in the survey, although this difference was temporary and did not persist in later years. Previously, the differences across the three groups enlarged due to a much greater-than-average increase in use among White students after 1993, which peaked in 2008 before beginning a substantial decline. Among African Americans and Hispanics, use rose much less sharply and peaked considerably later (around 2014). In 2019 the prevalence across the three groups was much more similar than it has been in the past as levels of use have declined appreciably among Whites (since 2008) and some among Hispanics (since 2010), while they have increased overall among African Americans over the past two decades until 2014.
- Past-year use of [OxyContin](#) without medical supervision among 12th graders varied little by racial/ethnic groups in 2019 (Tables 59-61 and Figure 126 in [Occasional Paper 94](#)). When use was first measured in the early 2000s prevalence among Whites (at about 5%) was about double that among Hispanics and African Americans. This difference persisted until 2011, after which the gap narrowed to near zero as use among Whites fell. In 10th grade, Whites maintained the highest level of OxyContin use in comparison to the other racial/ethnic groups, until recent years have shown a near zero difference between White and Hispanics, and lower levels among African Americans. In general, the differences between Hispanics and Whites have been inconsistent, most likely due to the greater variability in the Hispanic estimates. In 8th grade these differences have been small.
- Past-year use of [Vicodin](#), another synthetic narcotic drug, has consistently had the lowest levels of use among African Americans as compared to the other racial/ethnic groups for 12th and 10th grade students in most years (Tables 62-64 and Figure 132 in [Occasional Paper 94](#)). Among 12th grade students, differences across racial/ethnic groups have diminished to near zero as overall prevalence has declined, particularly among Whites. Among 10th grade students, the differences between the racial/ethnic groups were near zero in 2019, again with steep declines among Whites, in addition to a decline among Hispanics. Among 8th grade students, African Americans have shown the highest level of use in the past few years, but the difference relative to the other racial and ethnic groups is only one and a half percentage points in 2019. Whites and Hispanics have shown a decline in use in 8th grade as well.

- Past-year use of [*amphetamines*](#) outside of medical supervision has shown highest levels of use among Whites, followed by Hispanics, and then African Americans in every year of the study for 12th grade students (Tables 65-67 and Figure 138 in [Occasional Paper 94](#)). A similar pattern is apparent in 10th grade, although prevalence levels for White and Hispanic students converged in 2019. In the past decade, the difference between the groups has decreased and then rebounded slightly among 12th grade students since 2010, while among 10th graders it has steadily diminished. In 8th grade, little difference was apparent across racial/ethnic groups in 2019, as prevalence among Whites and Hispanics has gradually fallen over the past two decades and has approached the prevalence found among African Americans, which has been low throughout the study.
- In 2019 past-year use of [*Ritalin*](#) outside of medical supervision differed little by racial/ethnic groups (Tables 68-70 and Figure 144 in [Occasional Paper 94](#)). When the survey first began tracking the drug in 2001, levels of use were substantially higher for Whites and Hispanics compared to African Americans in all three grades. In the following years these differences have attenuated as overall prevalence has decreased steadily among Whites and Hispanics.
- The use of [*Adderall*](#), another stimulant drug used in the treatment of ADHD, is very low at 8th grade with little consistent differences among the three racial/ethnic groups (Tables 71-73 and Figure 150 in [Occasional Paper 94](#)). In 10th and 12th grades, African Americans have had lower levels of use than Whites in all years measured. Levels of use among Hispanics have ranked mostly in the middle, although throughout the study period they have sometimes ranked the highest and sometimes the lowest.
- In 2019 overall levels of past-year use for [*methamphetamine*](#) were less than 1.3% in all grades, leaving little room for variation by race/ethnicity (Tables 75-77 and Figures 162 in [Occasional Paper 94](#)). When first tracked in 1999-2000 overall prevalence of methamphetamine was near 3% among 12th graders and African Americans stood out as having extremely low levels of use (1.1% or less in every year). Hispanics have generally had the highest rate of use in 8th and 10th grades with Whites in the middle. In the intervening years, levels of use for Whites and Hispanics have declined in all three grades to those of African Americans.
- [*Crystal methamphetamine \(ice\)*](#) is reported only for 12th graders (Table 78 and Figure 168 in [Occasional Paper 94](#)). The differences have narrowed and are now very small, as use of this drug has declined considerably among Whites and Hispanics, who have generally had the highest levels of use. In fact, in 2010 through 2019 the prevalence of crystal methamphetamine use among 12th grade Whites fell slightly (albeit not significantly) below those for African Americans, who until then consistently had shown the lowest level of use of any of the three groups.
- Past-year use of [*sedatives \(barbiturates\)*](#) and [*tranquilizers*](#) outside of medical supervision among 12th grade students is lowest among African Americans – a difference that has been observed in every year of the study (Tables 82-85 and Figures 180 and 186 in [Occasional Paper 94](#)). Sedatives (barbiturates) are reportedly only for 12th grade; but tranquilizers are

reported for all three grades and showed similar changes in 10th grade to those found in 12th grade. The relatively lower levels of use among African Americans have narrowed in the past decade as use among Whites, in particular, has declined. In general, the differences have been greatest when overall prevalence was high, and smaller when overall prevalence was low (as it was in the early 1990s, as the start of the 1990s drug relapse). Among 8th grade students, Hispanics have, in every year, had the highest prevalence of tranquilizer use, followed closely by Whites, and then by African Americans. These differences were small to begin with and have diminished substantially in recent years as levels of use among Hispanics and Whites have decreased and approached the levels seen among African Americans, which has been low throughout the survey.

- The 30-day prevalence of [alcohol](#) use has shown relatively consistent racial/ethnic differences over time at each grade level (Tables 93-95 and Figure 210 in [Occasional Paper 94](#)). Among 12th graders, Whites have had the highest levels of use and African Americans have had considerably lower levels. Hispanics have fallen in between with levels of use closer to Whites than African Americans until the last five years, when a large decline in prevalence among Hispanics brought them closer to the levels of African Americans. At 10th grade, Whites and Hispanics have had quite similar prevalence and trends, tracking on top of each other. African Americans have had levels of use that were substantially lower but moved mostly in parallel with the other two groups in grade 10, with use among all three groups declining. At 8th grade, Hispanics have consistently had somewhat higher drinking prevalence than Whites – opposite their relative positions in 12th grade – while African Americans have had considerably lower prevalence. All three groups have been showing long-term declines in use with the differences in 8th grade narrowing considerably by 2019 and levels of use ranging only from 5% (for African Americans) to 10% (for Hispanics). There is less convergence in the upper grades.
- The trends for [binge drinking](#) (having five or more drinks on at least one occasion in the prior two weeks) have been very similar to those just discussed for current drinking, though prevalence is lower, of course (Figure 5-13b; also Tables 102-104 and Figure 228 in [Occasional Paper 94](#)). African Americans have consistently had appreciably lower prevalence than the other two groups at all three grade levels, though at 8th grade, levels of use among Whites and African Americans have recently converged as a result of relatively faster declines among Whites. In 2019 8th grade prevalence ranged from 1.9% (for Whites and African Americans) to 5.3% (for Hispanics, who have consistently had the highest levels of use in 8th grade). In 10th grade, Whites and Hispanics have had similar and considerably higher levels of binge drinking than African Americans. In 12th grade, the levels of binge drinking were much higher and the three groups were more spread out, with Whites the highest, African Americans quite low, and Hispanics in the middle but coming closer to the low levels of African Americans in recent years. All three groups have shown a pattern of long-term decline, each dropping by about one half over the course of the study.
- Among 12th graders, differences in [extreme binge drinking](#) (also known as high intensity drinking) across race/ethnicity are similar to those for binge drinking discussed above, but at lower prevalence (Tables 105 and 106, and Figures 234 and 240 in [Occasional Paper](#)

94). Whites have had the highest prevalence levels in most years. The differences between the groups have narrowed as overall prevalence has declined.

Questions on use of 10+ drinks in a row were asked of 8th and 10th graders starting in 2016. African Americans rank lowest in terms of prevalence in 10th grade but there is little difference across the three racial/ethnic groups in 8th grade. These newly added questions suggest that the differences across race/ethnicity emerge during the later high school years.

- At both 10th and 12th grades the prevalence of [cigarette](#) smoking in the past 30 days has been highest among Whites, followed by Hispanics, and then African Americans (Figure 5-13b; also Tables 127-129 and Figure 306 in [Occasional Paper 94](#)). Whites and Hispanics have tracked closely to each other in 8th grade. In 2019, these differences were largest in 12th grade, smaller in 10th grade, and almost negligible in 8th grade. For the past two decades, these differences have been diminishing in each grade as overall prevalence has declined to record-low levels.
- Similar trends are apparent for [daily smoking](#). The longer-term trends observable among 12th graders paint a particularly interesting picture for both daily smoking and smoking in the past 30 days. In 1975, when the study began, the three groups all had about the same 30-day prevalence levels among 12th graders. After that all three groups showed declines in smoking, but among African American students the decline lasted much longer, bringing them to an appreciably lower level of smoking, one that has remained in the years since. When smoking went up during the relapse phase of substance use in the 1990s, it rose more among Whites than the other two groups, further opening the difference from African Americans. As smoking has declined sharply among Whites and Hispanics since the late 1990s, their levels are beginning to converge and approach the low levels observed for some time among African American 12th graders, following a long period of the three groups having dramatically different levels of smoking (Tables 130-132 and Figure 312 in [Occasional Paper 94](#)). Whites have consistently had the highest levels of smoking in 8th and 10th grade, as well, but long-term declines in smoking have just about eliminated any differences.
- A newer form of tobacco consumption for Americans, smoking with a [hookah](#) water pipe, is measured only at 12th grade and only since 2010 (Table 136 and Figure 324 in [Occasional Paper 94](#)). African Americans have much lower levels of past-year use than Whites and Hispanics. For the past four years prevalence has declined for Whites and Hispanics (with a significant decline for Whites in 2018 and 2019), bringing their use levels closer to African Americans.
- Smoking [small cigars](#) in the past year, which has been tracked since 2010 among 12th grade students, shows large differences among the three groups: Whites have had the highest levels of use, African Americans lowest, and Hispanics in the middle (Table 137 and Figure 330 in [Occasional Paper 94](#)). Levels of use for Hispanics and African Americans have converged in recent years as levels of use for Hispanics have declined faster than they have for African Americans. Use among Whites has also been in decline, but their use is still considerably higher than in the other two groups.

- Whites have had the highest levels of use of [*smokeless tobacco*](#) in all years that it has been measured in 12th and 10th grade (Table 145-147 and Figure 378 in [Occasional Paper 94](#)). In 12th grade 6% of Whites had used smokeless tobacco in the past 30 days in 2019, compared to less than 2% among Hispanic and African Americans. In past years, 12th grade Hispanics had higher levels of use than African Americans, but these two groups have converged in their levels of use as it has declined to very low levels. In 10th grade the overall pattern and levels of use are similar to 12th grade. In 8th grade all three groups have converged to a low level of use of 2%; in earlier years Whites had higher levels of use than Hispanics, who in turn had higher levels of use than African Americans. The decline in smokeless tobacco use has been greatest among Whites in all three grades.
- Use of [*dissolvable tobacco*](#) products in the past 12 months was at very low levels in 2019 and showed no important differences in use among the three racial/ethnic groups in any grade (Tables 151-153 and Figure 390 in [Occasional Paper 94](#)). In the last five years a small disparity has emerged in 12th grade, with levels of use among African Americans outpacing the other two racial and ethnic groups; however, all levels are low and are at 2.1% or less.
- The use of [*snus*](#) in the last 12 months has consistently been highest for Whites in all three grades (Tables 154-156 and Figure 396 in [Occasional Paper 94](#)). The difference in the upper grades is substantial, despite a steady decline in their use, with 2019 prevalence among Whites more than two times higher than among the other two groups. In 8th grade the 2019 difference between the three groups was negligible, and all were at levels of 1.7% or less.
- For the past five years the survey has tracked use of [*large cigars*](#), [*flavored little cigars*](#), and [*regular little cigars*](#) (Tables 138-140 and Figures 348, 336, and 342 in [Occasional Paper 94](#)). For all these cigars Whites have had, and in 2019 continued to have, higher levels of use than Hispanics and African Americans in 12th grade, particularly for large cigars. In 10th and 8th grade use differed little across the three racial and ethnic groups.
- Past-year use of [*anabolic steroids*](#) did not vary appreciably across the three racial/ethnic groups in 2019 in 8th or 10th grade (Tables 157-159 and Figure 402 in [Occasional Paper 94](#)). In all grades during the early 2000s, African Americans had lower levels of use than Whites and Hispanics. Since then use among Whites and Hispanics has declined and use among African Americans has increased some, eliminating differences across the three groups in 8th and 10th grade by 2006. In 12th grade, use among African Americans continued to rise after 2006 (as use declined in the other two groups) and they have had the highest levels of use in nearly all years since then.

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

Percentage who ever used

	<u>1975</u>	<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>
<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 ^{f,t}	—	—	—	—	—	—	—	—	—	—	—	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

	<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^{ff}</u>	<u>2020</u>	2019–2020 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	
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	-0.8
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	-0.9
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	-0.0
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	-1.5 s
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	+0.5
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	+0.3
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	+0.4
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	+0.3
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	+0.4
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	0.0
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	+0.8
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	-0.2
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	-0.1
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	-0.3 s
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	0.0
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	-0.3
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	+0.9
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	-1.1 sss

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	2019–2020 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	
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	+0.2
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	+0.9
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	+3.0
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	+0.9
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	+1.7
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	§	—
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	35.5	33.8‡	35.8	42.5	45.6	47.2	+1.6
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	25.0	34.0	40.8	44.3	+3.5
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	11.9	15.6	23.7	27.9	+4.2 s
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	30.7	34.1	29.0	29.8	+0.8
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	10.1	7.6	3.7	1.3	-2.2 sss
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	33.0	36.2	+3.3
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	+0.5
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	§	—
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	§	—
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	-0.4
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	-0.9
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	-1.2

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

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

	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 ^{yz}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine ^{yz}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana ^{yz}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring ^{yz}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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

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

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{ff}	2020	2019-2020 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	
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	-1.2
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	0.0
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	-0.5
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	-0.8
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	+0.7
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	+0.3
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	+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	§	—
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	-0.3
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	0.0
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	+0.6
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	+0.1
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	+1.0
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	0.0
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	-0.2
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
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	-0.6
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	+0.7
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	+0.2
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	-0.2
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	+0.6
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	+0.5
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	+0.9
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	-0.6 sss
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	0.0
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	-0.2
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	+0.7
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	§	—

Table continued on next page.

↓
(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	2019–2020 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	
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	§	—
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	+0.6
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	+3.2
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	+4.1
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	-1.6
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	18.8	29.7	35.3	34.5	-0.8
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	9.5	13.1	20.8	22.1	+1.3
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	20.6	25.7	20.3	16.6	-3.7
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	7.5	6.0	3.1	1.9	-1.2 s
JUUL ^{jj}	—	—	—	—	—	—	—	—	—	—	—	—	28.4	22.7	-5.6 s
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	+0.2
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	§	—
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	-0.4
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	§	—
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	§	—
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 ^{f,t}	—	—	—	—	—	—	—	—	—	—	—	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

	<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^{ff}</u>	<u>2020</u>	<u>2019–2020</u> <u>change</u>
<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	
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	-1.5
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	-0.4
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	-1.2
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	-0.2
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	-0.1
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
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	-0.3
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	0.0
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	-0.2
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
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
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	0.0
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
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	0.0
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
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	-0.2
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	+0.6
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	-0.4 ss

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	2019–2020 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		
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	+0.1	
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	-0.2	
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	+4.3	
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	+2.3	
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	+1.8	
Smokeless Tobacco ^{f,t}	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	§	—	
Any Vaping ^{y,z}	—	—	—	—	—	—	—	—	16.3	12.5‡	16.6	26.7	30.9	28.2	-2.7	
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	11.0	20.9	25.5	24.7	-0.8	
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	4.9	7.5	14.0	12.2	-1.8	
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	9.7	13.5	10.7	8.4	-2.3	
Flavoring Vaping with no Nicotine Vaping ^y	—	—	—	—	—	—	—	—	—	—	4.2	4.0	2.3	0.8	-1.5 sss	
JUUL ^{ee}	—	—	—	—	—	—	—	—	—	—	—	—	20.8	12.9	-7.9 sss	
Any Nicotine Use ^f	—	—	—	—	—	—	—	—	—	—	25.6	32.5	33.6	§	—	
Any Nicotine Use other than Vaping ^f	—	—	—	—	—	—	—	—	—	—	20.6	18.5	15.7	§	—	
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	+0.4	
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	§	—	
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	§	—	
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	-0.2	
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	-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	-0.7	

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	2019-2020 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	
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	+0.5
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	§	—
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
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	0.0
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	0.0
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	0.0
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
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
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
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
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	-0.1 s
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
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
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
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	0.0
Methamphetamine ^o	*	0.1	0.1	0.1	0.1	*	*	0.1	0.1	0.1	*	0.0	0.1	0.0	0.0
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	-0.1
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	0.0
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	-0.1
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	+1.0
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	-0.3
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	+2.4
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	+0.7
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	+0.4
Vaping Nicotine ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	5.2	—
Vaping Marijuana ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	—
Vaping Just Flavoring ^y	—	—	—	—	—	—	—	—	—	—	—	—	—	1.4	—
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	§	—
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	+0.4

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.

^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.)

^{cc}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."

^{cd}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.

^{ce}Includes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

^{cf}In 2019, data based on one of six forms. *N* is one sixth of *N* indicated. Beginning in 2020, data based on all available forms.

^{cg}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 ^{kk}	2020	2019– 2020 change																				
Any Illicit Drug ^a																																																			
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	+0.8																				
10th Grade	30.6	29.8	32.8	37.4	40.9	45.4	47.3	44.9	46.2	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	-0.3																					
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	-0.8																				
Any Illicit Drug other than Marijuana ^{ab}																																																			
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	+1.7																				
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	-0.6																				
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	-0.9																				
Any Illicit Drug including Inhalants ^{ac}																																																			
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	+3.0																				
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	-0.1																				
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	-1.5																				
Marijuana/Hashish																																																			
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	-0.3																				
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	-0.8																				
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	-0.0																				
Marijuana Under a Doctor's Orders ^{no}																																																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1	1.1	1.3	1.0	-0.2																			
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1	1.3	2.0	2.0	0.0																			
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.2	2.0	§	—																			
Inhalants ^{cd}																																																			
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	+3.2 s																				
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	+0.6																				
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	-1.5 s																				
Hallucinogens ^{bf}																																																			
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	+0.6																				
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	+0.1																				
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	6.7	6.6	6.9	7.5	+0.5																				

(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	2019– 2020 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	+0.5
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	+0.2
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	+0.3
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	+0.2
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	+0.2
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	+0.4
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	0.0
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	-0.6
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	+0.3
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	+0.3
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	-0.9
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	+0.4
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	+0.1
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	-0.3
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	0.0
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	+0.3
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	-0.8
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	+0.8

(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	2019– 2020 change	
Heroin ^{lj}																																
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	1.5	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	-0.2		
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	-0.1	
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	-0.2	
With a Needle ^l																																
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	-0.2
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	-0.1	
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	-0.1	
Without a Needle ^l																																
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	+0.1	
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	
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	-0.3 s	
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	0.0	
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	+2.1	
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	-1.2	
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	-0.3	
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	
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	+0.1	
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	+0.9	

(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	2019– 2020 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	-1.1 sss	
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	+0.2	
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	-0.1	
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	5.8	6.1	6.0	6.0	5.7	4.9	-0.8	
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	+0.9	
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	-0.4	
Rohypnol ^f																																
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	§	—	
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	§	—	
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	+1.1	
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	+3.3	
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	+3.0	

(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	2019– 2020 change		
Vaping Marijuana^{bb}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	5.5	9.0	10.2	+1.2	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.8	14.2	21.8	22.7	+0.9	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	15.6	23.7	27.9	+4.2 s	
Vaping Just Flavoring^{bb}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.0	19.4	18.9	17.8	-1.0	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.5	31.7	28.3	27.7	-0.7	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.7	34.1	29.0	29.8	+0.8	
Flavoring Vaping with no Nicotine Vaping^{bb}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.8	7.8	3.6	1.3	-2.2 sss	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.0	7.6	3.7	1.6	-2.1 sss	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1	7.6	3.7	2.1	-1.6 sss	
JUUL^{jj}																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.9	16.9	-2.1	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	30.7	-2.1	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.0	36.2	+3.3	
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	+0.5		
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	+0.1		
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	+0.5		
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	§	—		
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	§	—		

(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	2019– 2020 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	-1.5
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	-0.5
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	-0.4
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	-0.3
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	-0.1
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	-0.9
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	-2.5
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	-0.5
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	-1.2
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 ^{kk}	2020	2019– 2020 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 (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	2019– 2020 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	+0.4																				
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	+0.2																				
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	+0.7																				
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	+0.2																				
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	+0.3																				
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	+0.3																				
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	+0.2																				
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	+0.1																				
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	+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	§	—																				
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	0.8	-0.3																					
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	-0.4																					
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	-0.3																					
Salvia ^{h,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	-0.3																				
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.7	3.9	2.5	2.3	1.8	1.2	0.9	0.9	0.7	0.9	1.2	+0.3																				
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	0.0																				

(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	2019– 2020 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	0.0																		
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																		
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	0.9																		
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	0.9	1.2	0.8	1.1	0.8	0.5	0.8	0.8	0.6	0.6	0.0	-0.6 sss																	
Bath salts (synthetic stimulants) ^{n,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	0.0																		
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	-0.2																		
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	-0.8																		
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	-0.2																		
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	-1.1																		

(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	2019– 2020 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	+4.0		
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	+2.9		
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	§	—		
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	-1.7		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5	19.7	16.9	14.3	12.8	10.6	9.9	9.8	8.4	8.3	-0.1		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.4	26.4	23.5	20.0	18.3	17.0	16.9	14.7	12.3	12.3	0.0		
Tobacco using a Hookah ^o																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.1	18.5	18.3	21.4	22.9	19.8	13.0	10.1	7.8	5.6	§	—	
Small cigars ^o																																	
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.1	19.5	19.9	20.4	18.9	15.9	15.6	13.3	9.2	7.8	§	—	
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	2019– 2020 change
Any Vaping^{bb}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.3	17.6	20.1	19.2	-1.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.9	32.3	35.7	34.6	-1.2
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.8	37.3	40.6	39.0	-1.6
Vaping Nicotine^{bb}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.5	10.9	16.5	16.6	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15.8	24.7	30.7	30.7	-0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8	29.7	35.3	34.5	-0.8
Vaping Marijuana^{bb}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	4.4	7.0	8.1	+1.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1	12.4	19.4	19.1	-0.2
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.5	13.1	20.8	22.1	+1.3
Vaping Just Flavoring^{bb}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	15.1	14.7	12.3	-2.4
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.3	24.7	20.8	18.4	-2.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.6	25.7	20.3	16.6	-3.7
Flavoring Vaping with no Nicotine Vaping^{bb}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.5	6.2	3.0	2.0	-1.0 s
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.0	6.4	2.9	2.0	-0.9 ss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.5	6.0	3.1	1.9	-1.2 s
JUUL^l																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.7	11.7	-2.9
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.7	20.0	-8.7 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.4	22.7	-5.6 s
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	+0.4
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	+0.1
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	+0.2

(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	2019– 2020 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	§	—																		
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	+0.5																		
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	-0.9																		
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	-0.4																		
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	§	—																		
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	§	—																		
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	2019– 2020 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																												2019– 2020 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
Any Illicit Drug ^a																															
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	+0.2
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	-1.6
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	-1.5
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	+0.1
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	-0.5
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	-0.4
Any Illicit Drug including Inhalants ^{a,c}																															
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	+0.5
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	-1.7
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	-0.3
Marijuana/Hashish																															
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	-0.2
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	-1.8
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	-1.2
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	+0.8
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	+0.1
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	-0.2
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	+0.3
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	+0.1
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	-0.1

(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																												2019– 2020 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	
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	0.5	0.6	0.5	0.3	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.6	+0.2
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	0.0	
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	0.0	
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	+0.3	
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	+0.2	
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	-0.3	
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		
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		
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	0.0		
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	-0.2	
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 s	
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	2.5	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	-0.2		
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	
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	-0.1	
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	
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	0.3	0.2	0.1	-0.1	
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 s	
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	

(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																												2019– 2020 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	
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	
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	
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	0.0	
With a Needle^l																																
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	+0.1	
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	0.0	
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	
Without a Needle^l																																
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	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	+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	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.1	-0.1	
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	0.0	
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	
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	+0.1	
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	-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	-0.2	
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	
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	0.0	
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	+0.6	

(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																												2019– 2020 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
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	-0.4 ss
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	+0.1
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	1.2	1.0	0.8	0.9	0.8	0.8	0.8	0.7	0.9	1.2	1.1	0.0
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 ss
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	-0.2
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	-0.3
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	§	—
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	§	—
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	+1.9
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	+1.9
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	+4.3

(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																										2019– 2020 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	
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	+0.7	
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	+0.5	
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	+2.3	
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	+2.1	
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	+1.3	
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	§	—	
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	-0.1	
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	-0.2	
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	+1.8	
Smokeless Tobacco ^t																																
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	-0.2	
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	+0.3	
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	§	—	
Large Cigars ⁱⁱ																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.4	1.5	1.5	1.7	1.3	1.5	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.9	3.4	2.3	2.6	2.8	2.1	1.2	-0.9
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.4	7.0	6.5	5.6	5.2	5.3	§	—
Flavored Little Cigars ⁱⁱ																																
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1	4.1	2.8	2.6	2.6	2.2	2.3	+0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	6.1	4.9	4.0	5.3	3.7	3.0	-0.8
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	11.4	9.5	10.1	8.9	7.7	§	—

(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																				2019–																	
	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	change							
Regular Little Cigars ⁱⁱ																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.5	3.3	1.9	1.6	1.6	1.6	1.4	-0.2						
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	3.8	3.0	3.0	3.1	2.6	2.4	-0.2						
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.0	7.8	6.1	6.6	5.8	4.9	§	—						
Any Vaping ^{bb,cc}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.0	6.2 [†]	6.6	10.4	12.2	12.5	+0.3						
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	11.0 [†]	13.1	21.7	25.0	23.5	-1.5						
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.3	12.5 [†]	16.6	26.7	30.9	28.2	-2.7						
Vaping Nicotine ^{bb}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	6.1	9.6	10.5	+0.9						
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.2	16.1	19.9	19.3	-0.7						
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.0	20.9	25.5	24.7	-0.8						
Vaping Marijuana ^{bb}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	2.6	3.9	4.2	+0.3						
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	7.0	12.6	11.3	-1.3						
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.9	7.5	14.0	12.2	-1.8						
Vaping Just Flavoring ^{bb}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	8.1	7.7	6.8	-0.9					
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	13.1	10.5	10.4	-0.2					
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.7	13.5	10.7	8.4	-2.3					
Flavoring Vaping with no Nicotine Vaping ^{bb}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.7	3.6	1.9	1.2	-0.7 s				
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.8	4.1	2.0	2.0	0.0				
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1	7.6	2.3	0.8	-1.5 sss				
JUUL ^{jj}																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.5	6.3	-2.2				
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.5	12.3	-6.3 ss				
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.8	12.9	-7.9 sss				
Tobacco Using a Hookah ⁱⁱ																																						
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8	2.5	1.6	1.3	0.7	-0.6
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	3.0	2.4	2.4	1.0	-1.4 s
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	5.0	4.4	4.0	§	—

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																												2019– 2020 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
Any Nicotine Use ^{e,gg}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	11.2	-1.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.0	18.8	-5.2 s
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.6	32.5	33.6	§	—
Any Nicotine Use other than Vaping ^{e,hh}																															
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.9	4.7	-1.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.3	6.6	-1.7
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.6	18.5	15.7	§	—
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	0.0
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	0.0
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	+0.4
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	§	—
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	§	—
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																										2019– 2020 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		
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	-0.8	
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	-0.4	
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	-0.2	
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	0.0	
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	0.0	
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	-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	-1.1	
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	-0.3	
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	-0.7	
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	0.4	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
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	2019– 2020 change
Marijuana/Hashish																															
Used Daily in Past 30 Days ^{aa}																															
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	-0.2
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	-0.3
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	5.8	6.0	6.0	5.9	5.8	6.4	6.9	+0.5	
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	\$	—
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	+0.2
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	+0.3
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	+1.0
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
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
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	-0.3
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	+0.7
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	+1.1
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	+2.4

(Table continued on next page.)

TABLE 5-5d (cont.)
Trends in 30-Day Prevalence of Daily 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	2019– 2020 change
Smokeless Tobacco																															
Daily ¹																															
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	0.0
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	-0.2
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	\$ —	
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	\$ —	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	11.4	10.8	10.3	9.6	7.8	9.2	8.8	9.1	10.5	\$ —	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	9.5	9.2	8.2	8.3	7.8	9.8	9.4	10.1	11.6	\$ —	
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	\$ —	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.6	4.0	4.0	3.4	2.6	3.3	3.3	3.8	4.1	\$ —	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.0	2.7	2.5	2.1	3.1	4.1	3.8	4.2	4.1	\$ —	
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	\$ —	
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	12.4	11.8	11.3	10.1	8.4	10.0	9.5	9.9	11.6	\$ —	
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	11.0	9.9	9.1	9.3	9.0	10.9	10.9	11.2	12.8	\$ —	

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

Note. See footnotes following Table 5-5e.

TABLE 5-5e
Trends in Two Week Prevalence of Binge and Extreme Binge Drinking
in Grades 8, 10, and 12

	Percentage who used in last two weeks																2019– 2020 change	
	<u>1975– 2004</u>	<u>2005</u>	<u>2006</u>	<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^{kk}</u>	<u>2020</u>	
5+ drinks in a row in last 2 weeks																		
8th Grade	—	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	+0.7
10th Grade	—	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	+1.1
12th Grade	—	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	+2.4
10+ drinks in a row in last 2 weeks ^{e,ff}																		
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	1.2	1.1	1.1	1.7	0.9	-0.8
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.3	3.3	2.5	-0.8
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	§	—
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	§	—

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

Note. See footnotes following Table 5-5e.

Footnotes for Tables 5-5a through 5-5e

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
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
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
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

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 Sky 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 5-5e (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 Dalmane, 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 5-5e (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. 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 5-5e (cont.)

^{ee}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."

^{ff}For 8th and 10th graders only: Data based on two of four forms; *N* is one third of *N* indicated.

^{gg}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.

^{hh}Includes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

ⁱⁱFor 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.

^{jj}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 5-6a
Trends in Lifetime Prevalence of Use of Heroin *with* and *without* a Needle
in Grades 8, 10, and 12

	Percentage who used in lifetime																						2019– 2020 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		
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	ss
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	0.0
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	
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	-0.2	
Approx. weighted N =	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		
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	0.0	
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	0.0	
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	
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	-0.1	
Approx. weighted N =	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		
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	0.0	
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	
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	
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	-0.3	
Approx. weighted N =	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		

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																						2019– 2020 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	
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
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
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	0.3	0.2	0.3	0.3	0.3	0.3	0.2	-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	14,500	9,600	11,300	10,200	9,300	9,100	2,100	
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	0.0
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	-0.1
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
<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	
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	-0.1
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
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	-0.2
<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	

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																						2019– 2020 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	
8th Graders																											
Used heroin:																											
Only with 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 without 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	-0.1
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	0.0
Approx. weighted N =	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	
10th Graders																											
Used heroin:																											
Only with 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	0.0
Only without 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
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	-0.1
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
Approx. weighted N =	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	
12th Graders																											
Used heroin:																											
Only with 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	-0.1
Only without 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
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	0.0
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
Approx. weighted N =	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	

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
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
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
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
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
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
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
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
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
Ecstasy (MDMA)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.6	42.0
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
Crack	—	—	—	—	—	—	—	—	—	—	—	—	27.8	35.4	34.0	45.7	51.6	42.3	42.3	36.7	30.0	36.4	38.5
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
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
With a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.6	37.5	44.4
Without a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.6	41.2	42.9
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
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
Methamphetamine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51.9	57.6	55.2	45.2	47.1	38.5	36.4	47.7
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
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
Rohypnol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†
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
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.4	20.7	20.6	17.8	16.9	16.0	17.1
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
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
Steroids ⁱ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.7	41.4	33.3	47.6	40.0	45.8	34.8	26.3	41.7

(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

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Marijuana/Hashish	23.6	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	
Inhalants	59.2	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	
Inhalants, Adjusted	57.0	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	36.2	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	
Hallucinogens, Adjusted ^a	36.1	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	39.7	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	
Hallucinogens other than LSD ^a	35.2	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	
PCP	46.2	47.1	32.4	48.6	64.5	48.0	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	
Ecstasy (MDMA)	37.9	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	
Cocaine	38.7	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	
Crack	43.2	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	
Cocaine other than Crack	41.7	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	
Heroin ^b	50.0	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	†	
With a needle	50.0	55.6	†	†	†	42.9	42.9	46.7	37.7	48.6	†	†	40.0	33.6	†	†	36.9	48.0	†	†	†	†	†	
Without a needle	50.0	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}	35.7	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	
Amphetamines ^{c,e}	38.4	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	
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)	43.4	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}	36.8	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	
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Methaqualone ^c	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	—	—	—	—	—	—	—	—	
Tranquilizers ^{c,g}	35.3	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	
Rohypnol	53.3	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Alcohol ^h	8.7	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	
Been Drunk	16.7	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	
Cigarettes ^j	46.3	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	
Vaping Nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.7	12.6	13.5	22.1
Vaping Marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.8	16.2	12.2	20.9
Smokeless Tobacco ^j	66.5	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	§	
Steroids ⁱ	37.0	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	†	

(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
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
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
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
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
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
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
Crack ^e	—	—	—	—	—	—	—	—	—	—	—	—	13.4	2.1	5.2	26.2	31.1	15.3	16.4	16.8	6.3	8.3	17.4
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
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
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
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
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
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
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3	4.1	4.6	3.3	2.8	2.1	3.6
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
Smokeless Tobacco ^o	—	—	—	—	—	—	—	—	—	—	—	21.8	18.4	25.7	26.2	—	—	29.6	25.5	33.1	26.5	27.3	26.2
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

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Marijuana/Hashish	8.2	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
Inhalants ^a	28.0	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	16.4	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	†
LSD ^c	20.3	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	†
Hallucinogens other than LSD ^b	17.5	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	†
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	12.4	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	†
Crack ^e	19.5	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	17.1	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}	12.4	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}	15.0	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
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}	12.5	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	†
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers ^{g,l}	13.6	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	†
Rohypnol	†	†	†	†	†	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol ^m	1.9	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
Been Drunk	2.8	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
Cigarettes ^o	14.3	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
Smokeless Tobacco ^o	17.9	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	†	†
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.

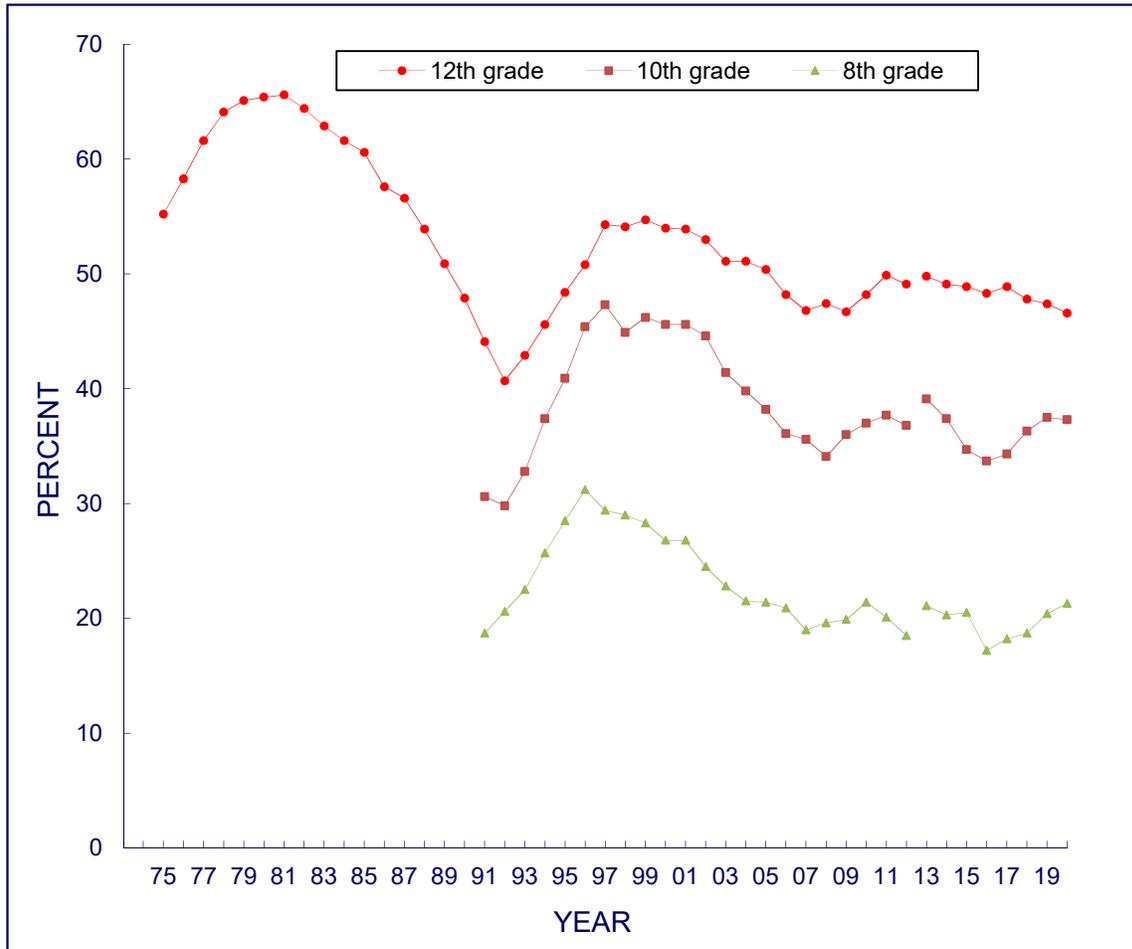
^lIn 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax in half of the questionnaire forms. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms.

^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.

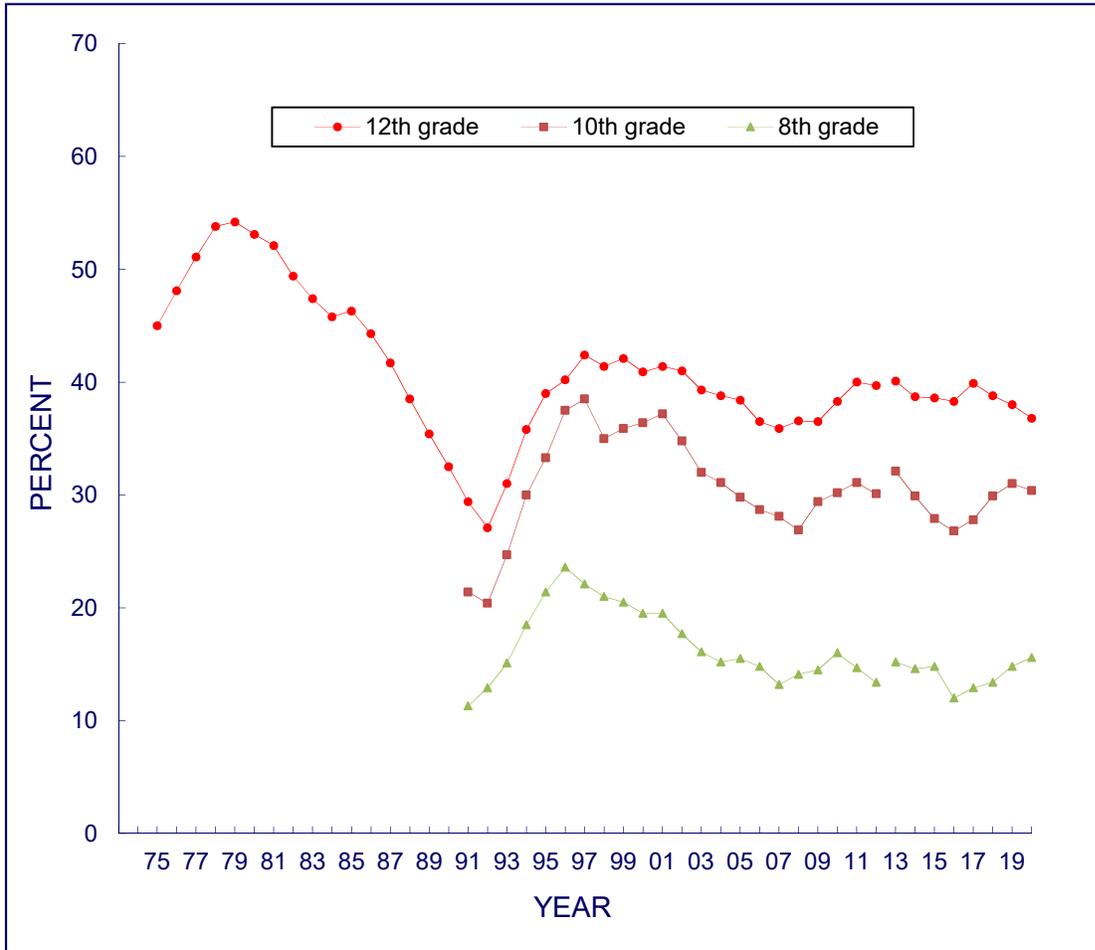
For 8th and 10th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

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



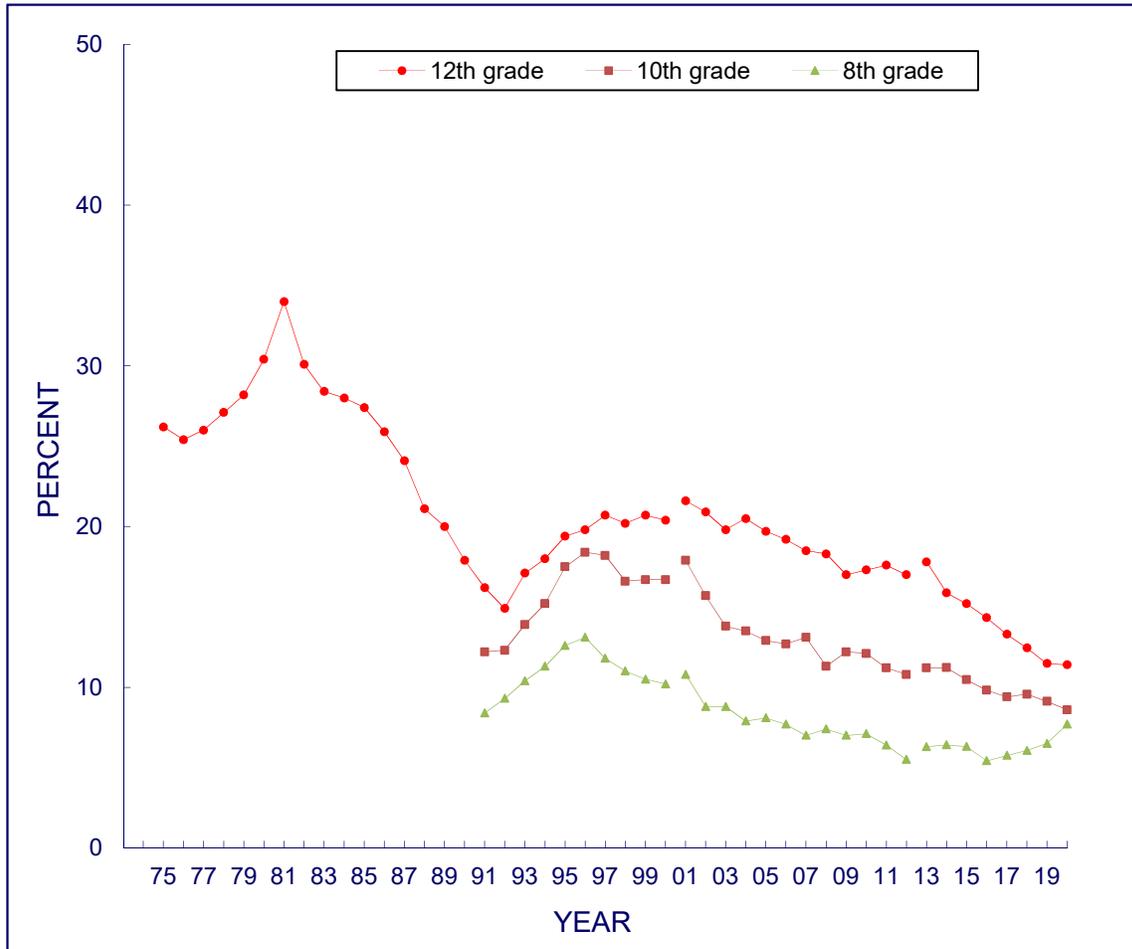
Source. The Monitoring the Future study, the University of Michigan.

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.

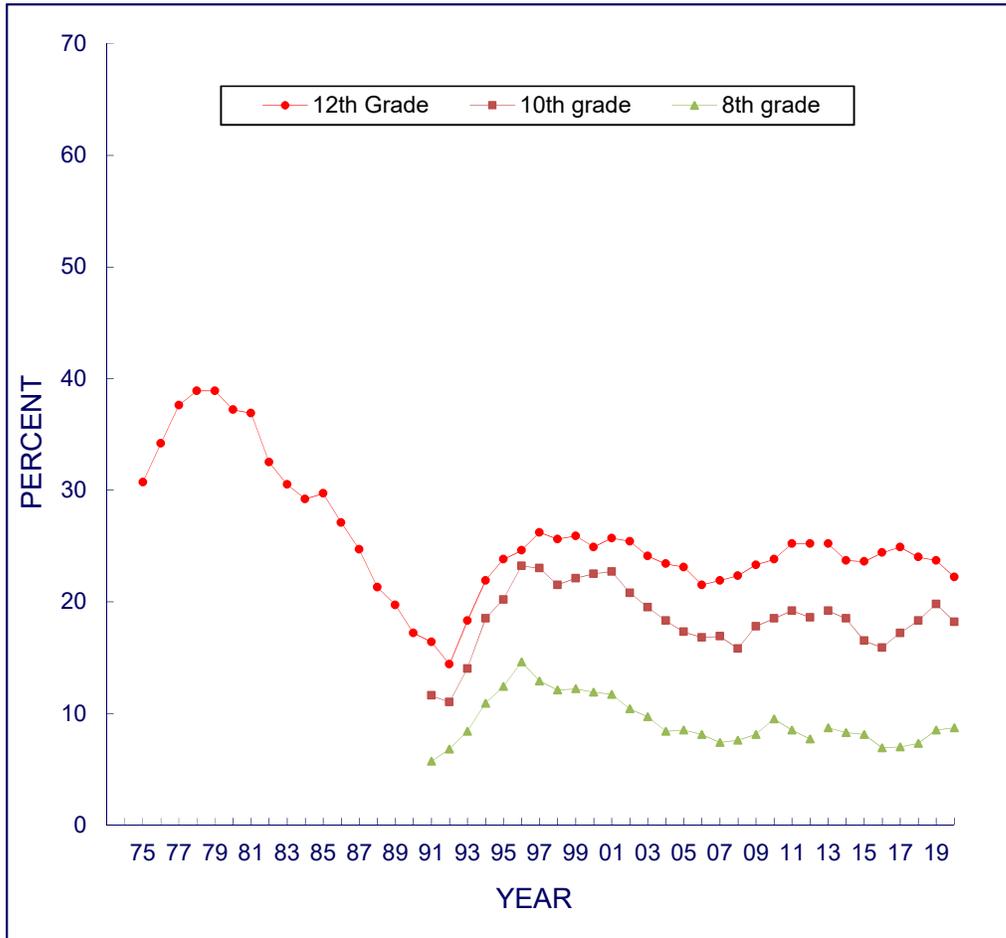
For 8th and 10th graders, use of any illicit drug other than marijuana includes any use of LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of stimulants or tranquilizers which are not under a doctor's orders.

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



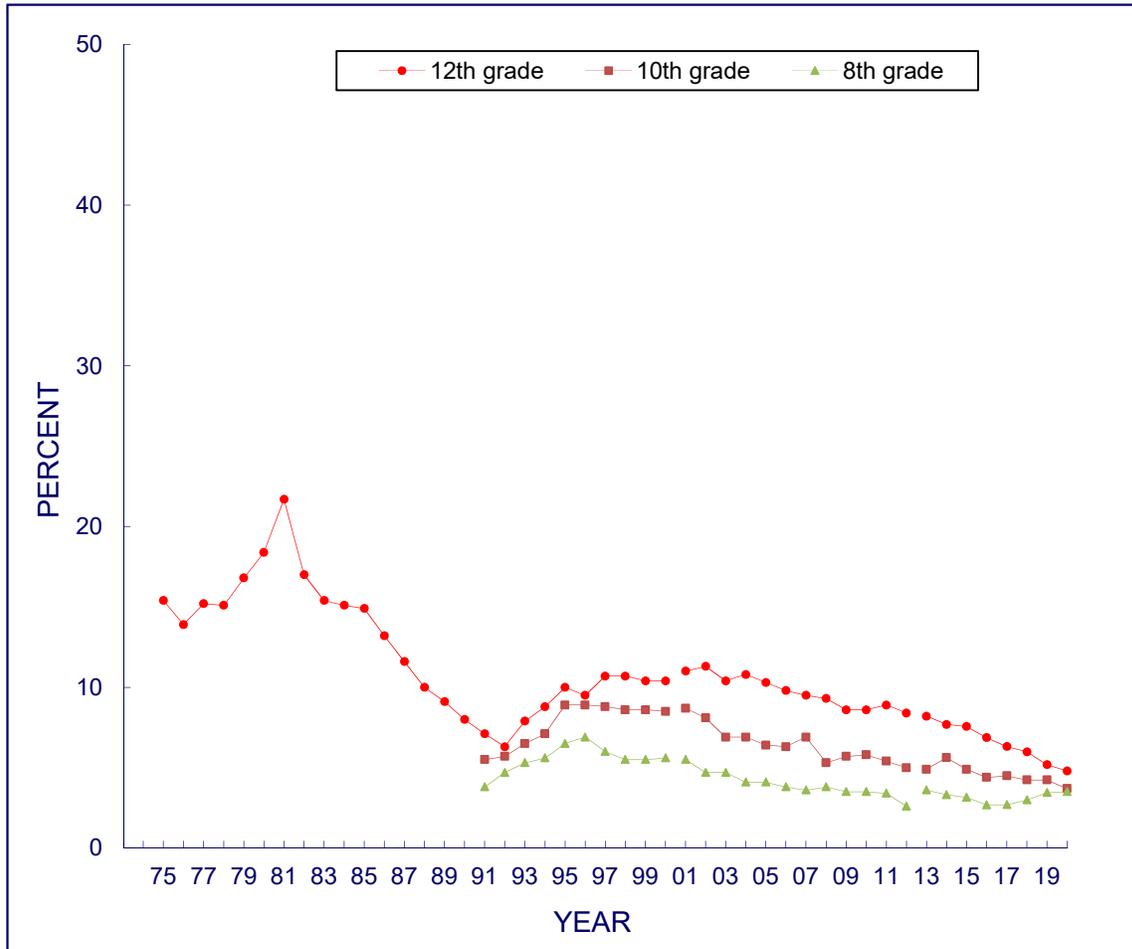
Source. The Monitoring the Future study, the University of Michigan.

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.

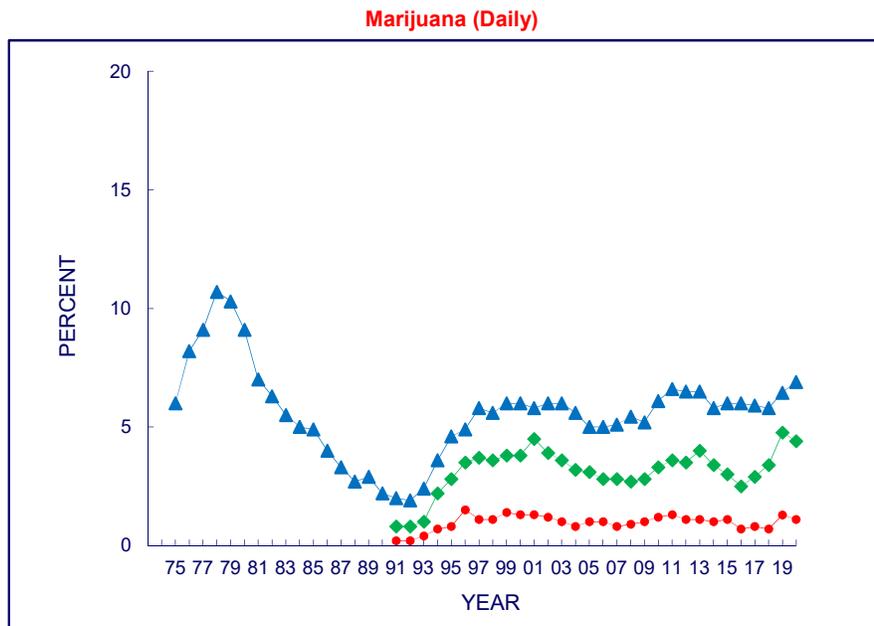
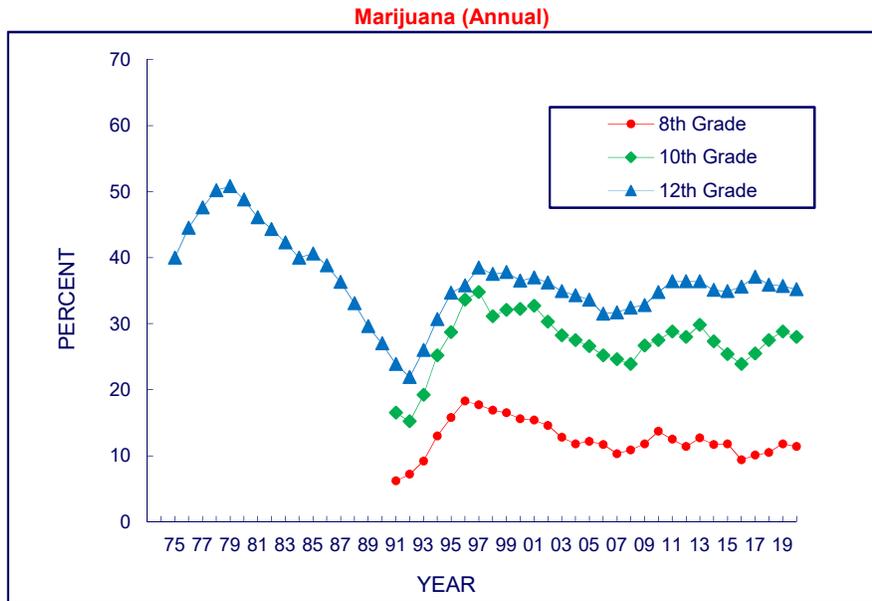
Data for any illicit drug other than marijuana are affected by these changes.

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

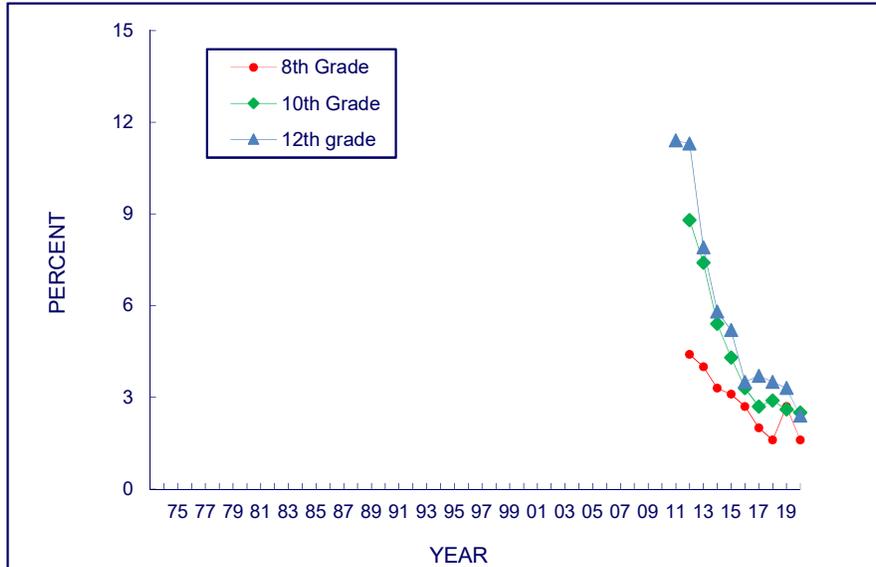
MARIJUANA

Trends in Annual Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12



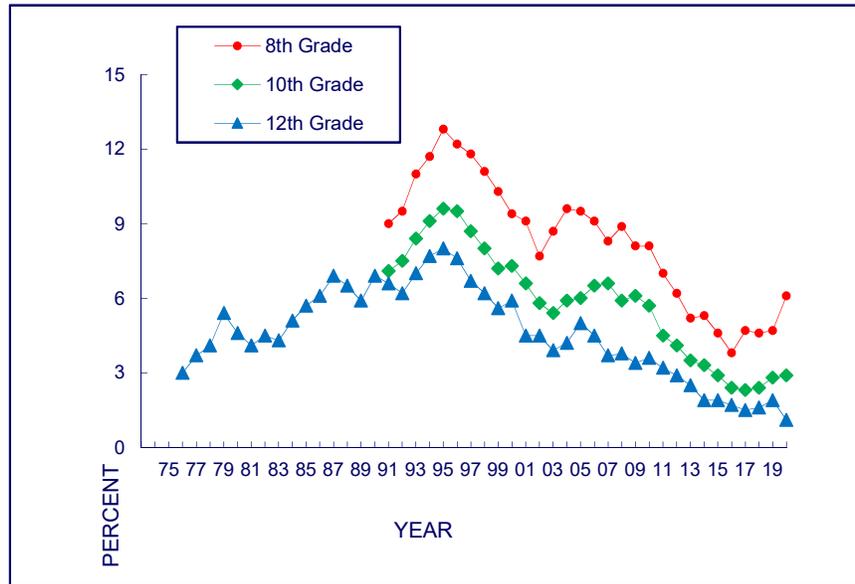
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4b
Synthetic Marijuana
Trends in Annual Prevalence
in Grades 8, 10, and 12



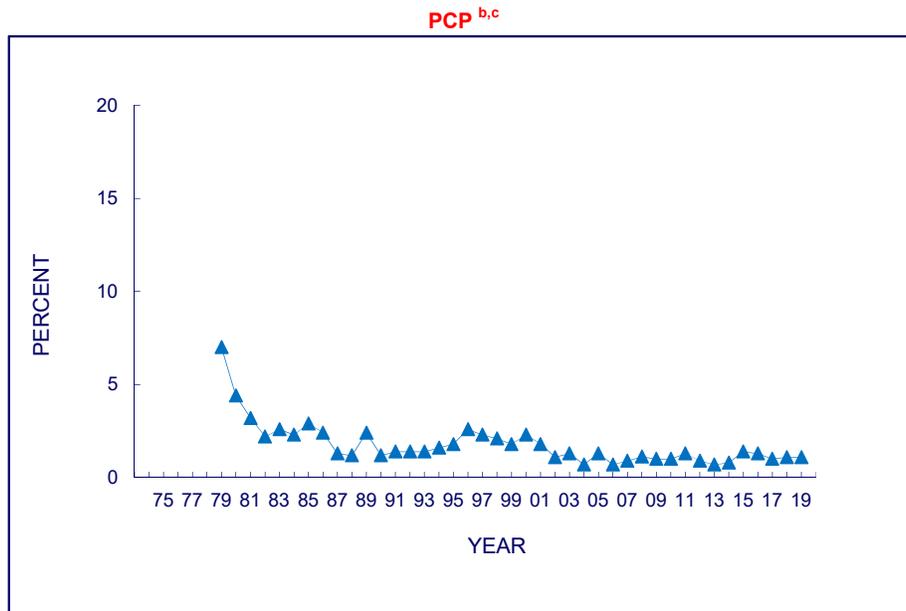
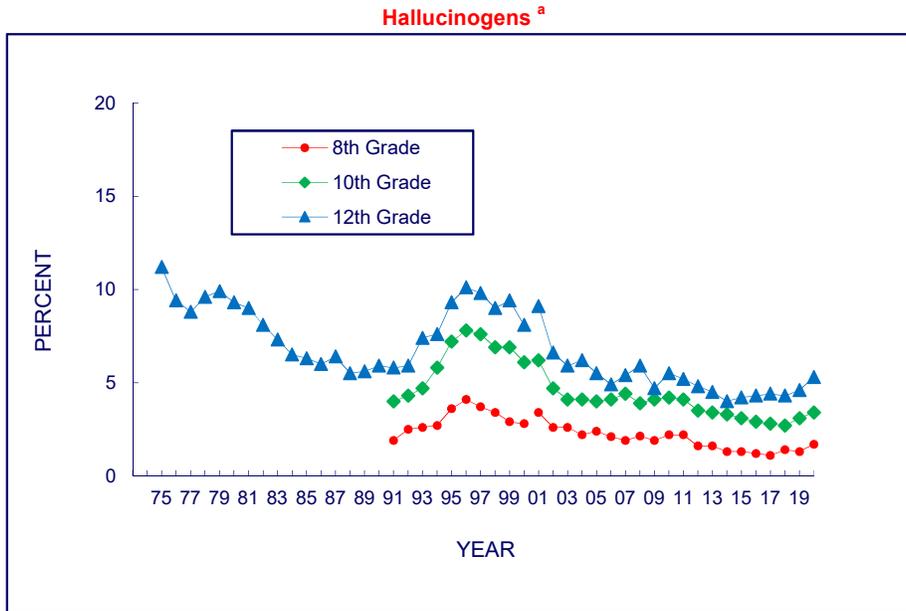
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4c
INHALANTS
Trends in Annual Prevalence
in Grades 8, 10, and 12



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

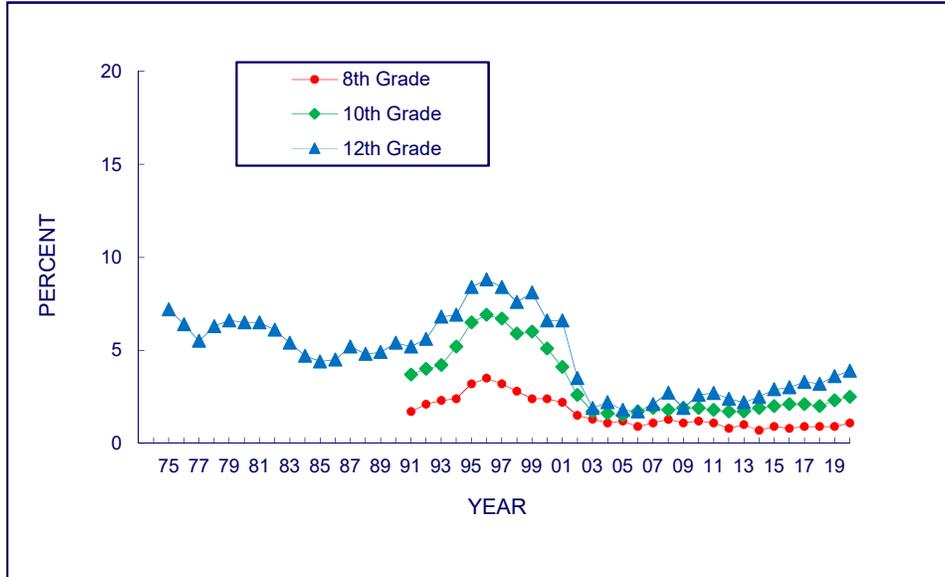
FIGURE 5-4d
HALLUCINOGENS AND PCP
Trends in Annual Prevalence
in Grades 8, 10, and 12



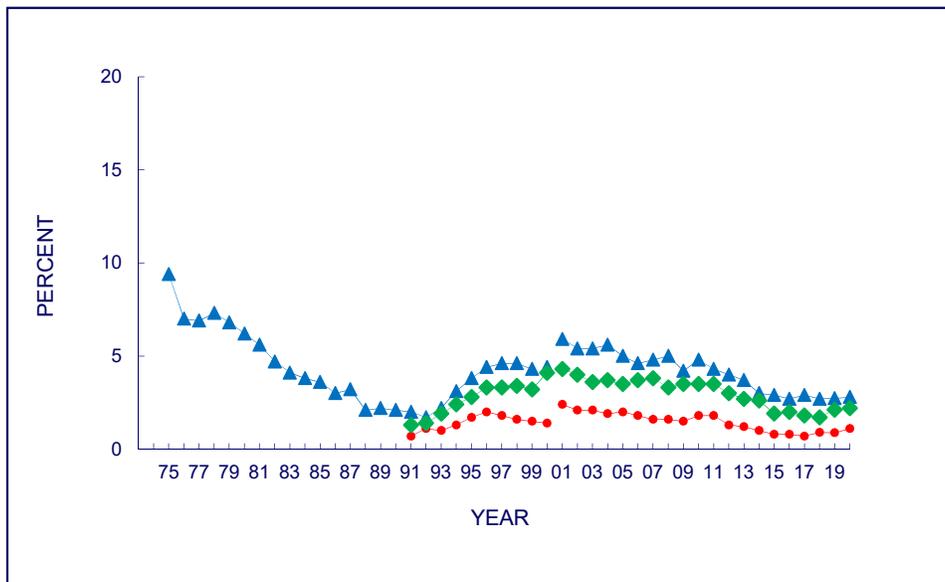
Source. The Monitoring the Future study, the University of Michigan.
^aIn 2001, a revised set of questions on other hallucinogen use was introduced. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. Data for hallucinogens were affected by these changes. 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



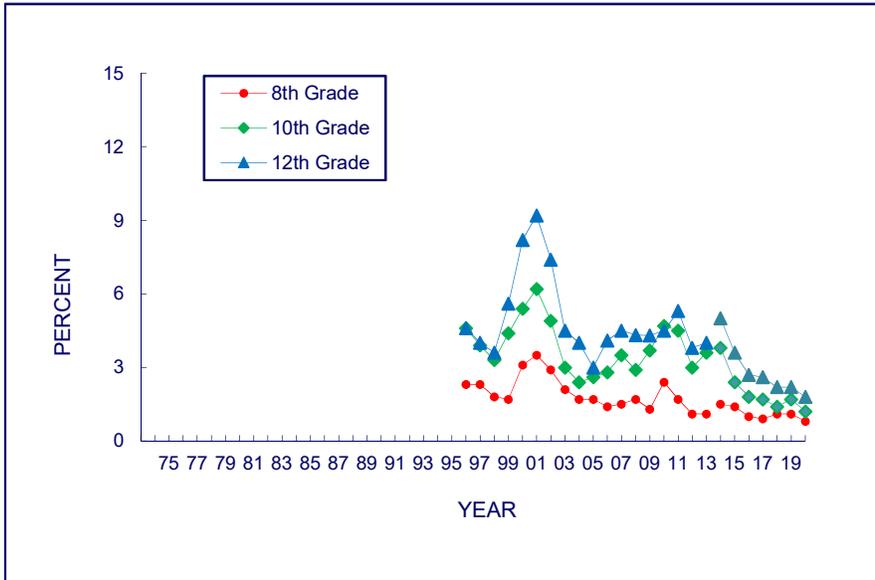
Hallucinogens other than LSD ^a



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.

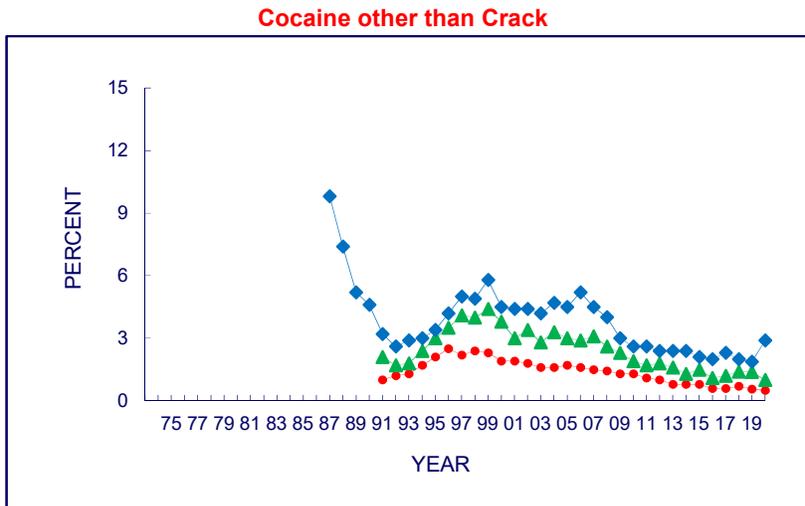
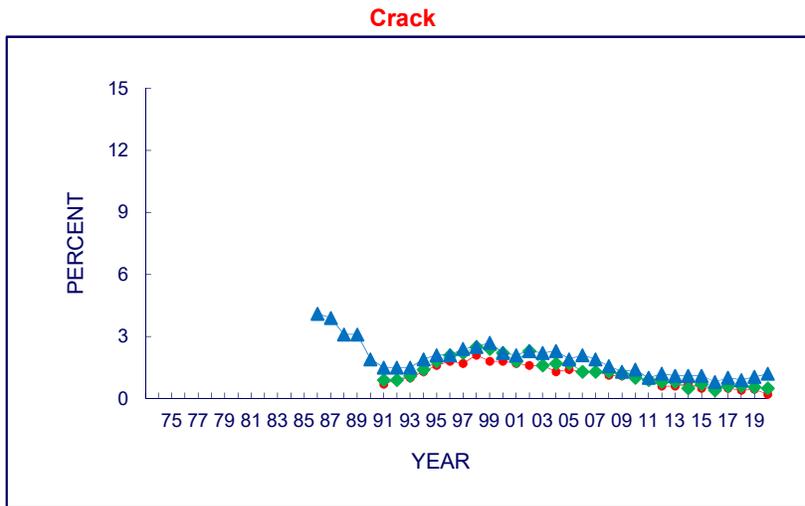
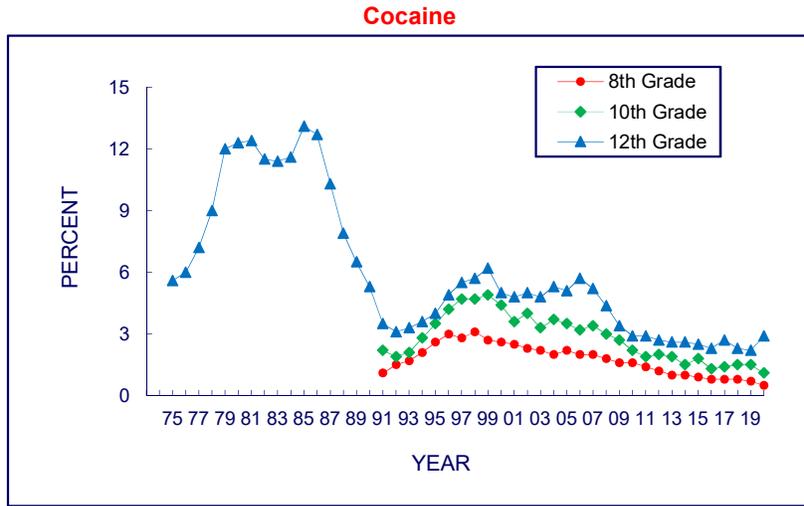
FIGURE 5-4f
ECSTASY (MDMA)
Trends in Annual Prevalence
in Grades 8, 10, and 12



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

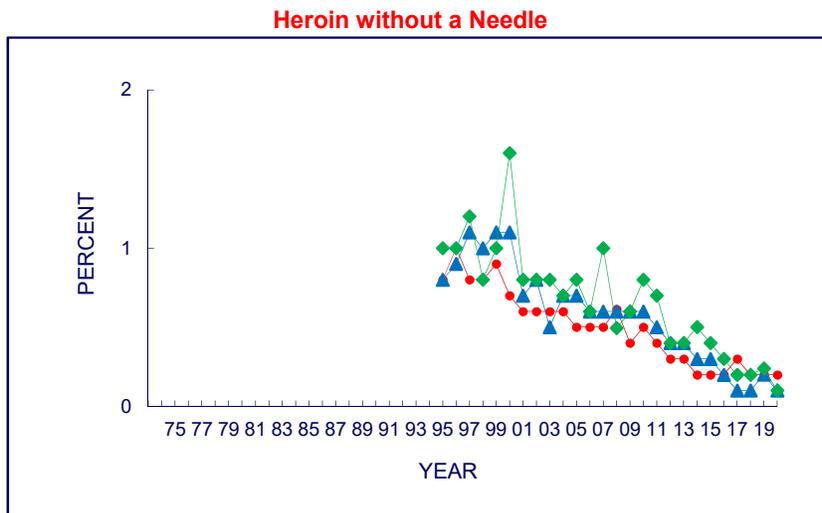
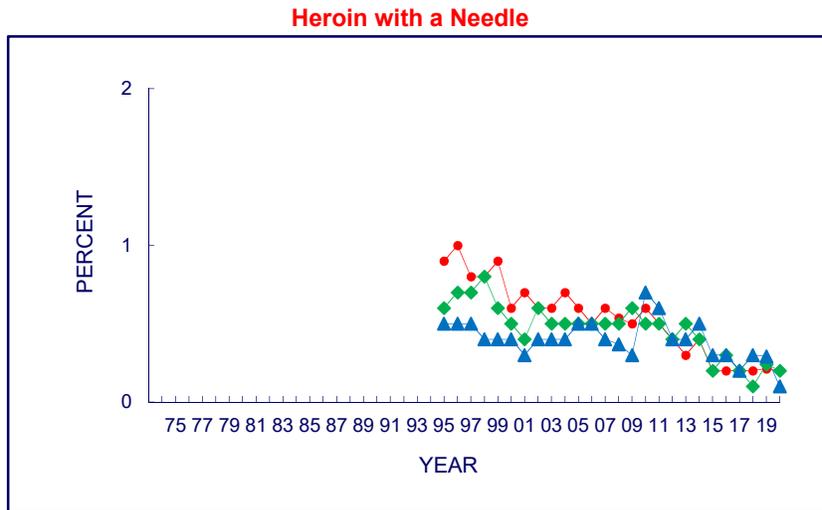
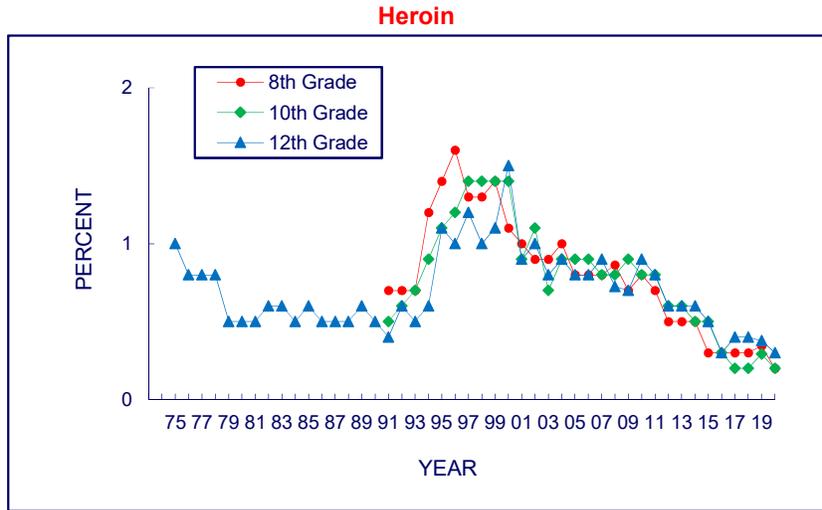
Notes. In 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015.

FIGURE 5-4g
COCAINE, CRACK, AND COCAINE OTHER THAN CRACK
Trends in Annual Prevalence
in Grades 8, 10, and 12



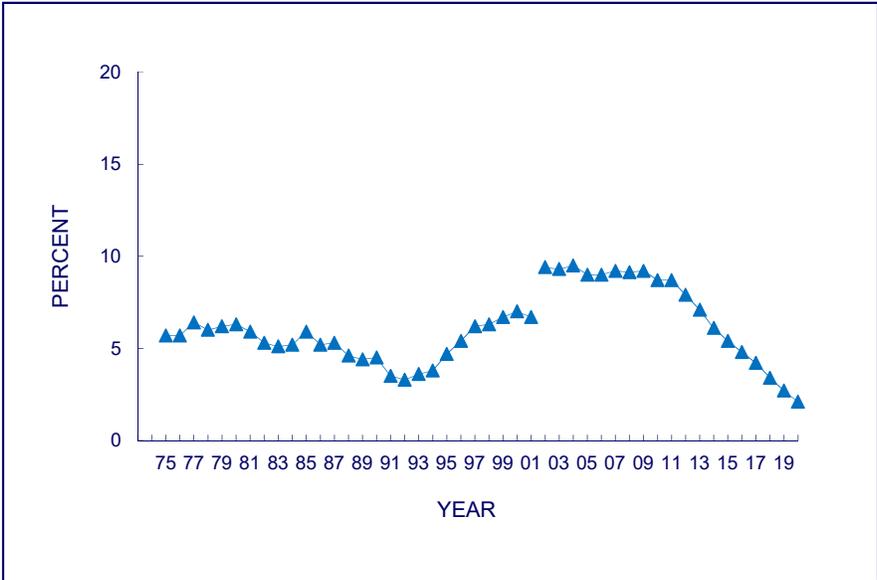
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4h
HEROIN
Trends in Annual Prevalence
in Grades 8, 10, and 12



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

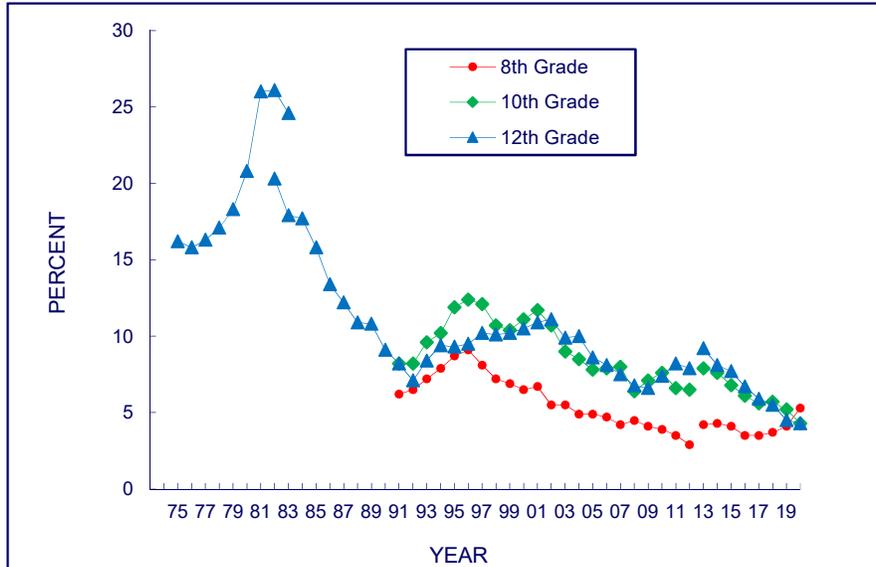
FIGURE 5-4i
NARCOTICS OTHER THAN HEROIN^a
Trends in Annual Prevalence
in Grade 12



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

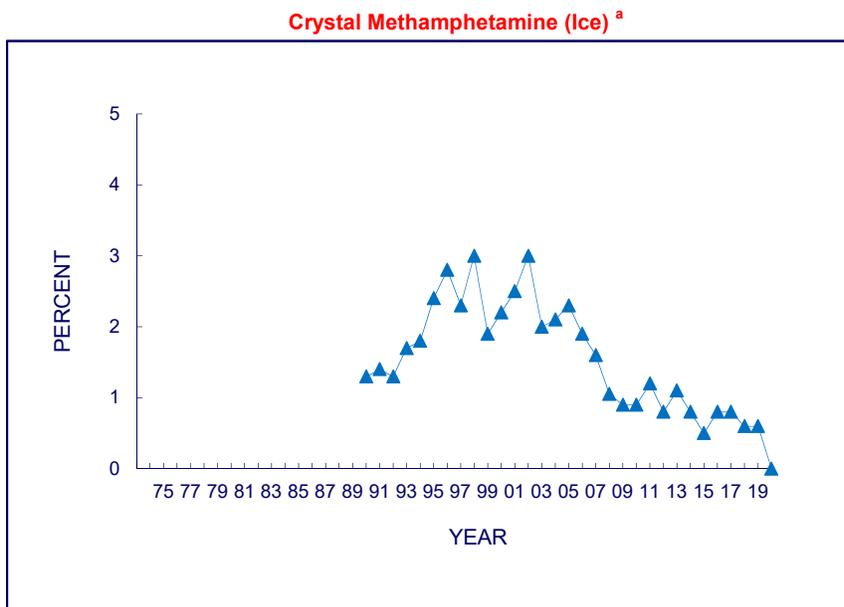
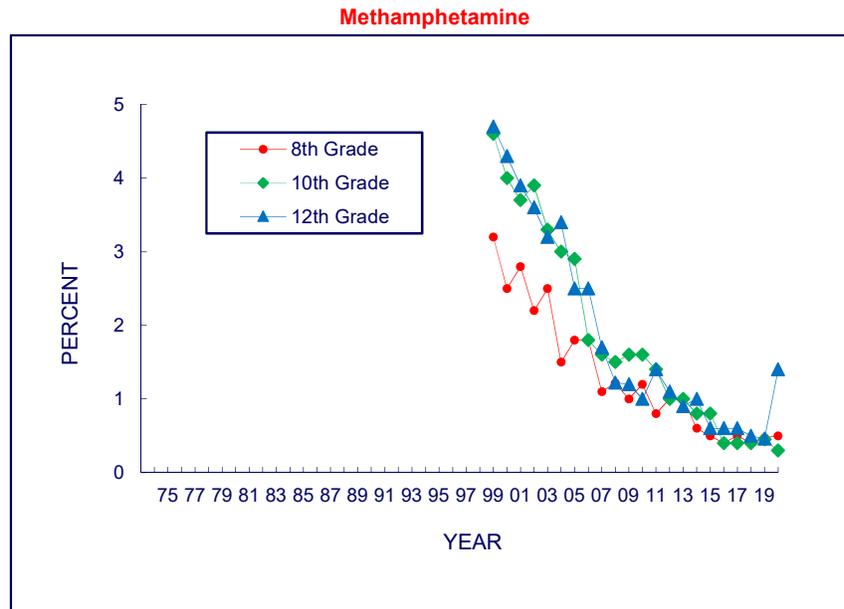


Source. The Monitoring the Future study, the University of Michigan.

^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.

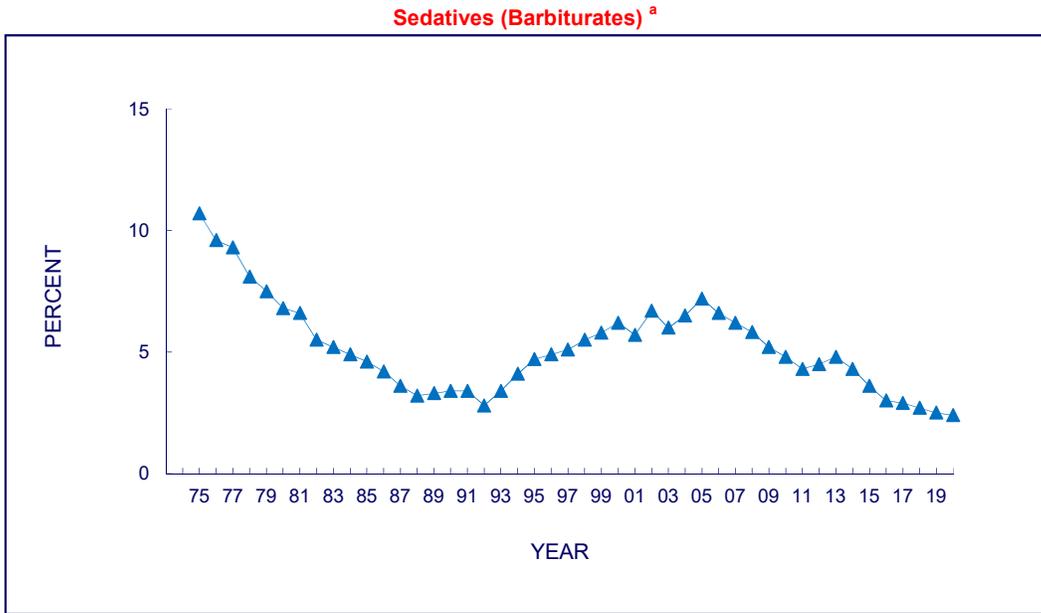
FIGURE 5-4k
METHAMPHETAMINE AND CRYSTAL METHAMPHETAMINE (ICE)
Trends in Annual Prevalence in Grades 8, 10, and 12



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

^aEighth and 10th graders are not asked about crystal methamphetamine use.

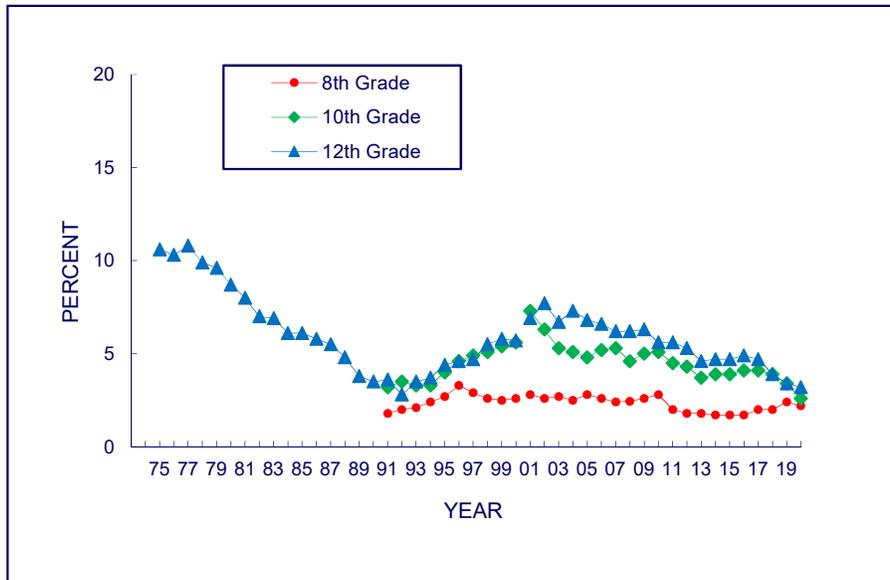
FIGURE 5-41
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence
in Grade 12



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.

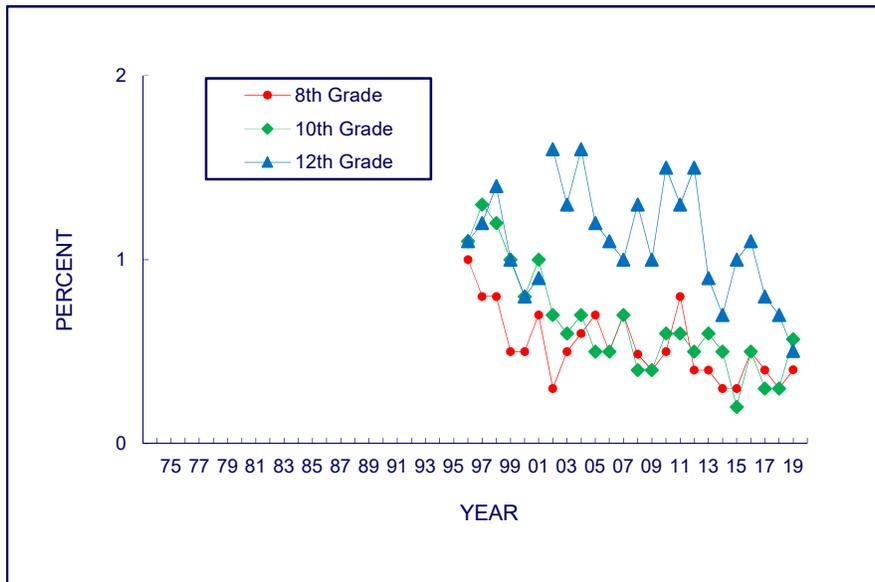
FIGURE 5-4m
TRANQUILIZERS^a
Trends in Annual Prevalence
in Grades 8, 10, and 12



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

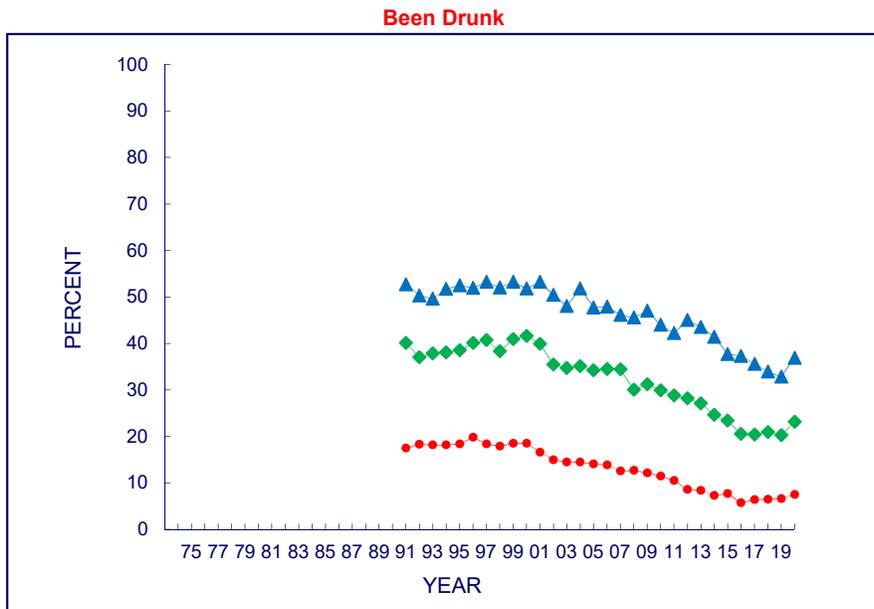
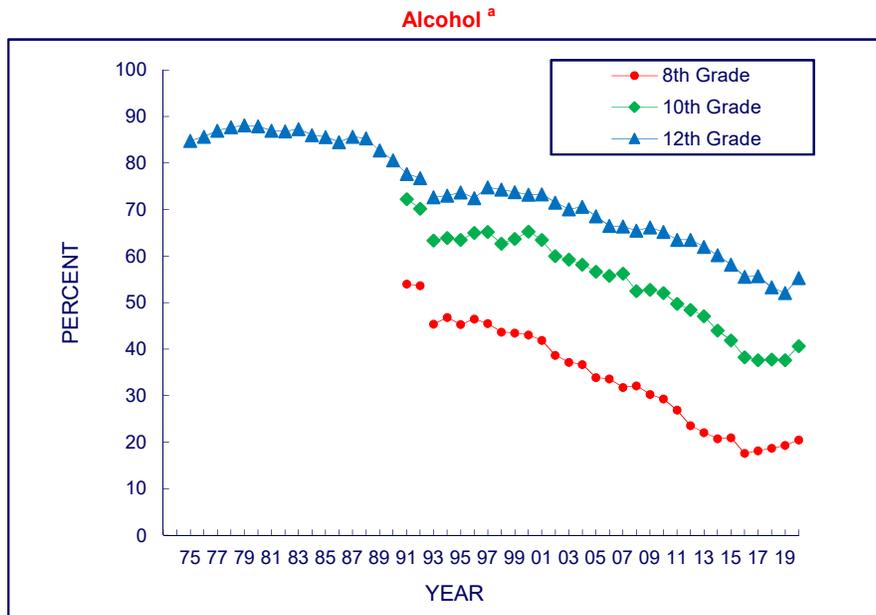


Source. The Monitoring the Future study, the University of Michigan.

^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.

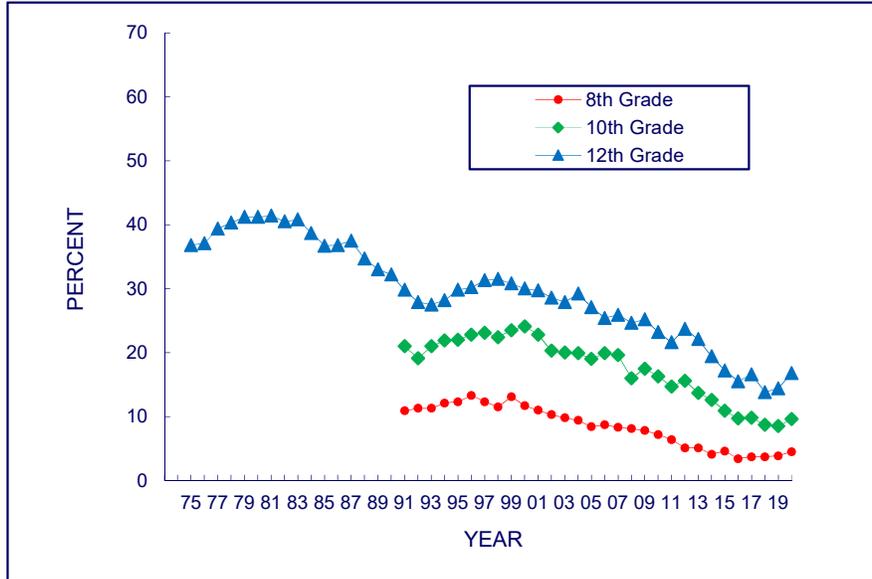
FIGURE 5-4o
ALCOHOL AND BEEN DRUNK
Trends in Annual Prevalence
in Grades 8, 10, and 12



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.

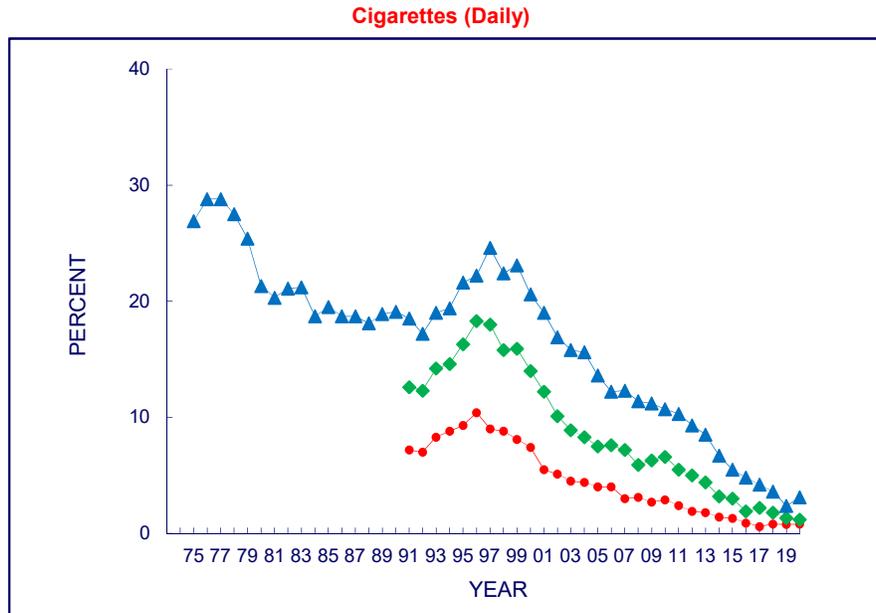
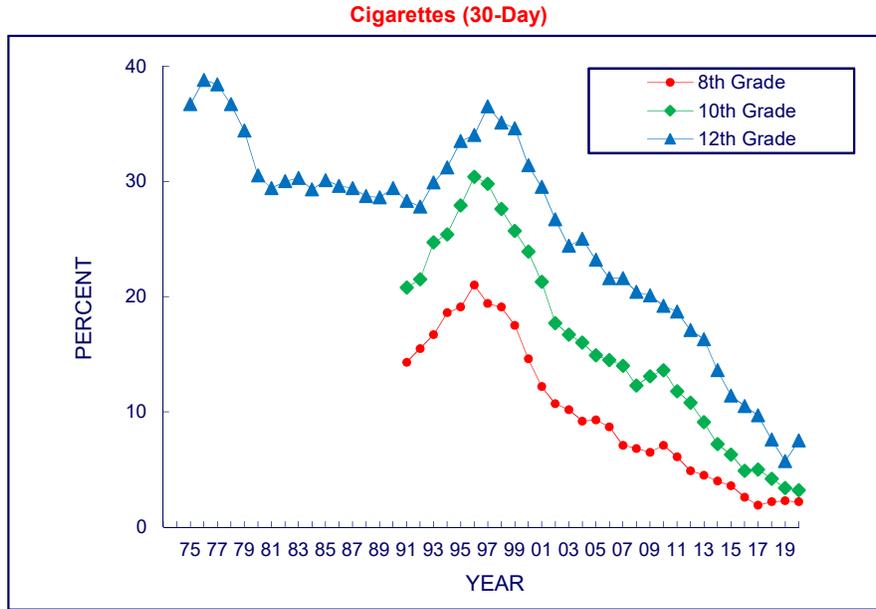
FIGURE 5-4p
FIVE OR MORE DRINKS IN A ROW
Trends in 2-Week Prevalence
in Grades 8, 10, and 12



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

FIGURE 5-4q
CIGARETTES

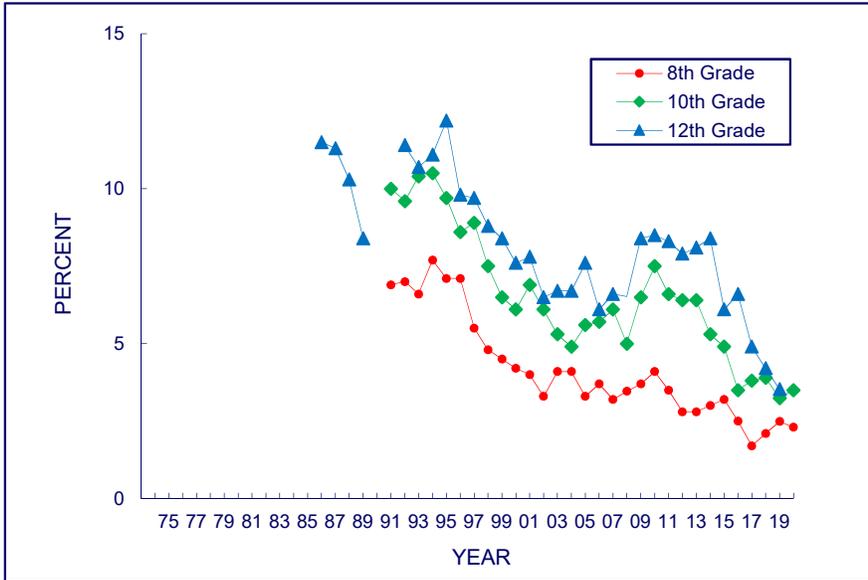
Trends in 30-Day Prevalence and 30-Day Prevalence of Daily Use in Grades 8, 10, and 12



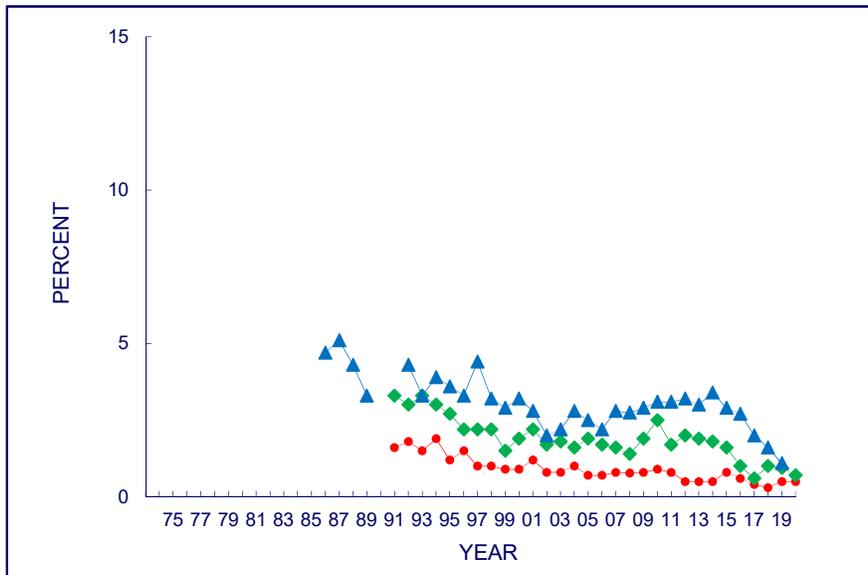
Source. The Monitoring the Future study, the University of Michigan.

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

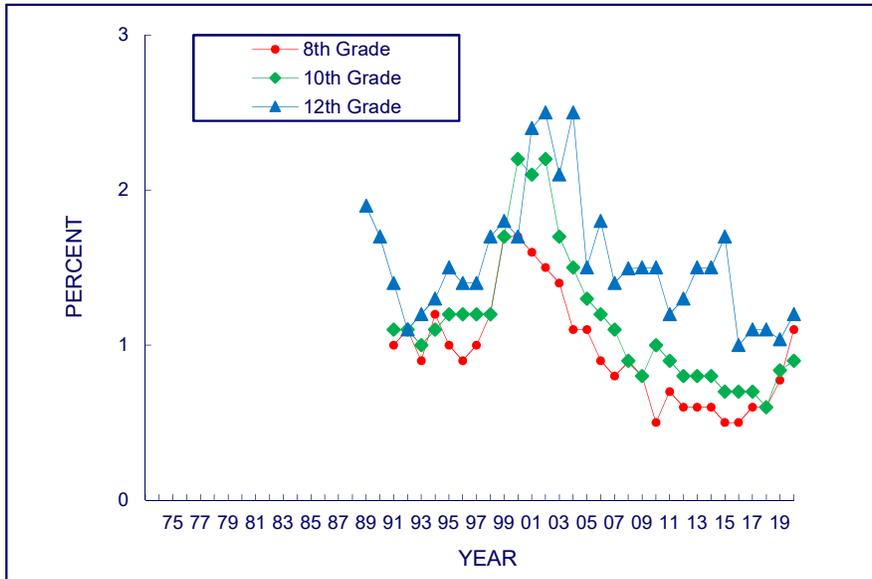


Smokeless Tobacco (Daily)^{a,b}



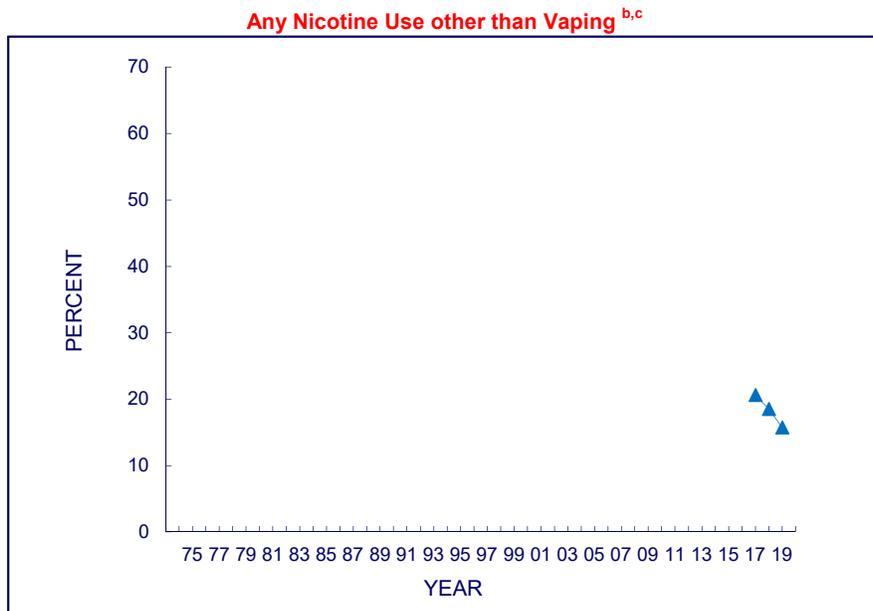
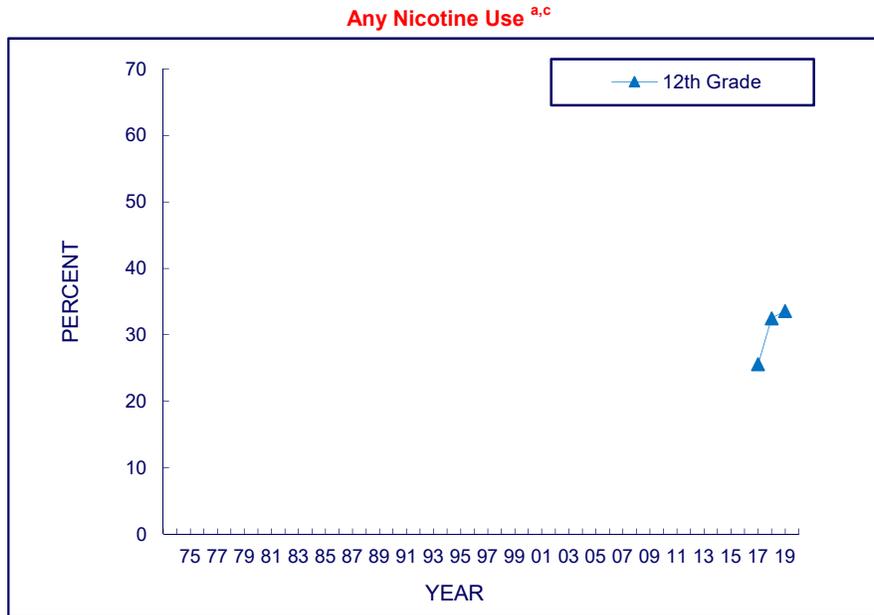
Source. The Monitoring the Future study, the University of Michigan.
^aTwelfth graders: Smokeless tobacco data not available in 1990 or 1991.
^bThis estimate not presented for 12th graders in 2020 due to insufficient data.

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.

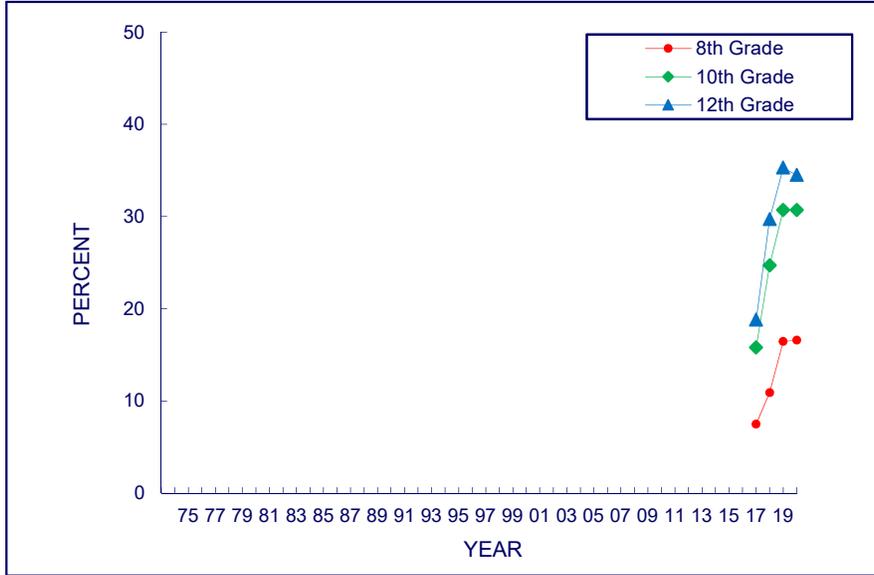
^aIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, smokeless tobacco, or vaping nicotine.

^bIncludes use of any of the following: cigarettes, large cigars, flavored small cigars, regular small cigars, tobacco using a hookah, or smokeless tobacco.

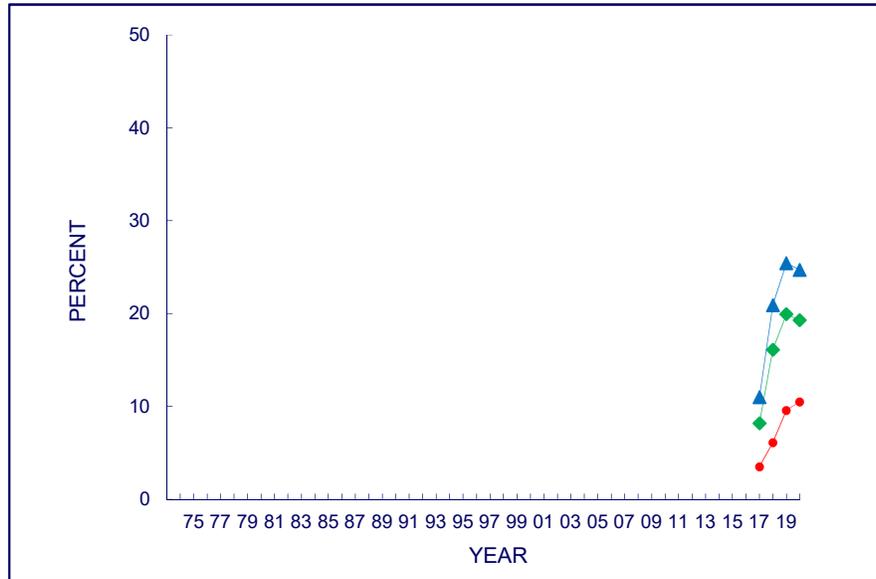
^cThis estimate not presented in 2020 due to insufficient data.

FIGURE 5-4u
VAPING NICOTINE
Trends in Annual and 30-Day Prevalence
in Grades 8, 10, and 12

Vaping Nicotine (Annual)



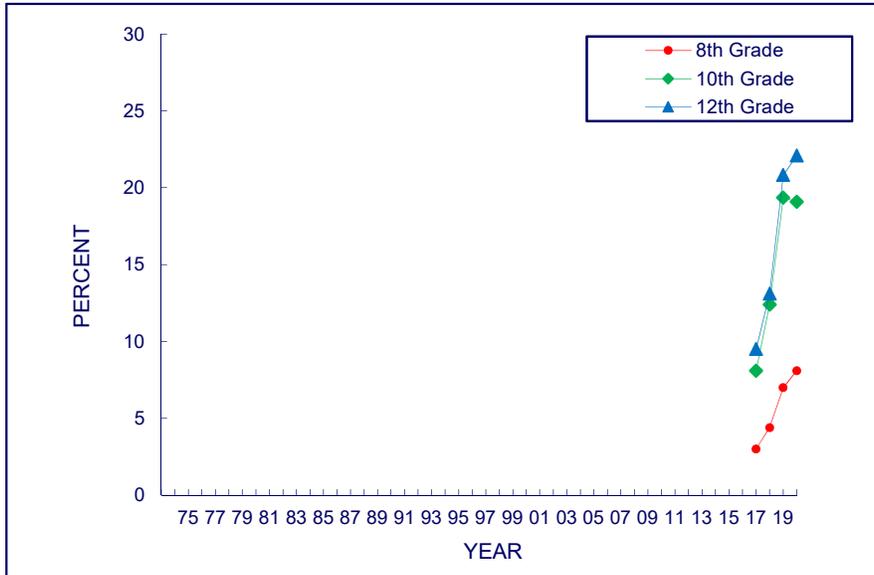
Vaping Nicotine (30-Day)



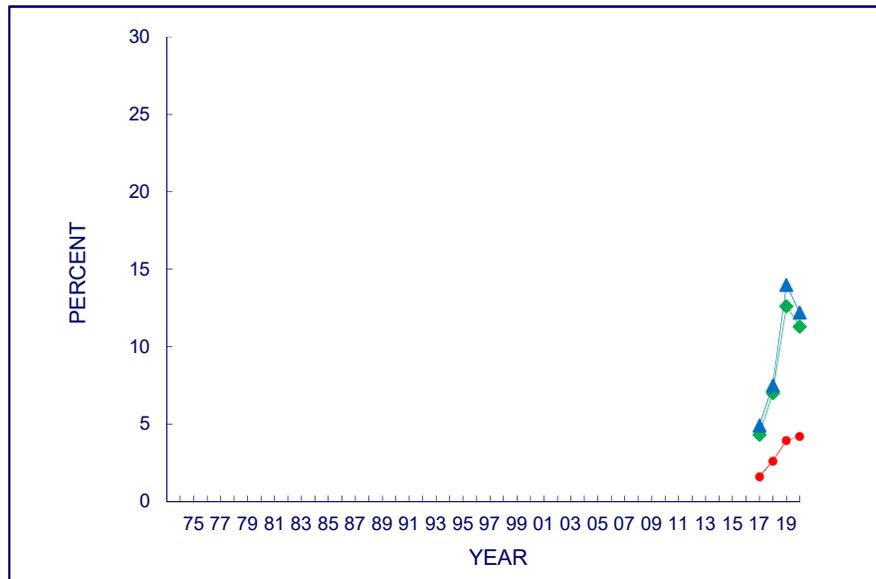
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 5-4v
VAPING MARIJUANA
Trends in Annual and 30-Day Prevalence
in Grades 8, 10, and 12

Vaping Marijuana (Annual)

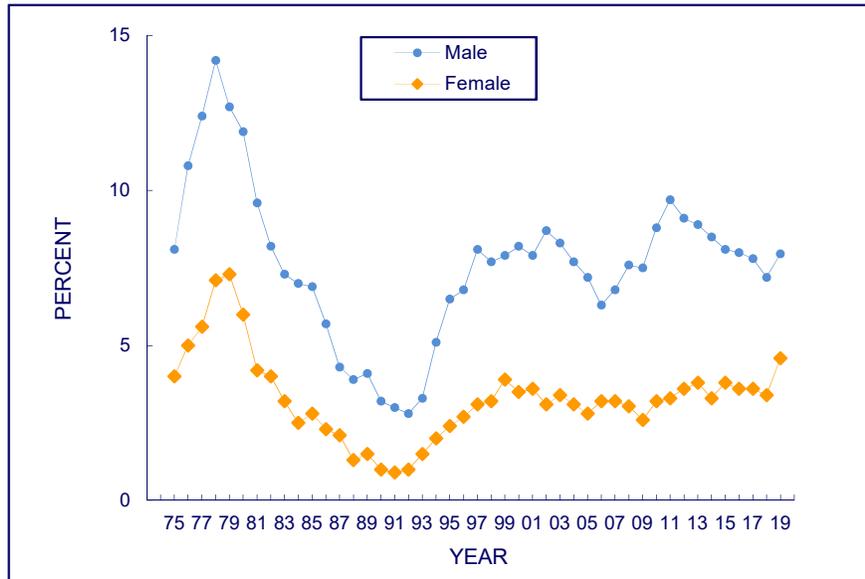
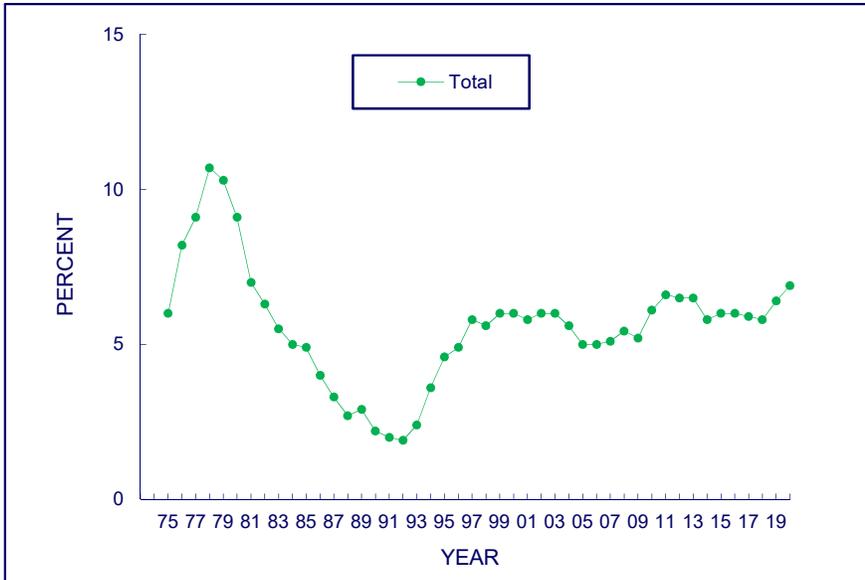


Vaping Marijuana (30-Day)



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

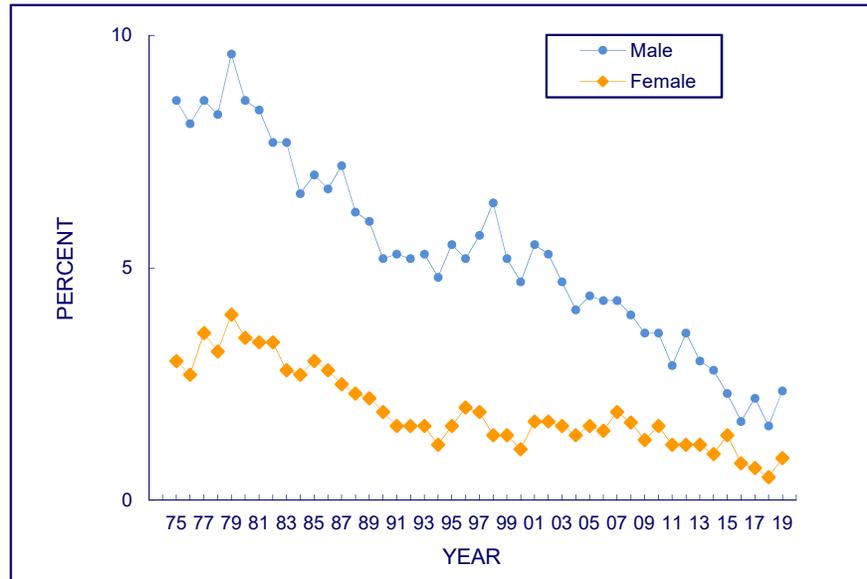
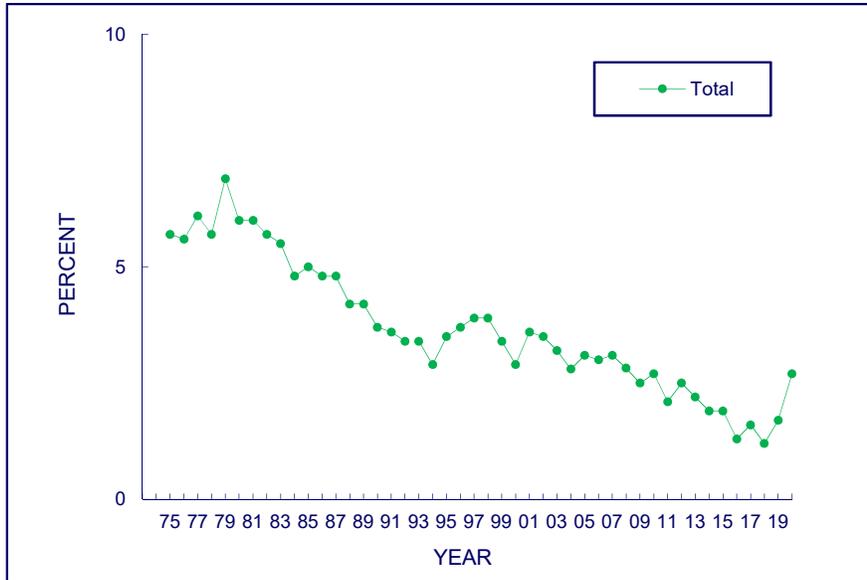


Source. The Monitoring the Future study, the University of Michigan.

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



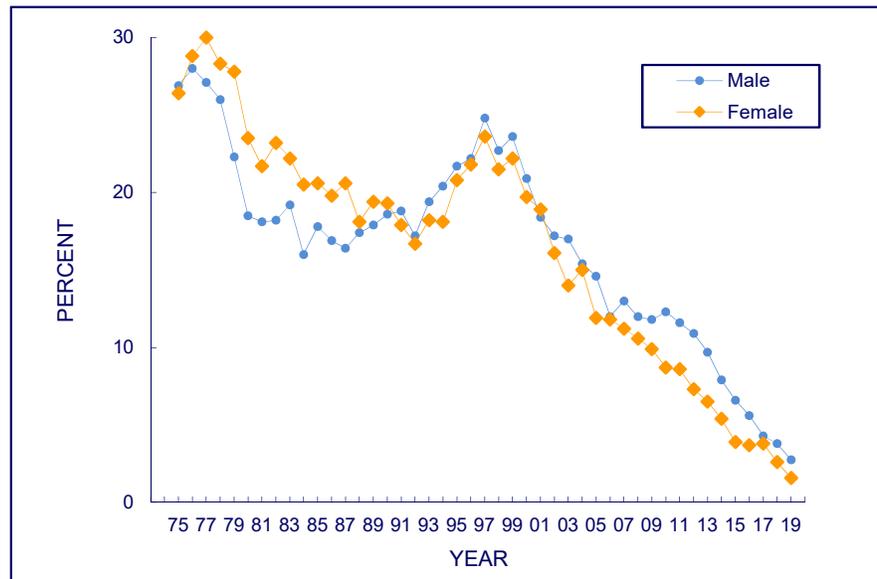
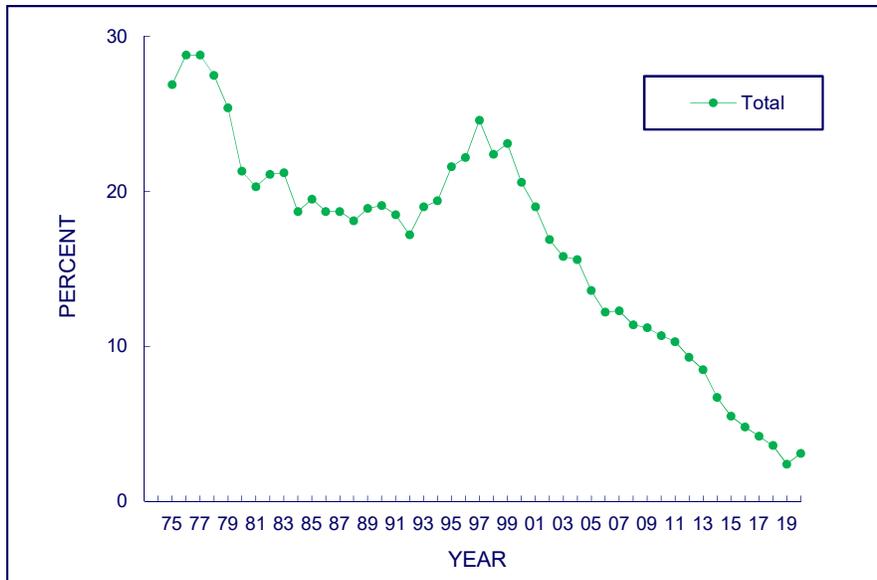
Source. The Monitoring the Future study, the University of Michigan.

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

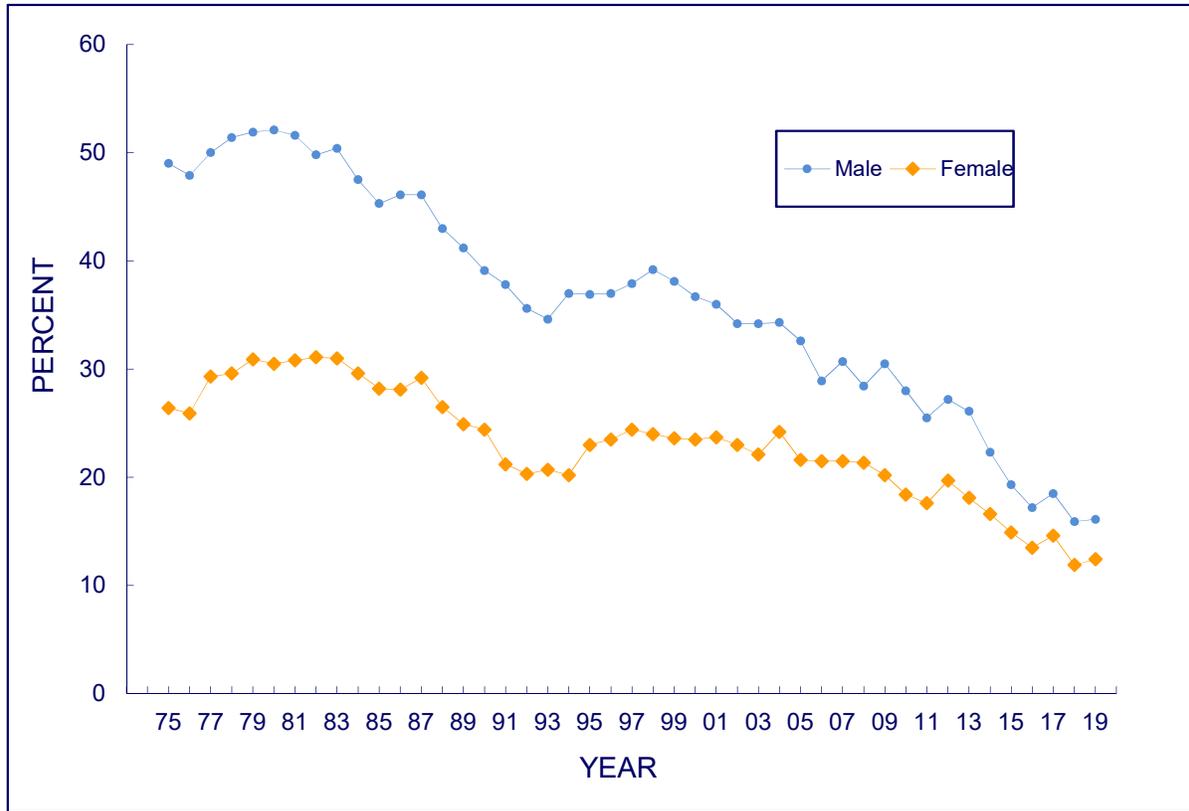


Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for cigarettes is defined as smoking one or more cigarettes per day in the last 30 days.

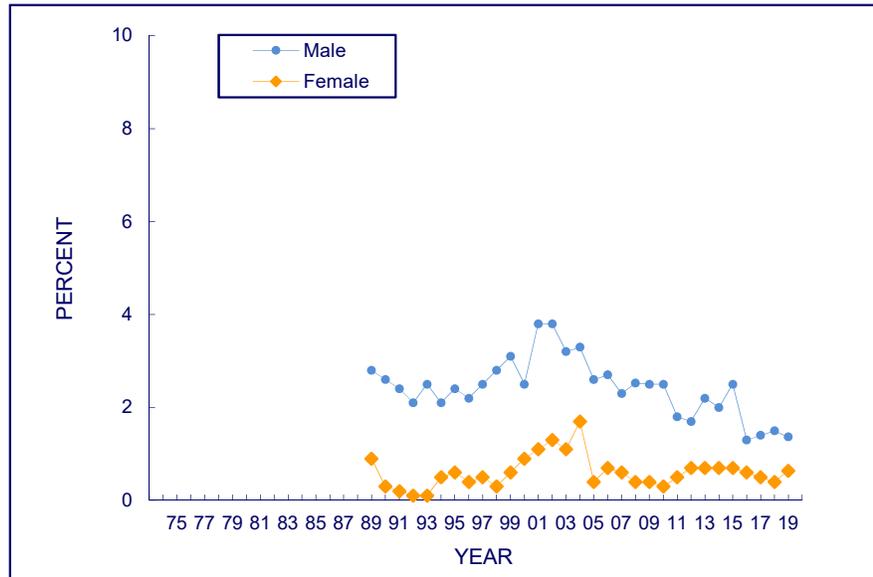
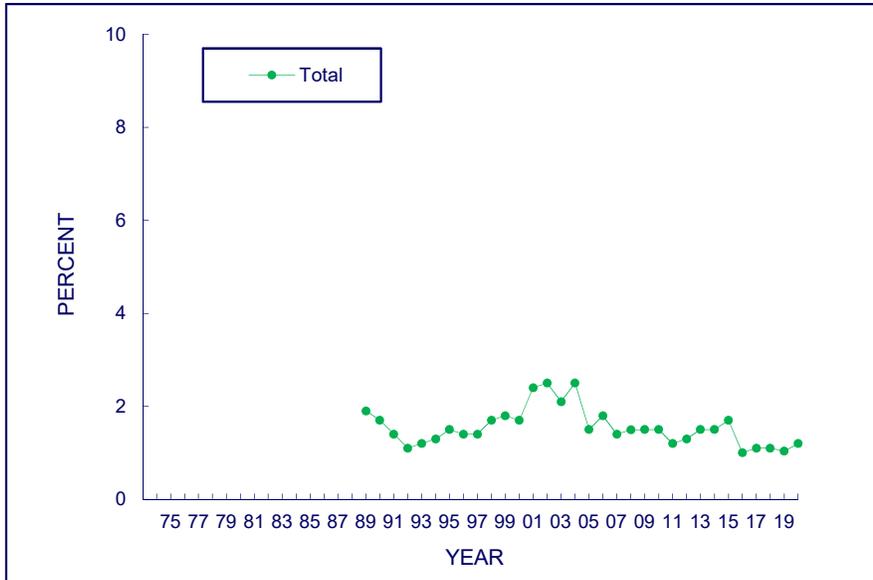
^aEstimates not presented by gender in 2020 due to insufficient data.

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

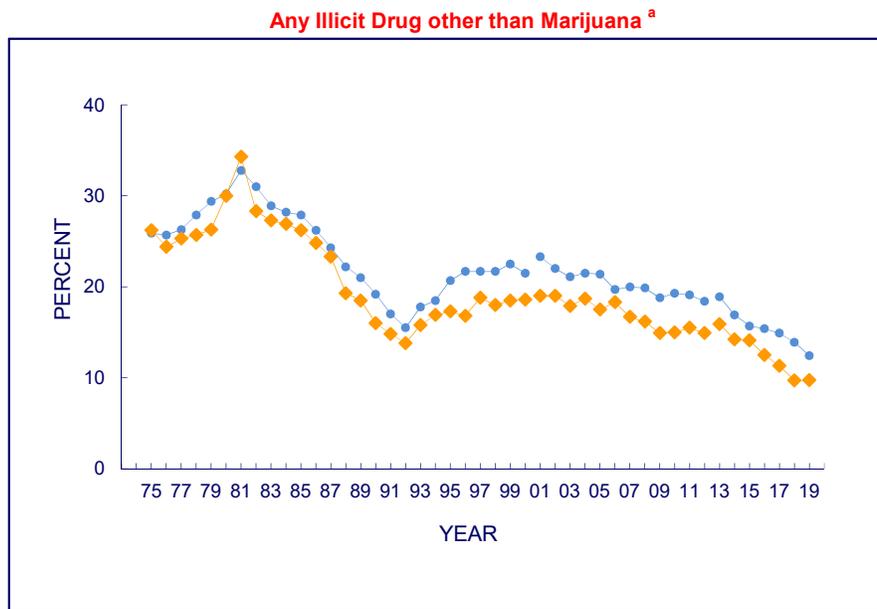
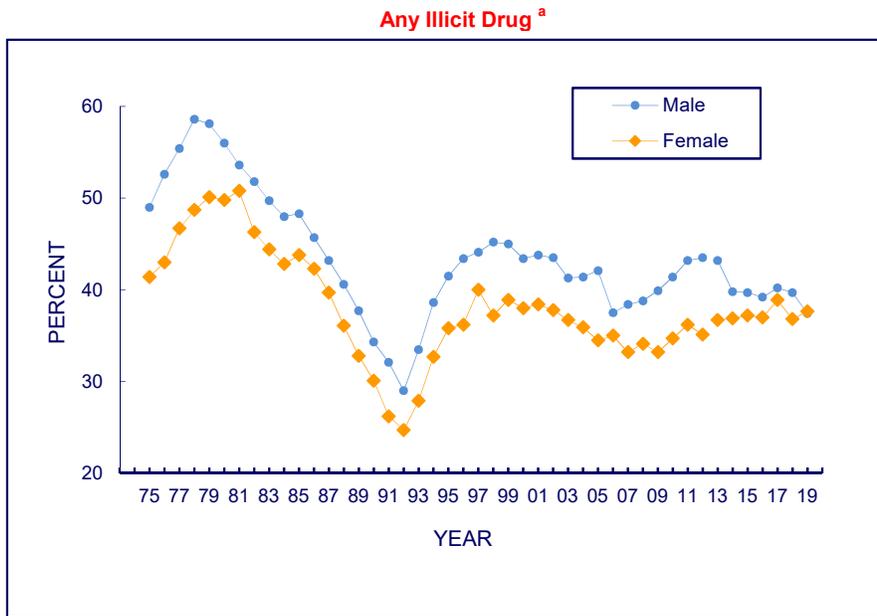


Source. The Monitoring the Future study, the University of Michigan.

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

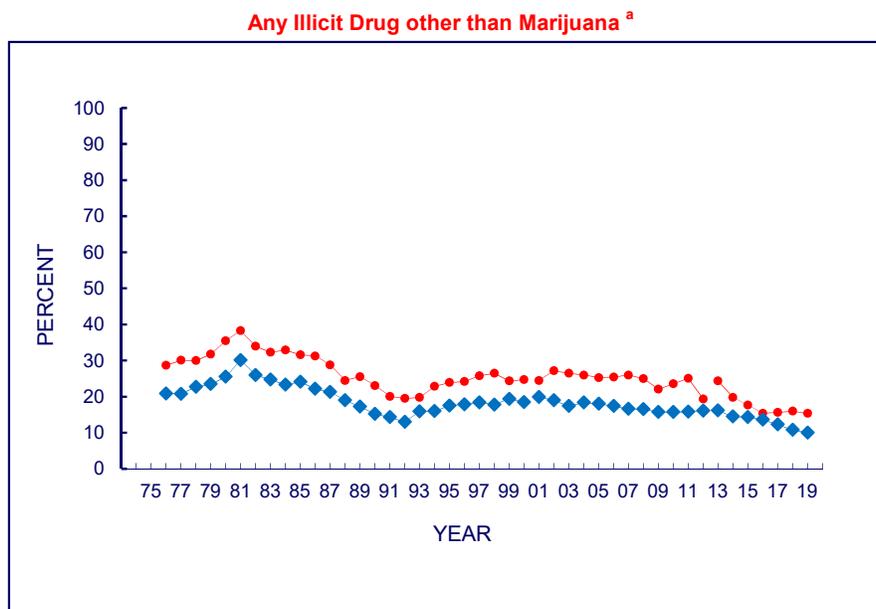
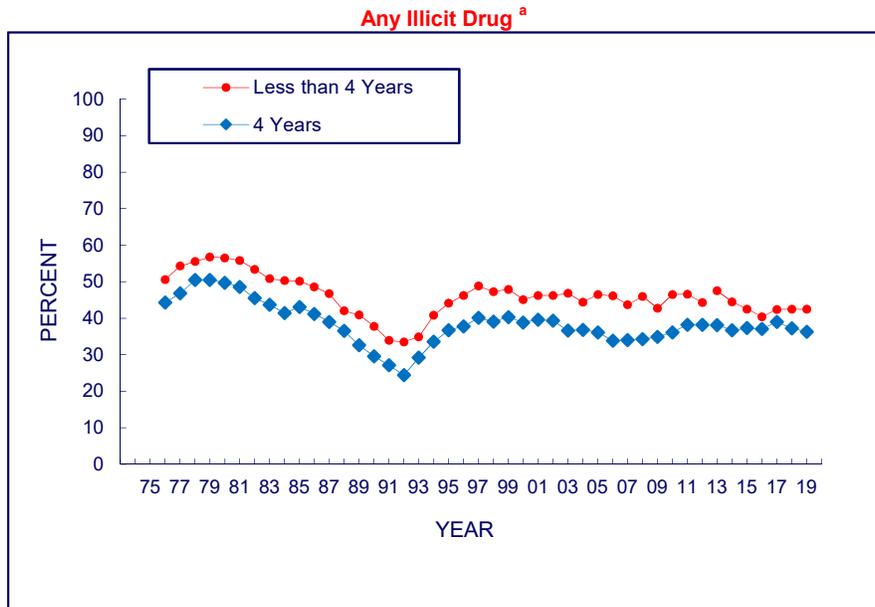


Source. The Monitoring the Future study, the University of Michigan.

^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.

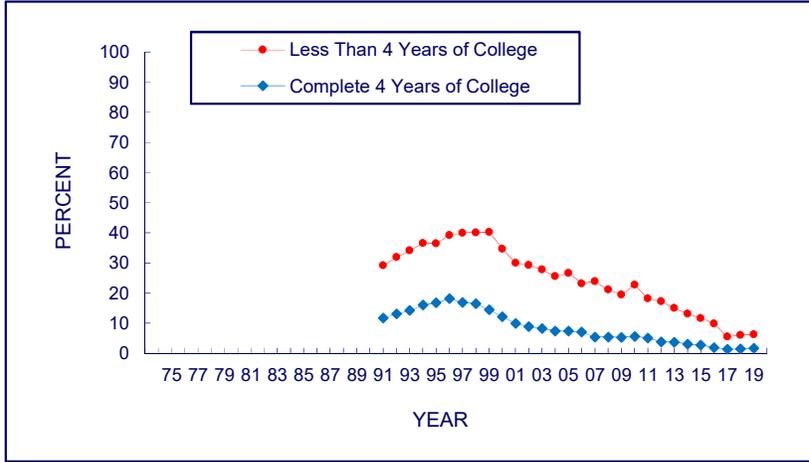
^aBeginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. In 2013, revised sets of questions on amphetamine use were introduced. Any illicit drug and any illicit drug other than marijuana are affected by this change.

^bEstimates not presented by college plans in 2020 due to insufficient data.

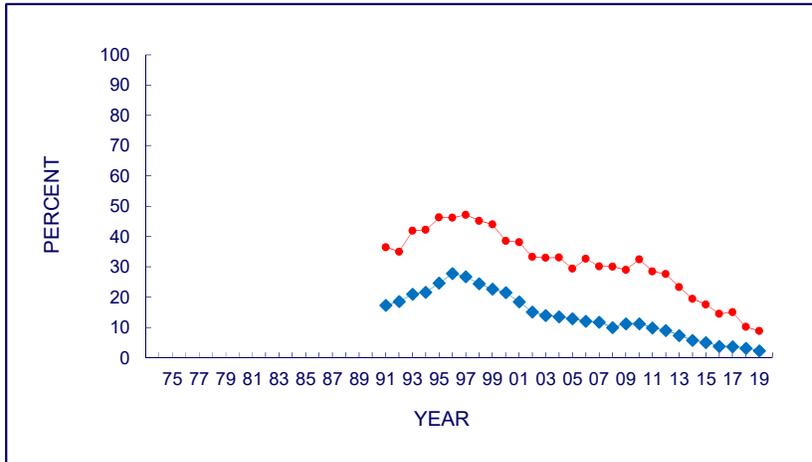
**FIGURE 5-9
CIGARETTES**

**Trends in 30-Day Prevalence in Grades 8, 10, and 12
by College Plans ^a**

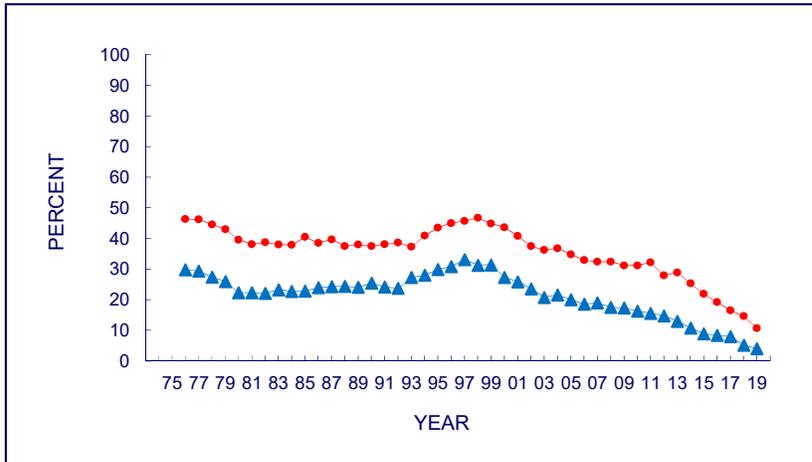
8th Graders



10th Graders

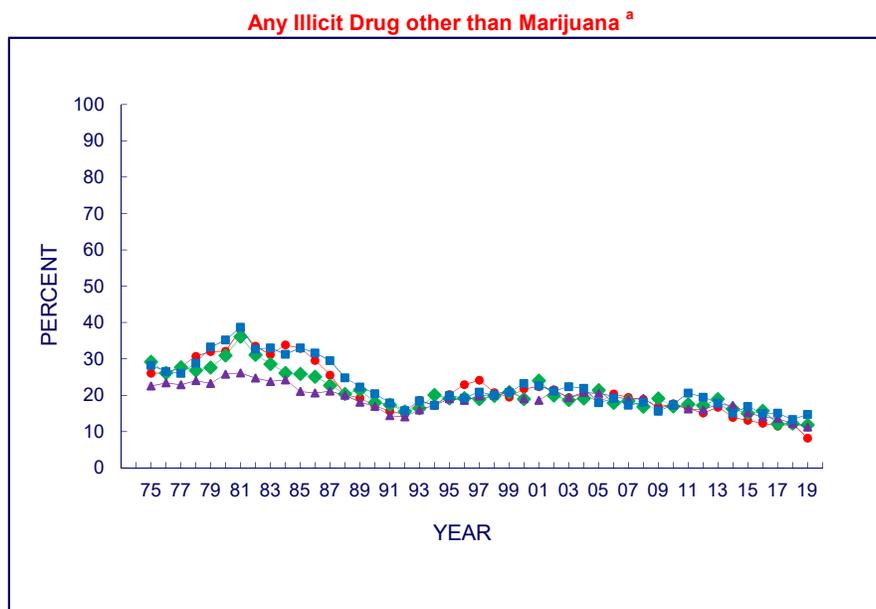
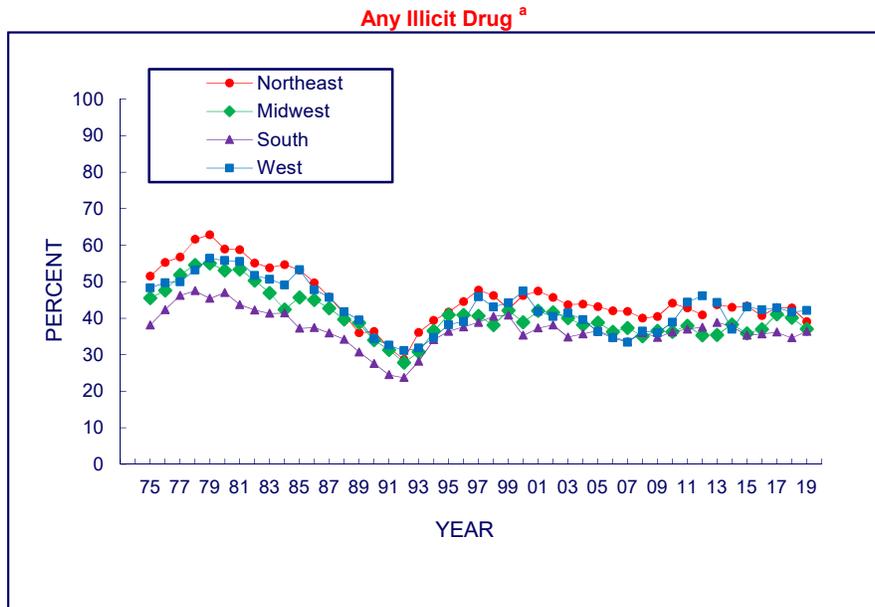


12th Graders



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

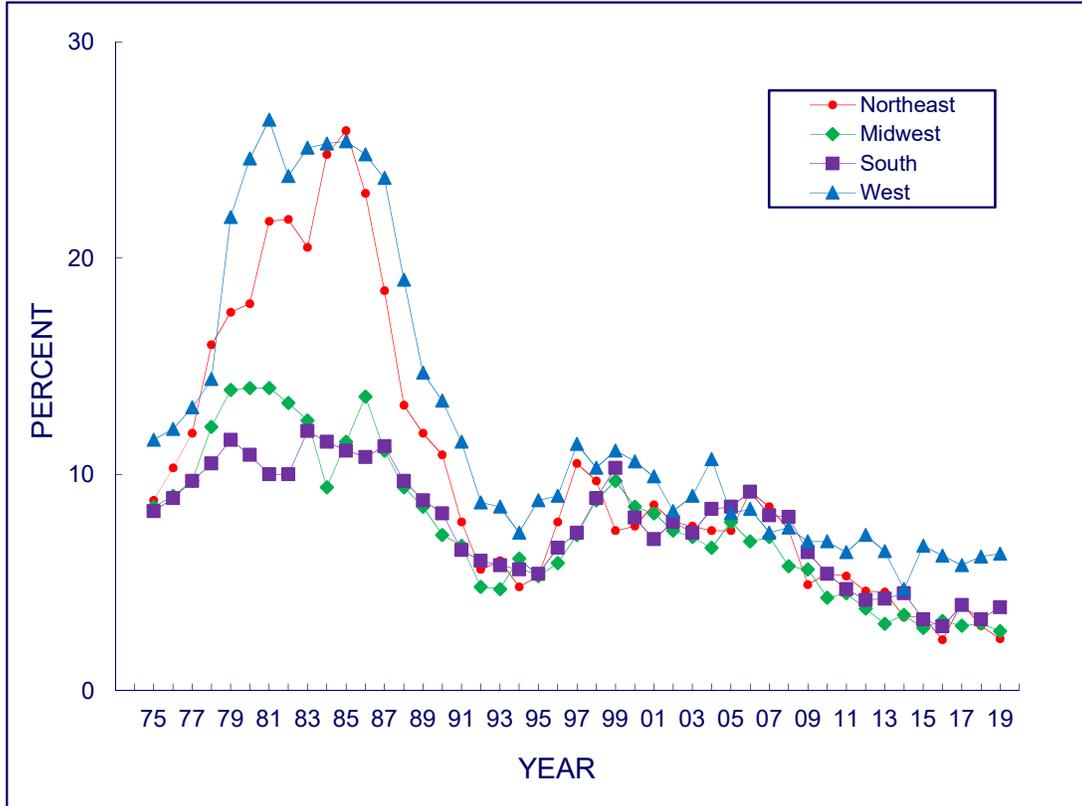


Source. The Monitoring the Future study, the University of Michigan.

^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.

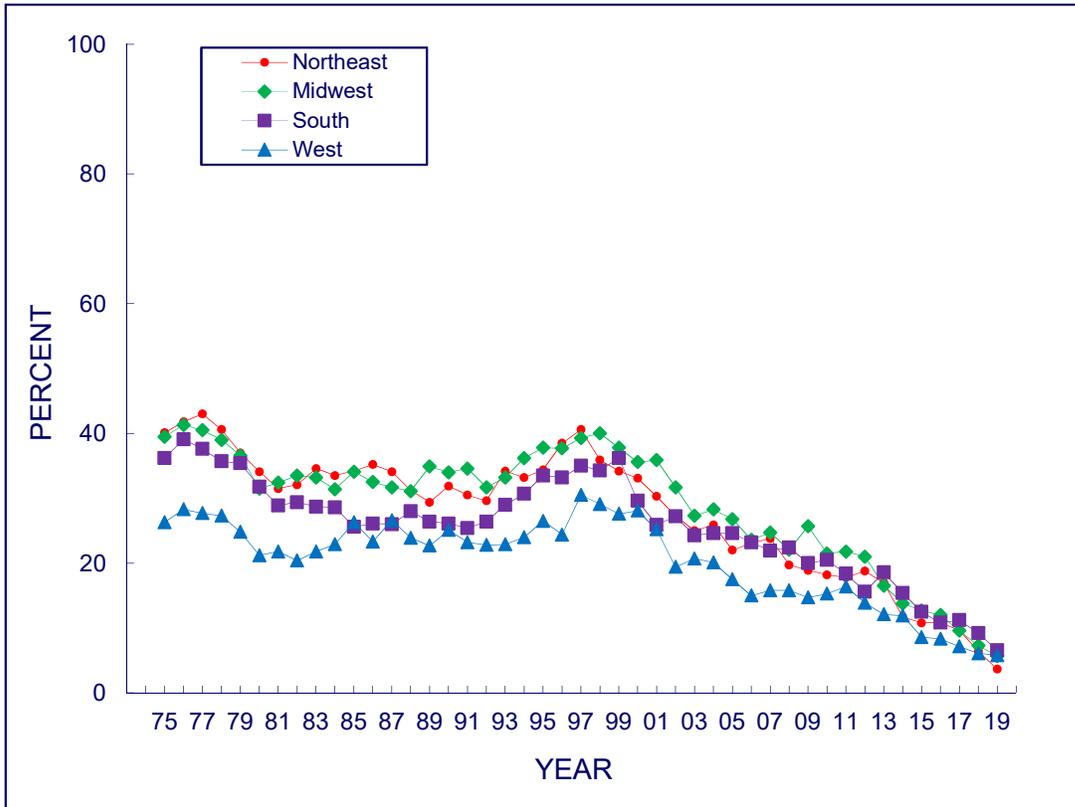
FIGURE 5-10b
COCAINE
Trends in Lifetime Prevalence in Grade 12
by Region of the Country ^a



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

^aEstimates not presented by geographic region in 2020 due to insufficient data.

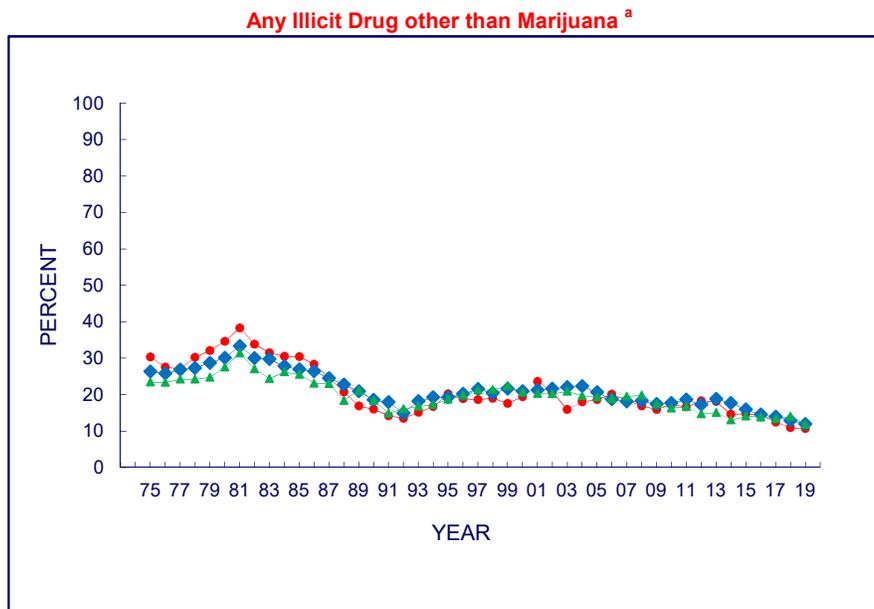
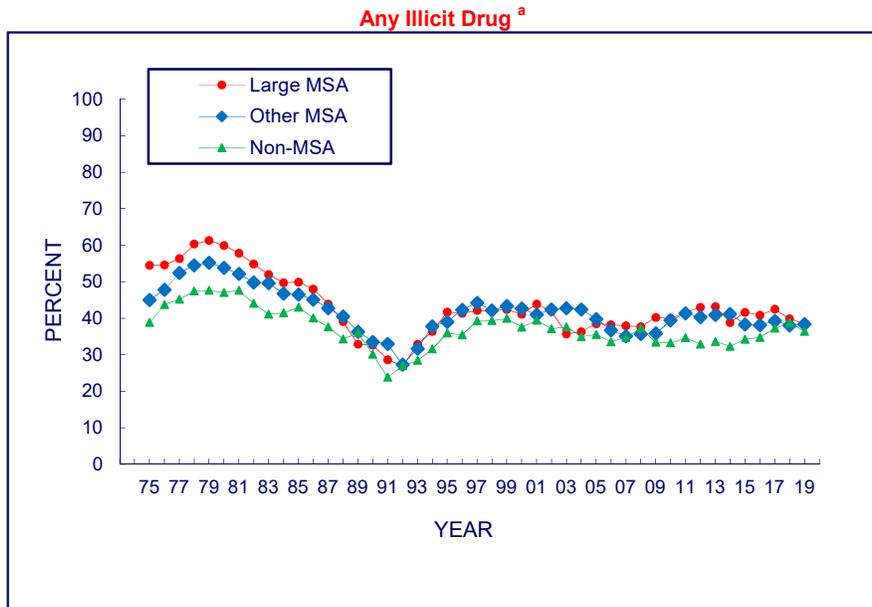
FIGURE 5-10c
CIGARETTES
Trends in 30-Day Prevalence in Grade 12
by Region of the Country ^a



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

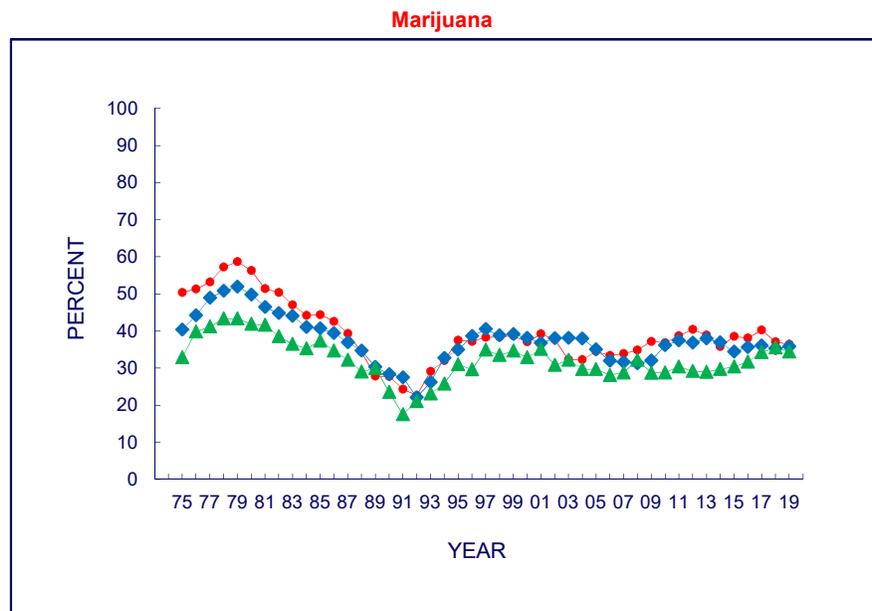
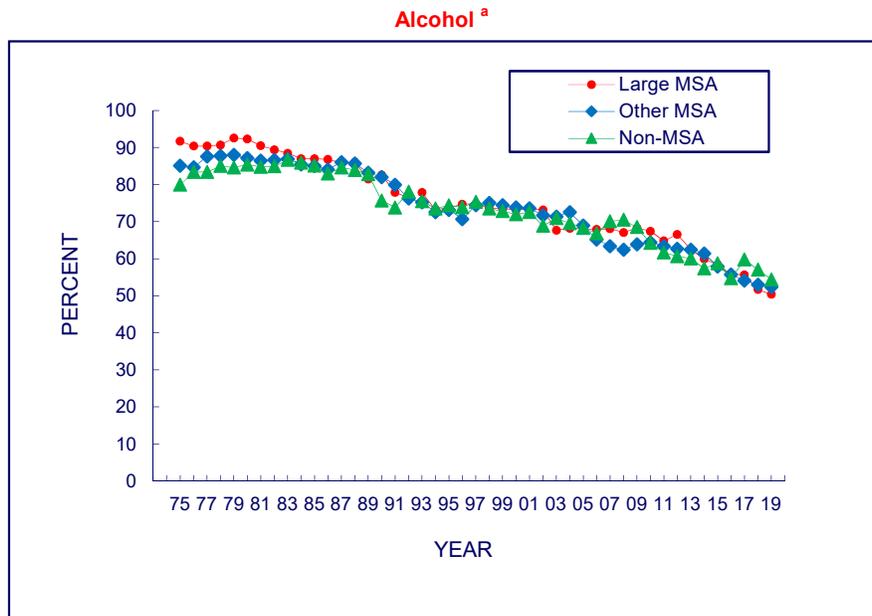


Source. The Monitoring the Future study, the University of Michigan.

^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

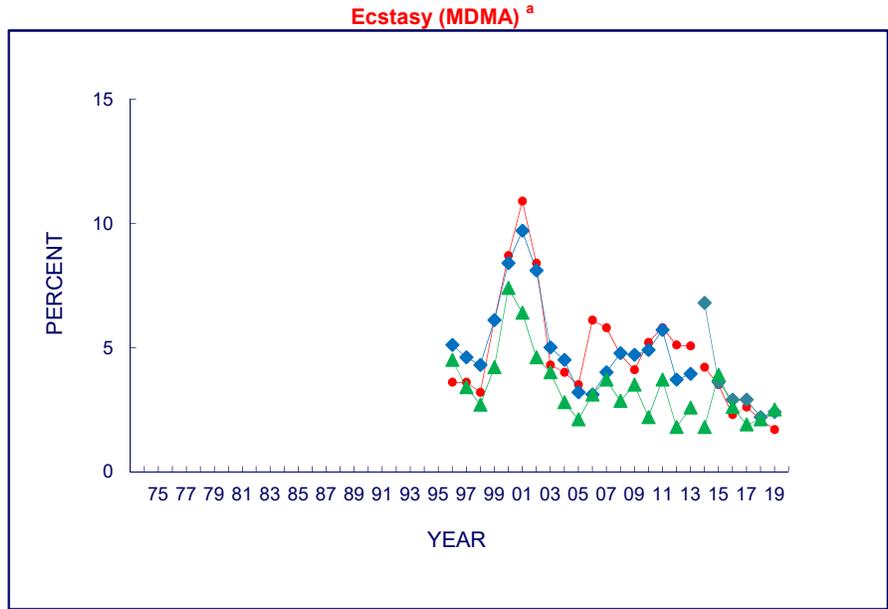
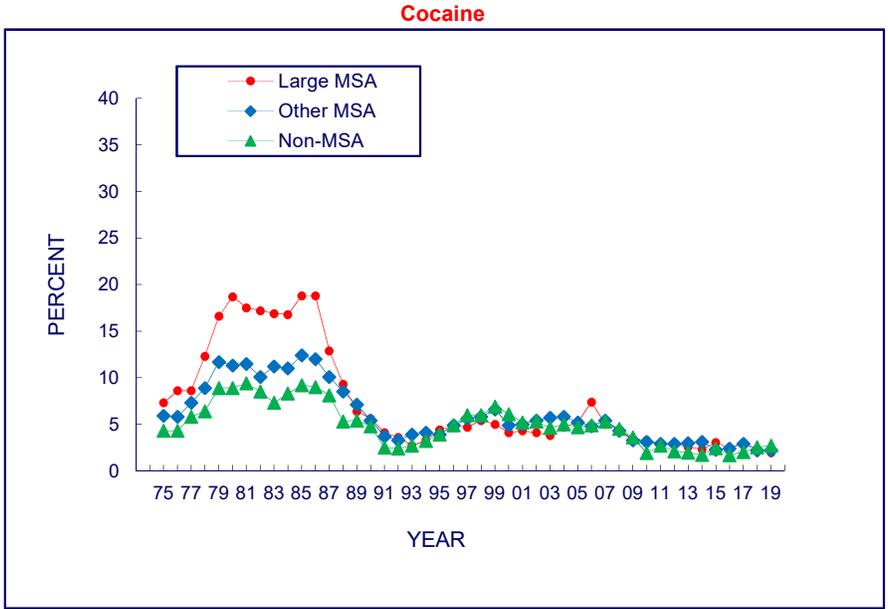


Source. The Monitoring the Future study, the University of Michigan.

^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

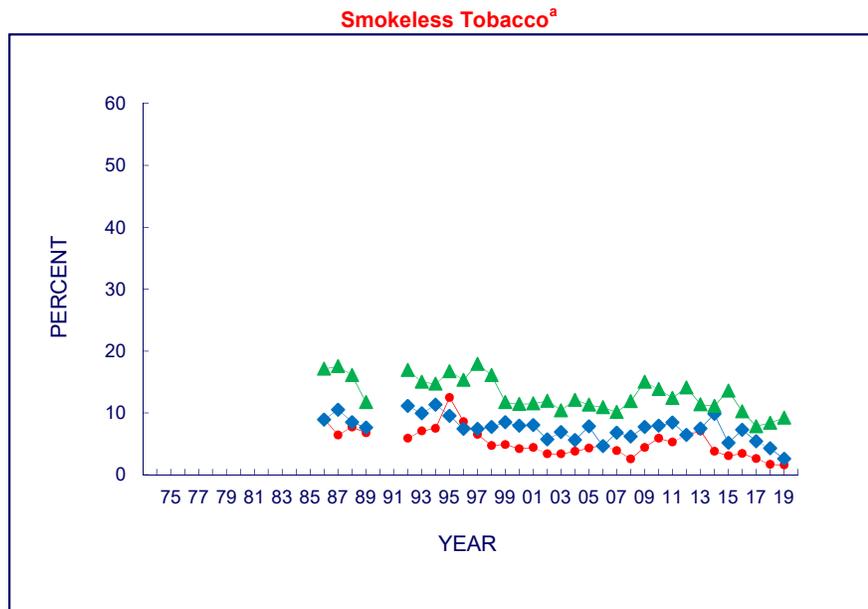
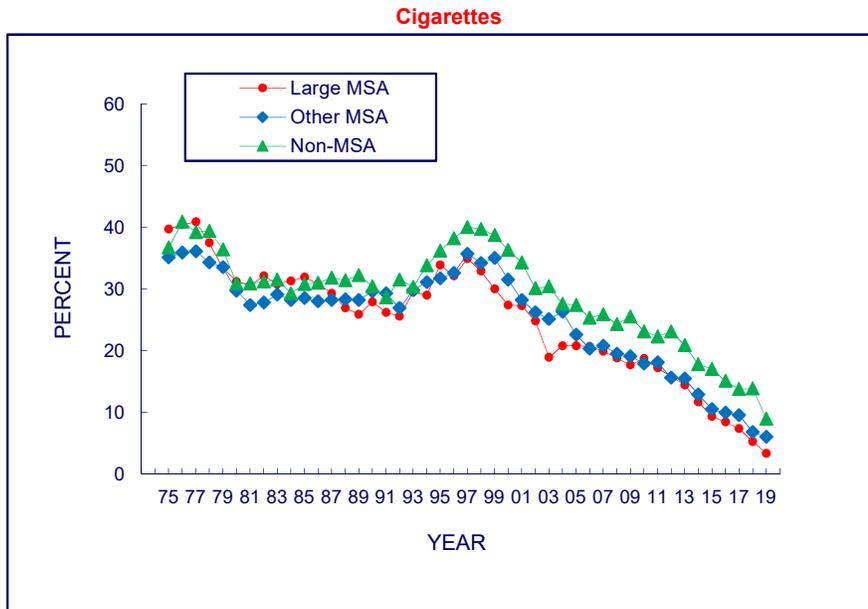


Source. The Monitoring the Future study, the University of Michigan.

^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

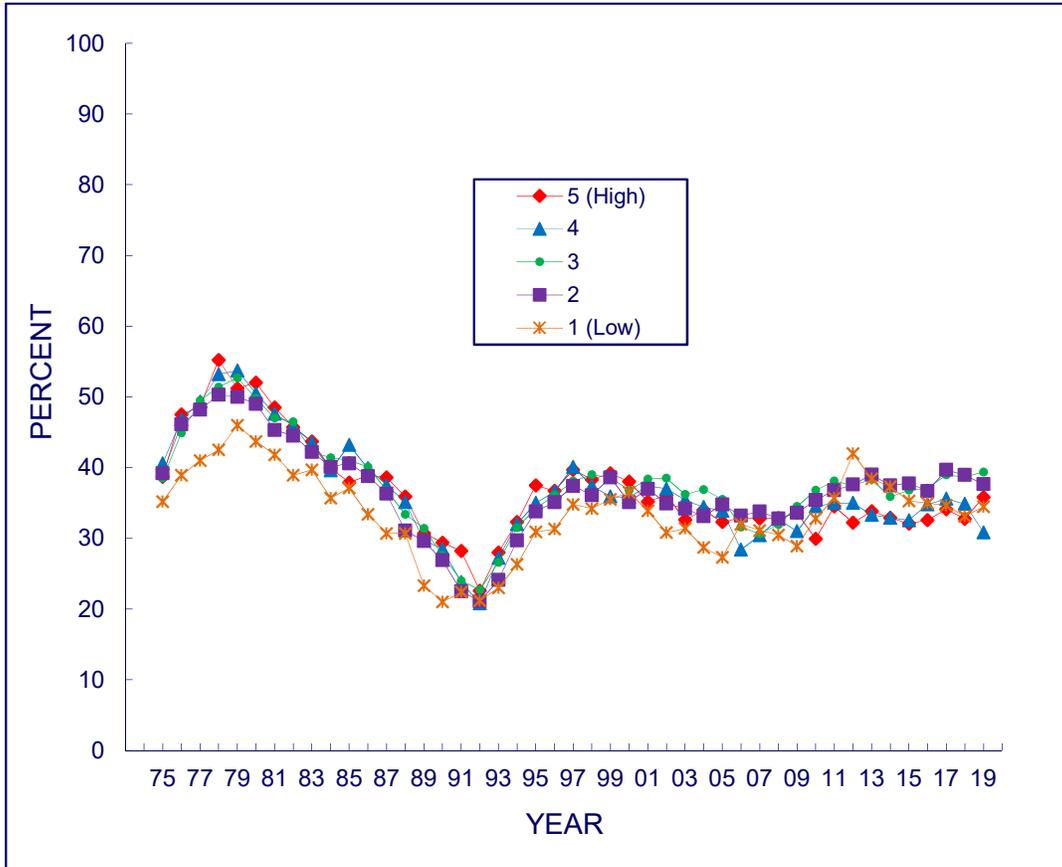


Source. The Monitoring the Future study, the University of Michigan.

^aThe question on smokeless tobacco was not asked in 1990 or 1991.

^bEstimates not presented by population density in 2020 due to insufficient data.

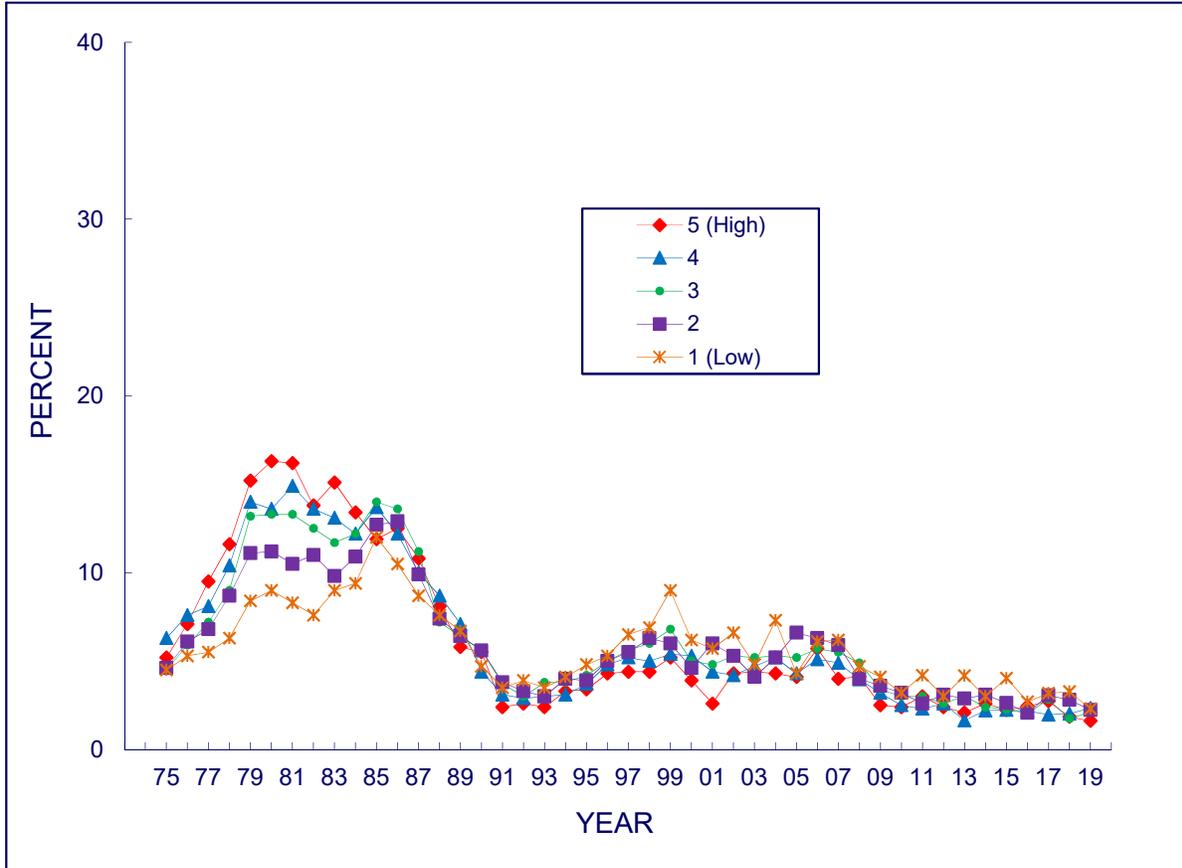
FIGURE 5-12a
MARIJUANA
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



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

^aEstimates not presented by parental education in 2020 due to insufficient data.

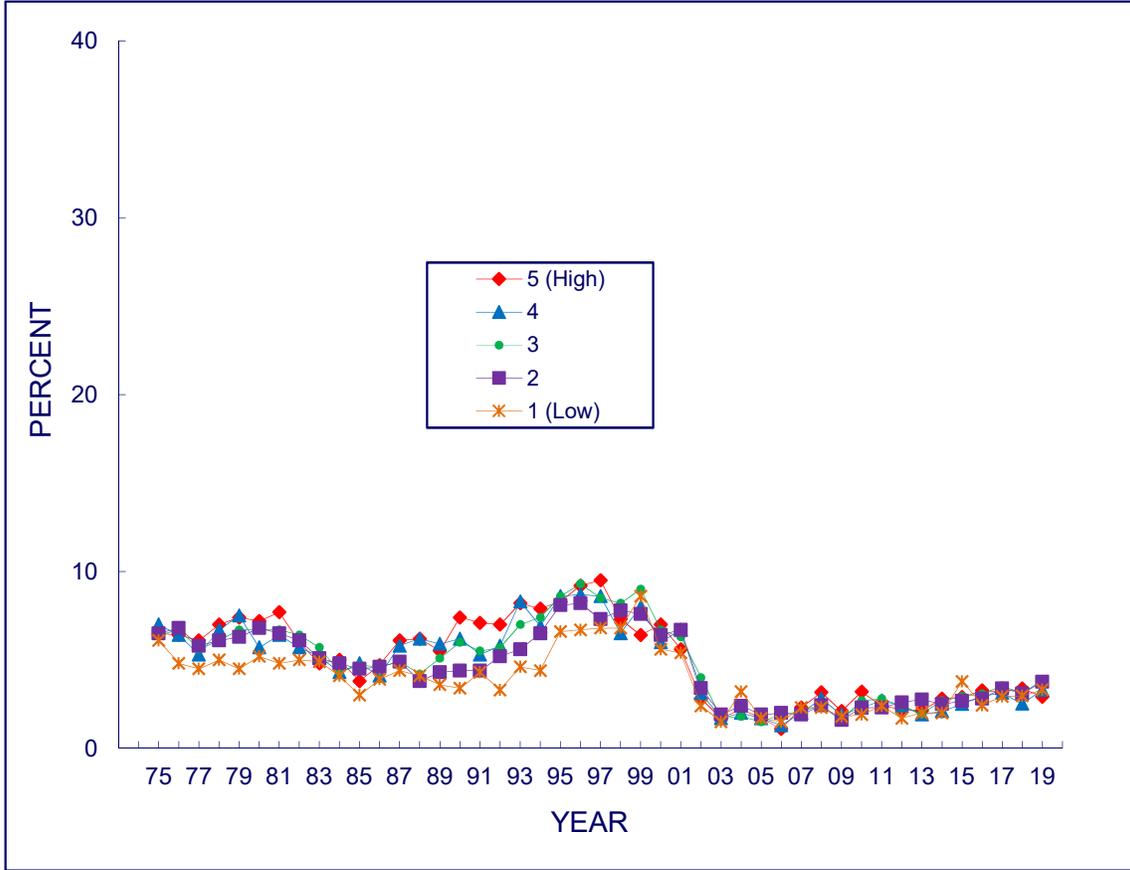
FIGURE 5-12b
COCAINE
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



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

^aEstimates not presented by parental education in 2020 due to insufficient data.

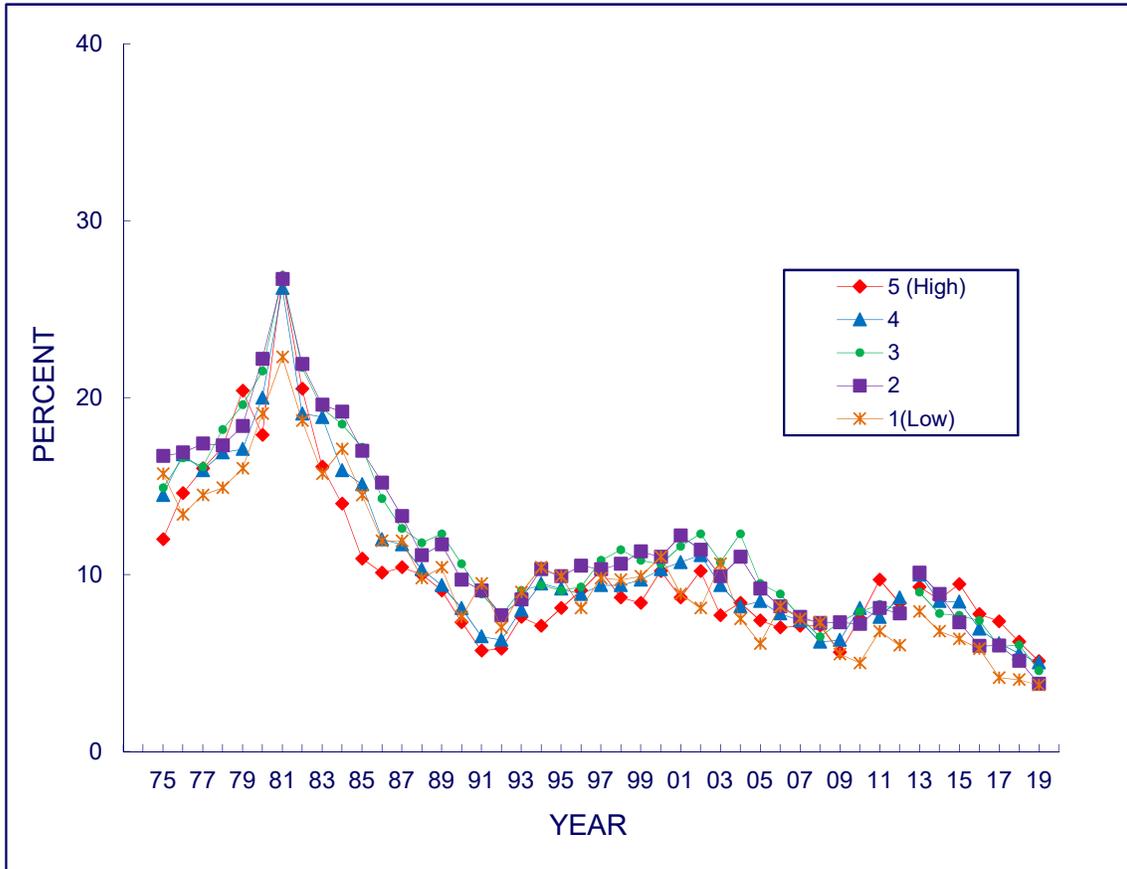
FIGURE 5-12c
LSD
Trends in Annual Prevalence in Grade 12
by Average Education of Parents ^a



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



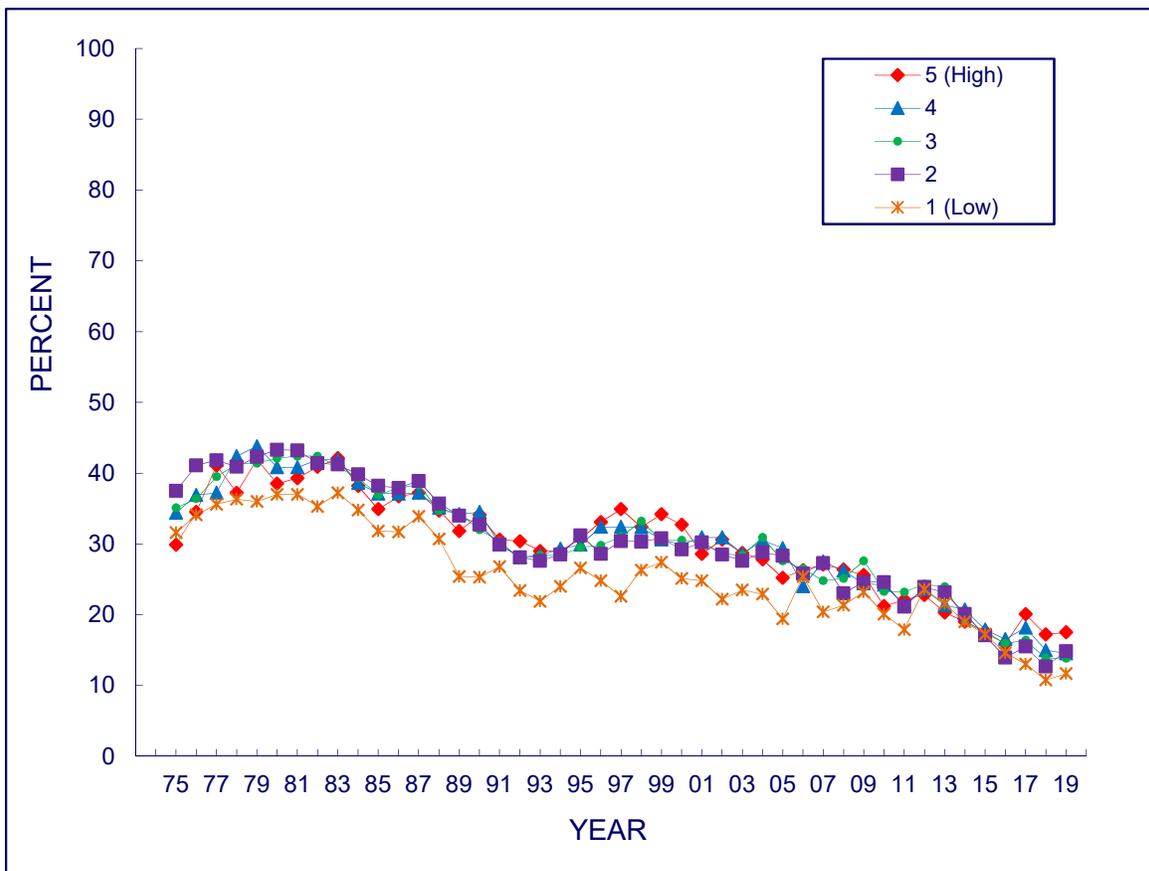
Source. The Monitoring the Future study, the University of Michigan.

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.

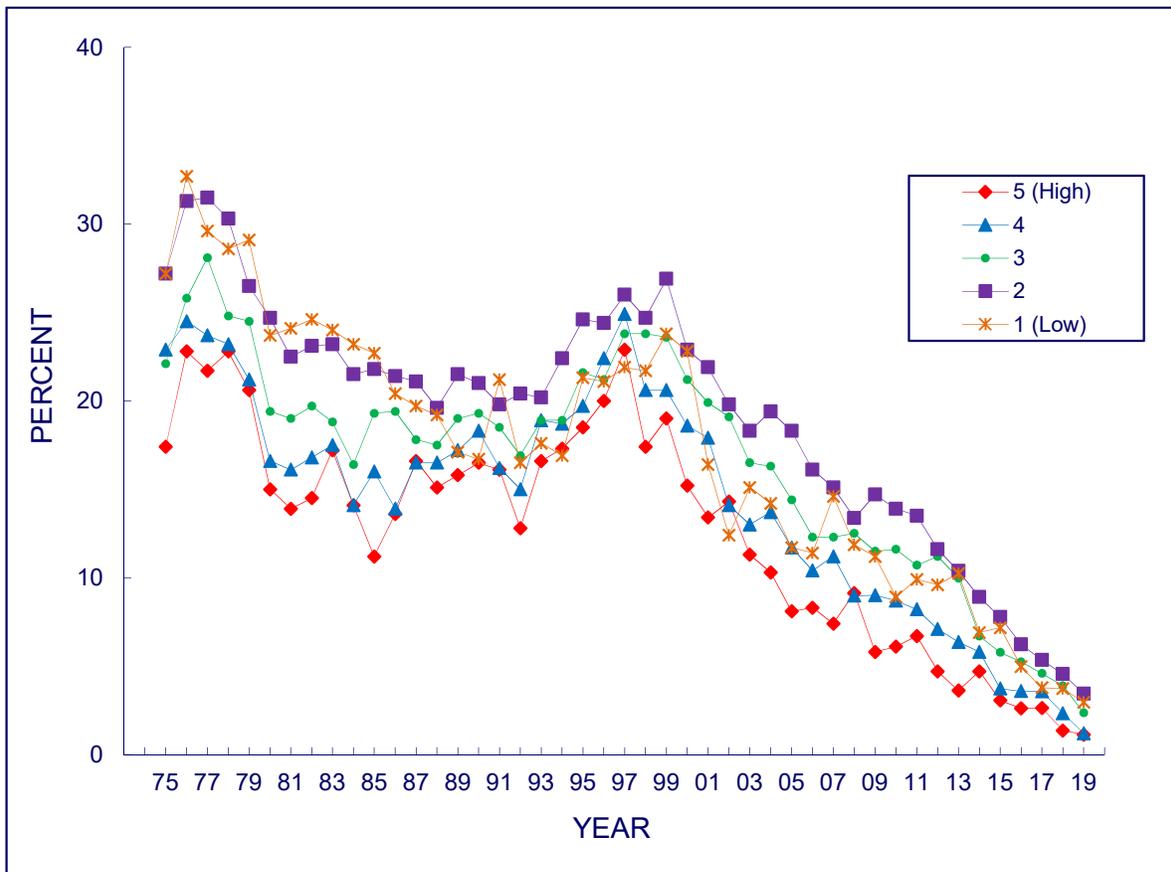
FIGURE 5-12e
ALCOHOL
Trends in 2-Week Prevalence of
5 or More Drinks in a Row in Grade 12
by Average Education of Parents ^a



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

^aEstimates not presented by parental education in 2020 due to insufficient data.

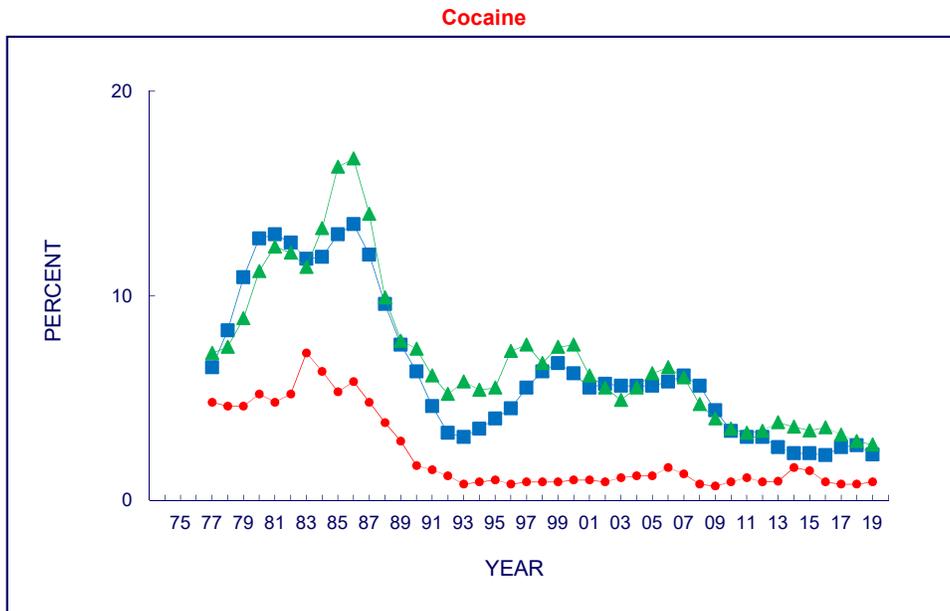
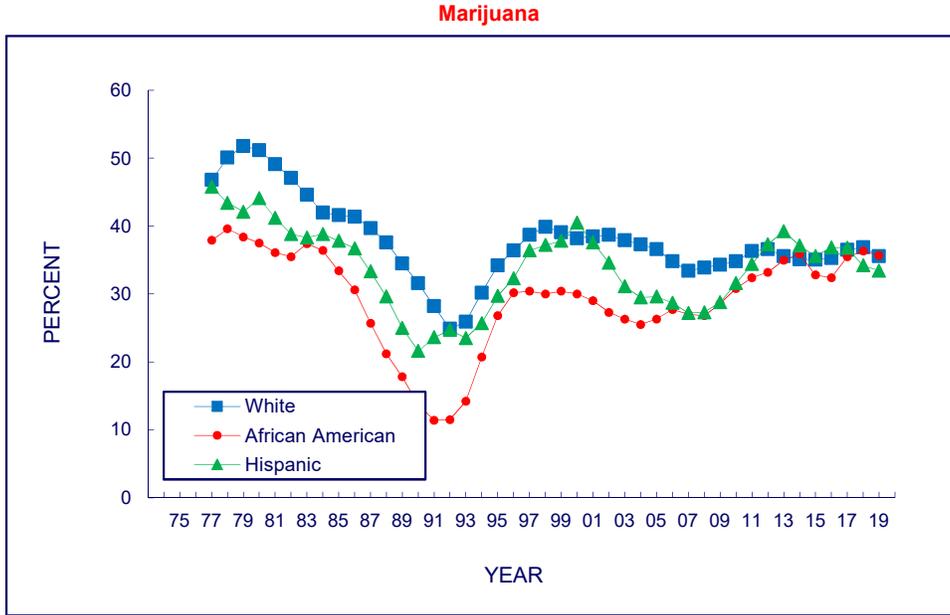
FIGURE 5-12f
CIGARETTES
Trends in Daily Prevalence in Grade 12
by Average Education of Parents ^a



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)



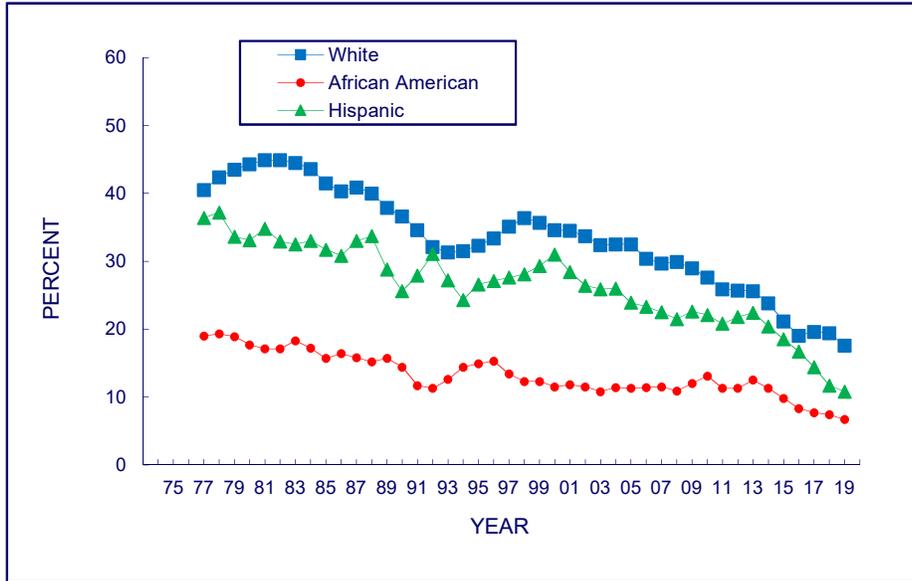
Source. The Monitoring the Future study, the University of Michigan.

^aEach point plotted here is the mean of the specified year and the previous year.

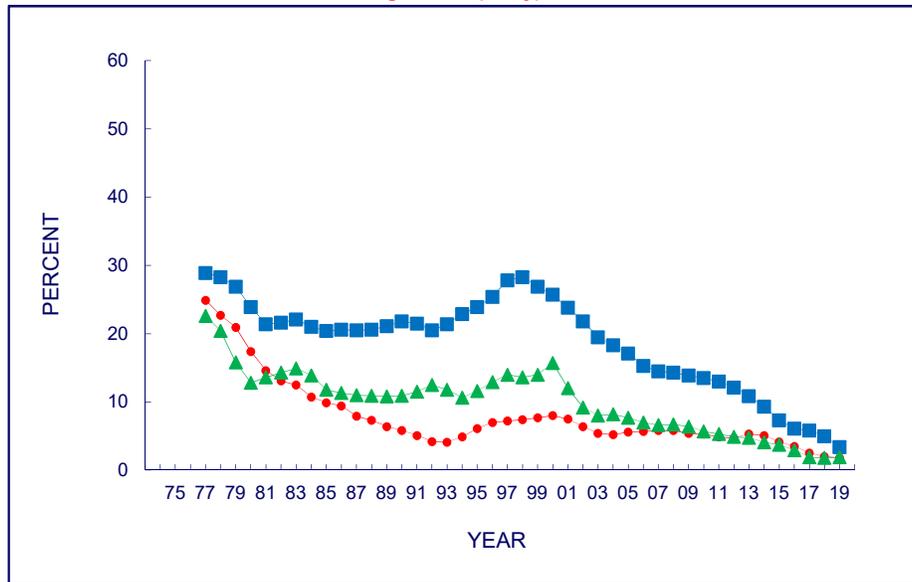
^bEstimates not presented by race/ethnicity in 2020 due to insufficient data.

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)

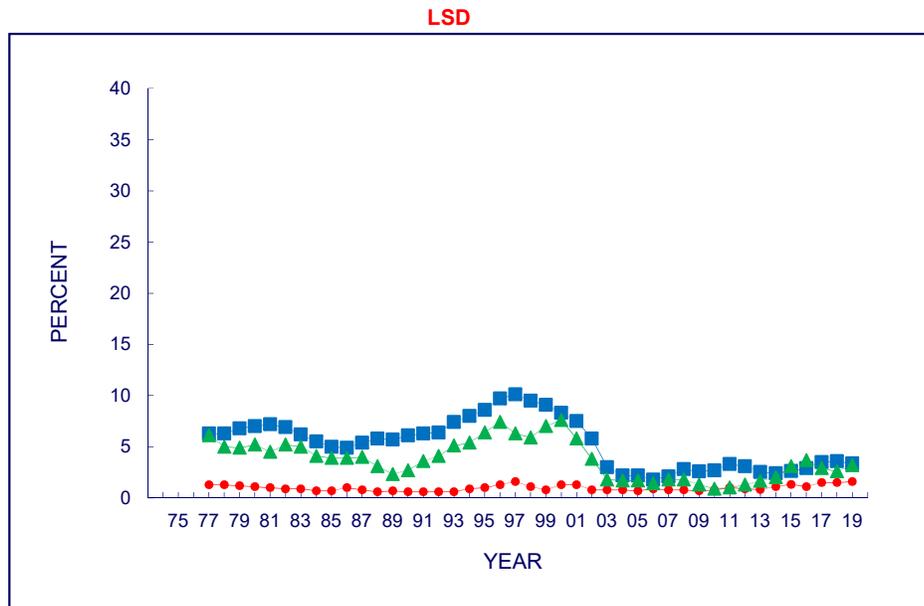
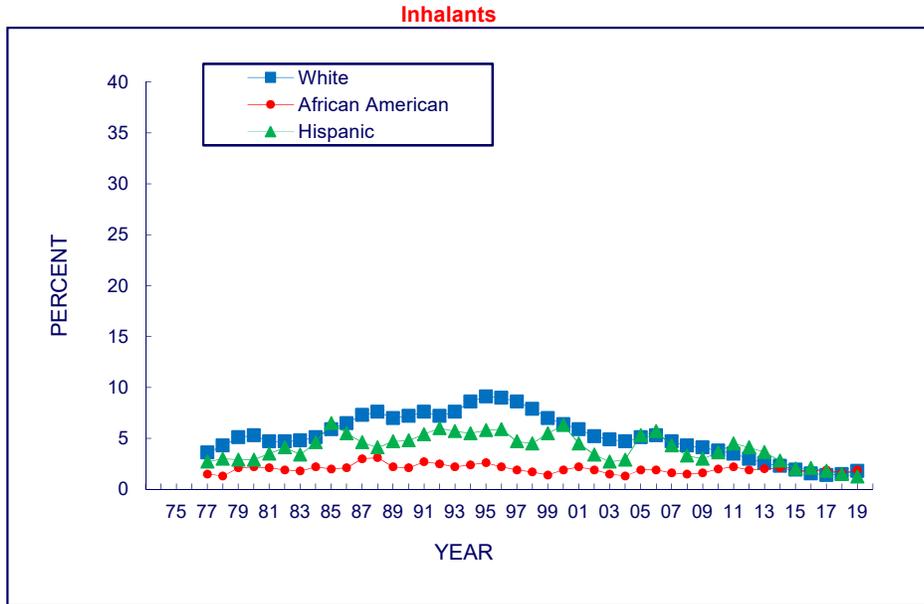


Source. The Monitoring the Future study, the University of Michigan.

^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 series of monographs provide a retrospective view of trends in lifetime prevalence of use at earlier grade levels. We present a series of tables and figures based on retrospective reports from 8th and 12th graders, and tables only for 10th graders. 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).

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 2020 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 ***sedatives (barbiturates) 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 2020, 3.0% said they had tried **marijuana** by the end of 6th grade (Table 6-4). In 2020, older respondents gave lower retrospective estimates of their marijuana use by end of 6th grade: 3.0% among 10th graders and 1.5% 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 their recent and rapid uptake among adolescents. The prevalence of vaping nicotine in 2011 was near zero, whereas in 2020 it was one of the most common forms of substance use among adolescents. The 12th graders of 2020 were in 6th grade in 2014 when vaping was rare, and accordingly initiation of vaping by 6th grade for this cohort is near zero (1.2%). The 10th graders of 2020 were in 6th grade in 2016 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 2020 were in 6th grade in 2018, after vaping had risen rapidly, and initiation by 6th grade was 5.7%, 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 2020 8th graders (Table 6-1), the peak year for initiation of cigarette smoking was in the 7th (3.3%) grade – or modal ages 12 through 13 – but a considerable number initiated smoking even earlier. Indeed, in 2020 4.1% of 8th grade respondents reported having had their first cigarette by the end of 5th grade.

Note that in 2020, 8th graders' reports of smoking initiation by the end of 6th grade were higher (5.9%) than 12th graders' reports of initiation by end of 6th grade (3.2%). 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 2020, 3.3% reported trying smokeless tobacco by 6th grade, and another 2.9% by 8th grade (for a total of 6.1%). 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.
- **Amphetamine** use by 6th grade was reported by 0.9% of 8th grade students in 2020. 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 9.3% of 8th grade respondents in 2020, but by only 5.5% 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, less than a full drink) 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 has been possible to reconstruct lifetime prevalence-of-use trend curves 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 curves should include data from nearly all eventual dropouts.

When comparing the retrospective prevalence curves for 12th versus 8th grade respondents, the reader should keep in mind that the curves 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 (data insufficient for 2020 estimates in 12th grade). This is depicted in Figure 6-6 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).

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 the early 2000s hallucinogen initiation (and therefore use) has been steadily decreasing 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.

- The lifetime prevalence trends for *hallucinogens other than LSD* (Figure 6-9) are similar to the ones just discussed for the entire class of hallucinogens. The declines observed for the different grades appear to have begun in the lower grades at an earlier time, suggesting a cohort effect.

Initiation trends for *LSD* (Figure 6-8) show a sharp increase in 11th and 12th grade in 2020. Such sharp initiation increases specific to 2020 are not apparent in the reports from the younger 8th grade students (Figure 6-8), nor are they apparent in reports from 10th grade students (comparing Table 6-2 this year to [last year's Table 6-2](#)). Taken together, these results suggest the possibility of an initiation increase specific to 11th and 12th grades, although confirmation with results from future years is needed to ensure that this finding is more than random sampling fluctuation and is robust.

- 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, over 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. About half of lifetime prevalence by 12th grade is initiated after 10th grade, a trend most clearly apparent in the early years of the study when the prevalence of crack cocaine was highest.
- Among 12th grade students who had used *heroin*, half or more initiated use during the high school years, as indicated in Figure 6-13 by lifetime prevalence levels in 10th grade at levels about half of what they are for the same cohort in 12th grade (two years later). The lower panel of Figure 6-13 shows that heroin initiation peaked among 7th and 8th graders in the mid- to late-1990s and declined fairly steadily thereafter until 2012.
- More than half of lifetime prevalence of *narcotics other than heroin* reported by 12th grade students had been initiated by 10th grade. This finding is indicated in Figure 6-14 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). This pattern of initiation remained when the question was updated in 2002 to include the additional examples of Vicodin and OxyContin. Rates of initiation for narcotics other than heroin appear to have peaked from the late 1990s to the late 2000s, with somewhat of a cohort effect observable in both the incline and decline stages.

- About half of lifetime prevalence of *amphetamine* use in 12th grade was initiated by 10th grade. This finding is indicated in Figure 6-15 by a lifetime prevalence for 10th grade cohorts that in almost all years is half or more of what it is for the cohort in 12th grade (2 years later). Initiation rates for high school students fell sharply during the 1980s, rose some during the relapse period in the 1990s, leveled in the mid- to late-1990s, and then fell further in the 2000s. The data from 8th grade respondents (lower panel of Figure 6-15) show a much steeper decline in the initiation rates among 7th and 8th graders after the peak rates in the mid-1990s, with a slight rebound in initiation in 2013 and 2014 that has since been fading.
- Figure 6-16 shows that most 12th graders who had ever used *sedatives (barbiturates)* had initiated use by 10th grade. This is indicated by lifetime prevalence levels in all years for 10th grade cohort at levels half or more of lifetime prevalence when the cohorts was in 12th grade (two years later). Lifetime prevalence of sedatives shows a substantial jump from 9th grade to 10th grade, especially in the earlier years of the survey, indicating that the initial years of high school are a period of high risk for the initiation of sedative use. There have been wide fluctuations in initiation rates as Figure 6-16 illustrates, but rather little at grade 8 and below, judging by the retrospective data from 12th graders. Data regarding sedatives (barbiturates) collected directly from 8th graders are not shown due to uncertainty about their validity.
- Figure 6-17 shows that most 12th graders who had ever used *tranquilizers* had initiated use by 10th grade, a pattern common to prescription drugs. This is indicated by lifetime prevalence levels for 10th grade cohort at levels half or more of lifetime prevalence when the cohorts was in 12th grade (two years later). This pattern of initiation has remained throughout the study, as tranquilizer initiation declined from the 1970s to a nadir in the early 1990s – before the 1990s relapse – and then subsequently increased into the early 2000s. In 2001, when Xanax was added to the list of examples in the question text, reported use of tranquilizers increased considerably in all grades but age of initiation became higher in the high school grades than the earlier ones. Once again, there has been rather little variation in initiation rates at or below 8th grade, although a slight decline over the course of the study is apparent.
- 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 the upper grades 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 from the late 1980s through 2016 for most grades, with a leveling since.

- 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, as well as between 9th and 11th grades. These gaps reflect substantial increases in the initiation of drinking alcohol 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. This trend warrants close attention in the coming years to determine if it is the start of an increase that could begin to reverse more than two decades of reduction in adolescent alcohol use.

- 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 10.5% of 8th grade students report having smoked a cigarette in 2020 (Table 6-1). After 8th grade, lifetime prevalence increases by about 2.5 percentage points at each grade until it reaches a prevalence of 16.3% among 12th grade students in 2020 (Table 6-3). The increases in lifetime prevalence across grade levels appear to be somewhat larger in the reports of 8th graders as compared to the reports of 12th graders, likely due to the inclusion of eventual dropouts – a group particularly prone to smoking – among the 8th graders.

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. 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 6th grade and even 5th 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 21% of 8th graders in 2020, 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 2.6% reported initiation by 8th grade; these students were in 8th grade in 2016 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 as well as 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 slight increase in overall initiation rates across all three grades in 2020 may mark the beginning of a turnaround in a long-term decline in smokeless tobacco use that had lasted about a decade.

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 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 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, 2020

(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	2.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.3	0.1	1.8	0.4	2.7	0.1	0.9	1.3
5th	0.7	0.6	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.2	2.6	0.5	1.4	0.1	1.0	1.5
6th	1.9	1.9	0.1	0.1	0.0	0.4	0.1	0.1	0.0	0.1	0.3	0.0	4.8	1.4	1.8	0.3	1.4	2.9
7th	4.7	1.5	0.8	0.6	0.5	0.6	0.2	0.1	0.2	0.3	1.0	0.8	8.3	4.5	3.3	0.7	1.8	10.3
8th	4.0	0.4	0.6	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.2	0.7	5.0	4.3	1.4	0.8	1.1	5.0
Never used	88.2	93.3	98.3	98.8	99.1	98.7	99.4	99.6	99.6	99.2	97.9	98.1	77.4	88.9	89.5	98.0	93.9	79.0

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, 2020

(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)	0.8	0.7	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.3	0.0	0.1	2.5	0.9	1.1	0.2	0.6	0.6
5th	0.9	0.2	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.3	0.1	1.4	0.5	0.5	0.0	0.2	0.3
6th	1.3	0.6	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.3	2.9	1.1	1.1	0.3	1.3	1.0
7th	2.9	0.4	0.4	0.3	0.3	0.1	0.1	0.0	0.1	0.1	0.3	0.2	5.0	1.6	1.6	0.2	0.6	2.3
8th	5.6	0.7	0.2	0.2	0.4	0.8	0.2	0.1	0.2	0.2	0.1	0.5	9.9	4.7	2.6	0.3	1.4	8.3
9th	12.2	0.6	1.3	1.0	0.8	0.7	0.4	0.1	0.4	0.0	1.3	1.2	16.2	11.7	3.1	0.8	2.2	19.2
10th	6.0	0.3	1.1	0.8	0.8	98.2	0.4	0.2	0.3	0.2	0.5	0.6	7.2	9.6	2.1	0.6	1.6	4.9
Never used	70.3	96.5	96.5	97.2	97.4	0.0	98.8	99.5	98.9	99.0	97.2	97.1	55.0	70.0	87.8	97.6	92.0	63.5

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, 2020

(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)	2.0	0.5	1.5	§	§	0.2	0.1	0.2	§	0.0	§	0.0	0.0	0.3	0.0	0.1	5.5	1.0	3.2	0.7	2.4	1.2
7th–8th ^d	6.9	1.2	6.2	§	§	0.3	0.2	0.2	§	0.0	§	0.1	0.3	0.2	0.5	0.2	10.9	4.8	3.7	0.7	1.6	1.4
9th	7.9	1.9	7.8	§	§	0.3	0.3	0.3	§	0.3	§	0.1	0.2	0.3	0.2	1.4	11.4	7.4	2.5	1.2	2.4	10.8
10th	9.1	2.5	8.7	§	§	2.1	1.9	0.6	§	0.5	§	0.0	0.3	0.2	0.2	0.7	12.3	10.4	2.2	0.3	1.7	12.7
11th	9.7	2.4	8.4	§	§	1.7	1.8	0.7	§	0.8	§	0.0	0.2	0.4	0.1	0.4	12.5	8.6	2.5	0.9	2.0	9.4
12th	4.2	2.6	3.9	§	§	1.6	1.2	1.7	§	1.1	§	0.0	0.4	0.8	0.3	0.6	7.0	6.7	2.2	0.1	1.4	3.0
Never used	60.1	88.8	63.4	§	§	93.7	94.4	96.5	§	97.2	§	99.8	98.6	97.8	98.8	96.6	40.2	61.1	83.7	96.1	88.4	61.6

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.

§ Insufficient data for 2020 estimate.

^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, 2020

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	3.0	4.9	0.4	0.3	0.1	0.5	0.2	0.2	0.1	0.4	0.9	0.3	9.3	2.3	5.8	0.5	3.2	5.7
10th	3.0	1.5	0.5	0.5	0.4	0.1	0.1	0.1	0.1	0.5	0.5	0.4	6.7	2.5	2.8	0.4	2.1	1.9
12th	1.5	§	0.2	0.1	0.2	§	0.0	§	—	0.0	0.3	0.1	5.5	1.0	3.2	0.7	2.4	1.2
Percentage who used by end of 8th grade																		
8th	11.8	6.7	1.7	1.2	0.9	1.3	0.6	0.4	0.4	0.8	2.1	1.9	22.6	11.1	10.5	2.0	6.1	21.1
10th	11.5	2.6	1.2	1.0	1.1	1.1	0.4	0.2	0.3	0.8	1.0	1.2	21.6	8.7	7.0	1.0	4.2	12.5
12th	7.7	§	0.5	0.3	0.3	§	0.0	§	—	0.1	0.5	0.3	16.5	5.9	7.0	1.4	4.0	2.6
Percentage who used by end of 10th grade																		
10th	29.7	3.5	3.5	2.8	2.6	100.0	1.2	0.5	1.1	1.0	2.8	2.9	45.0	30.0	12.2	2.4	8.0	36.5
12th	24.2	§	2.9	2.6	1.2	§	0.9	§	—	0.1	1.0	2.4	40.2	23.7	11.6	2.9	8.2	26.0

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.

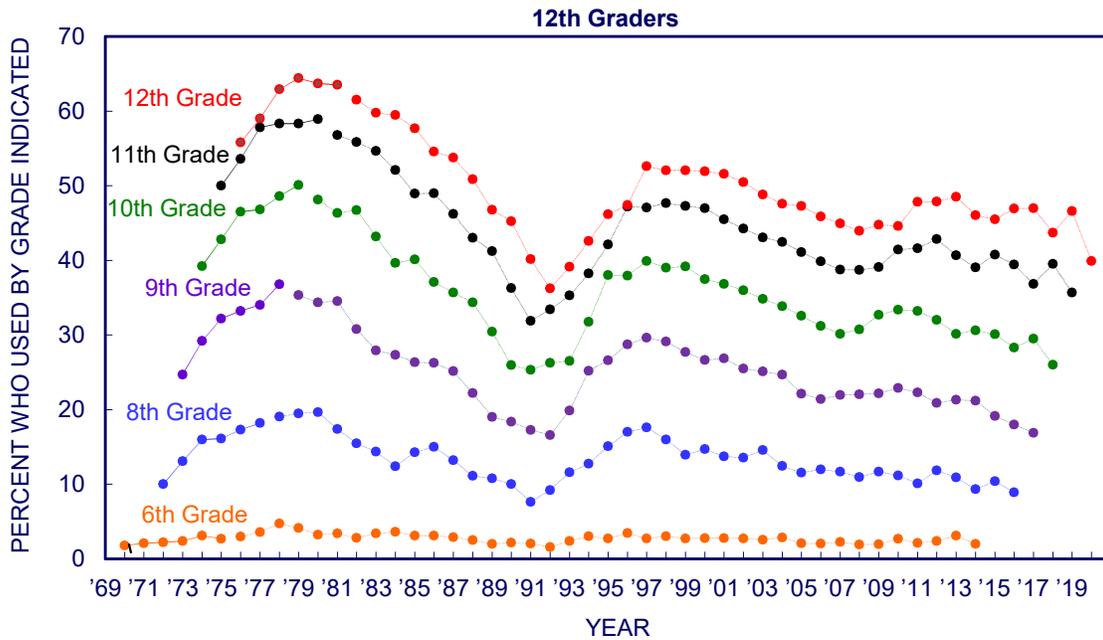
§ Insufficient data for 2020 estimate.

^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



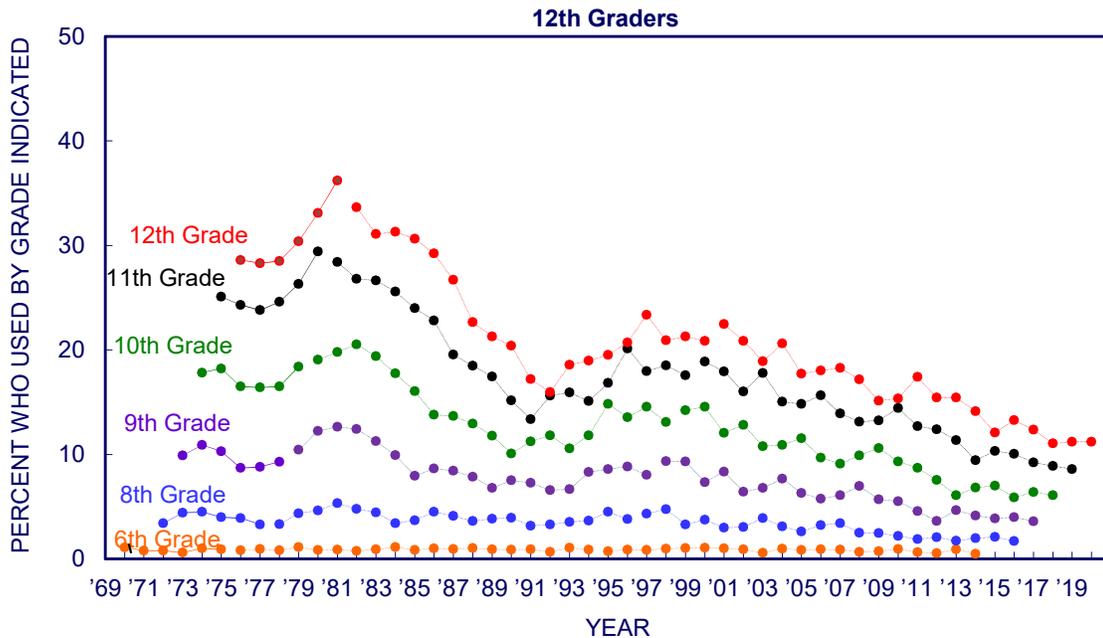
Source. The Monitoring the Future study, the University of Michigan.

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.

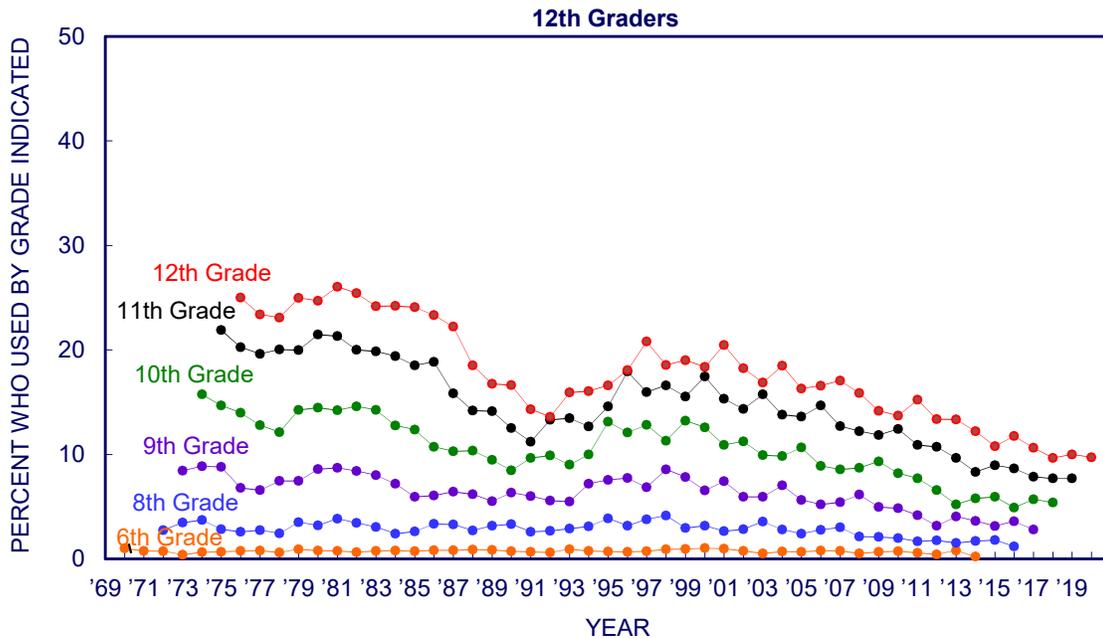
Notes. The dashed lines connect percentages that result if nonprescription stimulants are excluded.

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.

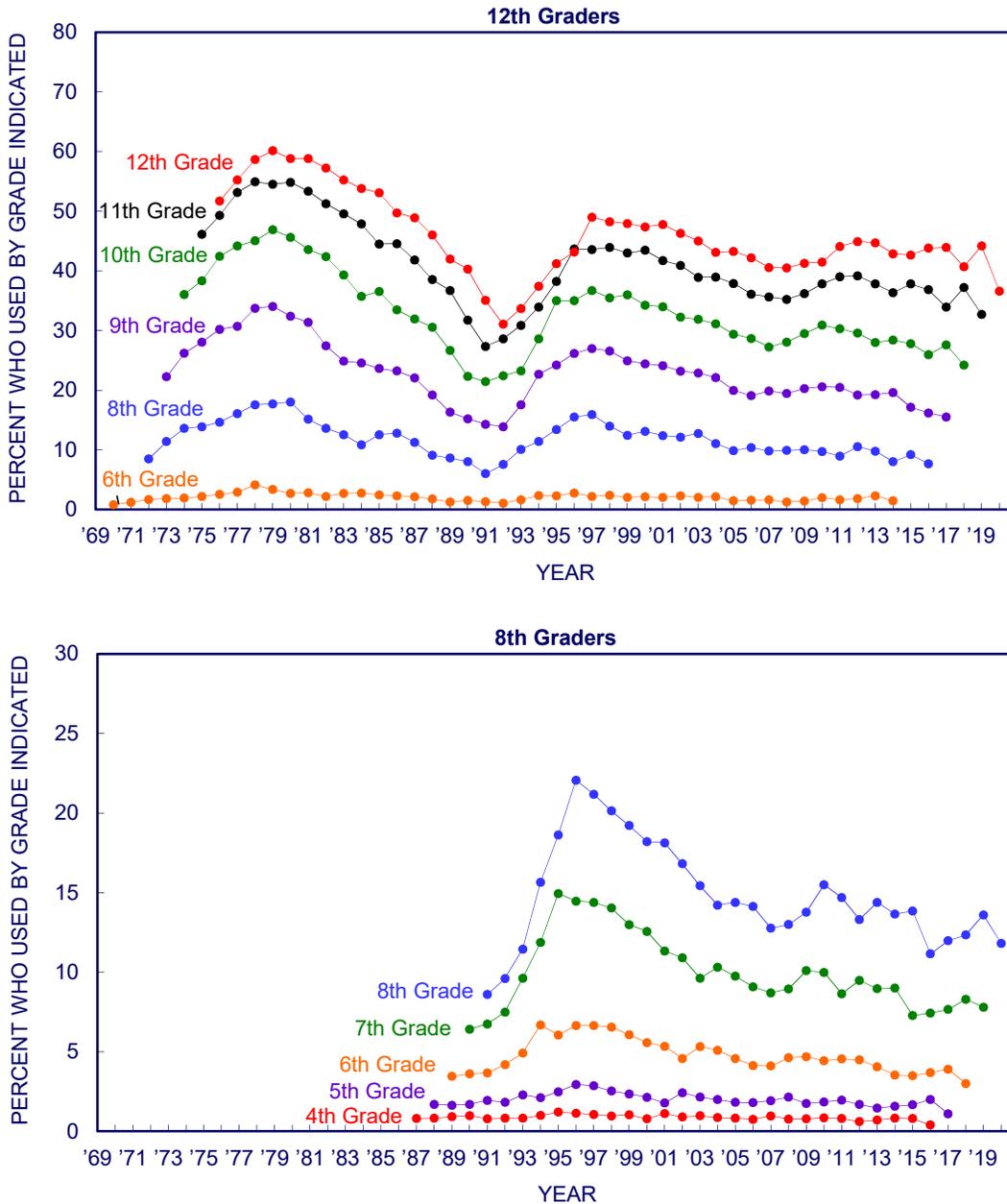
Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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**

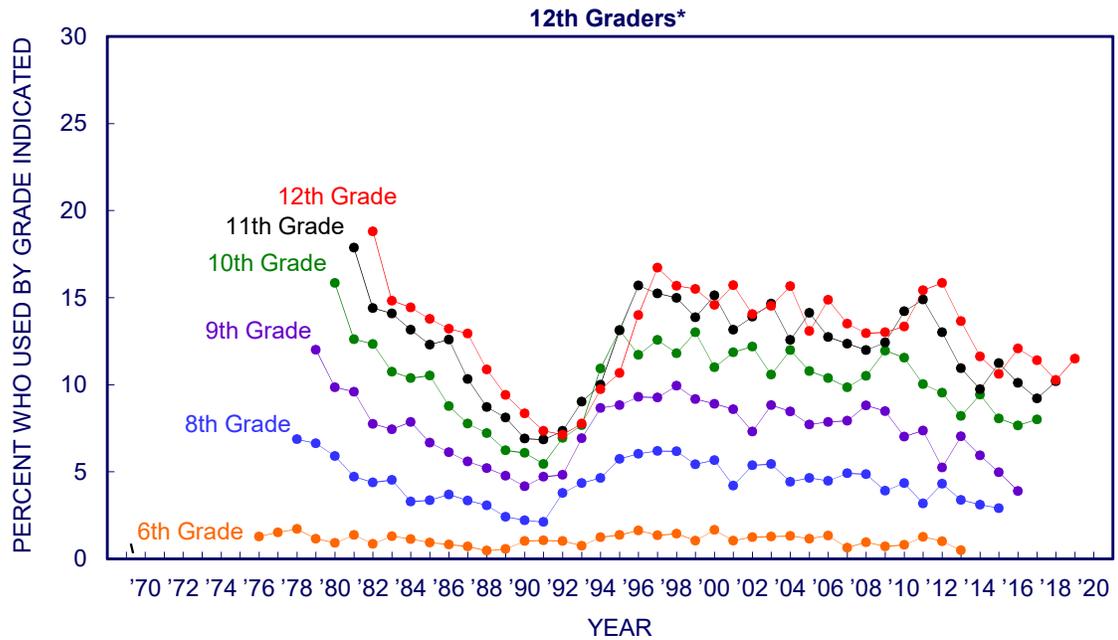


Source. The Monitoring the Future study, the University of Michigan.

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**

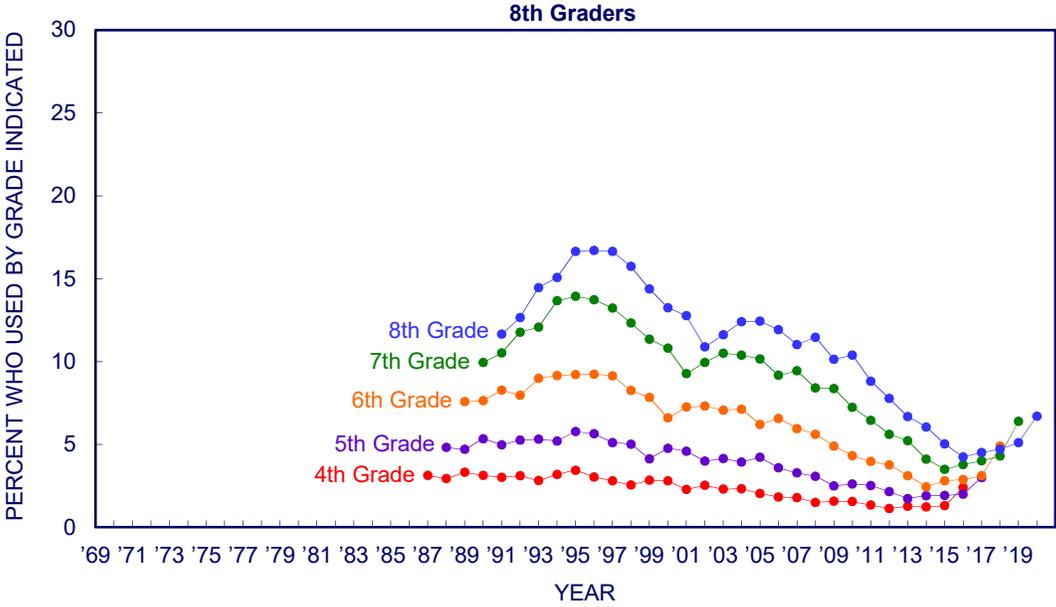
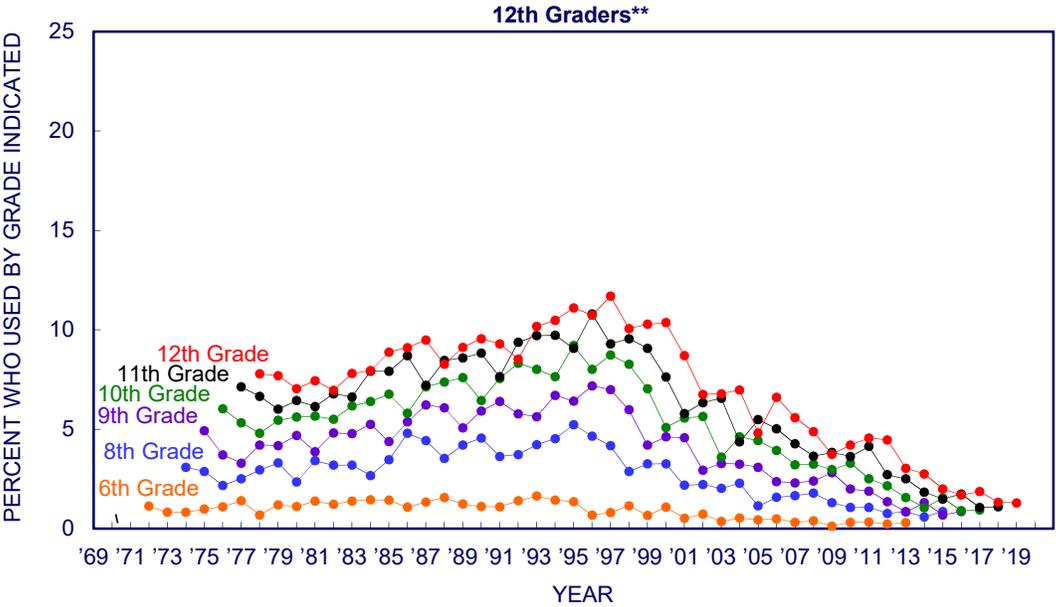


FIGURE 6-6 (cont.)

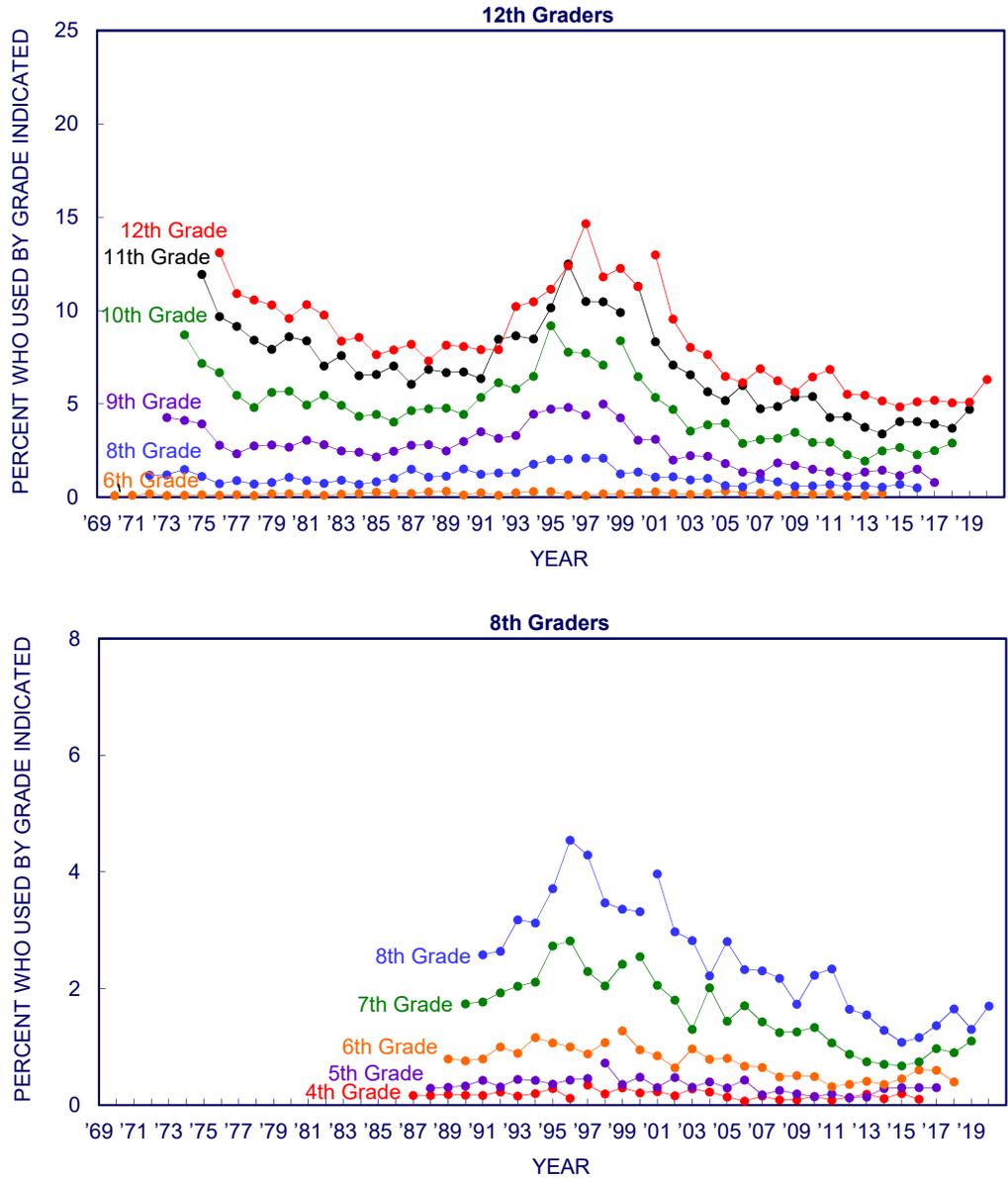
Source. The Monitoring the Future study, the University of Michigan.

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.

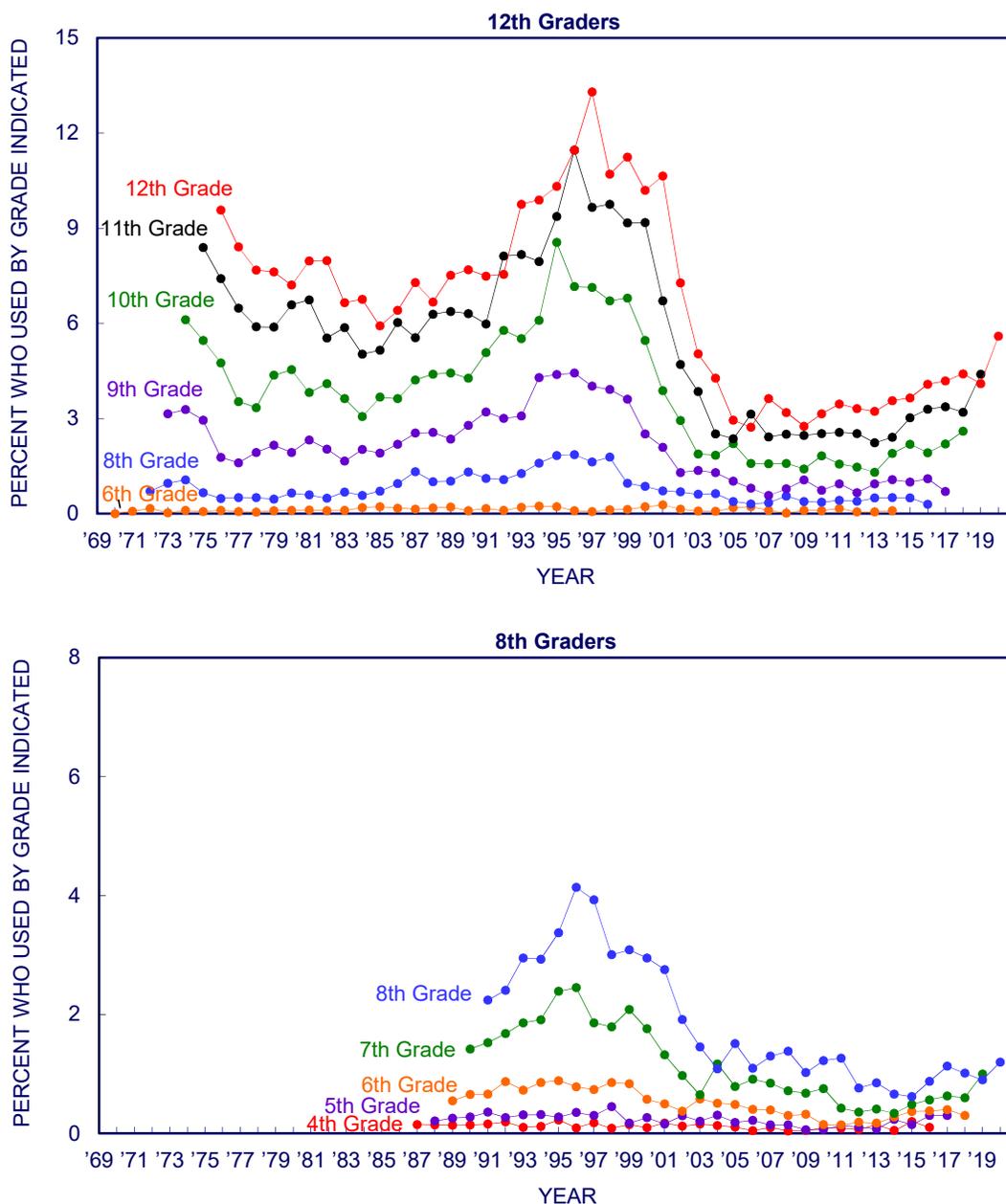
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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**

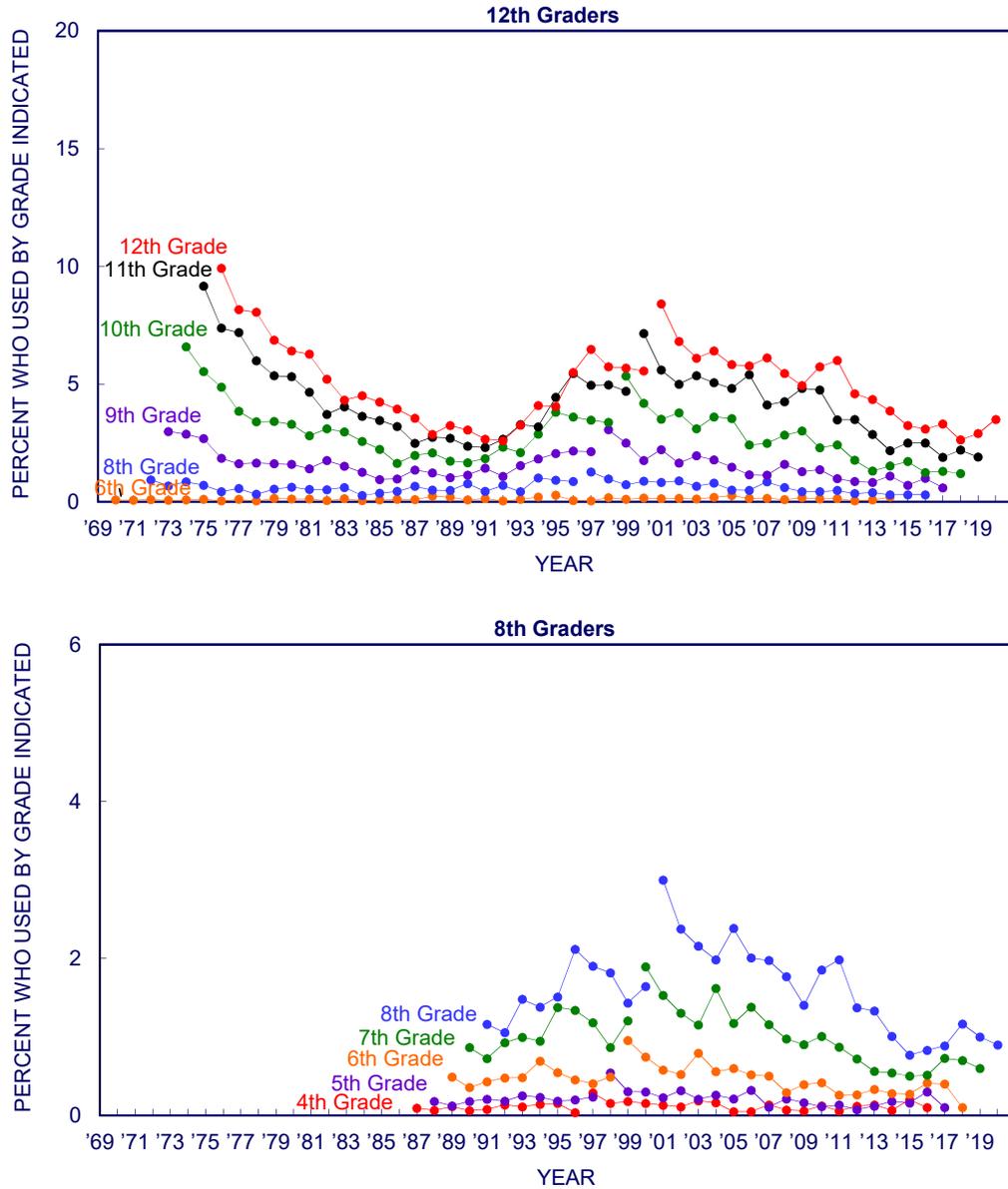


Source. The Monitoring the Future study, the University of Michigan.

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.

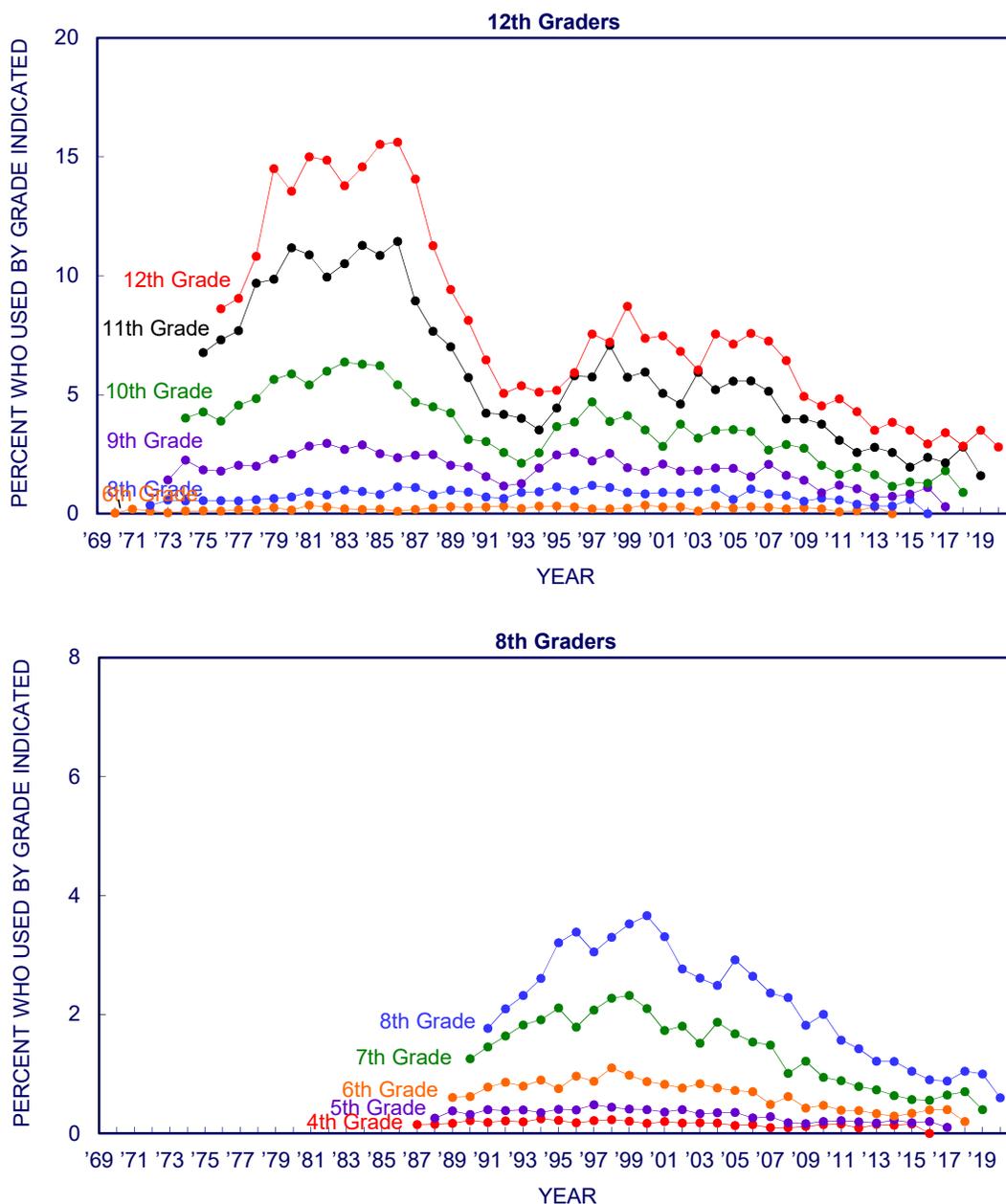
Notes. Beginning in 2001, revised sets of questions on other hallucinogens use were introduced, in which other psychedelics was replaced with other hallucinogens and shrooms was added to the list of examples. Prevalence levels in these figures do not necessarily match the prevalence levels reported in 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**

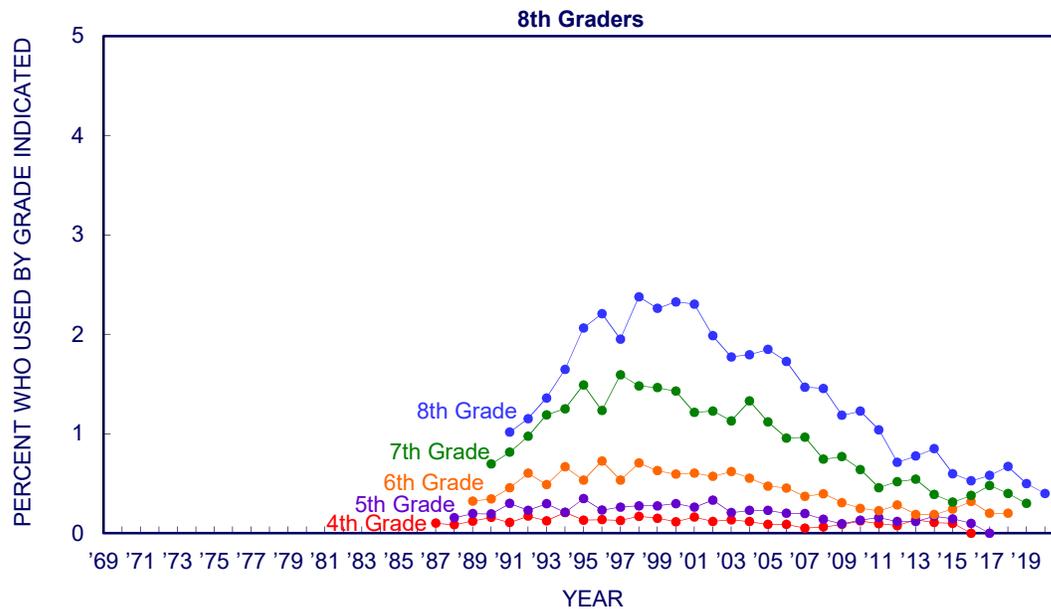
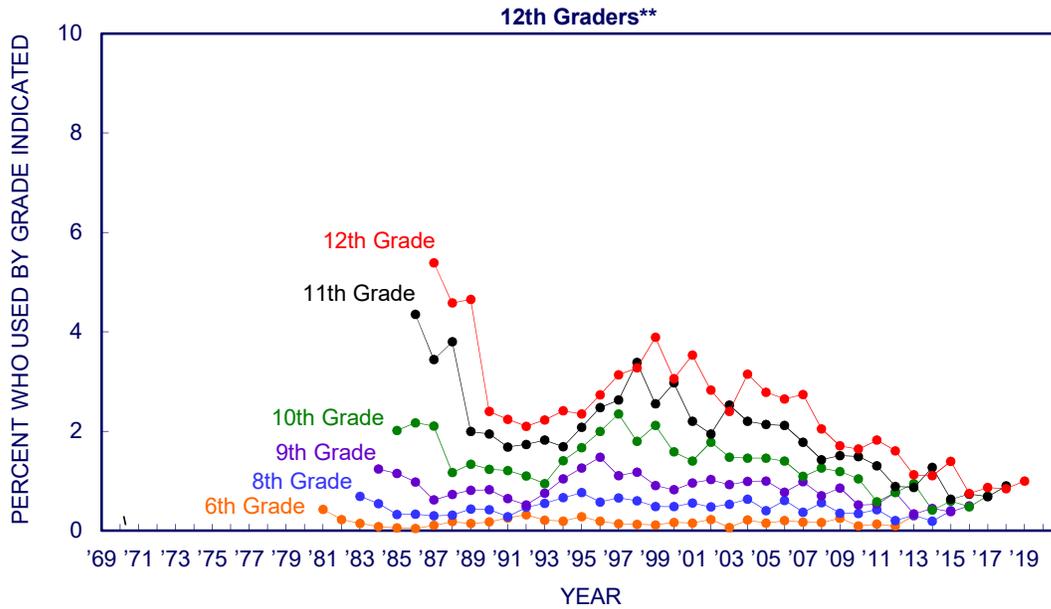


FIGURE 6-11 (cont.)

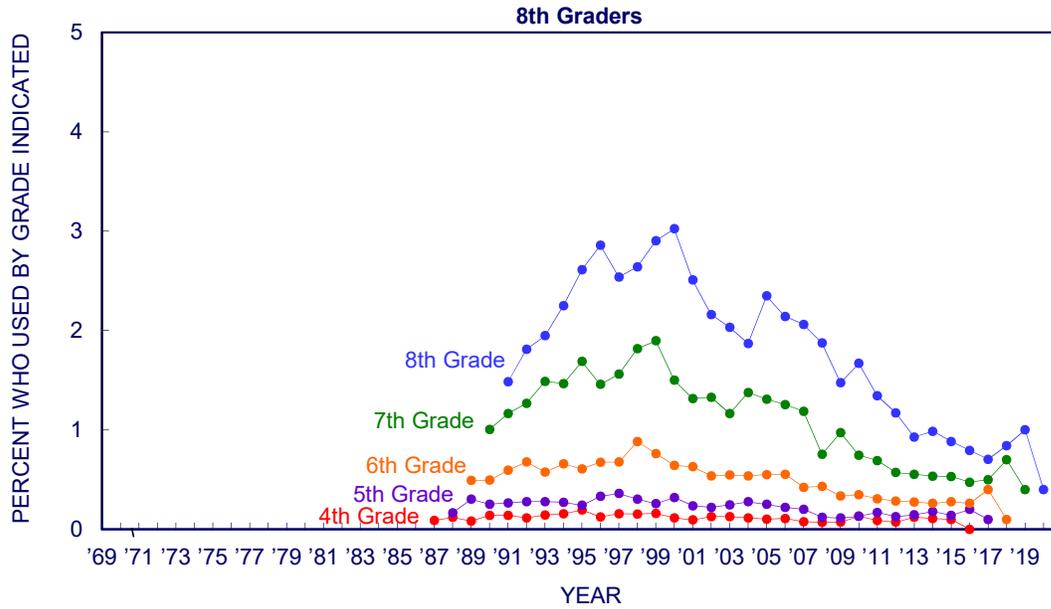
Source. The Monitoring the Future study, the University of Michigan.

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



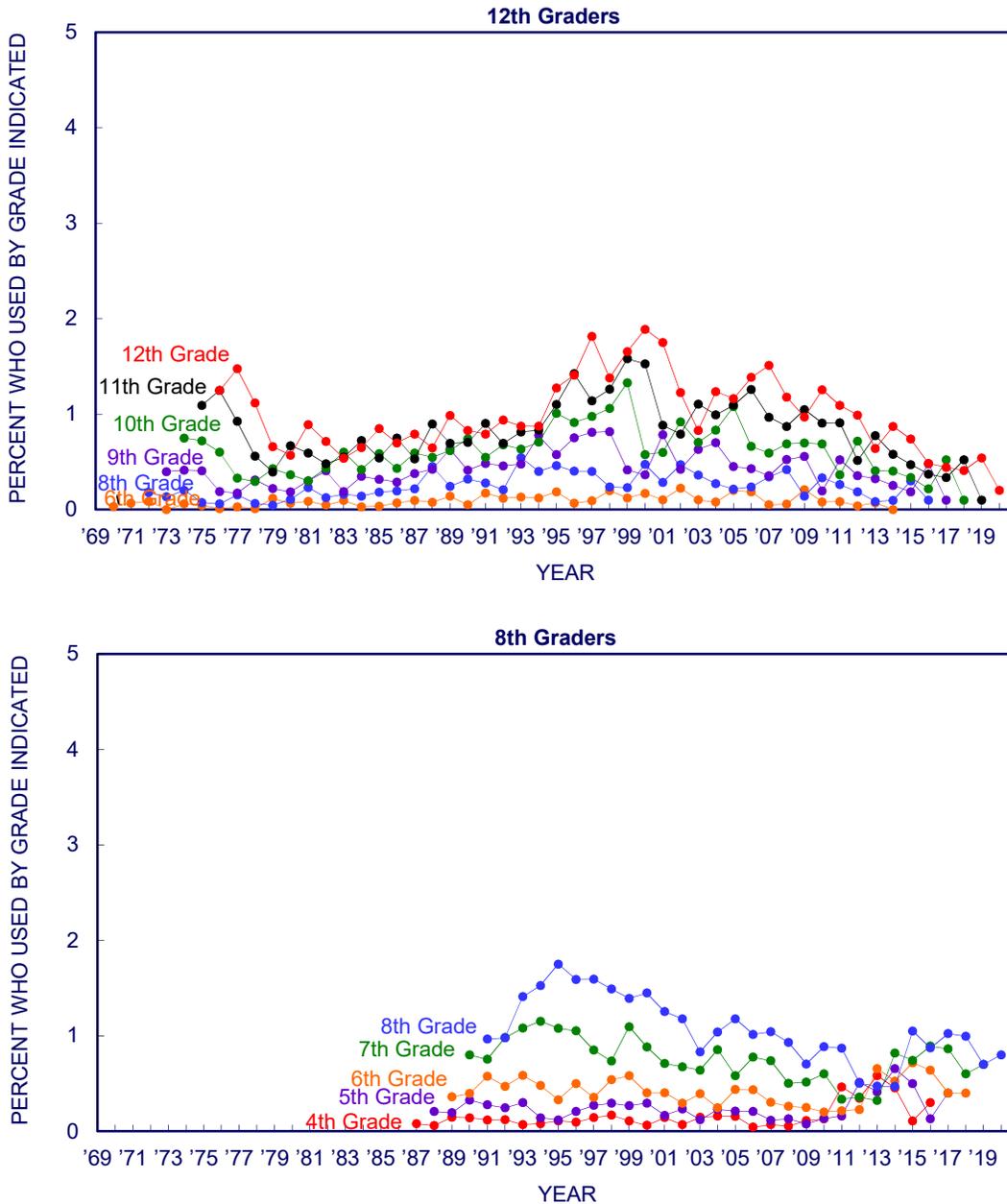
Source. The Monitoring the Future study, the University of Michigan.

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**

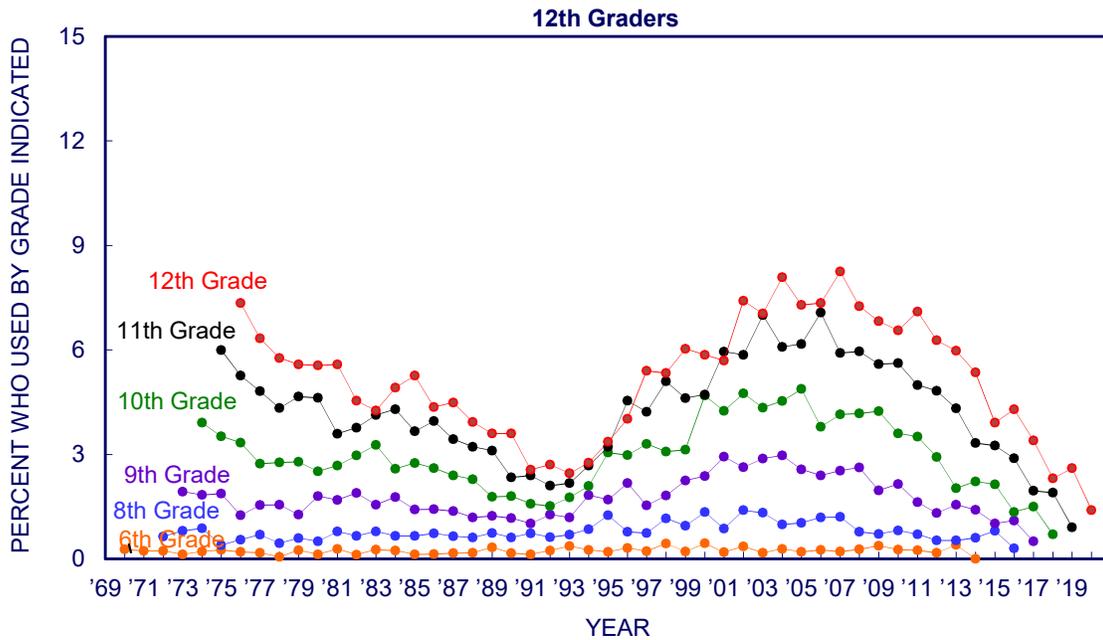


Source. The Monitoring the Future study, the University of Michigan.

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.

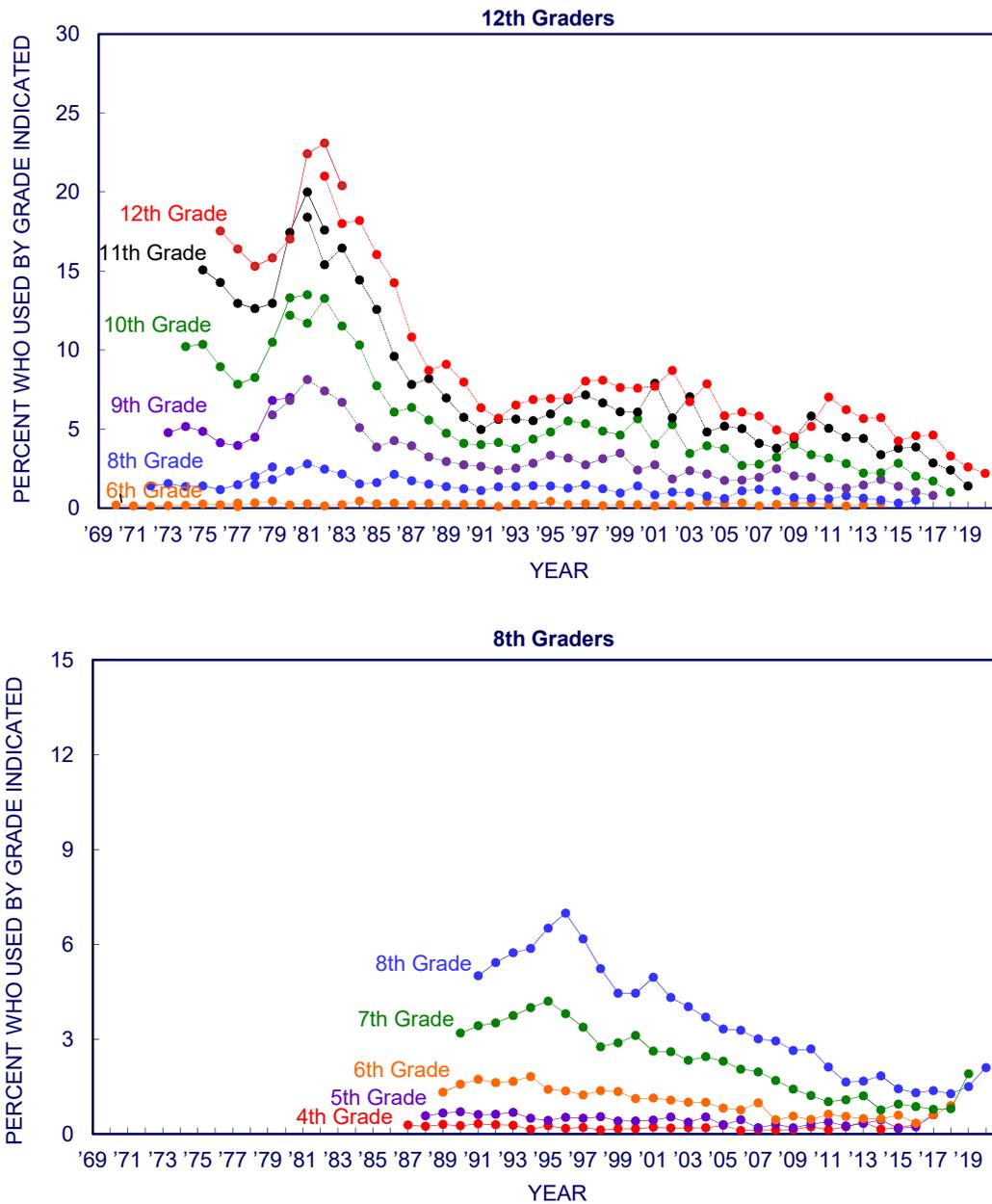
Notes. Beginning in 2002, revised sets of questions on narcotics other than heroin use were introduced. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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**



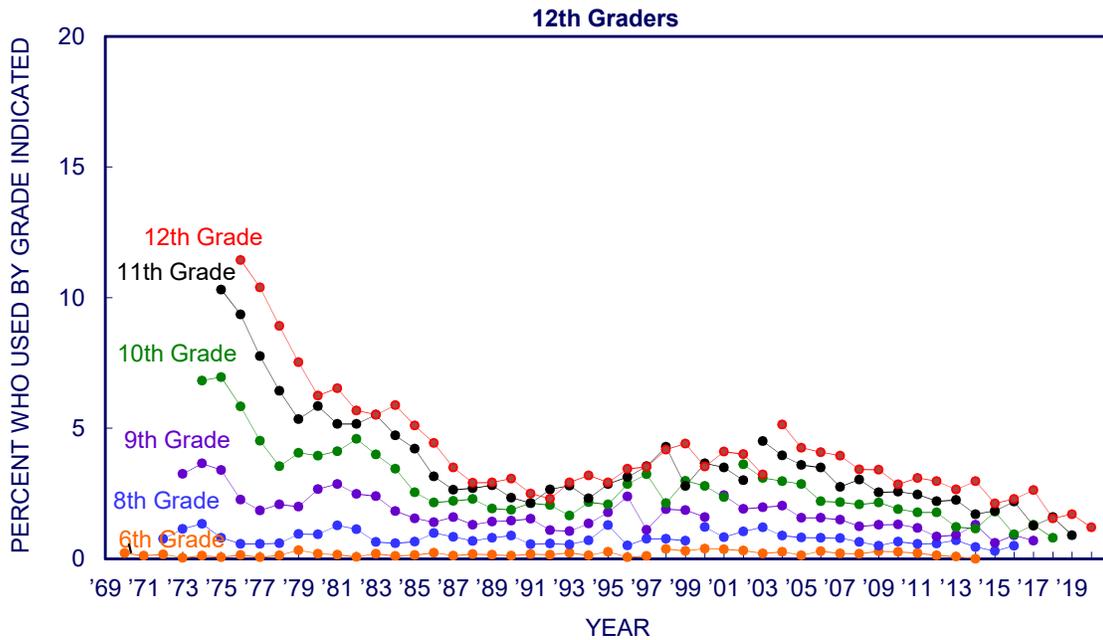
Source. The Monitoring the Future study, the University of Michigan.

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.

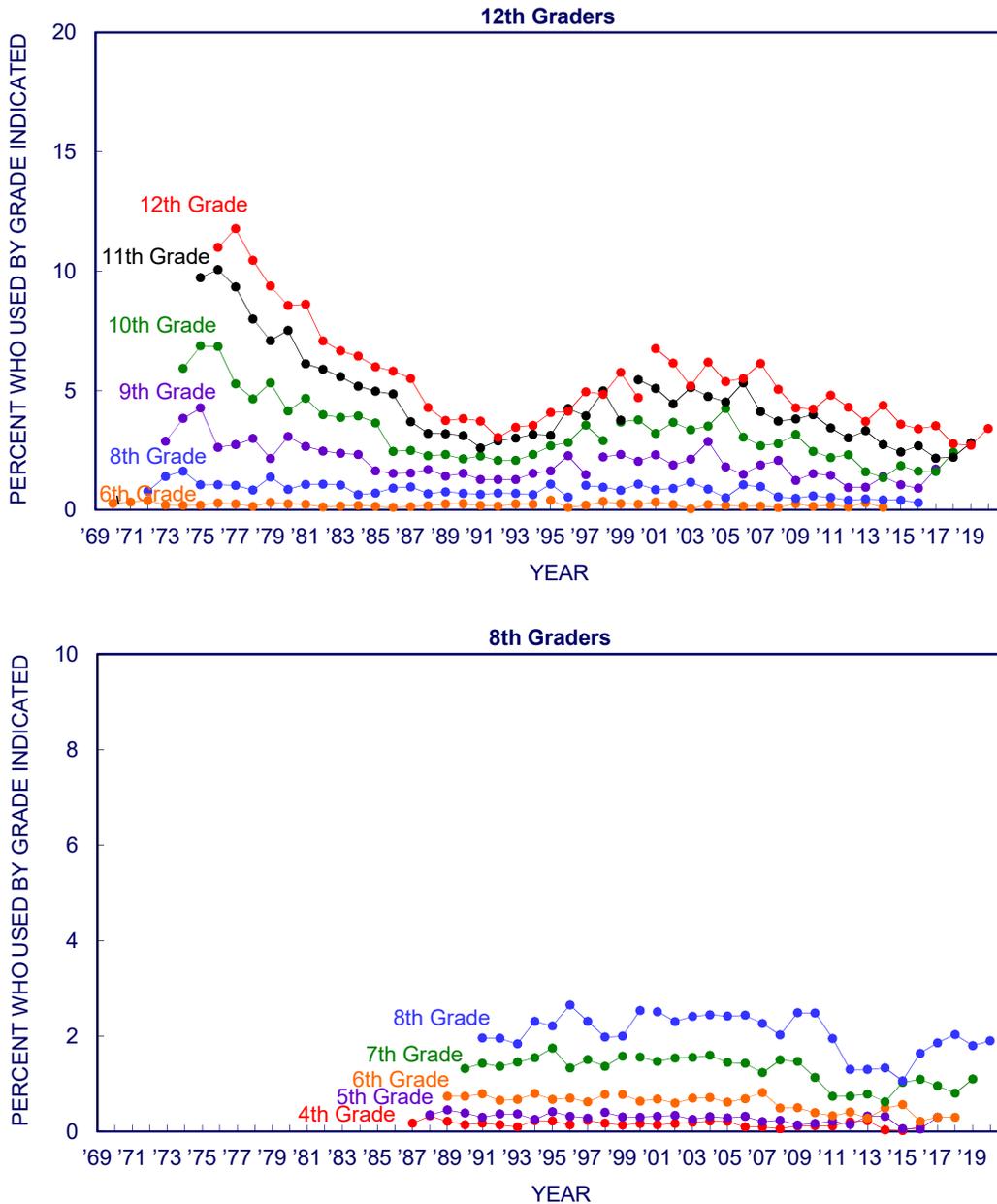
Notes. Beginning in 2004, revised sets of questions on use of sedatives (barbiturates) were introduced. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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.

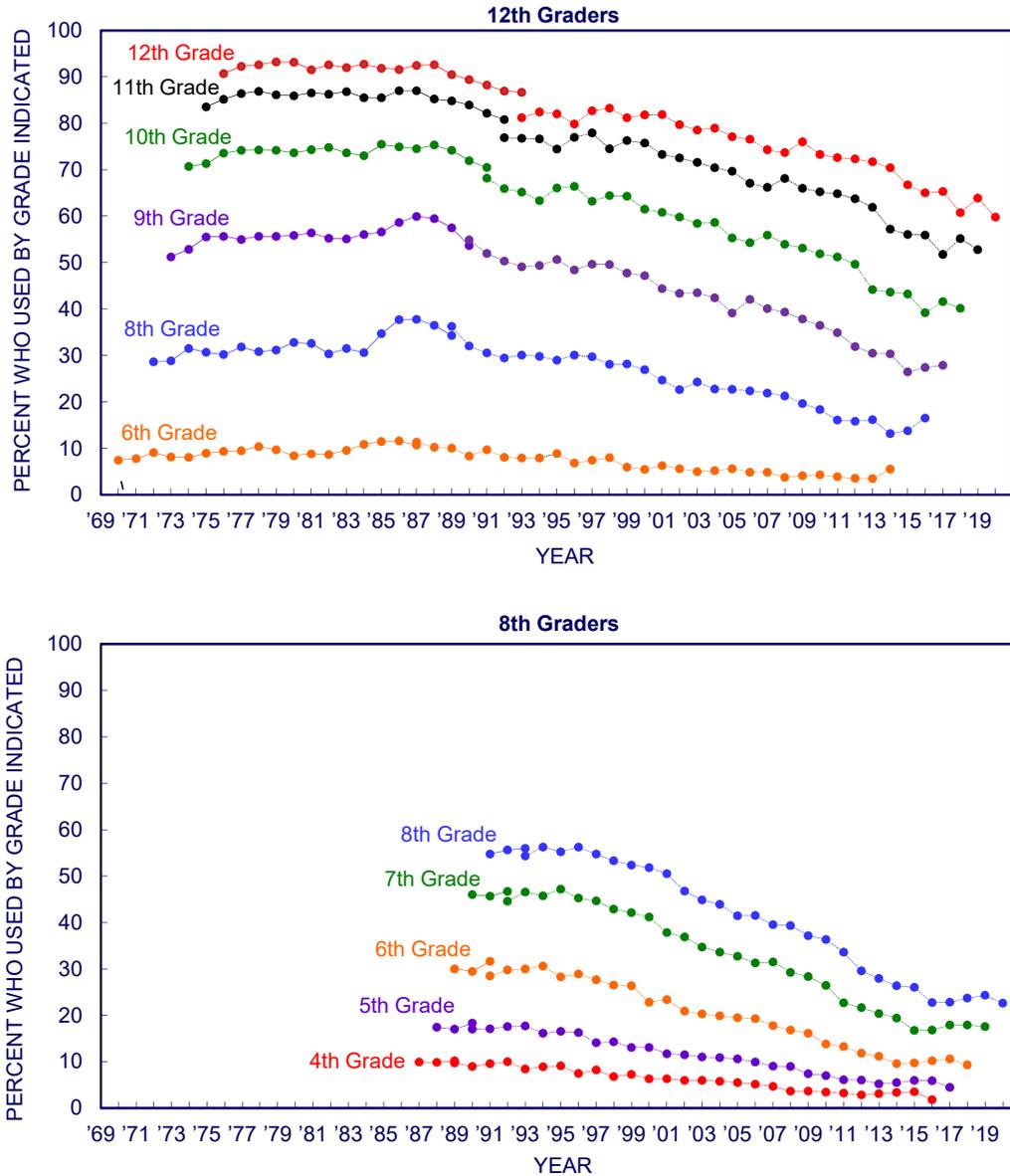
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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.

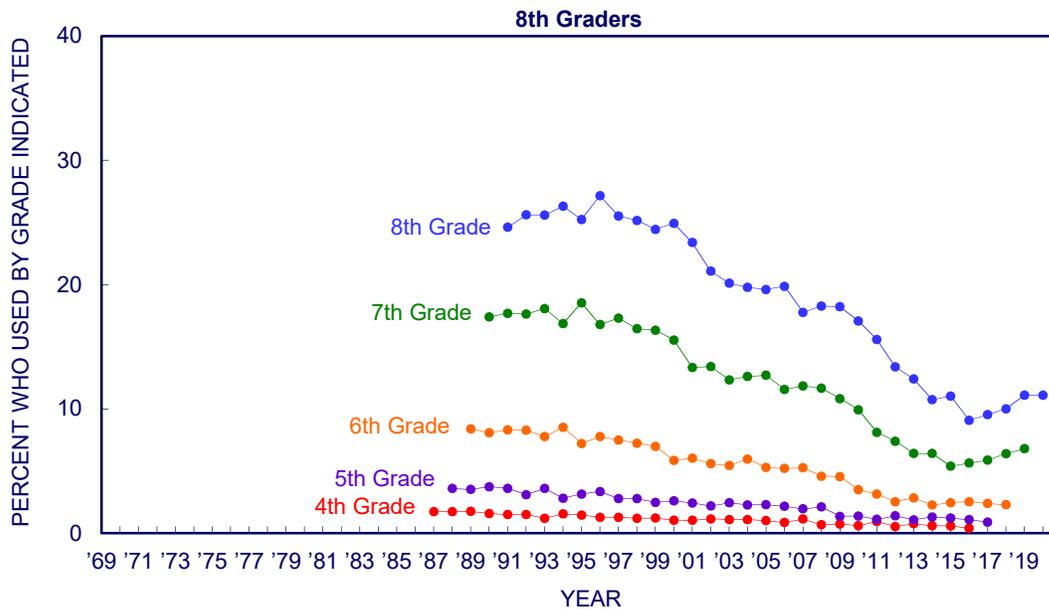
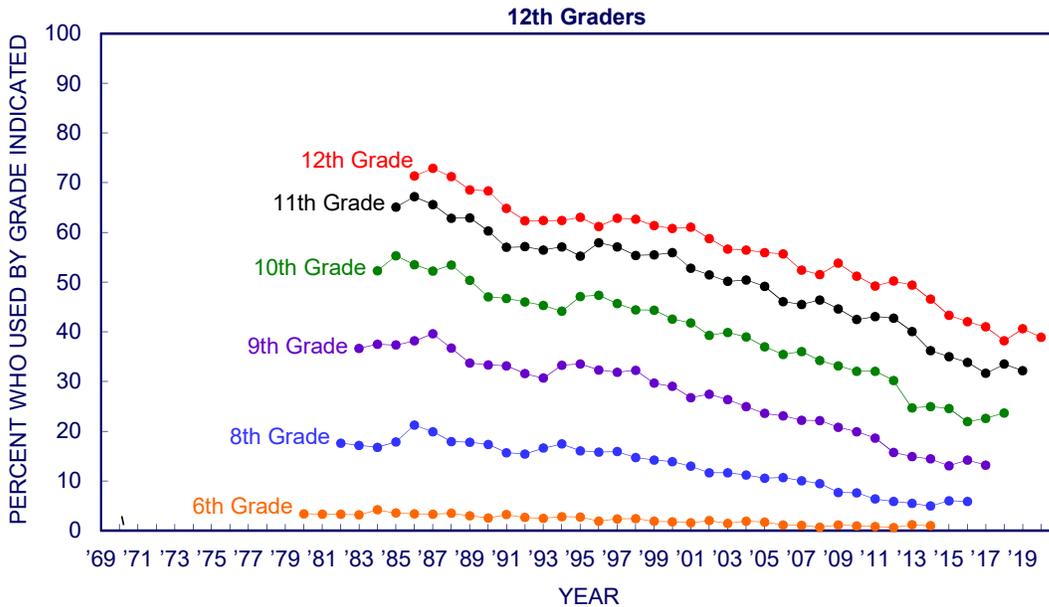
Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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.

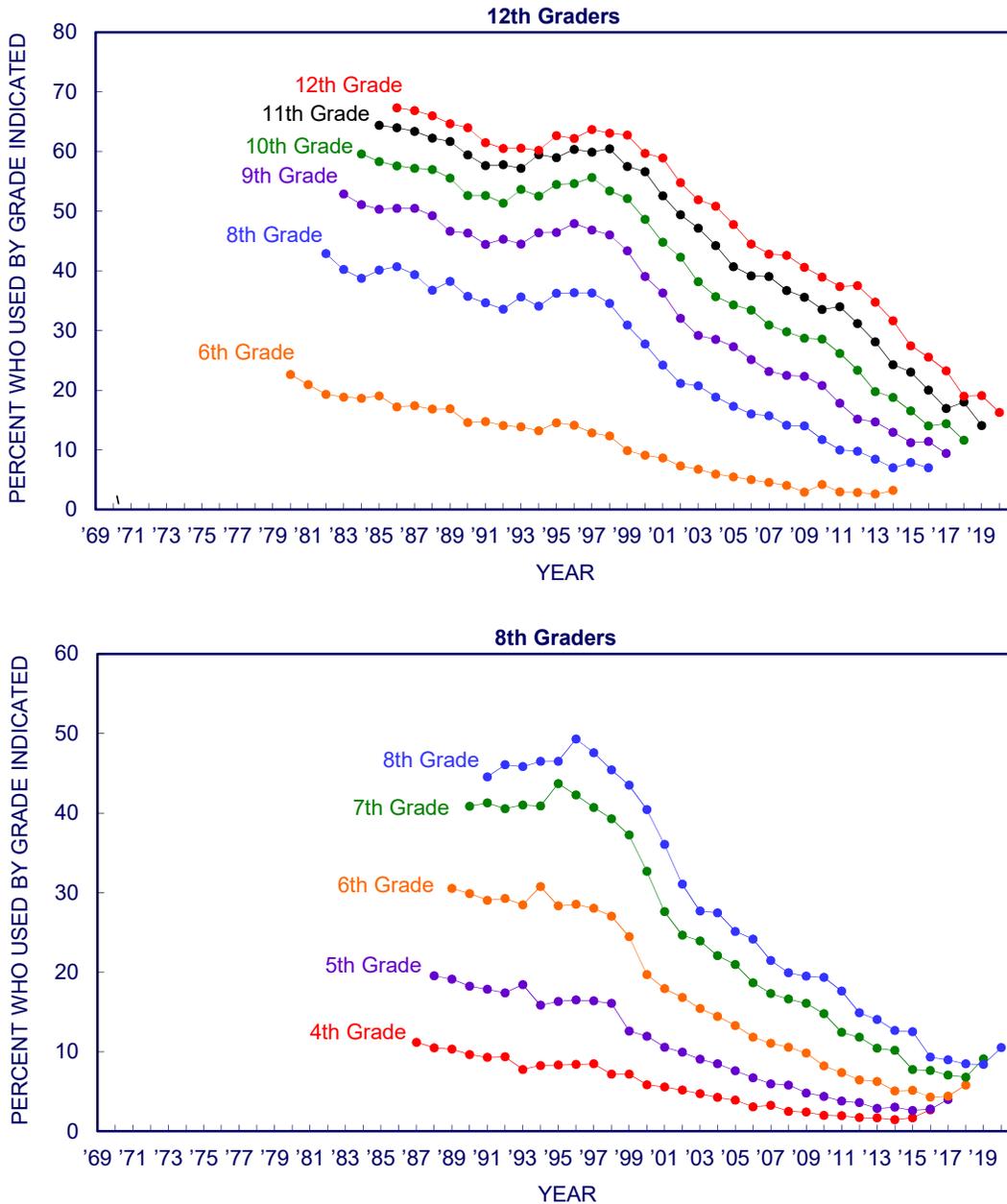
Note. Prevalence levels in these figures do not necessarily match the prevalence levels reported in Chapters 4 and 5, which are based on a larger, randomly-selected subsample of respondents.

*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**

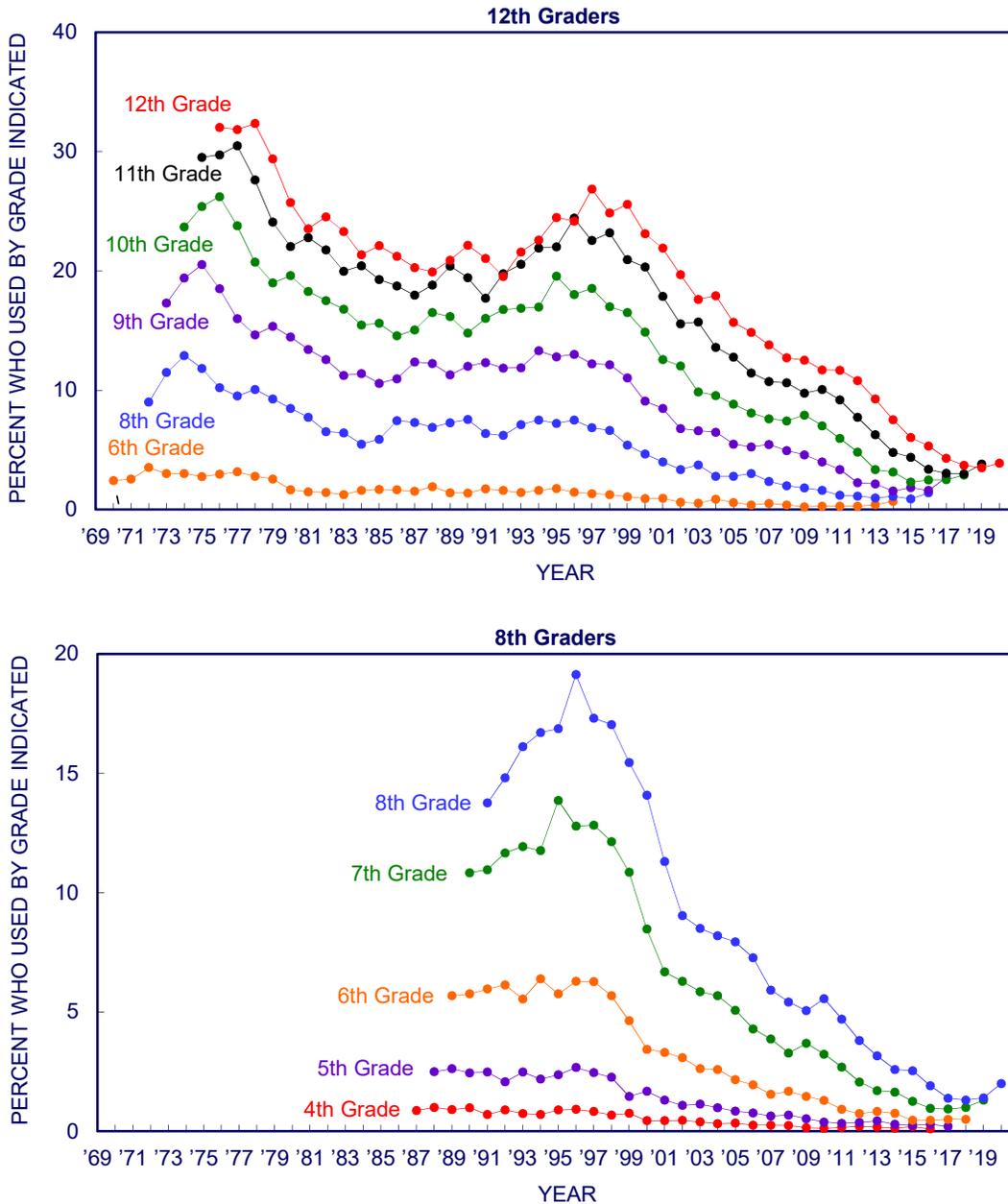


Source. The Monitoring the Future study, the University of Michigan.

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

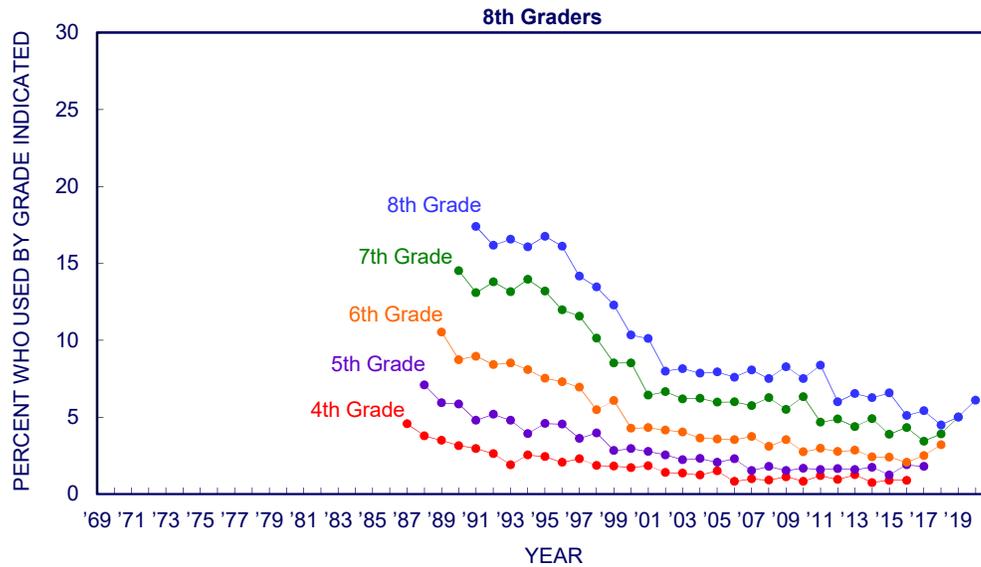
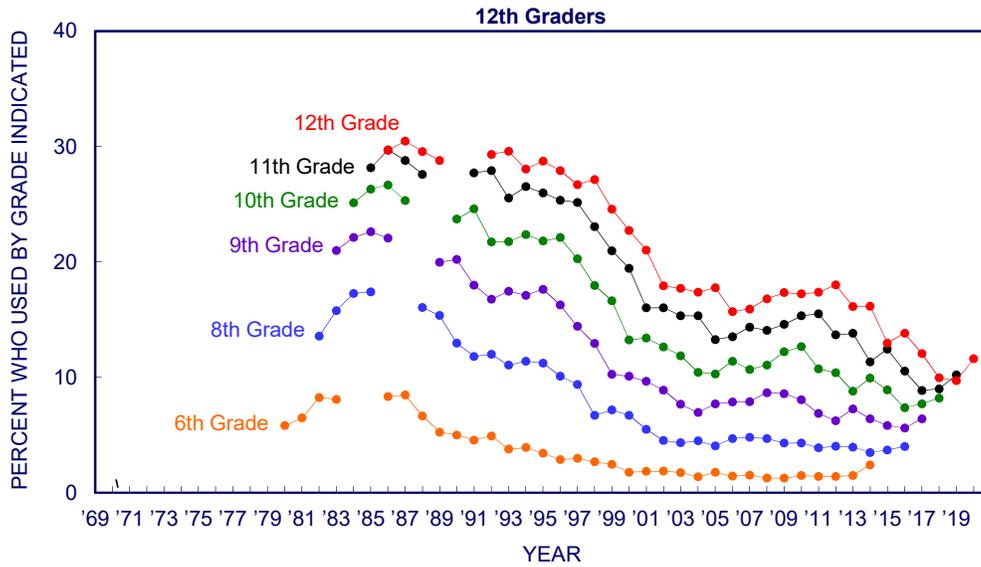


Source. The Monitoring the Future study, the University of Michigan.

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 UP TO 2019

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 each of seven different classes of drugs (in previous years the survey also asked about *LSD*, but these questions were discontinued in 2015 to make room for other survey questions). 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.

The abbreviated data collection of 2020 due to the pandemic resulted in a sample size too small to provide reliable estimates for degree and duration this year. In all years, only a one-in-six subsample of 12th grade students is eligible to receive the questions on degree and duration of drug highs. Of these, the questions are answered by the smaller subsample of respondents who report they have used specific drugs in the past 12 months. In 2020 the curtailed data collection reduced the total size of this subsample by 75%, resulting in "noisy" estimates that are not readily comparable to previous years.

In what follows we provide results on degree and duration of drug highs up to 2019. In 2021 we will resume yearly reports of these measures.

We present 2019 results only for *marijuana* and *alcohol*, and only for the randomly selected one-half of students who responded on paper questionnaires in 2019. Initial analyses indicated that answers to questions on degree and duration of drug highs differed significantly by survey mode – paper vs. tablet. We consequently restricted the analysis to paper responses so that the results are directly comparable to results from previous years without potential bias from survey mode differences. With just a half-sample on which to base results in 2019, only marijuana and alcohol 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 these limited samples were halved by the paper restriction in 2019.

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.

Because the study already has a substantial amount of information on degree and duration of highs reported by every graduating class from 1975 through 2018 on the other drugs in the set – namely *LSD, hallucinogens other than LSD, cocaine, narcotics other than heroin, amphetamines, and tranquilizers* – we retain that information in the tables in this chapter even though there are insufficient numbers of cases to provide new results specific to 2019. Much of what is important in the findings up to the present is in the trend data gathered over the 43 year period measured up through 2018. Thus the full trend tables are included here, with trends for marijuana and alcohol shown through 2019.

DEGREE AND DURATION OF HIGHS AMONG 12th GRADERS IN 2018 and 2019

The reader is advised to note the sample sizes provided in the tables in this chapter, as these statistics are based on self-reported use in only one of six questionnaire forms. For example, in recent years (prior to 2019), only alcohol and marijuana have more than 100 respondents per year (700 or more for marijuana and 1100 or more for alcohol). When percentages are based on limited sample sizes, the fluctuation from year to year due to random sample differences is larger than occurs in most other MTF measures.

The tables also show what percentages of all 12th graders were reporting getting high to varying degrees and duration from using each drug. Note that for 2019 only the data for marijuana and alcohol are provided; for all other drugs no data for 2019 are provided, as discussed above.

- *Hallucinogens* and *heroin* usually have been reported to produce the most intense highs. In 2018, a large proportion of users of *hallucinogens other than LSD* (53%) said that they usually get very high. In past years, similarly high levels were reported by users of *LSD*, which was omitted from this portion of the survey beginning in 2015 because of lack of historical variation and to make room for questions on other drugs. Similarly, intense highs also had been seen among users of *heroin*, which was omitted from this section beginning in 1982 because of the small number of cases available each year.
- *Marijuana* generally has been next in degree of highs produced, as measured by the proportion who reported getting very high (25% in 2018 and 27% in 2019).
- *Tranquilizers* have generally followed next in degree of highs produced, at least since 2002. In 2018 the proportion of users reporting that they get very high was 23%.
- *Cocaine* has ranked fourth in just the past few years in terms of users getting very high (e.g., 15% in 2018), but ranked higher in earlier years.
- *Narcotics other than heroin* and *amphetamines* generally have followed cocaine in terms of getting very high (though in 2018 all three were at 12%). While 12% of users of narcotics other than heroin reported getting very high in 2018, another 47% reported getting moderately high, so narcotics other than heroin ranked fourth for the proportion of users who report getting either moderately or very high. As stated, the proportion of 12th grade amphetamine users getting very high in 2018 was 12%, but only another 23% reported getting moderately high.

- In recent years only a relatively few of the large proportion of 12th graders who use *alcohol* said that they usually get very high when drinking (10% in 2019), although nearly half in 2019 (47%) 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 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 rates 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 through 7-7 present in their lower panels trend data on the *duration* of the highs experienced by the users of the same drugs. Note that for 2019 only the data for marijuana and alcohol are provided; for all other drugs no data for 2019 are provided, as discussed above.

- *Hallucinogens other than LSD* have topped all other drugs in length of highs, as they did for degree of highs obtained. *LSD* tended to rank similarly when it was included on the list in earlier years. The proportion of users reporting highs lasting 7 or more hours has ranged from around the mid-30 percentages to nearly 50%.
- The duration of highs from *marijuana* use are not long compared to the durations of highs from other drugs. In 2019 about half of marijuana users (46%) said they usually stay high one to two hours. Still, two out of five users (40%) reported usually staying high three to six hours, and another 7% usually stayed high for seven hours or more, so there is considerable variability in how long marijuana users stay high.
- *Cocaine* users have generally reported staying high for shorter periods, despite having more intense highs relative to users of many other drugs. In 2018, 57% reported staying high for one to two hours, 16% for three to six hours, and 3% for seven or more hours. (Note that these results were based on only 49 cases.)
- Substantial proportions of users of three psychotherapeutic drugs (*tranquilizers*, *amphetamines*, and *narcotics other than heroin*) say that they do not usually get high when using them outside of medical supervision, likely indicating that they were using them to self-medicate (e.g., 22%, 24%, and 27%, respectively in 2018). However, at the same time a substantial portion of those 12th grade students who used these drugs outside of medical supervision reported staying high for three or more hours (e.g., in 2018 it was 63% for tranquilizers, 53% for amphetamines, and 54% for narcotics other than heroin).
- A fair proportion of *alcohol* users – usually between 20% and 30% – said that they usually do not get high when using alcohol (e.g., 24% in 2019).

In sum, drugs vary considerably in both degree and duration of highs obtained. For many drugs, sizeable proportions of users respond that they usually get high for at least three hours per occasion. And for some drugs – particularly *LSD* and *hallucinogens other than LSD* – appreciable proportions usually stay high for seven hours or more.

TRENDS IN THE DEGREE AND DURATION OF DRUG HIGHS

Since 1975, when the MTF study began, many important shifts have occurred in the degree and duration of highs usually experienced by young people. Only 12th grade students who reported using the drug in question during the prior 12 months answer these questions.

Results for each of the classes of drugs for which degree and duration of highs have been asked 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. As above, for 2019 only marijuana and alcohol are reported. Trend data for the other drugs are reported only through 2018.

- The *degree* of highs usually attained by *marijuana* users remains at high levels first established in the early 2000s, and has not shown a consistent increase or decline since then (Table 7-1 and Figure 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 obtained 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 decrease was 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

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.

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 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, 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 correspond with an overall decline in annual prevalence.

- 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 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

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 Hellerman, 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.

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.

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.

- The proportion of 12th grade users who usually stayed high on *alcohol* for seven hours or more was 4.0% in 2019, where it has hovered over the past two decades (Table 7-7). The proportion of all 12th grade alcohol users who reported getting very high on alcohol was 10% in 2019, which is in the middle of 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.

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	2020
% 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	§
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	§
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	§
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	§
<i>Approximate weighted N =</i>	944	812	809	776	713	809	851	811	772	737	740	724	812	860	817	740	698	689	693	766	754	347	§
% 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	§
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	§
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	§
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	§
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	§
<i>Approximate weighted N =</i>	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	§

*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	2020
% 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	§
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	§
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	§
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	§
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	§
<i>Approximate weighted N =</i>	945	814	807	781	713	812	848	814	772	732	750	721	813	859	807	739	705	691	693	758	753	347	§
% 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	§
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	§
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	§
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	§
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	§
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	§
<i>Approximate weighted N =</i>	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	§

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

§ Insufficient data for 2020 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).

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
% 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
% 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 2020 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.)

When you take cocaine

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 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

	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	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
% 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
% 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 2020 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	0.3	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.)

When you take narcotics other than heroin 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
% 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	†	§
When you take narcotics other than heroin how long do you usually stay high? ^a																							
% 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 2020 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.)

→
(Years cont.)

*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
% 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
% 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 2020 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
<i>Approximate weighted N =</i>	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	0.4	0.5	0.6	0.4	0.5	0.4	0.6	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
<i>Approximate weighted N =</i>	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
<i>Approximate weighted N =</i>	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
<i>Approximate weighted N =</i>	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
% 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
% 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 2020 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.)

→
(Years cont.)

<i>When you drink alcoholic beverages 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	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>	2,419	2,368	2,578	3,124	2,764	2,709	2,912	2,958	2,808	2,601	2,618	2,531	2,718	2,755	2,211	1,965	1,898	1,965	1,960	1,866	1,867	1,664	1,915
% of All Respondents																							
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>	2,853	2,763	2,963	3,562	3,159	3,122	3,413	3,443	3,268	3,137	3,120	3,011	3,183	3,232	2,721	2,493	2,454	2,572	2,627	2,533	2,514	2,318	2,542
 <i>When you drink alcoholic beverages how long do you usually stay high? ^a</i>																							
% of Recent Users																							
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>	2,403	2,358	2,547	3,098	2,746	2,697	2,892	2,947	2,792	2,588	2,608	2,509	2,711	2,748	2,202	1,949	1,884	1,951	1,950	1,857	1,849	1,657	1,897
% of All Respondents																							
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>	2,834	2,751	2,928	3,532	3,142	3,109	3,393	3,431	3,252	3,124	3,110	2,990	3,177	3,226	2,712	2,477	2,441	2,558	2,616	2,525	2,496	2,311	2,524

(Table continued on next page.)

TABLE 7-7 (cont.)
ALCOHOL
Trends in Degree and Duration of Feeling High in Grade 12

(Entries are percentages.)

<i>When you drink alcoholic beverages 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	2020
% 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	§
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	§
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	§
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	§
<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	§
% 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	§
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	§
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	§
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	§
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	§
<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	§
<i>When you drink alcoholic beverages how long do you usually stay high? ^a</i>																							
% 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	§
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	§
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	§
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	§
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	§
<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	§
% 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	§
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	§
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	§
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	§
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	§
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	§
<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	§

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

§ Insufficient data for 2020 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).

Chapter 8

ATTITUDES AND BELIEFS ABOUT DRUG USE THROUGH 2019

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.

In what follows we present attitudes and belief estimates up to 2019. We do not update these estimates this year because of insufficient sample size. In 2020 the three-quarters reduction in sample size considerably reduces the analysis pool for these measures, all of which are only asked of a randomly selected subsample of students. In addition, our preliminary analysis of the 2019 data indicated that the attitude and belief measures were sensitive to survey mode, as indicated by significantly different prevalence levels when students answered questions with electronic tablets versus paper-and-pencil. We will resume updating these attitude and belief estimates in 2021, when more data will allow us to better separate out substantive changes over time from survey mode effects.

The 2019 results presented in this chapter are based on sample sizes about half as large as the ones used in previous years. For the 2019 analyses we report responses only from the randomly selected half of students who were provided paper-and-pencil questionnaires, and not the other half who were provided electronic tablets. Preliminary analyses suggest that attitudes and beliefs estimates may differ significantly across survey mode (in this case paper-and-pencil vs. tablets). Restricting the analysis to paper-and-pencil responses allows direct comparison of findings across years without potential bias from survey mode differences.

The cross-time results for three of these 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 various kinds of drug use, 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, including perceived availability and the extent of the respondent's exposure to people using drugs.

The data presented in this chapter show 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

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.

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 with 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

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.”

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 2019, as Table 8-3 shows, 81% of 12th graders perceive a great risk of harm from regular use of [*heroin*](#), and from regular use of [*crack*](#) (79%), [*cocaine*](#) (75%), and [*cocaine powder*](#) (77%). More than half (58%) of 12th graders attribute great risk to regular use of [*LSD*](#), and about half (48%) do so for regular use of [*amphetamines*](#). Nearly half of all 12th graders think that regular use of [*sedatives \(barbiturates\)*](#) (45%) involves a great risk of harm to the user. Among the illicit drugs,

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).

marijuana has the lowest perceived risk, with about one third (31%) thinking that regular use carries a great risk.

- Three quarters of 12th graders (76%) judge smoking one or more packs of cigarettes per day as entailing a great risk of harm for the user in 2019. This level of perceived risk is about the same as the perceived risk level of regular use of cocaine (75%).
- Levels of perceived risk for regular vaping nicotine are less than half the levels for regular cigarette use of one or more packs a day. In 2019, 35% of 12th graders perceived a great risk from regular nicotine vaping.
- The levels of perceived risk for regular JUUL use (33%) are about the same as they are for nicotine vaping (35%). The similar levels suggest that most teens are aware that JUUL products contain nicotine. These relatively low level 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 (21%) associate great risk of harm with having one or two drinks nearly every day, nearly half (46%) think there is great risk involved in having five or more drinks once or twice each weekend, and about three fifths (60%) think the user takes a great risk in having four or five drinks nearly every day. Still, it is noteworthy that two out of five (40%) 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 2019 percentages associating great risk with experimental use rank as follows:

<i>Crystal methamphetamine (ice)</i>	67%
<i>Heroin</i>	63%
<i>Heroin without using a needle</i>	61%
<i>PCP</i>	53%
<i>Steroids</i>	51%
<i>Crack</i>	50%
<i>Cocaine</i>	48%
<i>MDMA (ecstasy, Molly)</i>	46%
<i>Cocaine powder</i>	45%
<i>Narcotics other than heroin</i>	45%
<i>Adderall</i>	34%
<i>Amphetamines</i>	30%
<i>Synthetic marijuana</i>	28%
<i>LSD</i>	28%
<i>Sedatives (barbiturates)</i>	25%
<i>Marijuana</i>	11%

<i>Salvia</i>	10%
<i>Alcohol</i>	10%

Note that the prescription-type drugs (e.g. Adderall, amphetamines, sedatives) 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 11% 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. Questions about other drugs have been added to and retained in the 8th and 10th grade questionnaires as their inclusion has been indicated. In general, in 2019, the findings for 8th and 10th graders are similar to those for 12th graders, but some interesting differences emerge:

- The most important grade-level difference is observed for [regular cigarette smoking](#). Unfortunately, perceived risk is lowest at the ages when initiation is most likely to occur. While three quarters of 12th graders (76%) see great risk in smoking a pack a day or more, slightly fewer 10th graders (73%) and even fewer 8th graders (63%) see this level of risk. The fact that eventual dropouts are included in the lower grades accounts for some of that difference, but given their limited numbers, it is unlikely that dropouts account for all of it. This developmental trend of increasing perceived risk with age for tobacco use is counter to the more general trend of decreasing perceived risk for most substances.
- Relatively few students see great risk in [smoking one to five cigarettes per day](#) (40% of 8th graders and 50% 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 a substantial risk of becoming a heavy, dependent users.
- Regular use of [smokeless tobacco](#) is viewed as entailing great risk by 37% of 8th graders, 45% of 10th graders, and 40% of 12th graders, meaning that well 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 decline somewhat by grade, at 40% in 8th grade, 41% in 10th grade, and 35% in 12th grade. These levels of perceived risk are far below those for regular cigarette use. Note that a decline in perceived risk levels for nicotine vaping at higher grade levels is opposite the pattern for cigarette use.

- Younger students, particularly 8th graders, are more likely than 12th graders to see [marijuana](#) use as dangerous. In 2019, 8th graders (29%) were considerably more likely than 12th graders (14%) to see occasional marijuana use as entailing great risk of harm. Tenth graders fall in between at 20%.
- Eighth and 10th graders are slightly more likely than 12th graders to see [weekend binge drinking](#) as dangerous: 51% for 8th graders, 53% for 10th graders, and 46% for 12th graders in 2019. The younger students are also somewhat more likely than 12th graders to see [daily drinking](#) (one or two drinks nearly every day) and experimentation as risky.
- Perceived risk of trying [MDMA](#) (ecstasy, Molly) does not systematically vary across the three grades, at 39% in 8th grade, 53% in 10th grade, and 46% 12th grade.
- Experimentation with [inhalants](#) is seen as dangerous by relatively low proportions of 8th and 10th graders (28% and 40%, respectively); these younger students are the ones most likely to be using inhalants. (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 2019 see experimenting with it as dangerous: 20% in 8th grade, 22% in 10th grade, and 28% in grade 12.

TRENDS IN PERCEIVED HARMFULNESS OF DRUG USE

Trends in Perceived Harmfulness among 12th Graders

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). Currently, the proportion of 12th graders who perceive great risk of harm from regular use is near the lowest level ever recorded by the survey. It stands 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

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.,

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 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,

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).

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 press conference reporting the MTF results. Federal funding for drug prevention in schools also increased appreciably.

⁶ Terry-McElrath, Y. M., Emery, S., Szczyepka, 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.

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 and Substances Other than Marijuana

- Despite all that is known today about the health consequences of [*cigarette smoking*](#), one fourth (24%) of 12th graders still do 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 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.

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*](#).

- 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, with school-based anti-vaping programs throughout the country, and with a considerable amount of media coverage of adverse outcomes among teens.

Despite this increase, regular nicotine vaping continues to rank near the lowest of all substances in perceived risk, and prevalence of nicotine vaping significantly increased in 2019 (see Chapter 5).

- 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, 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 last year 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 seem to 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, 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 8-10b; 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. Actual use has remained low since about 2003, and annual prevalence was 1.1% in 2019.
- 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. 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 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 declined to its current level. The 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 to its current 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* are at the highest levels recorded by the survey, 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 35-37% for 8th graders and around 40-45% for 10th graders for the past few years, following a few years of decline in perceived risk.

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. 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, 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 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 33% in 2019 and 35% in 2008. 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 decrease in LSD use over the course of the survey cannot be explained by parallel changes in perceived

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).

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 is, unfortunately, at the lowest level recorded by the survey. 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 the 29 years they have been measured 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

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 2019, 63% disapprove (including strongly disapprove) of regular marijuana use and between 91% 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. 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, the proportions disapproving of experimental use are 96% for heroin, 89% for cocaine, 89% for crack, 86% for sedatives (barbiturates), 86% for cocaine powder, 76% for LSD, and 90% 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. The percentage who disapprove of marijuana use is 34% for trying it once or twice, 41% for occasional use, and 63% for regular use. Looked at another way, fewer than four out of ten 12th graders (37%) 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 (88%) 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 70% is second only to regular marijuana use (at 63%). 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 almost identical to those for nicotine vaping, suggesting that 12th grade students see the two as synonymous.

- Having one or two drinks nearly every day meets with the disapproval of 73% of 12th graders. Curiously, almost the same percentage of 12th graders (75%) disapprove of

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.

[weekend binge drinking](#) (five or more drinks once or twice each weekend), despite the fact that twice as many of them see a great risk in weekend binge drinking (46%) than in having one or two drinks nearly every day (21%).

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 2019 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 2019 the great majority (75% and 82%, 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 2019, 62% of the 8th graders said they disapprove of trying marijuana compared to 46% of 10th graders and 34% 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 2019, 85% of 8th graders and 82% of 10th graders said they disapprove of [weekend binge drinking](#), versus 75% of 12th graders.

- For [cigarette](#) use, the differences between grades are negligible at present: 88% of 8th graders, 90% of 10th graders, and 88% of 12th graders said they disapprove of someone smoking one or more packs per day. 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 so 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.
- Currently, the levels of disapproval for trying [crack](#) and [cocaine powder](#) once or twice are 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 66% in 8th and 65% in 10th grade; for regular use the levels are 75% and 76%. 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

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 disapproval for 12th grade 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.

Trends in Disapproval among 12th Graders

- In 2019, 12th graders’ disapproval of regular [marijuana](#) use fell 3 percentage points (not significant) to 63%, which is the lowest level ever recorded by MTF (see Figure 8-1b and Table 8-6). Disapproval of experimental use declined precipitously in 2019 by 7 points to 34%, and occasional use also fell dramatically by 8 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. Current 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 regular [*vaping nicotine*](#) has changed little since first measured in 2017, as it has hovered between 72% and 70%. More change is apparent in disapproval of occasional use, which has declined from 62% to 57% since 2017, a change that is statistically significant. This increase in occasional use corresponds with the substantial increase in nicotine vaping prevalence in all grades since 2017, suggesting that youth who vape may view themselves as occasional vapers and not realize that they are putting themselves at substantial risk of becoming regular users.
- 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 have increased from 75% at the start of the study in 1975 to 80% in 2019, with two drops in disapproval along the way at the start of the 1980s and the start of the 1990s. 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 has hovered near 90% for the past 29 years (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 in the 45 years 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% since 1989. 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 are at the lowest levels recorded by the survey, at 62% and 46% respectively in 2019 (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. Thereafter disapproval steadily increased for a decade and then steadily declined in the next decade

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.

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 (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 samples. Still, the divergence among the three grades in their disapproval of LSD, as can be seen in Figure 8-8b, is noteworthy.

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.

- 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 have since 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 (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 to this day.

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 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 2019 for the second time in the history of the survey a majority of 12th grade students – 51% – did not favor legally prohibiting marijuana use among those age 18 and older in public places (the first time was in 2018). Likewise, the percentage favoring legal prohibitions against use in private was near a historic low at 21% in 2019, down 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 2019 the percentages agreeing to prohibition are 62% for amphetamines or sedatives (barbiturates), 69% for LSD, and 77% for heroin. Even use in private is opposed by substantial proportions; for example, 40% believe that nonmedical use in private of amphetamines or sedatives (barbiturates) should be illegal, while 46% believe the same for LSD, and 68% believe it about heroin use.
- In 2019, 36% 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 (41%) of 12th graders in 2019 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. 41% for getting drunk in public) and for smoking marijuana in private (which only 21% think should be illegal vs. 49% for smoking marijuana in public places).

Trends in Attitudes about Legality of Drug Use among 12th Graders

- 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 in every year. In 2019 it was 49%, the second lowest level ever recorded by the survey (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

- Table 8-8 lists the proportions of 12th graders in 2019 who favor various legal consequences for marijuana use. The proportion who believe it should be entirely legal was 51%, the highest level recorded by the survey. As the percentage favoring legality increased, the percentage believing marijuana use should be a crime decreased and in 2019 was 9%, the lowest level recorded by the survey, having fallen from a peak of 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 (67%) said “yes,” matching the historic high of 67% set in 2017. However, about 87% of those answering “yes” (58% of all respondents) would permit sale only to adults. A small minority (9%) favored the sale to anyone, regardless of age, while 20% 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-three percent of the 2019 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 (17%) or less often (1%). Only 10% said they would use it more often than they do at present, while 17% thought they would try it. Another 12% said they did not know how their behavior would be affected if marijuana were legalized. Still, this amounts to 27% 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

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.

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 (as has occurred in California, Illinois, Massachusetts, Michigan, Nevada, Maine, Colorado, Washington, Oregon, Alaska, Vermont, and Washington, DC), 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

- 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](#) is at the lowest level ever recorded by the survey (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.
- 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 (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

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

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

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 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
Smoke 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
Smoke 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 ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 powder once or twice ^d	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 powder occasionally ^d	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 an e-liquid with nicotine occasionally ^{ci}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^{ci}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 ^l	64.2	69.5	70.2	67.6	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N =	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

Table continued on next page.

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													2018–2019 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^l	
Try 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	-0.7
Smoke 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	-3.2 s
Smoke 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	-1.5
Try synthetic marijuana once or twice ^c	—	—	—	—	—	24.4	24.2	23.9	26.0	27.5	23.0	22.2	20.4	-1.7
Take synthetic marijuana occasionally ^c	—	—	—	—	—	36.8	36.2	32.4	33.5	35.4	30.4	28.8	28.5	-0.3
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	-1.6
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	-1.2
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	+1.0
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	+1.6
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	-2.8
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	-3.4
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	+1.4
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	-0.6
Try cocaine powder once or twice ^d	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	+0.9
Take cocaine powder occasionally ^d	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	-0.2
Try heroin once or twice without using a needle ^a	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	-0.5
Take heroin occasionally without using a needle ^a	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	-3.0
Try OxyContin once or twice ^c	—	—	—	—	—	21.9	19.9	22.1	20.2	21.3	21.0	20.8	19.2	-1.6
Take OxyContin occasionally ^c	—	—	—	—	—	35.3	32.6	34.4	32.5	33.5	32.6	32.5	31.0	-1.5
Try Vicodin once or twice ^c	—	—	—	—	—	17.5	15.0	18.4	16.9	18.3	17.1	16.1	16.0	0.0
Take Vicodin occasionally ^c	—	—	—	—	—	29.4	26.2	28.2	26.7	28.8	26.7	25.9	25.3	-0.7
Try Adderall once or twice ^c	—	—	—	—	—	17.6	16.5	20.7	19.2	21.4	20.4	20.1	20.6	+0.4
Take Adderall occasionally ^c	—	—	—	—	—	29.9	28.3	32.5	32.0	35.9	33.8	34.0	35.2	+1.2
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	+1.2
Take cough/cold medicine occasionally ^c	—	—	—	—	—	38.8	37.3	37.9	37.3	38.6	35.2	34.5	37.8	+3.3
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	-0.2
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	-1.8
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	-1.6
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	-1.0
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	+1.9
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	14.5	18.5	21.3	20.3	22.1	—	—
Vape an e-liquid with nicotine occasionally ^{c,i}	—	—	—	—	—	—	—	—	—	—	18.3	16.9	21.7	+4.8 ss
Vape an e-liquid with nicotine regularly ^{c,i}	—	—	—	—	—	—	—	—	—	—	32.7	32.4	40.2	+7.8 sss
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	22.6	—
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	36.2	—
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	28.8	31.0	32.5	30.8	30.5	35.9	+5.4 ss
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	+2.8 s
Take dissolvable tobacco regularly ^c	—	—	—	—	—	34.8	32.2	33.5	33.0	34.3	31.9	31.3	32.0	+0.7
Take snus regularly ^c	—	—	—	—	—	42.2	38.9	38.3	37.7	37.9	36.4	34.2	36.0	+1.8
Take steroids ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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														

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.

^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 due to changes in questionnaire forms.

^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.

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
Try 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
Smoke 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
Smoke 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 powder once or twice ^d	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 powder occasionally ^d	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 ^d	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 an e-liquid with nicotine occasionally ^{c,i}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 ^l	67.1	72.7	73.4	72.5	—	—	—	—	—	—	—	—	—	—	—	—
Approximate weighted N =	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

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying great risk ^a														2018–2019 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ¹		
Try 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	+0.2	
Smoke 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	-0.8	
Smoke 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	+1.4	
Try synthetic marijuana once or twice ^c	—	—	—	—	—	24.6	24.1	25.0	26.3	26.8	25.1	24.3	22.4	-1.9	
Take synthetic marijuana occasionally ^c	—	—	—	—	—	34.9	32.8	30.7	31.7	31.8	29.2	28.8	27.2	-1.6	
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	+1.0	
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	0.0	
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	-0.9	
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	-1.7	
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	-1.4	
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	-1.5	
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	+2.1	
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	+1.0	
Try cocaine powder once or twice ^d	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	+1.1	
Take cocaine powder occasionally ^d	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	+0.7	
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	+2.2	
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	+1.6	
Try OxyContin once or twice ^c	—	—	—	—	—	30.9	29.4	29.7	29.9	28.7	27.8	29.6	25.0	-4.5 ss	
Take OxyContin occasionally ^c	—	—	—	—	—	48.3	44.7	44.4	43.7	41.4	41.3	43.9	41.5	-2.4	
Try Vicodin once or twice ^c	—	—	—	—	—	23.2	21.0	22.5	24.1	21.8	22.1	23.2	19.7	-3.5 s	
Take Vicodin occasionally ^c	—	—	—	—	—	40.3	36.0	36.4	35.4	32.6	32.0	34.8	30.5	-4.3 ss	
Try Adderall once or twice ^c	—	—	—	—	—	19.7	17.6	22.2	22.9	22.5	21.6	23.2	22.3	-0.9	
Take Adderall occasionally ^c	—	—	—	—	—	34.3	30.5	37.0	37.0	35.8	36.4	39.8	39.1	-0.7	
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	+0.1	
Take cough/cold medicine occasionally ^c	—	—	—	—	—	40.4	37.3	38.3	38.2	37.6	36.4	37.2	37.9	+0.7	
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	+0.5	
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	+0.7	
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	+0.7	
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	0.0	
Smoke one or more packs of cigarettes per day ^a	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	+3.6	
Use electronic cigarettes (e-cigarettes) regularly ^h	—	—	—	—	—	—	—	14.1	17.0	19.1	19.4	22.8	—	—	
Vape an e-liquid with nicotine occasionally ^{cj}	—	—	—	—	—	—	—	—	—	—	17.0	17.9	22.7	+4.8 ss	
Vape an e-liquid with nicotine regularly ^{cj}	—	—	—	—	—	—	—	—	—	—	30.0	31.3	40.7	+9.4 sss	
Use JUUL occasionally ^k	—	—	—	—	—	—	—	—	—	—	—	—	22.8	—	
Use JUUL regularly ^k	—	—	—	—	—	—	—	—	—	—	—	—	35.6	—	
Smoke little cigars or cigarillos regularly ^c	—	—	—	—	—	—	—	31.0	34.9	35.3	34.0	34.9	39.1	+4.3 s	
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	+3.5 s	
Take dissolvable tobacco regularly ^c	—	—	—	—	—	33.3	31.3	32.0	35.6	34.2	32.7	33.2	32.9	-0.4	
Take snus regularly ^c	—	—	—	—	—	41.0	38.9	38.8	41.8	39.9	38.1	39.8	39.0	-0.8	
Take steroids ^l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
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															

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.

^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 due to changes in questionnaire forms.

^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.

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
Try 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
Smoke 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
Smoke 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 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>	<i>2,804</i>	<i>2,918</i>	<i>3,052</i>	<i>3,770</i>	<i>3,250</i>	<i>3,234</i>	<i>3,604</i>	<i>3,557</i>	<i>3,305</i>	<i>3,262</i>	<i>3,250</i>	<i>3,020</i>	<i>3,315</i>	<i>3,276</i>	<i>2,796</i>	<i>2,553</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															
<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 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
Smoke 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
Smoke 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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 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														2018 – 2019
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	change	
Try 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	-1.4	
Smoke 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	-0.8	
Smoke 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	+3.7	
Try synthetic marijuana once or twice	—	—	—	—	—	23.5	25.9	32.5	33.0	35.6	33.0	30.4	28.4	-2.0	
Take synthetic marijuana occasionally	—	—	—	—	—	32.7	36.2	39.4	40.9	43.9	40.0	37.1	35.4	-1.7	
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	-0.7	
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	+2.7	
Try PCP once or twice	48.0	47.4	49.7	52.4	53.0	51.6	53.9	53.8	54.4	55.1	53.6	51.7	52.6	+0.9	
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	-1.9	
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	+0.3	
Take salvia occasionally	—	—	—	—	—	23.1	21.3	20.0	17.6	16.3	13.8	12.0	12.7	+0.8	
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	-0.1	
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	+2.0	
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	-0.5	
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	-1.1	
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	-1.7	
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	-0.8	
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	+0.5	
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	+0.1	
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	-0.2	
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	+0.8	
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	+0.7	
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	-0.2	
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	-2.6	
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	-0.3	
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	+1.9	
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	0.0	
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	+1.5	
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	+0.5	
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	-2.7	
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	+0.3	
Try Adderall occasionally ^e	—	—	—	41.6	40.8	35.3	38.8	41.5	41.6	40.9	40.6	40.1	41.8	+1.7	
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	0.0	
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	-1.1	
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	-0.1	
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	-0.5	
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	-1.8	
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	+0.7	
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	+1.7	
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	+1.8	
Use electronic cigarettes (e-cigarettes) regularly ^g	—	—	—	—	—	—	—	14.2	16.2	18.2	16.1	18.0	—	—	
Vape an e-liquid with nicotine occasionally ^g	—	—	—	—	—	—	—	—	—	—	16.4	15.8	17.7	+1.9	
Vape an e-liquid with nicotine regularly ^g	—	—	—	—	—	—	—	—	—	—	27.0	27.7	35.2	+7.4 sss	
Use JUUL occasionally	—	—	—	—	—	—	—	—	—	—	—	—	16.8	—	
Use JUUL regularly	—	—	—	—	—	—	—	—	—	—	—	—	32.9	—	
Smoke little cigars or cigarillos regularly	—	—	—	—	—	—	—	38.3	39.7	39.5	38.2	42.5	41.3	-1.2	
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	-0.3	
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	+0.7	
Approximate weighted N =	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		

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.

^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.

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
Try 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
Smoke 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
Smoke 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 powder once or twice ^c	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 powder occasionally ^c	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 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	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	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

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TABLE 8-4 (cont.)
Trends in Disapproval of Drug Use in Grade 8

Do you disapprove of people who . . .	Percentage who disapprove or strongly disapprove ^a													2018–2019 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	
Try 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	-2.2
Smoke 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	-2.2
Smoke 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	-1.8
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	0.0
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	+0.6
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	+0.8
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	+1.0
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	+1.4
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	+1.1
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	+1.2
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	+0.4
Try cocaine powder once or twice ^c	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	+0.8
Take cocaine powder occasionally ^c	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	+0.4
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	+1.2
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	+0.3
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	-1.2
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	-0.6
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	+0.9
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	+0.2
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	58.4	65.0	66.6	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	63.2	60.8	65.6	+4.9 ss
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	69.9	68.9	74.7	+5.8 sss
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	61.1	—
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	69.9	—
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	+1.5
Take steroids ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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														

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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.

^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.

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
Try 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
Smoke 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
Smoke 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 powder once or twice ^c	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 powder occasionally ^c	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 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													2018–2019 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	
Try 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	-1.9
Smoke 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	-2.4
Smoke 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	-2.3
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	0.0
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	-0.3
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	-1.3
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	-0.8
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	+1.1
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	+2.3
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	-0.1
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	-0.2
Try cocaine powder once or twice ^c	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	-0.2
Take cocaine powder occasionally ^c	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	-0.1
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	+0.9
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	+0.8
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	+0.8
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	+1.5
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	+2.0
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	+1.1
Use electronic cigarettes (e-cigarettes) regularly ^e	—	—	—	—	—	—	—	54.6	59.9	65.0	—	—	—	—
Vape an e-liquid with nicotine occasionally ^{e,h}	—	—	—	—	—	—	—	—	—	—	59.3	58.0	65.4	+7.4 sss
Vape an e-liquid with nicotine regularly ^{e,h}	—	—	—	—	—	—	—	—	—	—	68.3	67.8	75.5	+7.7 sss
Use JUUL occasionally ^e	—	—	—	—	—	—	—	—	—	—	—	—	59.1	—
Use JUUL regularly ^e	—	—	—	—	—	—	—	—	—	—	—	—	70.2	—
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	+2.4
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														

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.

^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.

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
Trying 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
Smoking 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
Smoking 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 an e-liquid with nicotine occasionally ^j	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vape an e-liquid with nicotine regularly ^j	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Trying 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
Smoking 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
Smoking 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 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>	<i>2,547</i>	<i>2,645</i>	<i>2,723</i>	<i>2,588</i>	<i>2,603</i>	<i>2,399</i>	<i>2,601</i>	<i>2,545</i>	<i>2,310</i>	<i>2,150</i>	<i>2,144</i>	<i>2,160</i>	<i>2,442</i>	<i>2,455</i>	<i>2,460</i>	<i>2,377</i>

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

Do you disapprove of people (who are 18 or older) doing each of the following? ^a	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^g	2018–2019 change
Trying 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	-7.0 ss
Smoking 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	-7.8 ss
Smoking 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	-3.4
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	-4.4 ss
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	+0.4
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	+4.3 ss
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	-0.4
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	+0.6
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	-1.7
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	-1.0
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	-1.0
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	-0.8
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	-1.2
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	-0.9
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	+0.7
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	+0.4
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	+0.5
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	+2.2 s
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	+2.0
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	-0.7
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	+1.6
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	-1.3
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	-0.1
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	-5.1 s
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	-1.3
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	-0.2
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	-0.8
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	-1.2
Vape an e-liquid with nicotine occasionally ^f	—	—	—	—	—	—	—	—	—	—	62.0	59.2	56.6	-2.6
Vape an e-liquid with nicotine regularly ^f	—	—	—	—	—	—	—	—	—	—	71.8	70.9	70.1	-0.8
Use JUUL occasionally ^f	—	—	—	—	—	—	—	—	—	—	—	—	58.2	—
Use JUUL regularly ^f	—	—	—	—	—	—	—	—	—	—	—	—	69.1	—
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	+1.3
<i>Approximate weighted N =</i>	<i>2,450</i>	<i>2,314</i>	<i>2,233</i>	<i>2,449</i>	<i>2,384</i>	<i>2,301</i>	<i>2,147</i>	<i>2,078</i>	<i>2,193</i>	<i>2,000</i>	<i>1,870</i>	<i>1,918</i>	<i>876</i>	

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.

^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.

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

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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

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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													2018-2019 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	
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	-1.2
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	+1.2
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	+1.8
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	+3.1
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	+1.5
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	+2.4
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	-2.1
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	+2.1
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	-2.6
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	-0.8
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	-2.4
<i>Approximate weighted N =</i>	2,459	2,356	2,306	2,410	2,339	2,304	2,101	2,070	2,170	1,976	2,117	2,234	1,133	

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.

^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

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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

<i>Approximate weighted N =</i>	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
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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

Approximate weighted N = 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

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	2018-2019 change
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	+2.5
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	-2.1
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	-1.1
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	+0.7

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	+0.5
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	+3.5
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	-1.6
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	-2.4

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	-2.1
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	+1.2
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	+0.9
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	+1.2
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	-0.4
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	-0.8

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

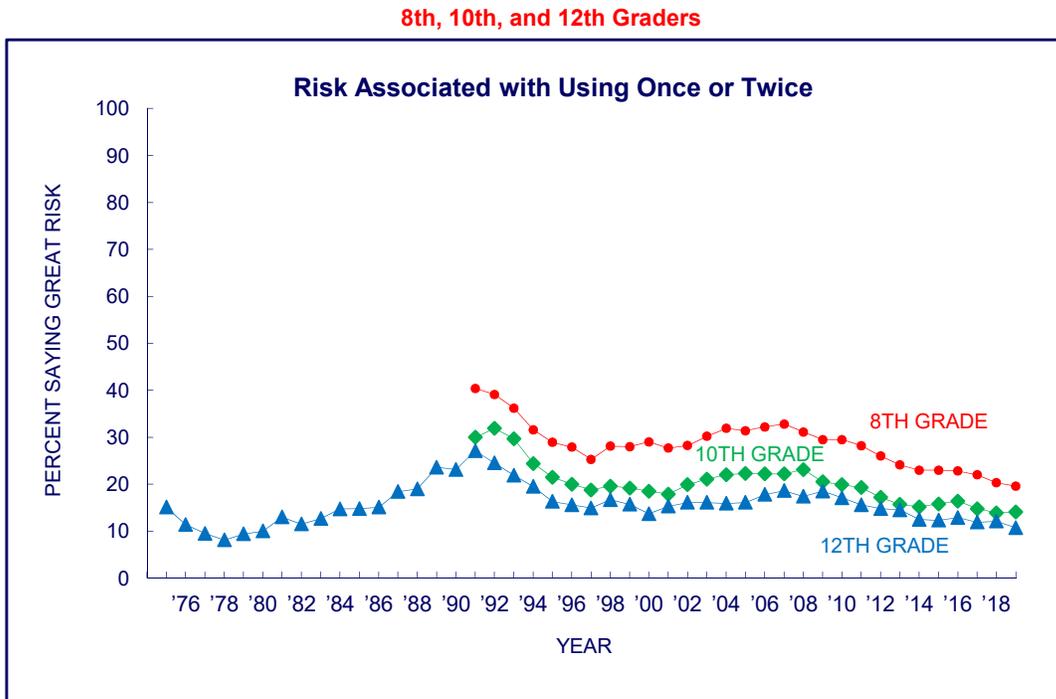
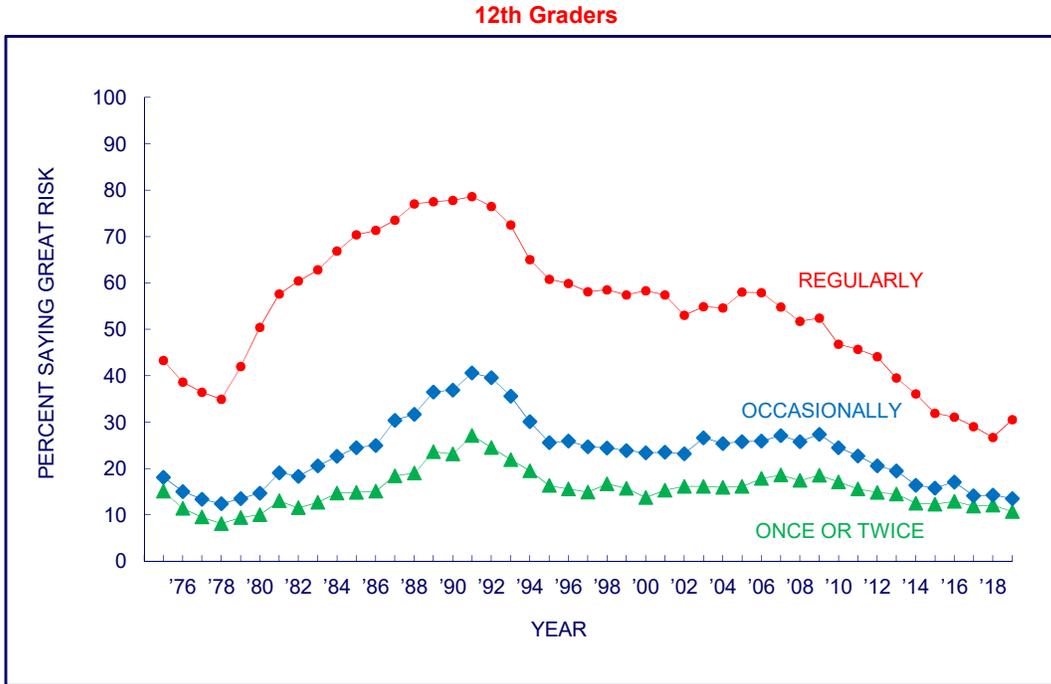
Source. The Monitoring the Future study, the University of Michigan.

^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

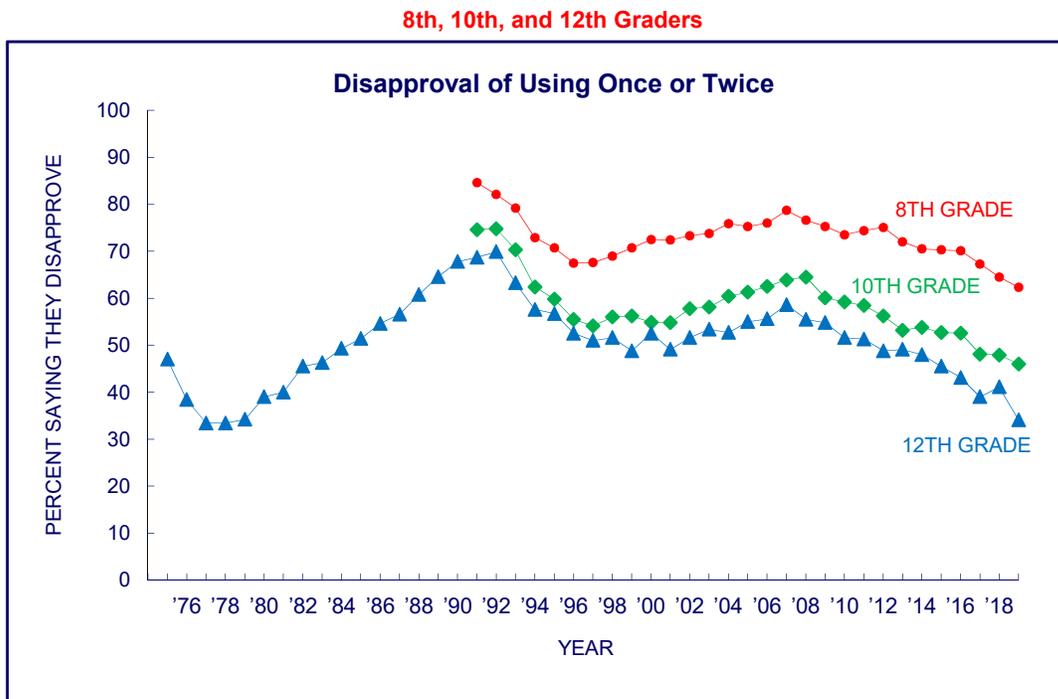
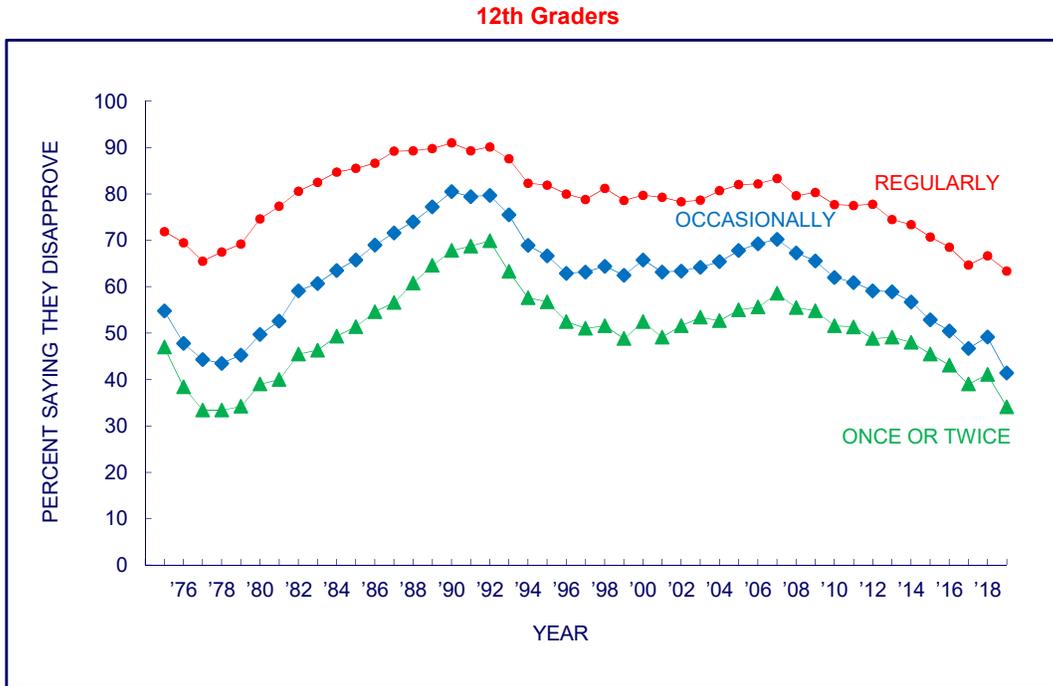
MARIJUANA

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.

FIGURE 8-1b
MARIJUANA
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12

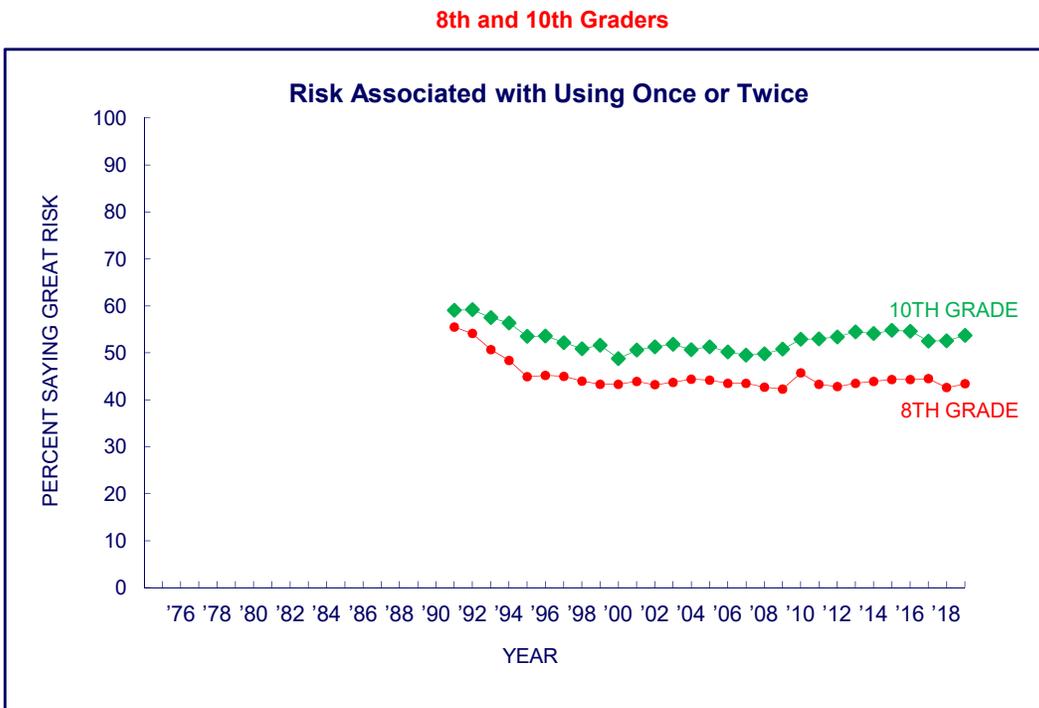
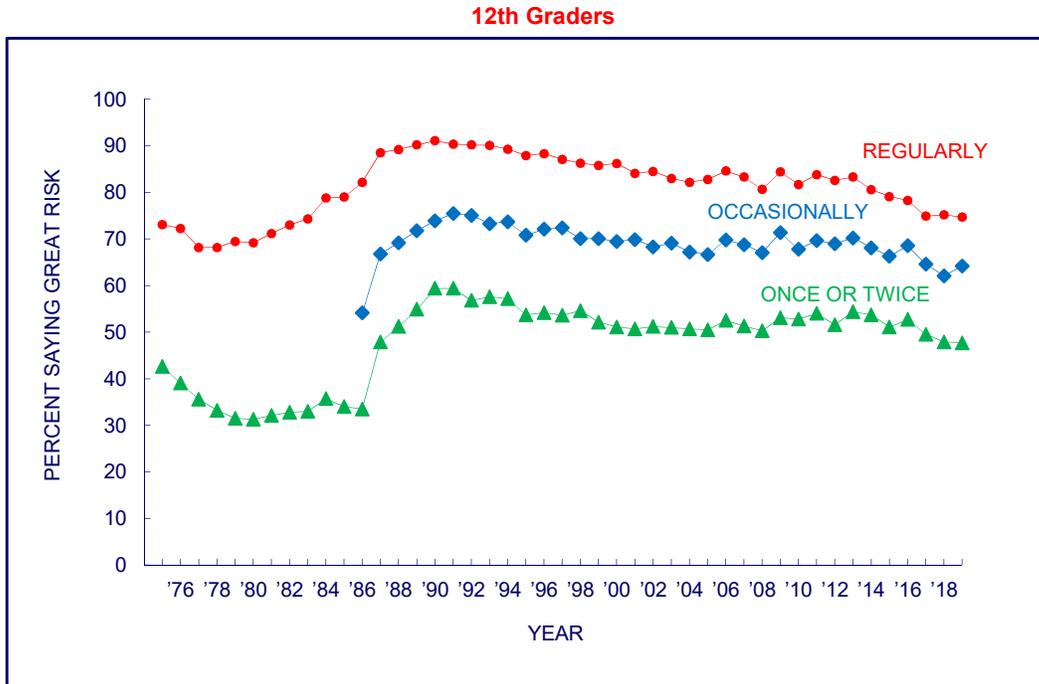


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8-2a

COCAINE

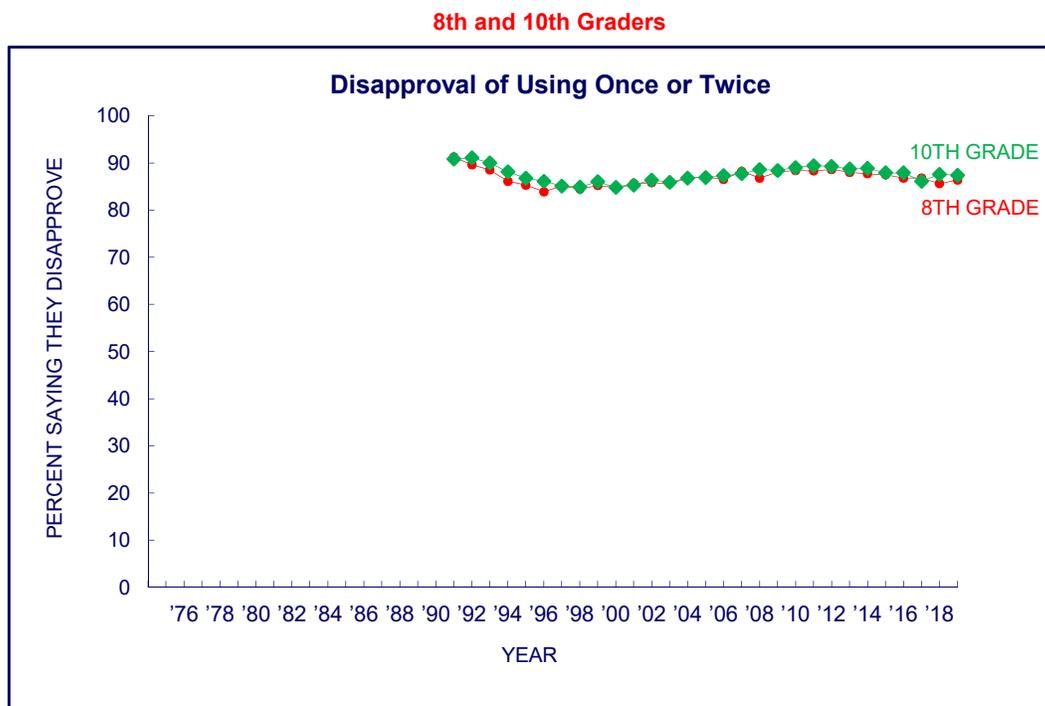
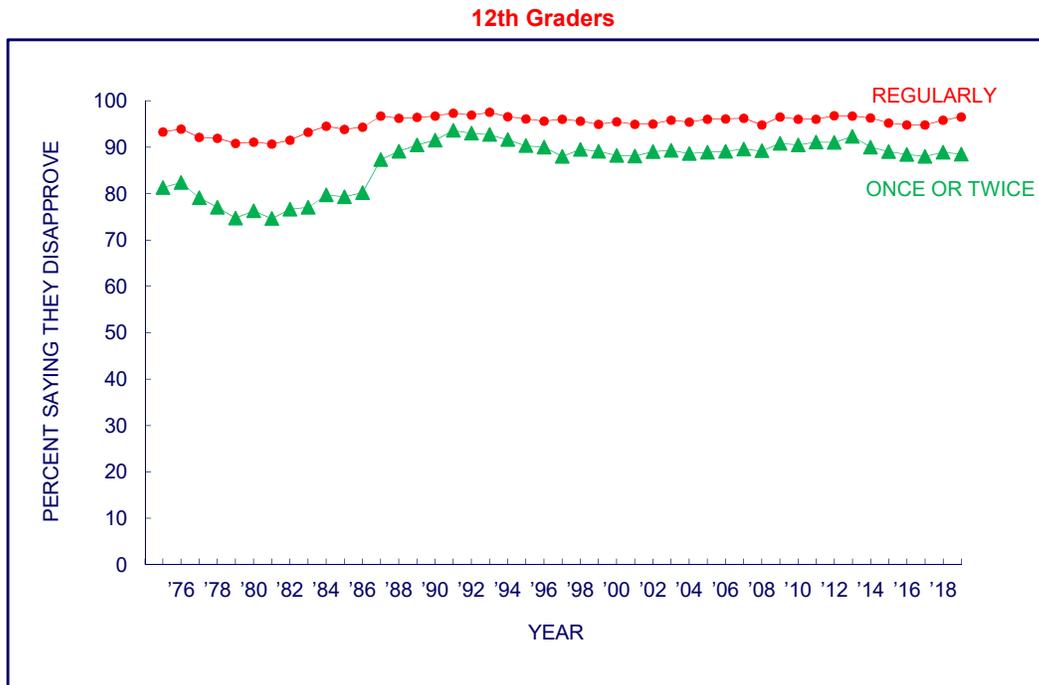
**Trends in Perceived Harmfulness for Different Levels of Use
in Grades 8, 10, and 12**



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

Note. 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.

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.

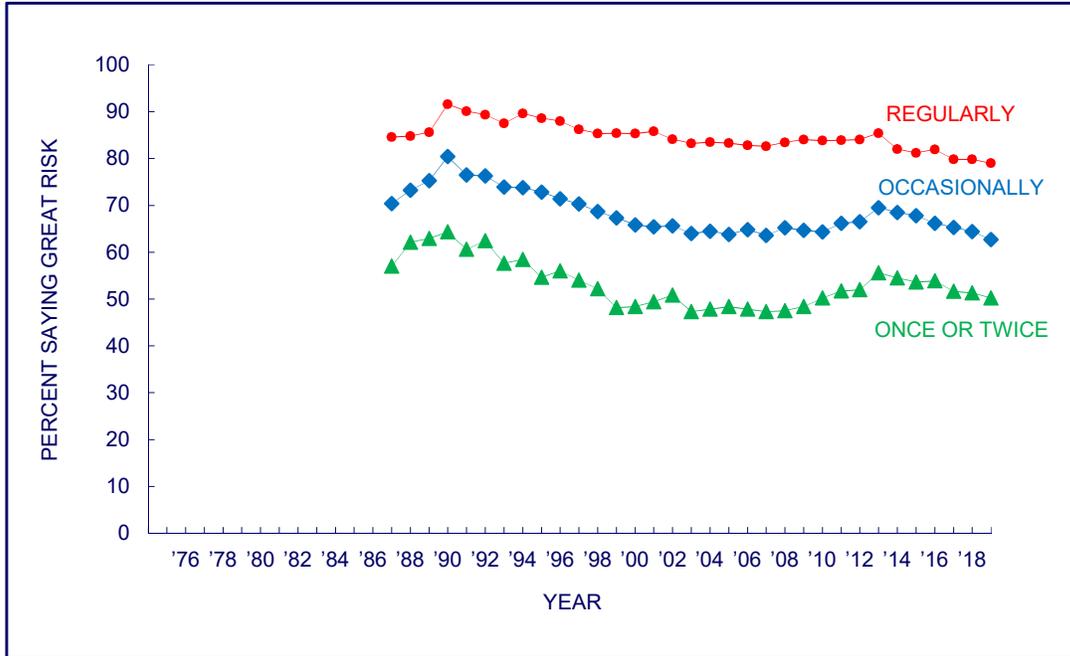
Note. Data presented above for 12th graders pertains to cocaine in general, while the data for 8th and 10th graders pertains specifically to cocaine in powder form.

FIGURE 8-3a

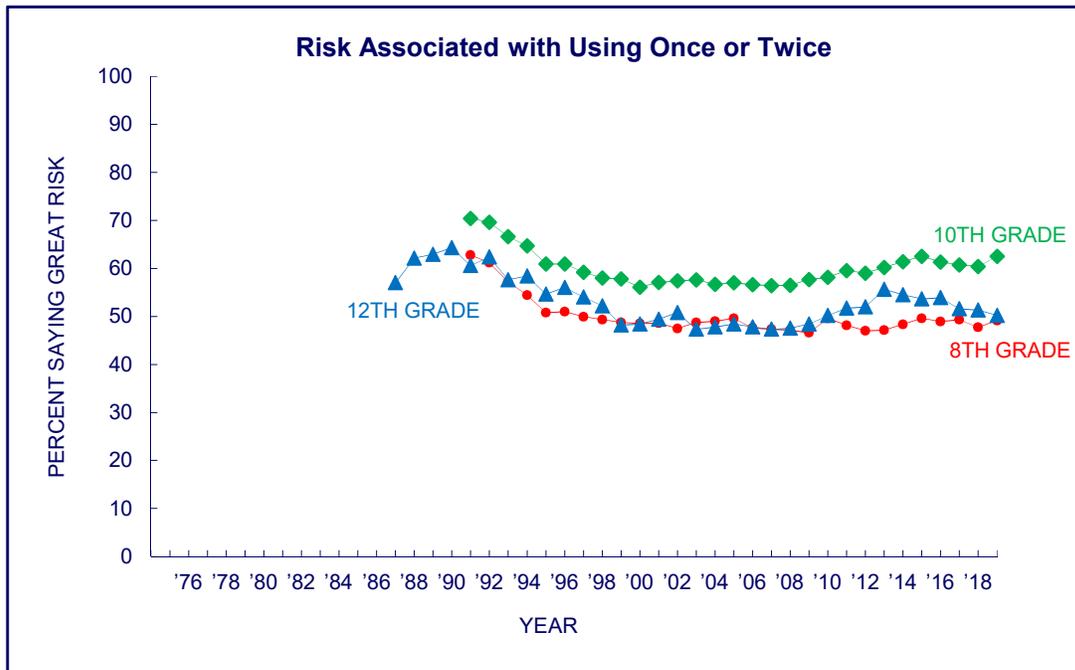
CRACK

**Trends in Perceived Harmfulness for Different Levels of Use
in Grades 8, 10, and 12**

12th Graders

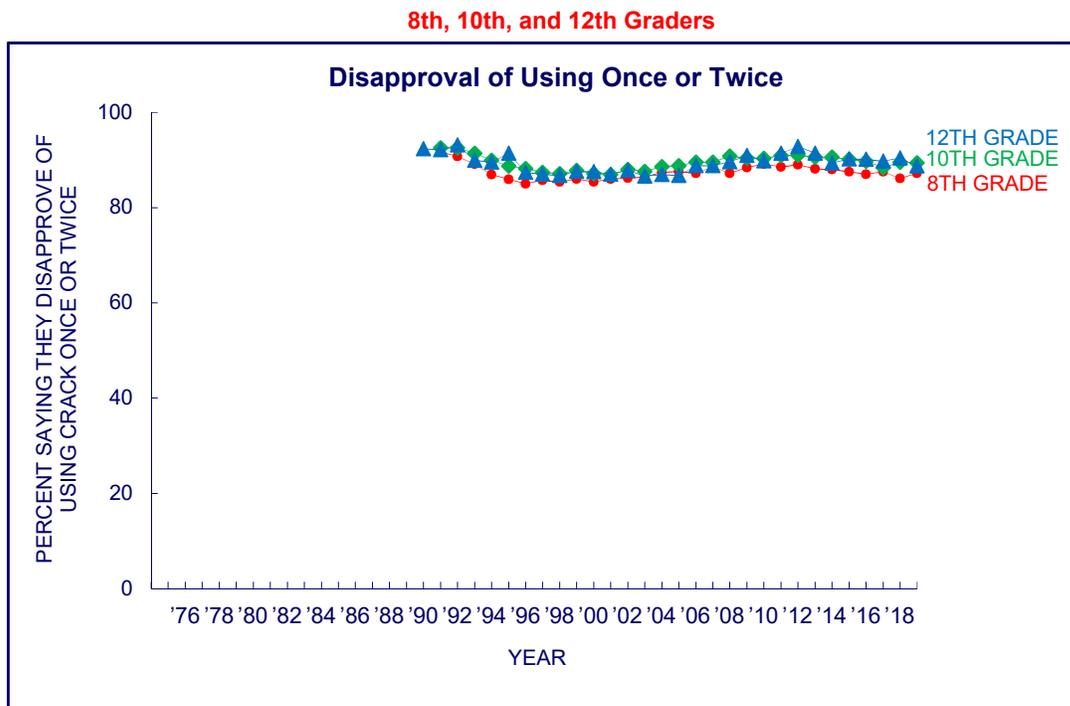
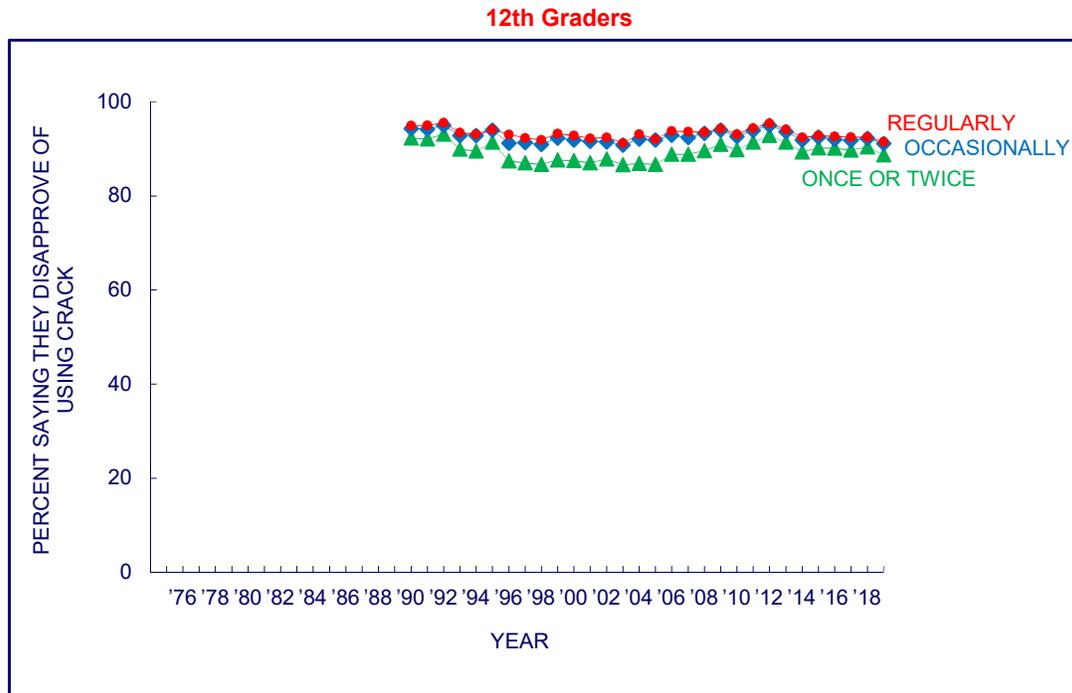


8th, 10th, and 12th Graders



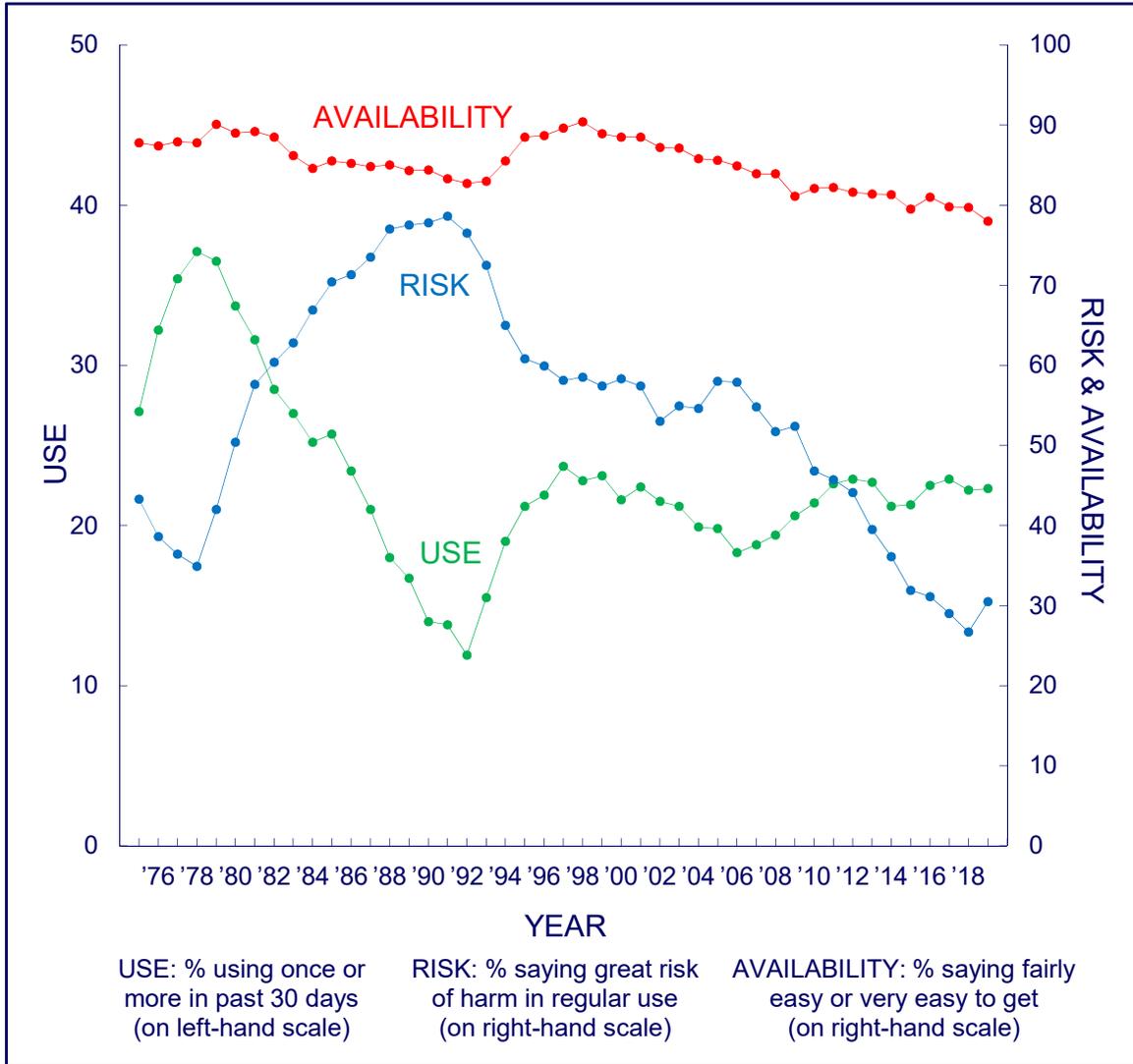
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8-3b
CRACK
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12



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

FIGURE 8-4
MARIJUANA
Trends in Perceived Availability,
Perceived Risk of Regular Use, and
Prevalence of Use in Past 30 Days in Grade 12

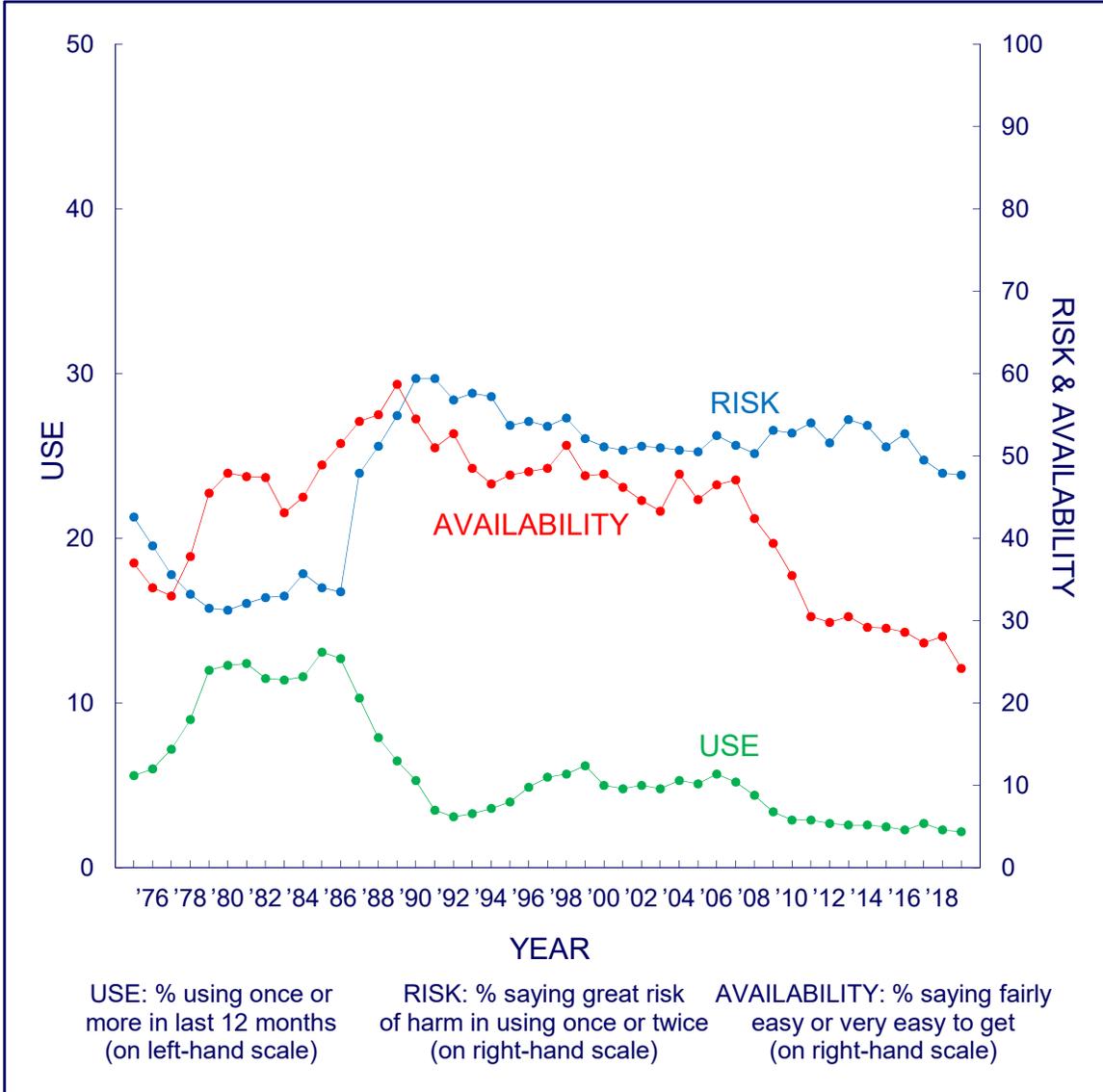


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8-5

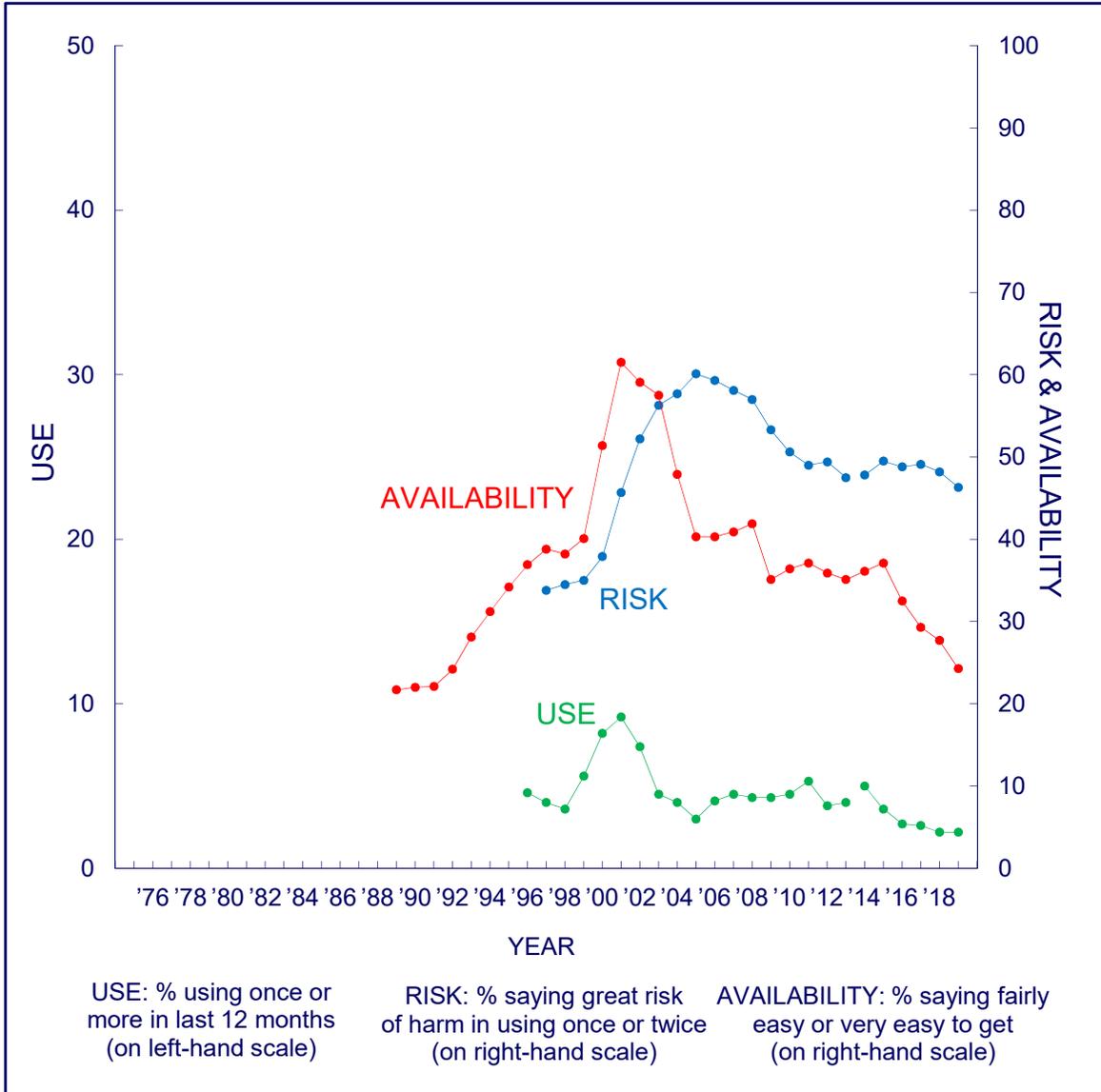
COCAINE

**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.

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.

FIGURE 8-7a
AMPHETAMINES^a AND SEDATIVES (BARBITURATES)^b
Trends in Perceived Harmfulness for Different Levels of Use
in Grade 12



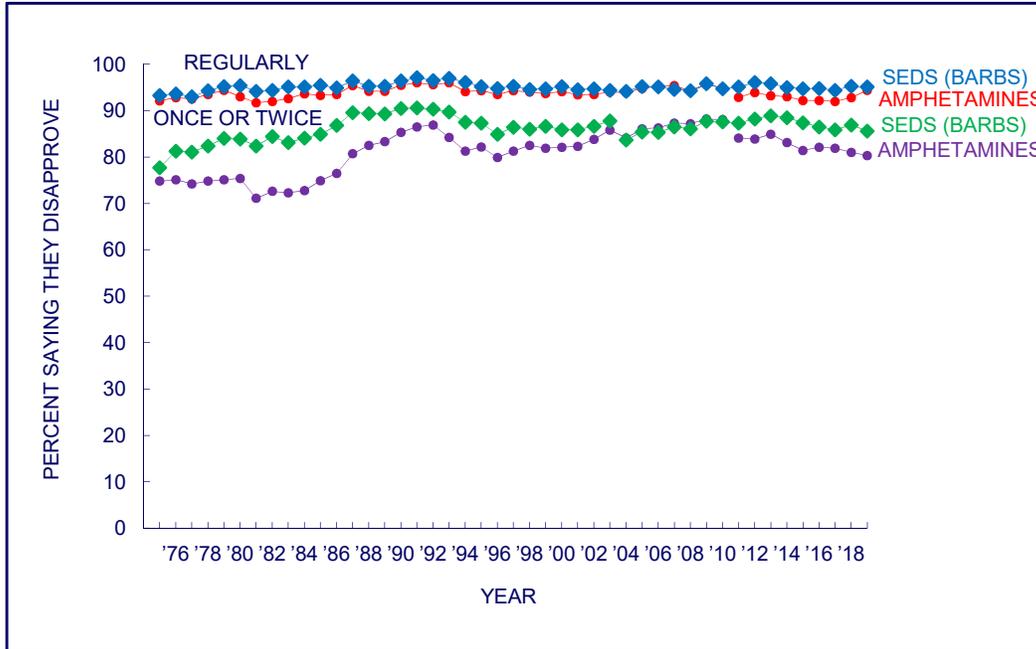
Source. The Monitoring the Future study, the University of Michigan.

Note. Data not available for 8th and 10th graders.

^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.

Note. Data not available for 8th and 10th graders.

^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.

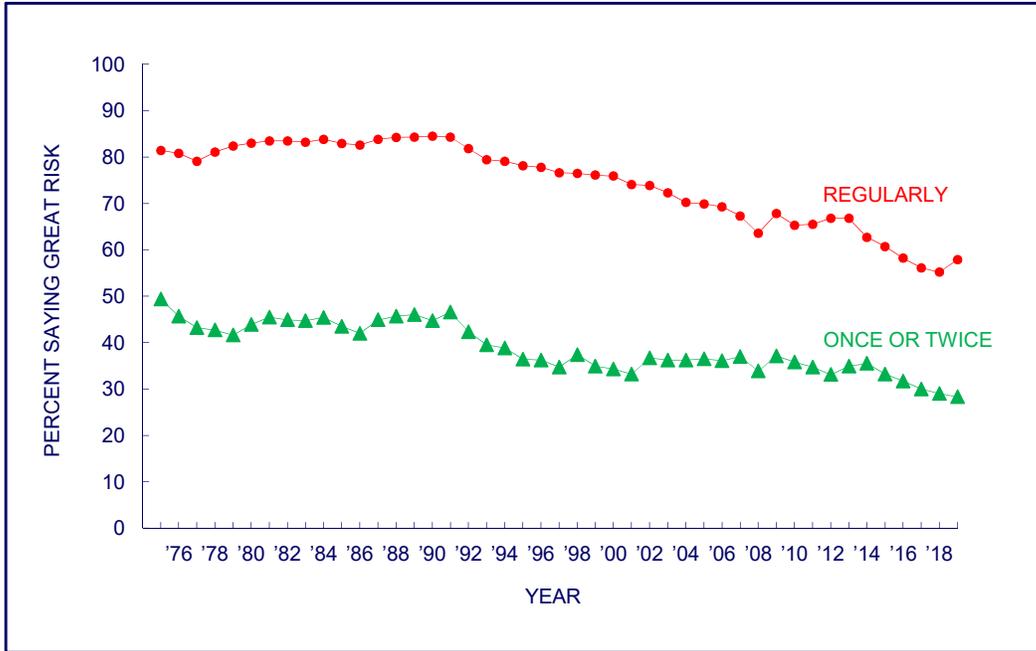
^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 8-8a

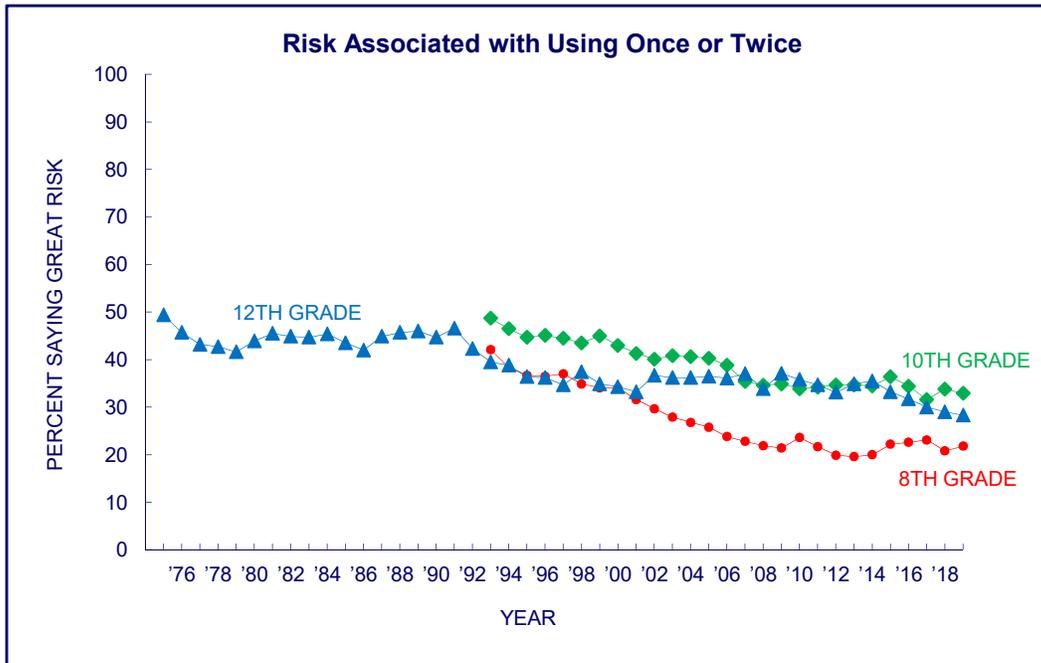
LSD

**Trends in Perceived Harmfulness for Different Levels of Use
in Grades 8, 10, and 12**

12th Graders

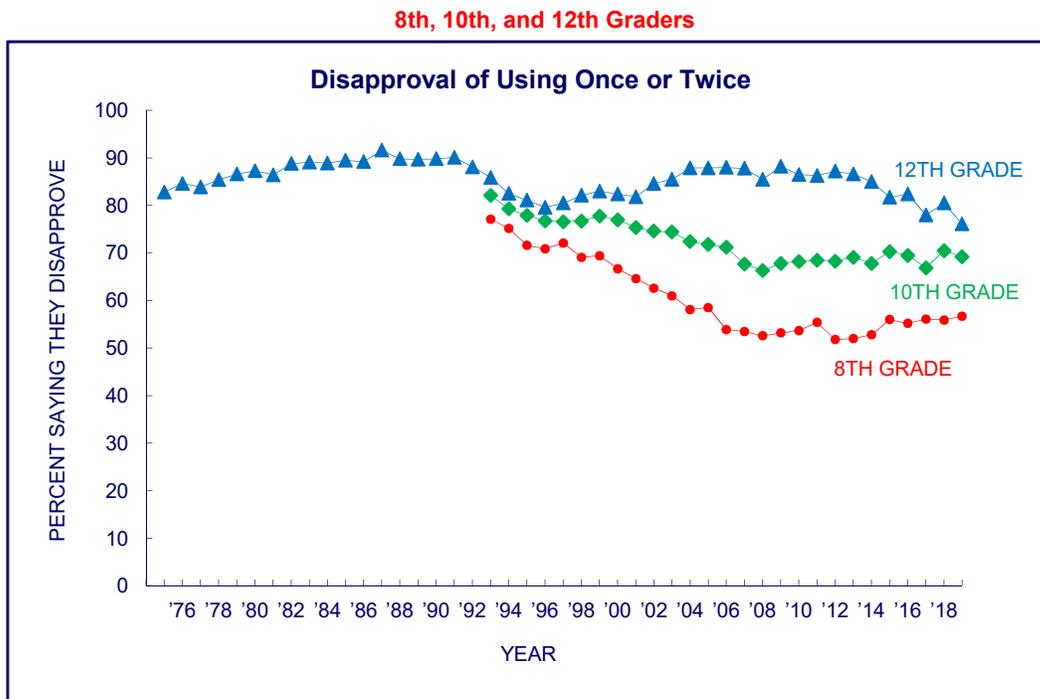
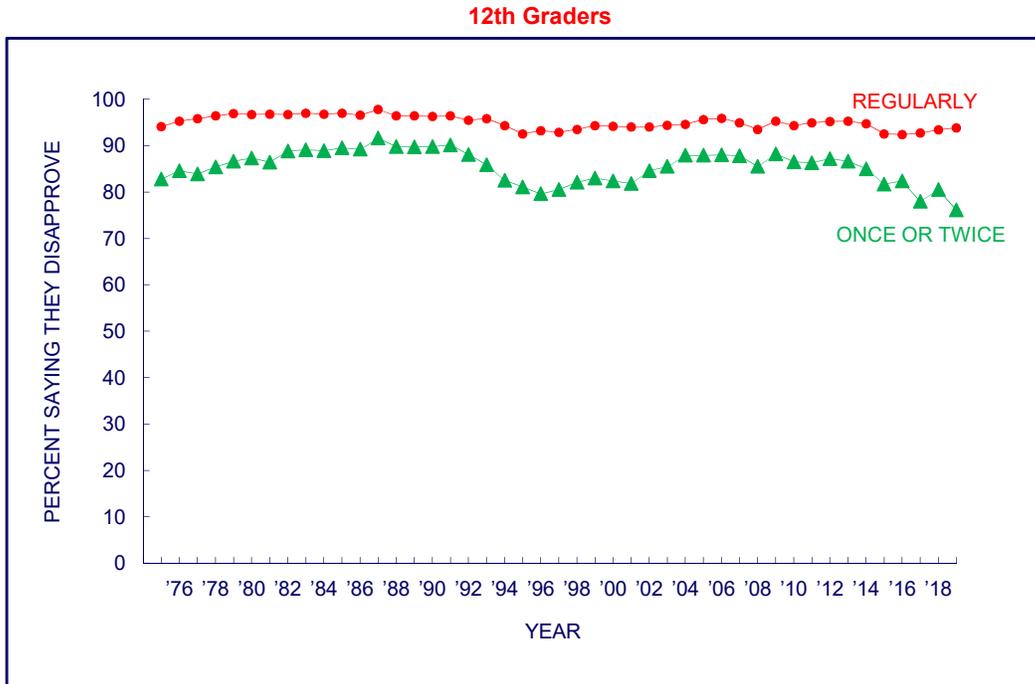


8th, 10th, and 12th Graders



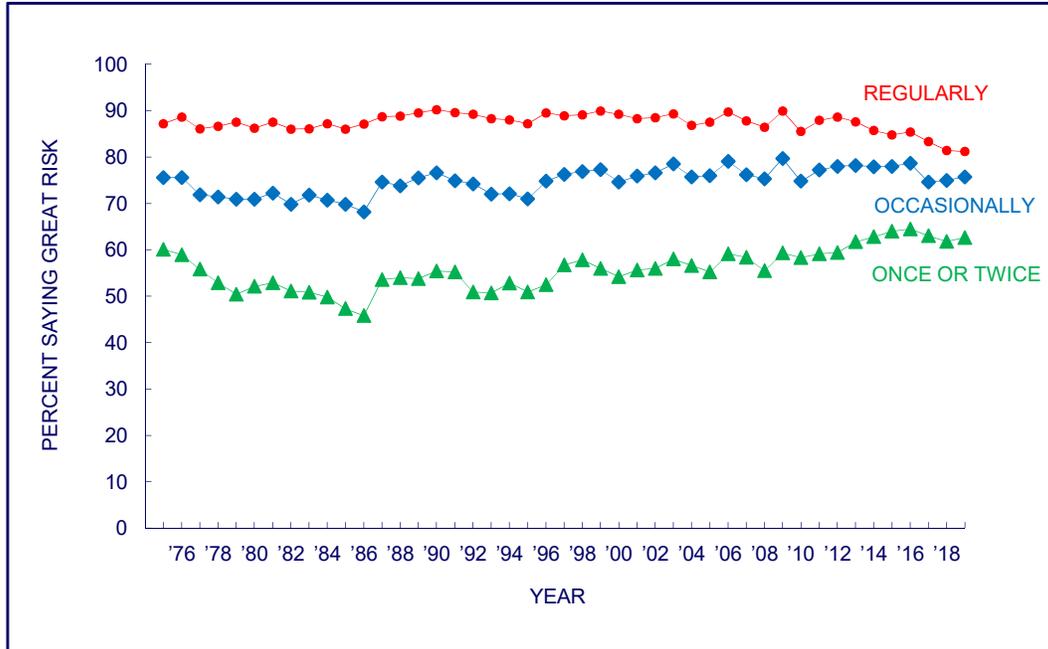
Source. The Monitoring the Future study, the University of Michigan.

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.

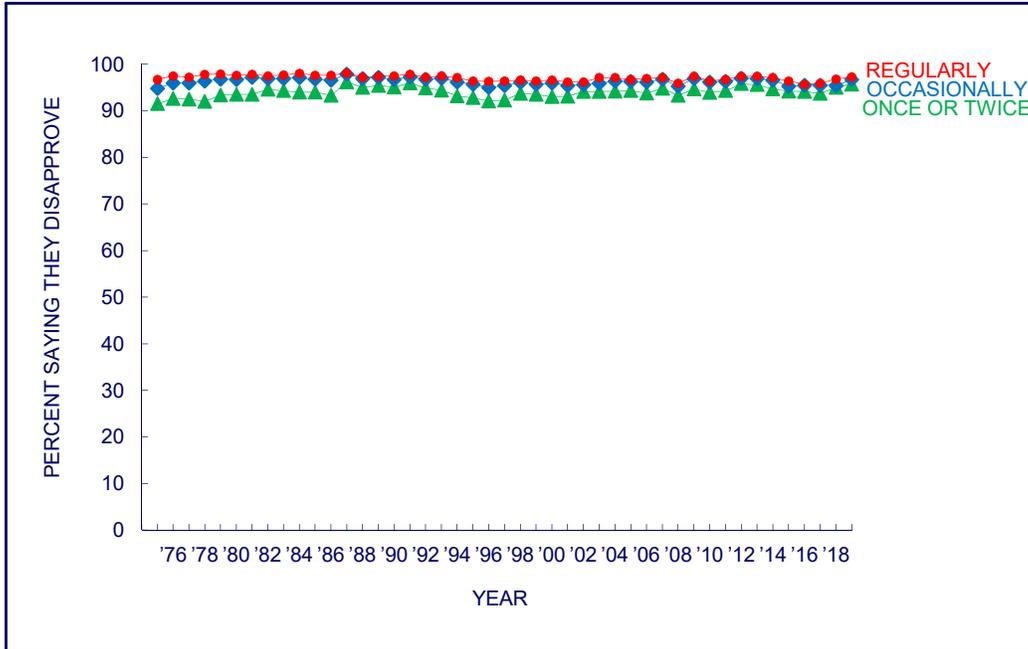
FIGURE 8-9a
HEROIN
Trends in Perceived Harmfulness for Different Levels of Use
in Grade 12



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

Note. Data not available for 8th and 10th graders.

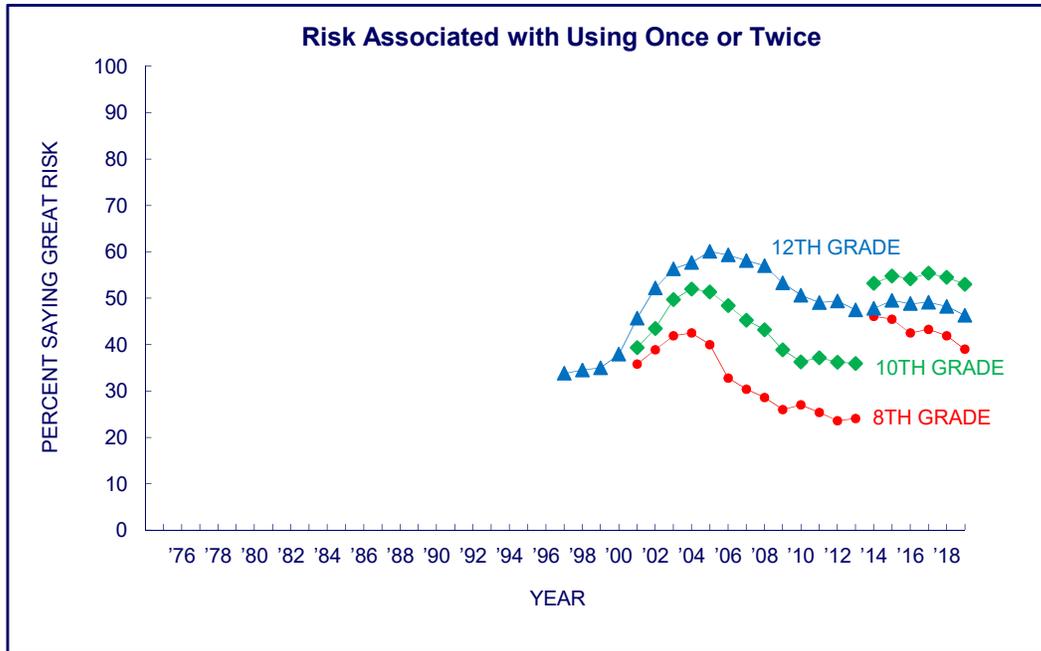
FIGURE 8-9b
HEROIN
Trends in Disapproval of Different Levels of Use
in Grade 12



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

Note. Data not available for 8th and 10th graders.

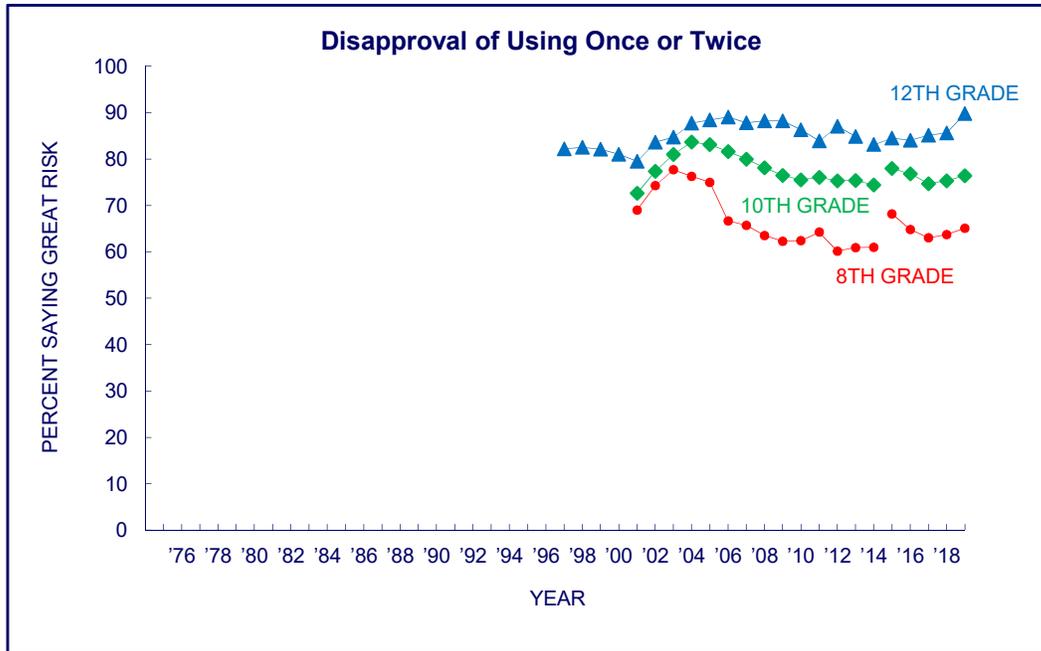
FIGURE 8-10a
MDMA (Ecstasy, Molly)
Trends in Perceived Harmfulness for Experimental Use
in Grades 8, 10, and 12



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.

FIGURE 8-10b
MDMA (Ecstasy, Molly)
Trends in Disapproval of Experimental Use
in Grades 8, 10, and 12

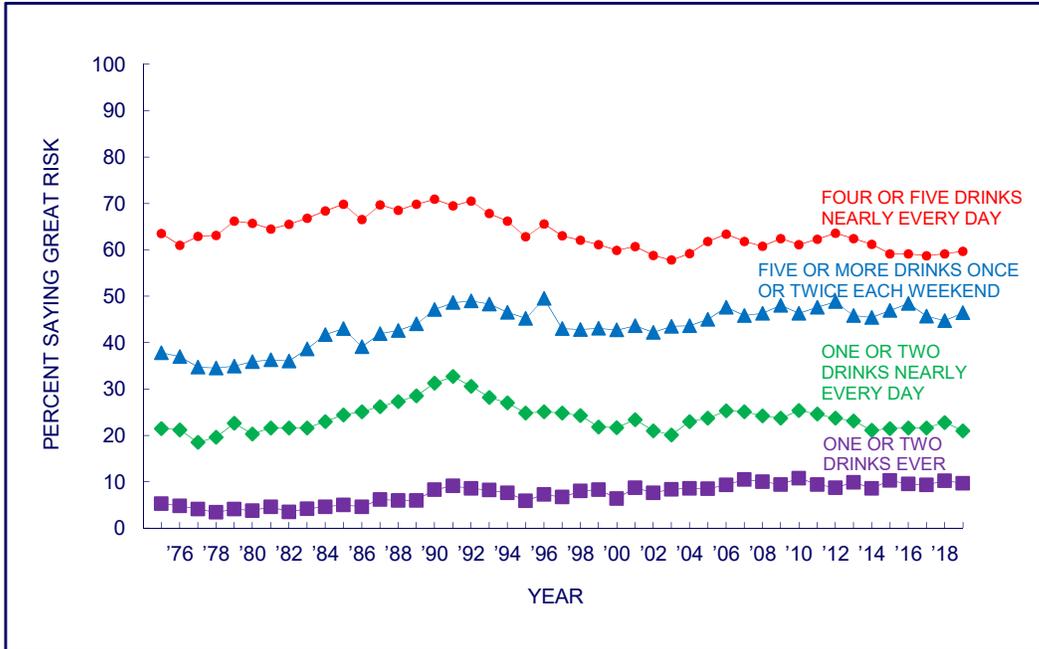


Source. The Monitoring the Future study, the University of Michigan.

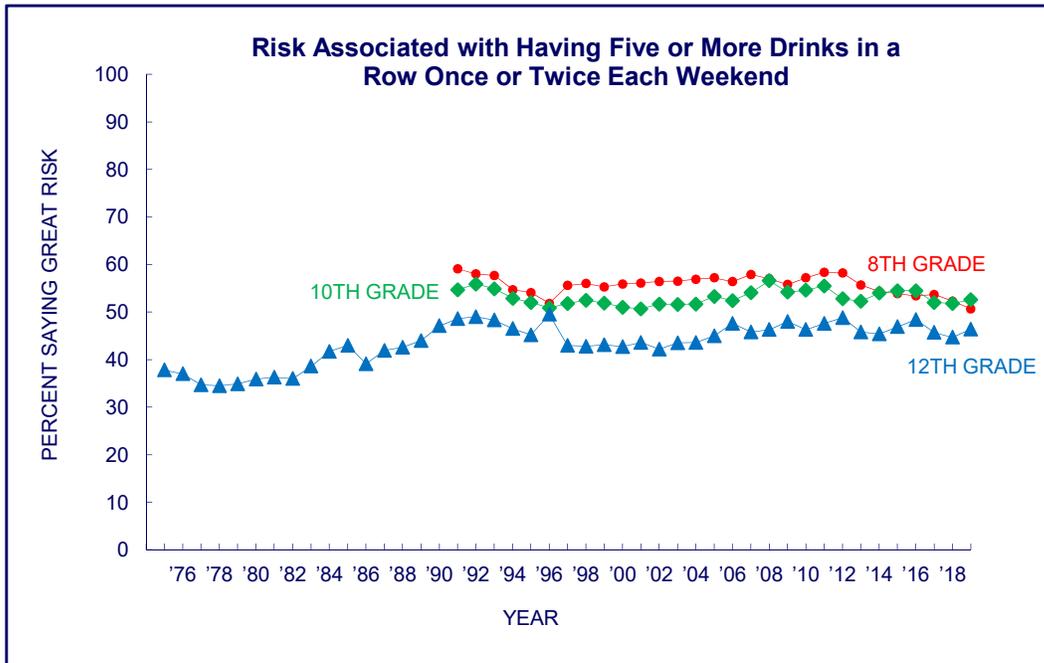
Notes. In 2014 for 12th graders and 2015 for 8th and 10th graders, the text was changed to include "molly" in the description. Data from 2014 on are based on the new version of the question.

FIGURE 8-11a
ALCOHOL
Trends in Perceived Harmfulness for Different Levels of Use
in Grades 8, 10, and 12

12th Graders

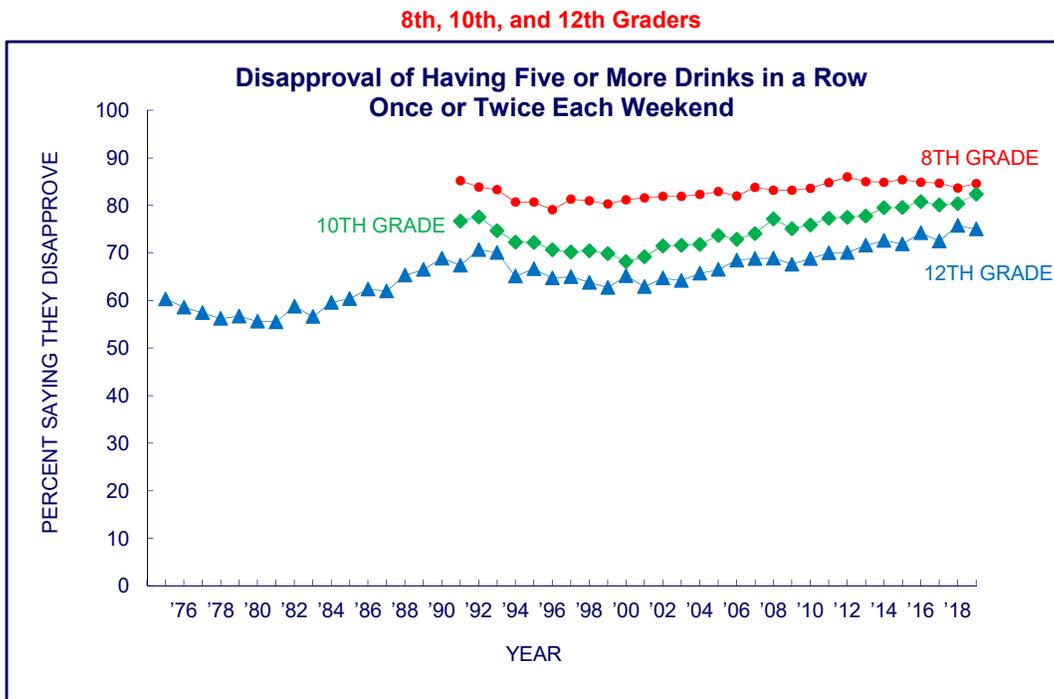
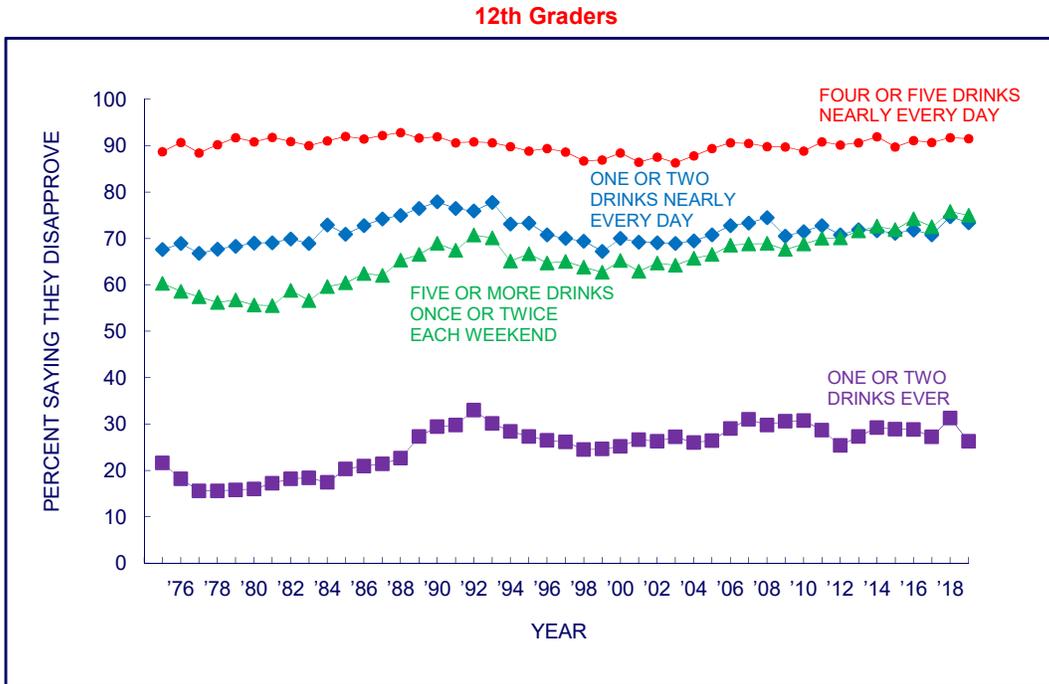


8th, 10th, and 12th Graders



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

FIGURE 8-11b
ALCOHOL
Trends in Disapproval of Different Levels of Use
in Grades 8, 10, and 12

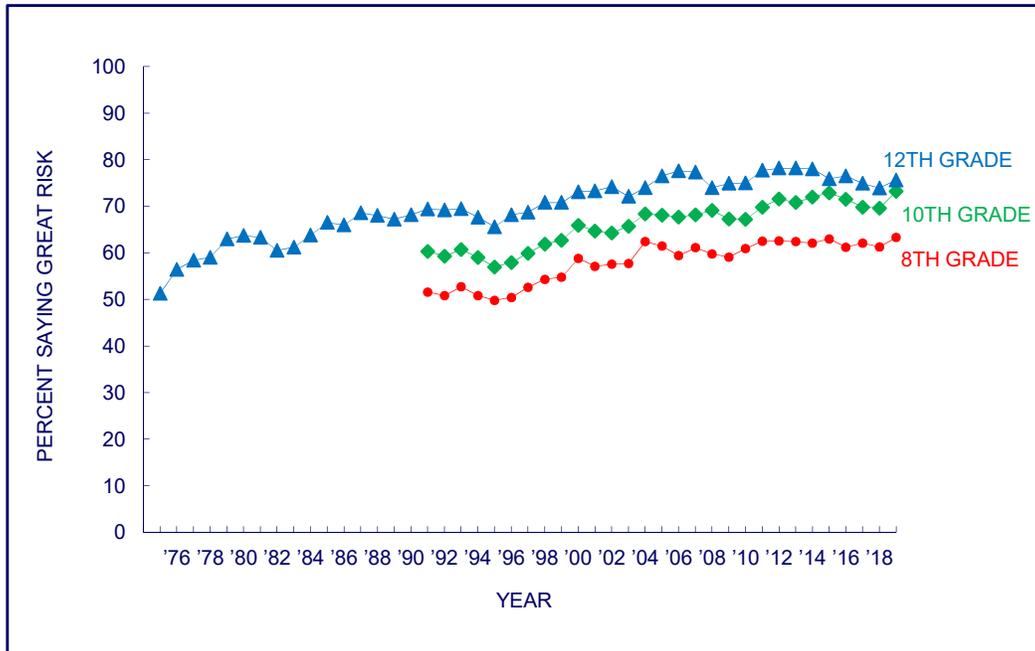


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8-12a

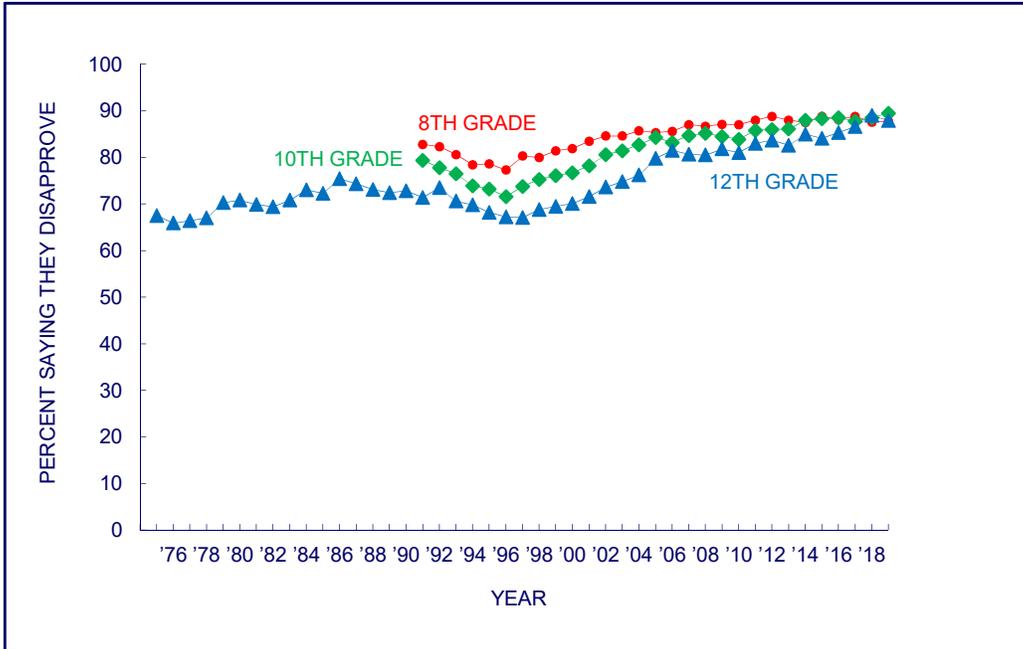
CIGARETTES

Trends in Perceived Harmfulness of Smoking 1 or More Packs per Day in Grades 8, 10, and 12



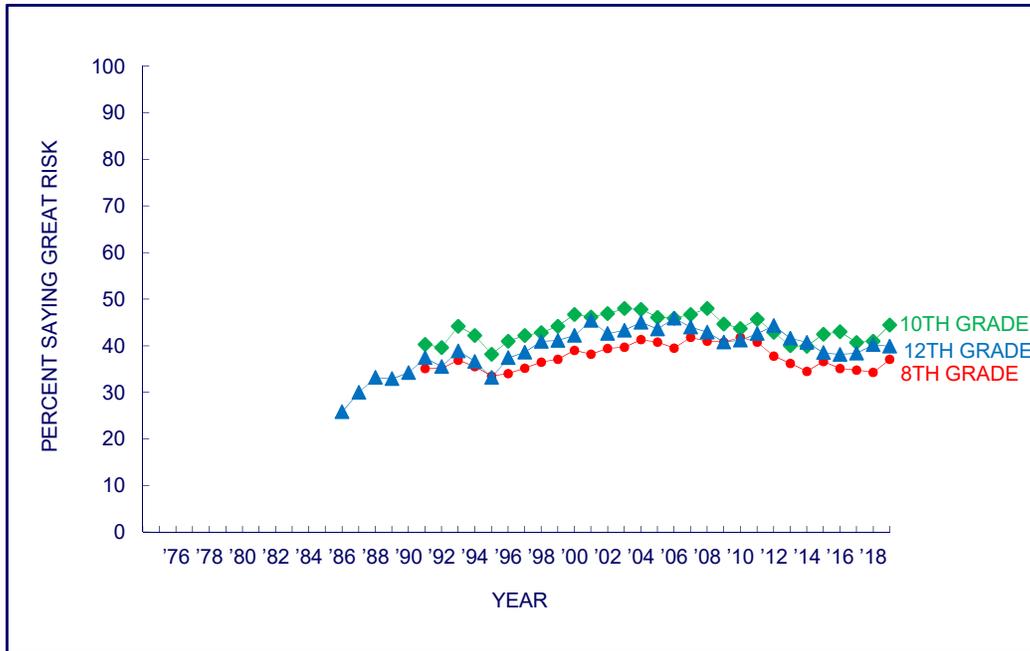
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8-12b
CIGARETTES
Trends in Disapproval of Smoking 1 or More Packs per Day
in Grades 8, 10, and 12



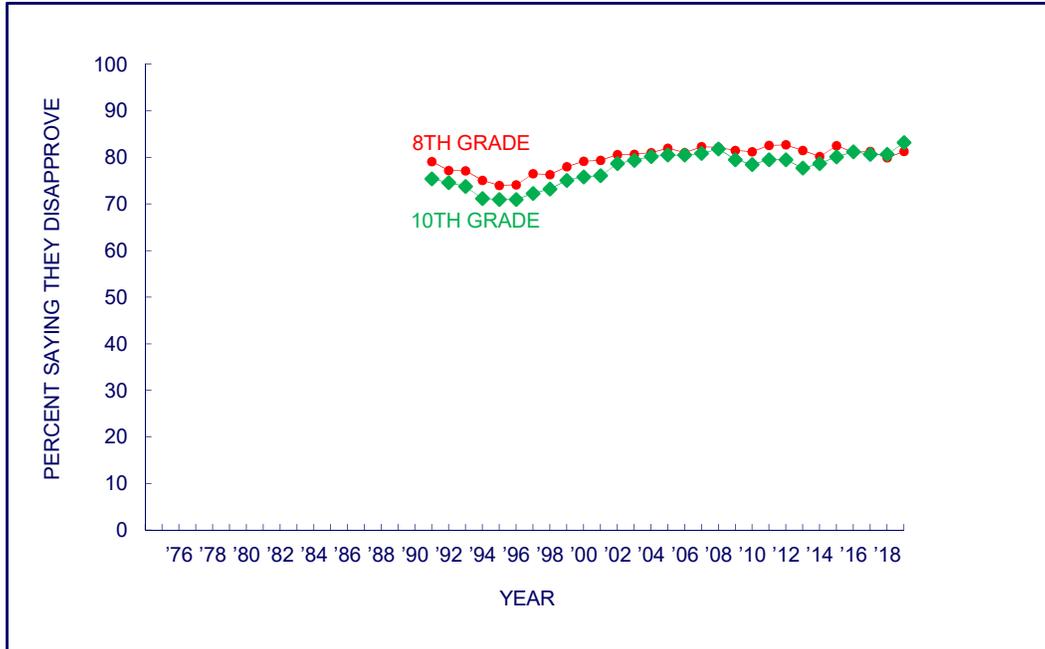
Source. The Monitoring the Future study, the University of Michigan.

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.

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.

Note. Data not available for 12th graders.

Chapter 9

THE SOCIAL CONTEXT UP TO 2019

Substance abuse 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.

In what follows we present social context estimates up to 2019. We do not update these estimates this year because of insufficient data. In 2020 the three-quarters reduction in sample size considerably reduces the analysis pool for these measures, all of which are asked only of a randomly selected subsample of students. In addition, our preliminary analysis of the 2019 data indicated that the social context measures were sensitive to survey mode, as indicated by significantly different prevalence levels when students answered questions with electronic tablets versus paper-and-pencil. We will resume updating these social context estimates in 2021, when more data will allow us to better separate out substantive changes over time from survey mode effects.

The 2019 results presented in this chapter are based on sample sizes about half as large as the ones used in previous years. For the 2019 analyses we report responses only from the randomly selected half of students who were provided paper-and-pencil questionnaires, and not the other half who were provided electronic tablets. Preliminary analyses suggest that attitudes and beliefs estimates may differ significantly across survey mode (in this case paper-and-pencil vs. tablets). Restricting the analysis to paper-and-pencil responses allows direct comparison of findings across years without potential bias from survey mode differences.

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 2019 findings include the following:

- The percentage of 12th graders who thought their close friends would disapprove of their [marijuana use](#) trended downward in 2019. This decline took place across all levels of use; by 4.9 percentage points for experimental use to 41%, by 4.1 points for occasional use to 49%, and by 5.1 points for regular use to 63%.

- In 2019, overwhelming majorities of 12th graders reported that their friends would disapprove of their even experimenting with (“trying once or twice”) crack (94%) or cocaine powder (94%). Nearly as many indicated that their friends would disapprove of their trying LSD (81%), or amphetamines (85%). Presumably, if *heroin*, *PCP*, or *crystal methamphetamine* (*ice*) were on the list, they too would show very high peer disapproval.
- About nine out of ten (89%) 12th graders in 2019 thought their close friends would disapprove of their smoking a pack or more of cigarettes a day.
- The proportion of 2019 12th graders who anticipated disapproval from friends for alcohol use varied with level of consumption: 71% for binge drinking on weekends, 76% for consuming one or two drinks nearly every day, and 86% 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 do not condone the use of 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 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 2019 a large majority of 12th grade students reported that their parents would disapprove of their marijuana use, although this disapproval has slipped somewhat as compared to the mid and late 1970s (Table 9-1 and Figure 9-1a). In 2019 the proportion of 12th graders who believed their parents did NOT disapprove of using marijuana once or twice was 25%, which is quite low albeit significantly higher than the 15% average for 1976-1979 (Figure 9-1a). The percentage of 12th graders who believed their parents would NOT disapprove of occasional marijuana use was 16% in 2019, which is also quite low albeit double the 8% average for 1976-1979 (a statistically

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.

significant increase, Figure 9-1a). And for regular marijuana use 12% of 12th graders in 2019 did not think their parents would disapprove, which is three times higher than the 4% average for 1976-1979 (a significant increase, Figure 9-1a).

Perceived parental disapproval of vaping nicotine regularly was added to the survey in 2019. At a disapproval level of 87% 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 has increased at a record rate since 2017.

Parental disapproval of cigarette smoking and weekend binge drinking increased over the course of the survey. Perceived parental disapproval of smoking one or more packs of cigarettes per day significantly increased to 93% in 2019 as compared to 89% in 1976-1979 (Table 9-1 and Figure 9-2b). Parental disapproval of weekend binge drinking was only slightly higher at 87% in 2019 as compared to 85% in the late 1970s (Table 9-1 and Figure 9-2a).

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 said 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 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. The largest difference occurred in the case of marijuana experimentation, of which only 34% of 12th graders in 2019 said they disapproved, versus 75% who said their parents would disapprove.

Trends in Perceptions of Friends' Attitudes

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.²

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

- Friends' disapproval for each level of [marijuana](#) use – trying once or twice, occasional use, and regular use – has declined considerably since the early 1990s. Disapproval of using marijuana once or twice, for example, declined from a high of 73% in 1992 to 41% in 2019. This finding suggests that 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 a precipitous drop in actual use, suggesting that 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

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.

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 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 last 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. 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.
- 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). 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 it (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. Another 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, 2019

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 one-third (35%) of the 2019 12th graders said they have often been around people using it to get high. What may come as a surprise is that 11%, or one-out-of-nine, of all 12th graders said that most or all of their friends get drunk at least once a week.
- After alcohol use, students are exposed next most frequently to marijuana use (Table 9-3). Only about 26% of the 2019 12th graders reported “not at all” having been around people using marijuana during the prior year; or, put another way, 74% reported having been around people using it to get high at least once. Some 32% said they have *often* been around people using it to get high. On the question about friends' use, 25% said that most or all of their friends smoke marijuana, and only 24% of 12th graders in 2019 said that none of their friends smoked marijuana (Table 9-6).
- Amphetamines, tranquilizers, hallucinogens other than LSD, and narcotics other than heroin rank next in exposure, with 21%, 19%, 16%, and 14%, 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 19% for amphetamines, 10% for tranquilizers, 14% for narcotics other than heroin, and 19% for hallucinogens other than LSD (Table 9-6).
- For the remaining illicit drugs, any exposure to use in the past year ranged from 17% for cocaine down to 5% for heroin in 2019 (Table 9-3).
- Only one quarter (25%) of 12th graders reported no exposure to any illicit drug use during the prior year.
- More than three-fifths (62%) of 12th graders reported no exposure to use of any illicit drug other than marijuana during the prior year – in other words, fewer than two-fifths (38%) had some exposure to use of any of the other drugs.
- Only 4.7% of 12th graders reported that *most or all* of their friends smoked cigarettes in 2019, but just under half (44%) reported having at least *some* friends who smoked.

Friends' Use of Drugs: 8th and 10th Graders, 2019

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, 38% of 8th graders in 2019 said that they have any friends who smoke [*marijuana*](#), compared with 67% of 10th graders and 76% of 12th graders. Still, that means that more than a third of 8th graders – most of whom are 13 or 14 years old – already have friends who smoke marijuana.
- In both grades more students reported that any or most or all of their friends *vaped using a JUUL* than any other drug. In 8th grade 58% of students reported that any of their friends used JUUL and 19% said most or all of their friends used it. In 10th grade the percentages were 70% and 30%, respectively. 2019 was the first year this question was asked.
- [*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, 16% of 8th graders said they have some friends who use inhalants versus 10% of 10th graders and 8% of 12th graders in 2019.
- Exposure to [*alcohol*](#) use by friends is widespread even at these younger ages, with 51% of 8th graders and 74% of 10th graders reporting having friends who use alcohol. In fact, 8% of 8th graders and 24% 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 3% in 8th grade and 8% in 10th grade, compared to 11% in 12th grade.
- Exposure to [*cigarette smoking*](#) by friends is also very high for these young people, with over a quarter (29%) of 8th graders and more than one out of three (35%) 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 smoke marijuana are even higher.)
- Smaller proportions have friends who use [*smokeless tobacco*](#): 19% of 8th graders and 26% of 10th graders in 2019.

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

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: 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* smoke [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 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 show steady and dramatic declines and are currently less than one half of their 1997 levels. As these measures have declined so too has 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%, 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 45 years 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 declined with levels of actual binge drinking since the early 2000s. In prior years, the prevalence of 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.

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

- 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 for the study.

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

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 9-3 and 9-4.

- The proportions of 8th and 10th grade students reporting that most or all of their friends smoke [*marijuana*](#) has not declined in recent years. In 2019, among 8th graders it has been between 8% and 9% for the past four years. Among 10th grade students it has 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 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 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

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.

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, and 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 2009-2017 and 2018-2019 are combined in order to increase sample size and provide more stable estimates. Note that for the 2018 and 2019 combined data the weighted numbers of cases range between 70 and 105 for each of the drugs presented. For the 2009 through 2017 combined detailed data, the weighted numbers of cases range from 715 to 1013. 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 the two 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.*

One notable shift in recent years is that more 12th graders report buying prescription drugs rather than receiving them for free. For tranquilizers the percentage of 12th graders who bought them in 2018-2019 (43%) was larger than the percentage who received them for free (31%), opposite the pattern for 2009-2017 (which was 35% and 51%, respectively). For amphetamines and narcotics other than heroin the percentage of 12th graders who bought them or were gifted them by friends was about the same in 2018-2019, as compared to a relatively larger percentage who received them for free in 2009-2017.

“From a prescription I had” is a relatively common source for narcotic drugs at 28%, fairly similar to “bought from a friend” at 25%. This source is similar in prevalence to “from a drug dealer/stranger,” which was 21% for amphetamine users, 27% for tranquilizer users, and 19% for narcotic users.

The least likely sources are “took from a friend without asking,” “bought from a relative,” and “bought on the Internet.” The Internet is mentioned as a source by only 3.9% of the users of amphetamines, 4.2% of the users of tranquilizers, and 3.7% of the users of narcotics other than heroin. This may be in part because young people this age are usually living at home and do not want to risk their parents intercepting a shipped package containing illicit drugs. The Internet may well be an important source for older people, especially those who sell these drugs.

Not all of the answers are similar across drugs, however. While obtaining the drug “from a prescription I had” is mentioned by 28.4% of past-year users for narcotics other than heroin, it is mentioned by only 15.9% of the amphetamine users and 12.6% of the tranquilizer users. The fact that a significant proportion of students who misuse narcotic 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 would reduce diversion to non-medically supervised use.

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

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.

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, 2019: All Grades

- Substantial differences were found in perceived availability of the various drugs. The percentage of 12th graders reporting it would be fairly easy or easy to get a drug varied from 16% or less for [heroin](#) and [PCP](#) to above 80% for [alcohol](#), [vaping devices](#), and [an e-liquid with nicotine for vaping](#).
- In general, the more widely used drugs are reported to be available by higher proportions of the age group, as would be expected (see Tables 9-7, 9-8, and 9-9). The substances with the highest levels of use in 2019, such as marijuana, alcohol, and e-liquids for vaping, also place in the top three in terms of perceived availability.
- Older age groups generally perceive drugs to be more available. For example, in 2019, 35% of 8th graders said [marijuana](#) would be fairly easy or very easy to get (which we refer to as “readily available”), versus 66% of 10th graders and 78% of 12th graders. In fact, compared to 8th graders, the proportions of 12th graders indicating that drugs are available to them are two to four times as high for *other illicit drugs* included in the study. (An exception is [tranquilizers](#), which are perceived to be about equally available in 8th and 12th grades, and have highest perceived availability in 10th grade.)
- 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 2019, 78% 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 (44%). Marijuana has the highest availability level of all illicit substances in this 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 [amphetamines](#), with 39% saying these drugs would be very or fairly easy to get, followed by [narcotics other than heroin](#) (31%).
- Between 16% and 30% of 12th graders perceived the following as readily available: [MDMA \(ecstasy, Molly\)](#) (24%), [hallucinogens other than LSD](#) (30%), [cocaine](#) (24%), [LSD](#) (28%), [sedatives \(barbiturates\)](#) (24%), [cocaine powder](#) (20%), [steroids](#) (19%), [heroin](#) (16%), and [crack](#) (17%).

- Crystal methamphetamine (ice), tranquilizers, and PCP were reported as readily available by smaller proportions of 12th graders in 2019 (12%, 15%, and 11%, respectively).
- In 8th grade the percentage who reported they could fairly or very easily get a vaping device was 49% and for e-liquids with nicotine it was 46%. The respective availability levels in 10th grade were 68% and 65%, and in 12th grade they were 83% and 82%.
- 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 8th grade the availability of JUUL as compared to a vaping device was 52% and 49%, respectively, and in 10th grade it was 69% and 68%, respectively. In both grades JUUL and vaping devices had higher availability levels than cigarettes.
- In 2019, 43% of 8th graders, 58% of 10th graders, and 75% of 12th graders thought that cigarettes would be fairly easy or very easy for them to get if they wanted some.
- The great majority of teens see alcohol as readily available: In 2019, 53% of 8th graders, 69% of 10th graders, and 84% of 12th graders said it would be fairly easy or very easy to get.
- Drug availability levels are lowest in 8th grade. Even so, marijuana was described as readily available by 35% of 8th graders in 2019.
- 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

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 2nd and 3rd 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 is near its lowest level recorded since first measured in 1999, at 84% it is still very high.

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 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. 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. Over the same interval, the decline among 10th graders was from 91% in 1996 to 58% in 2019. These are encouraging changes and suggest that government 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 available starting in 2017. In 2019, 75% of 12th grade students reported ready availability of cigarettes, down from 78% in 2017. 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 that it would be fairly or very easy to obtain amphetamines has declined over the course of the study and is now 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) are at or near the lowest levels recorded by the study in all grades. 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 ever recorded by the study. Past 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 grade, levels of availability of these substances in 2019 were at or near historic lows in the life of the study 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 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 for now 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% since 2012.

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 is 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 report they could “fairly” or “very” easily obtain [MDMA](#) (ecstasy and later Molly) in 2019 was 24%, in between its record high of 62% (in 2001) and record low of 22% (in 1989, the first year it was measured when it was new on the scene, 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) has 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 is at or near historic lows (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 to its current level. 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. 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),

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.

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 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	2018–2019 change
Trying marijuana once or twice	90.8	87.4	85.8	83.2	84.9	—	77.6	78.9	75.4	-3.5
Smoking marijuana occasionally	95.6	93.0	92.5	90.8	93.2	—	83.0	84.5	83.5	-1.0
Smoking marijuana regularly	98.1	96.3	96.5	95.6	97.2	—	87.3	88.2	87.9	-0.3
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	-1.3
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	+0.2
Vaping an e-liquid with nicotine regularly	—	—	—	—	—	—	—	—	86.6	—
<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>	

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.

^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
Smoking 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
Smoking 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
Smoking 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
Smoking 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	2018–2019 change
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	-4.9
Smoking 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	-4.1
Smoking 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	-5.1
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	-1.4
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	+0.5
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	-1.4
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	+1.3
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	+0.2
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	+1.5
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	+1.5
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	+0.7
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	-1.3
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	-0.6
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	-1.5
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	+1.9
<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>	

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.

^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.

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	2018–2019 change
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	-2.8
% 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	+2.8
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	+2.0
% 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	-0.1
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	-3.7
% 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	+4.0
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	+0.4
% 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	-0.1
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	-0.3
% 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	-0.2
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	0.0
% 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	+0.7
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	+0.3
% 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	0.0
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	+3.7 s
% 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	-0.5
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	+0.9
% 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	+0.7
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	+1.8
% 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	-0.4
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	+1.3
% 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	-1.2
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	-0.1
% 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	+1.4
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	

Table continued on next page.

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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.

^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>
Smoke 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
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>	<i>16,000</i>	<i>16,600</i>	<i>16,500</i>	<i>15,800</i>	<i>15,300</i>	<i>16,100</i>	<i>16,100</i>	<i>16,000</i>	<i>10,100</i>	<i>10,000</i>	<i>9,700</i>	<i>9,200</i>	<i>10,400</i>	<i>10,500</i>	<i>10,400</i>	<i>10,200</i>

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>	2018-2019 <u>change</u>
Smoke 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	+2.4
% 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	+0.1
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	-0.6
% 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	-0.1
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	+1.2
% 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	+0.3
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	+1.1
% 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	+0.2
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	+1.2
% 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	+0.2
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	+2.5
% 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	-0.2
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	+2.3
% 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	+0.3
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	+0.1
% 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	+0.3
Vape using a JUUL^a														
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	58.4	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	18.8	—
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	+1.1
% 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	+0.1
<i>Approximate weighted N =</i>	<i>9,900</i>	<i>9,600</i>	<i>9,200</i>	<i>9,600</i>	<i>10,200</i>	<i>9,400</i>	<i>9,000</i>	<i>8,700</i>	<i>8,900</i>	<i>10,400</i>	<i>9,300</i>	<i>9,200</i>	<i>4,235</i>	

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.

^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.

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>
Smoke 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
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>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2018-2019 change
Smoke 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	+0.1
% 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	+1.5
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	-0.4
% 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	+0.2
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	-0.7
% 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	+0.4
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	0.0
% 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	+0.6
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	+0.8
% 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	+0.6
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	-1.6
% 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	-2.5
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	-1.5
% 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	-1.1
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	-8.0 ss
% 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	-0.4
Vape using a JUUL^a														
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	70.0	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	30.2	—
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	-6.8 s
% 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	-0.5
Approximate weighted N =	10,300	9,700	10,300	9,900	9,700	9,700	8,400	8,400	10,100	9,300	8,500	8,500	4,456	

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.

^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.

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
Smoke 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

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(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
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
Smoke 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.)

<i>How many of your friends would you estimate . . .</i>	<u>2006</u>	<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</u>	<u>2017–2018 change</u>
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	-0.9
% 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	-1.3
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	-2.5
% 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	-0.5
Smoke 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	-0.1
% 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	-0.8
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	-1.0
% 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	-0.5
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	-0.3
% 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	-0.1
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	-2.8
% 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	-0.4
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	-3.1
% 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	-0.2
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	-2.4
% 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	+0.6
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	-1.1
% 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	+0.4
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	-3.0
% 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	-0.3
<i>Approximate weighted N =</i>	<i>2,217</i>	<i>2,253</i>	<i>2,125</i>	<i>2,110</i>	<i>2,195</i>	<i>2,208</i>	<i>2,144</i>	<i>1,973</i>	<i>1,920</i>	<i>2,055</i>	<i>1,828</i>	<i>1,955</i>	<i>2,002</i>	<i>946</i>	

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 qualaludes																
% 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
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
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.)

<i>How many of your friends would you estimate . . .</i>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	2018–2019 change
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	-1.2
% 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	+0.4
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	-0.5
% 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	-0.4
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	-2.7
% 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	-0.3
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	+0.8
% 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	-0.1
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	-0.6
% 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	+0.5
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	-0.7
% 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	-3.0
% 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	-2.5
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	-1.5
% 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	-0.4
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	-6.4 s
% 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	-1.3
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	-1.3
% 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	-0.2
<i>Approximate weighted N =</i>	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	

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.

^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 the 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.

TABLE 9-7
Trends in Availability of Drugs as Perceived by 8th 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
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
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
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
MDMA (e.g. ecstasy, "Molly") ^b	—	—	—	—	—	—	—	—	—	—	23.8	22.8	21.6	16.6	15.6
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
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
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
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
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
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
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
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
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
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
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
<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

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														2018–2019 change
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	
Marijuana	39.6	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	-0.0
LSD	10.8	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	+0.5
PCP ^b	10.5	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	+0.9
MDMA (e.g. ecstasy, "Molly") ^b	14.5	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	+1.3
Crack	20.9	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	-0.6
Cocaine powder	20.2	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	-0.3
Heroin	13.0	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	+0.3
Narcotics other than Heroin ^{b,c}	13.0	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	+1.0
Amphetamines ^d	20.7	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	+1.2
Crystal methamphetamine (ice) ^b	14.5	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	+0.7
Sedatives (barbiturates) ^e	17.3	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	+0.4
Tranquilizers	14.4	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	+0.4
Alcohol	63.0	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	-0.8
Cigarettes	58.0	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	-2.7
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	38.6	45.7	49.1	+3.5
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	31.0	37.9	46.1	+8.1 sss
JUUL vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	51.5	—
Steroids	17.1	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	+0.5
<i>Approximate weighted N =</i>	15,502	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	

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.

^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.

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
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
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
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
MDMA (e.g. ecstasy, "Molly") ^c	—	—	—	—	—	—	—	—	—	—	41.4	41.0	36.3	31.2	30.2
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
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
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
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
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
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
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
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
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
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
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
<i>Approximate weighted N =</i>		<i>7,014</i>	<i>14,652</i>	<i>15,192</i>	<i>16,209</i>	<i>14,887</i>	<i>14,856</i>	<i>14,423</i>	<i>13,112</i>	<i>13,690</i>	<i>13,518</i>	<i>13,694</i>	<i>15,255</i>	<i>15,806</i>	<i>15,636</i>

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														2018–2019 change
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ⁱ	
Marijuana	70.7	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	+1.2
LSD	19.2	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	+1.3
PCP ^b	15.8	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	+2.2 ^s
MDMA (e.g. ecstasy, "Molly") ^c	27.4	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	+2.1
Crack	29.9	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	+0.6
Cocaine powder	30.7	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	+0.1
Heroin	17.4	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	+0.7
Narcotics other than Heroin ^{b,g}	22.2	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	+0.4
Amphetamines ^d	34.7	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	-0.4
Crystal methamphetamine (ice) ^b	20.8	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	+2.0 ^s
Sedatives (barbiturates) ^e	29.9	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	+0.1
Tranquilizers	25.1	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	-1.6
Alcohol	83.1	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	-1.7
Cigarettes	79.5	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	-3.1
Vaping device ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	59.5	66.6	68.3	+1.7
E-liquid with nicotine (for vaping) ^{e,f}	—	—	—	—	—	—	—	—	—	—	—	52.8	60.4	64.5	+4.1
JUUL vaping device ^h	—	—	—	—	—	—	—	—	—	—	—	—	—	68.8	—
Steroids	30.2	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	-0.8
<i>Approximate weighted N =</i>	15,804	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	

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.

^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.

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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

<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>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Alcohol	—	—	—	—	—	—	—	—	95.0	94.8	94.3	94.7	94.2	94.2	93.0
Cigarettes ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-liquid with nicotine (for vaping) ^g	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
<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

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														2018–2019 change
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^h	
How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?															
Marijuana	84.9	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	-1.7
Amyl/butyl nitrites	18.4	18.1	16.9	15.7	—	—	—	—	—	—	—	—	—	—	—
LSD	29.0	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	+0.2
Some other hallucinogen ^b	43.9	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	+1.1
PCP	23.1	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	+0.2
MDMA (e.g. ecstasy, "Molly") ^c	40.3	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	-3.4
Cocaine	46.5	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	-3.9 s
Crack	38.8	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	-3.9 s
Cocaine powder	42.5	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	-3.2
Heroin	27.4	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	-2.3
Some other narcotic (including methadone) ^d	39.6	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	-1.5
Amphetamines ^e	52.9	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	-0.3
Crystal methamphetamine (ice)	26.7	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	-1.7
Sedatives (barbiturates) ^f	43.8	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	+0.6
Tranquilizers	24.4	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	+1.7
Alcohol	92.5	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	-1.1
Cigarettes ^g	—	—	—	—	—	—	—	—	—	—	—	77.9	75.1	74.7	-0.3
Vaping device ^g	—	—	—	—	—	—	—	—	—	—	—	78.2	80.5	82.9	+2.4
E-liquid with nicotine (for vaping) ^g	—	—	—	—	—	—	—	—	—	—	—	75.0	77.2	81.6	+4.5 s
Steroids	41.1	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	-2.0
	<i>Approximate weighted N =</i> 2,131 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														

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.

^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.

TABLE 9-10
Source of Prescription Drugs
among Those Who Used in Last Year
Grade 12, 2009–2019

(Entries are percentages.)

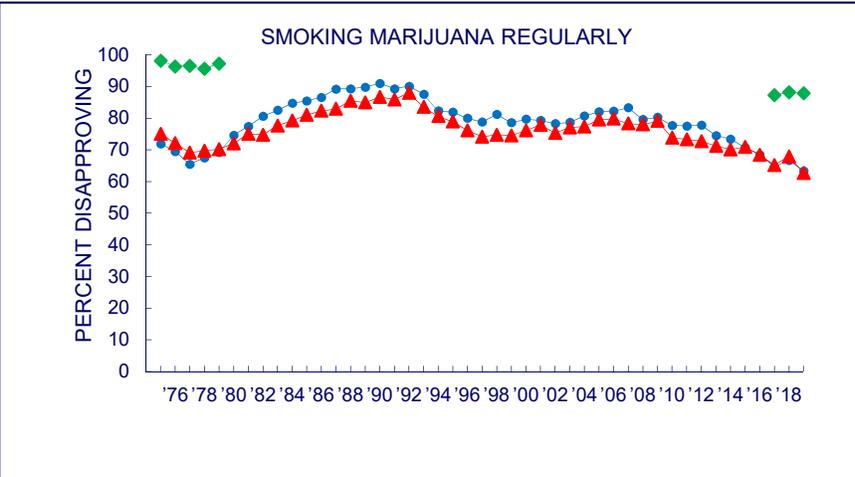
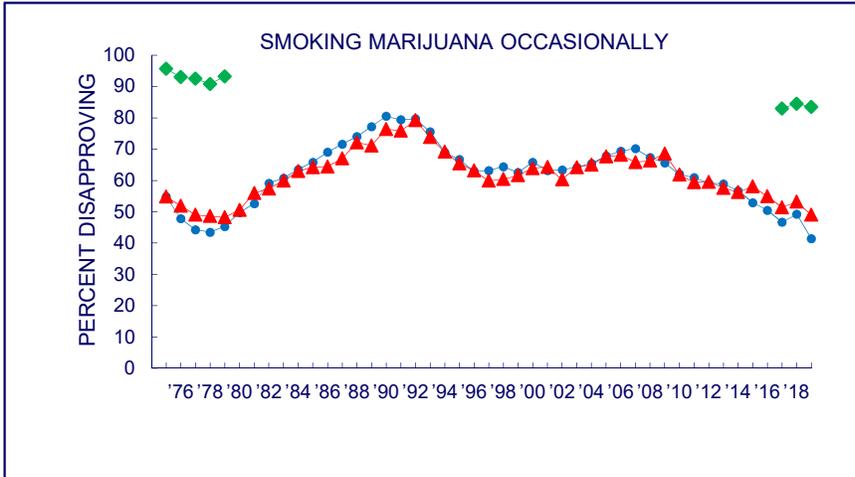
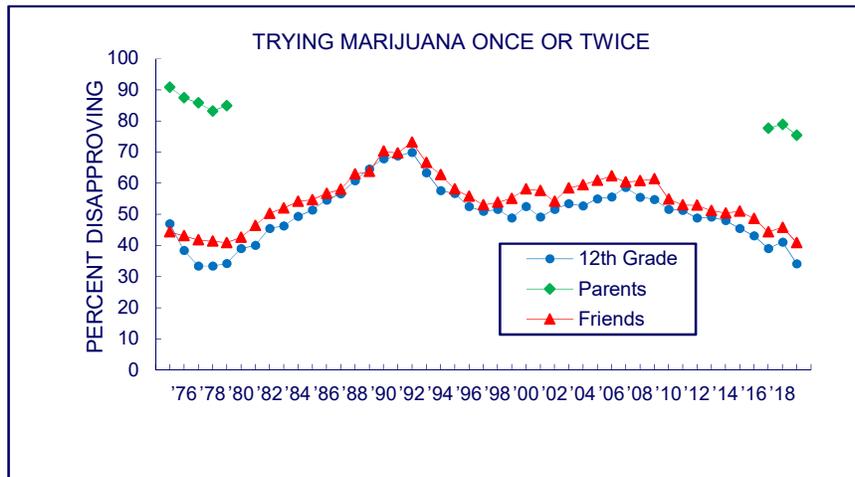
Where did you get the [insert drug name here] you used without a doctor's orders during the past year? (Mark all that apply.)

	Amphetamines		Tranquilizers		Narcotics other than Heroin	
	2009-2017	2018-2019 ^a	2009-2017	2018-2019 ^a	2009-2017	2018-2019 ^a
Bought on Internet	5.7	3.9	4.3	4.2	1.8	3.7
Took from friend/relative without asking	10.1	12.9	15.5	6.2	20.8	7.5
Took from a friend without asking	4.4	3.3	4.2	0.7	4.3	0.0
Took from a relative without asking	7.9	11.2	13.5	5.6	19.2	7.5
Given for free by friend or relative	57.4	47.6	61.0	37.2	55.5	46.3
Given for free by a friend	53.1	37.0	50.9	30.9	48.6	28.4
Given for free by a relative	9.5	17.2	18.5	6.3	14.8	19.9
Bought from friend or relative	43.1	38.5	36.3	44.5	31.9	25.4
Bought from a friend	42.4	35.6	35.2	42.8	31.5	25.4
Bought from a relative	2.8	4.8	4.3	3.9	3.6	2.3
From a prescription I had	14.7	15.9	12.2	12.6	35.7	28.4
Bought from drug dealer/stranger	17.7	21.0	21.7	27.1	16.6	18.6
Other method	12.2	15.6	9.5	11.6	9.8	12.0
<i>Weighted N =</i>	999	105	715	76	1013	70

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

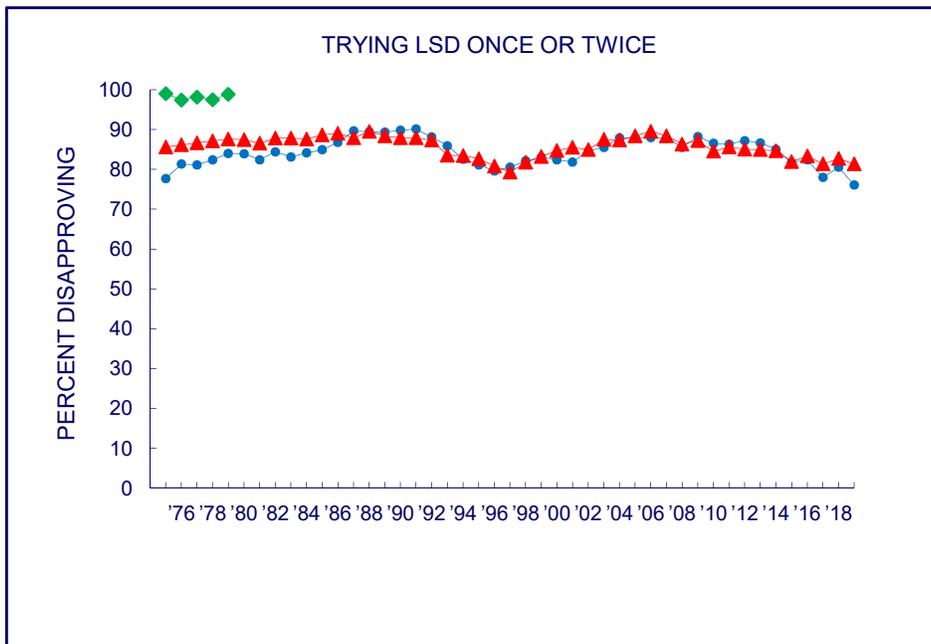
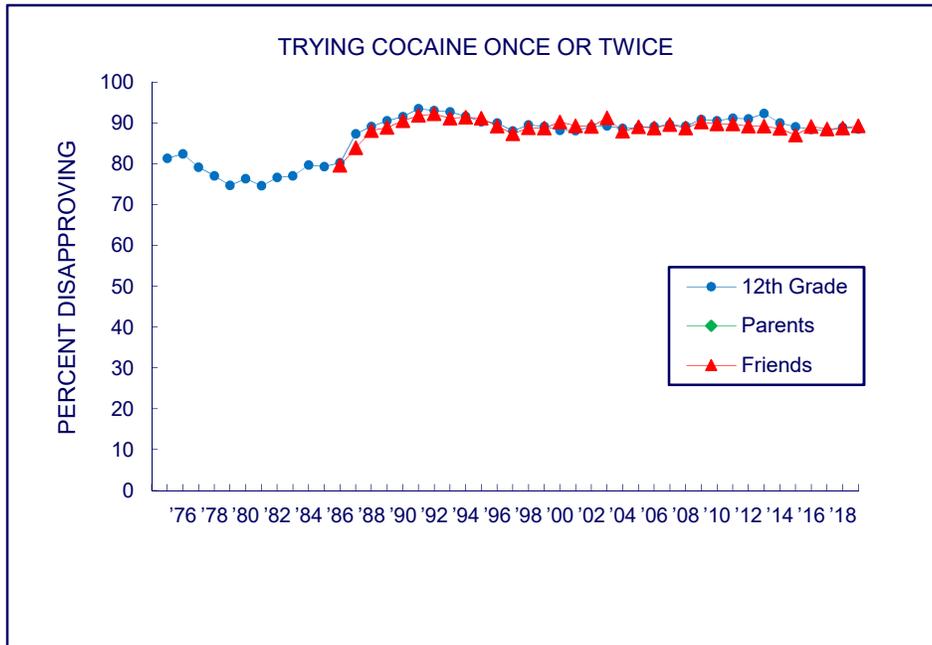
^aFor 2019, this estimate includes data only from the half sample who received the traditional paper and pencil questionnaire form.

FIGURE 9-1a
MARIJUANA
Trends in Disapproval
12th Graders, Parents, and Friends



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

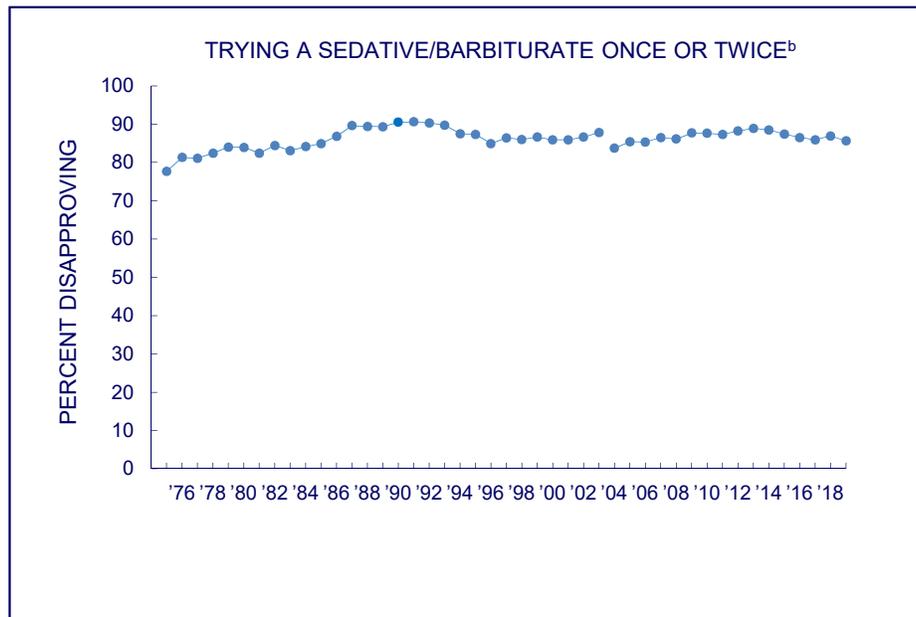
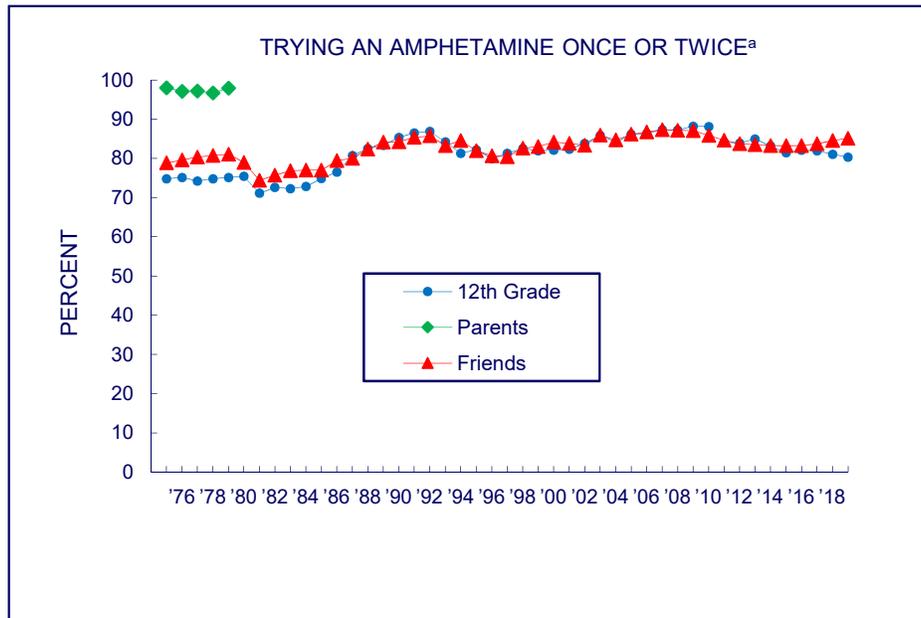
FIGURE 9-1b
COCAINE AND LSD
Trends in Disapproval
12th Graders, Parents, and Friends



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

Note. 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 text between administration years.

FIGURE 9-1c
AMPHETAMINES AND SEDATIVES (BARBITURATES)
Trends in Disapproval
12th Graders, Parents, and Friends



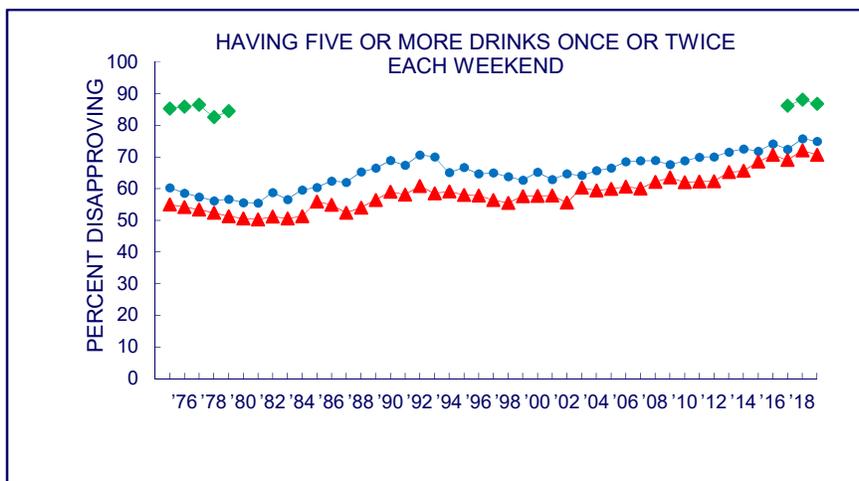
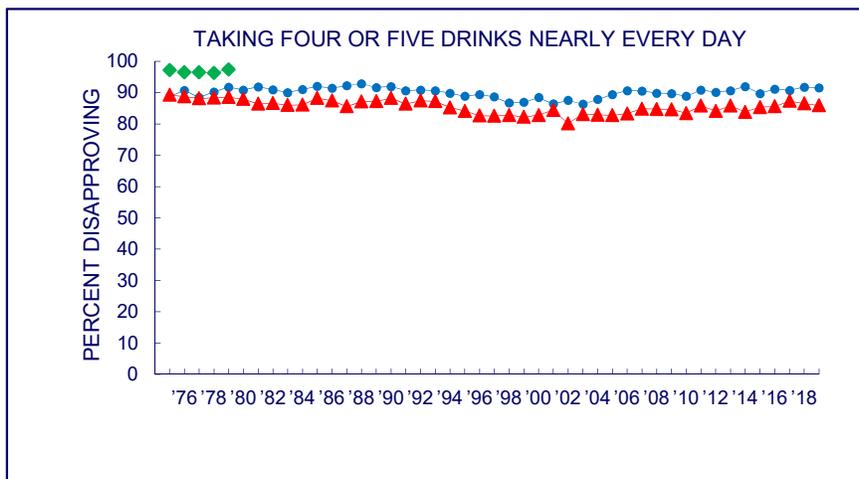
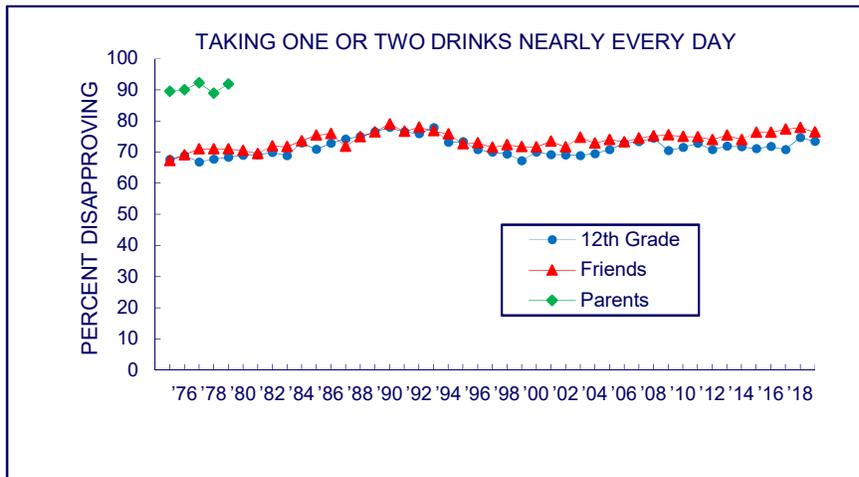
Source. The Monitoring the Future study, the University of Michigan.

Note. 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 text between administration years.

^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.

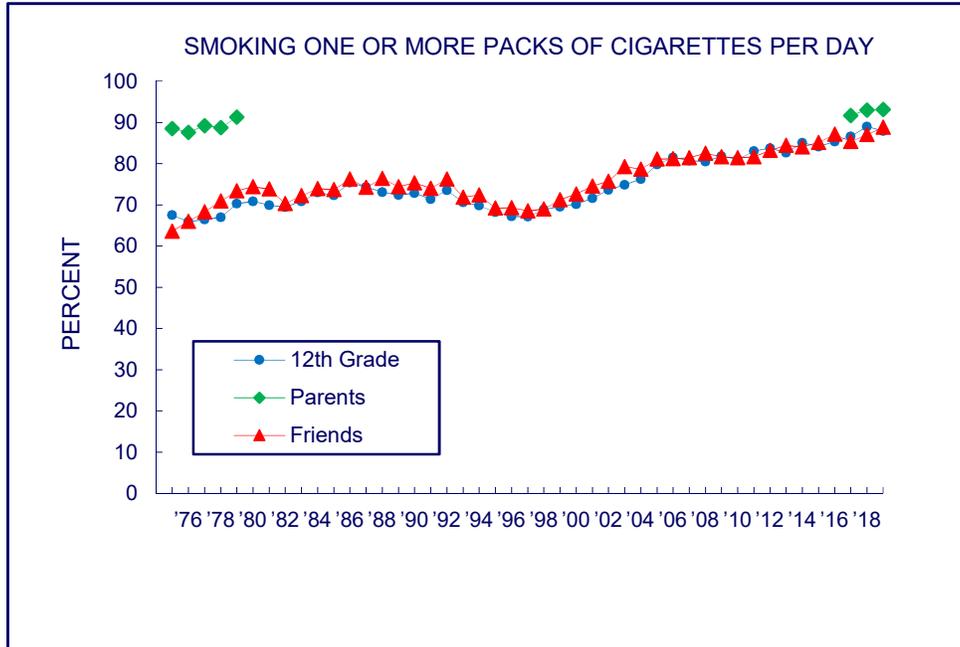
^bIn 2004 the question text was changed from barbiturates to sedatives/barbiturates, and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 9-2a
ALCOHOL
Trends in Disapproval
12th Graders, Parents, and Friends



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

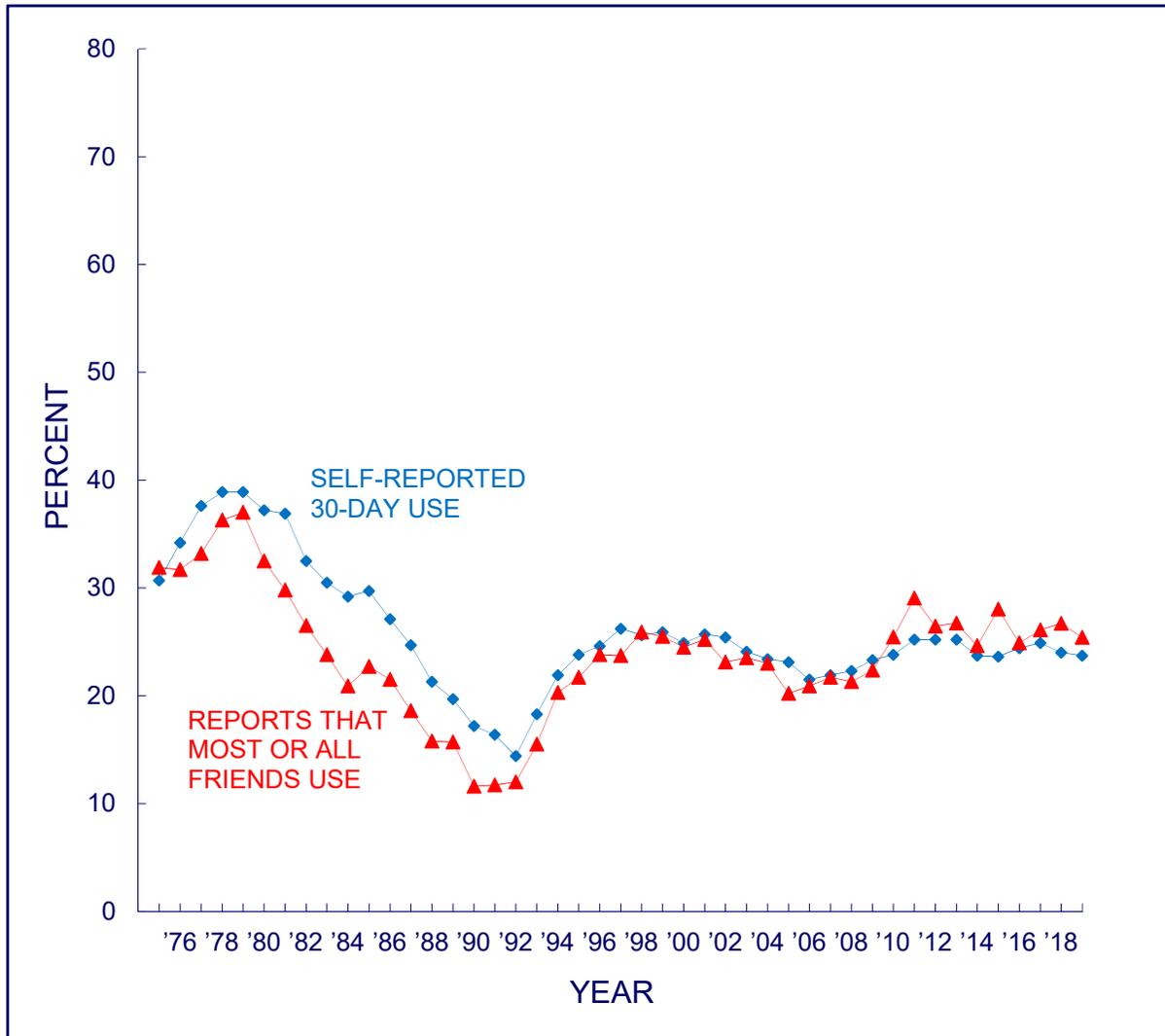
FIGURE 9-2b
CIGARETTES
Trends in Disapproval
12th Graders, Parents, and Friends



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

Note. 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 text between administration years.

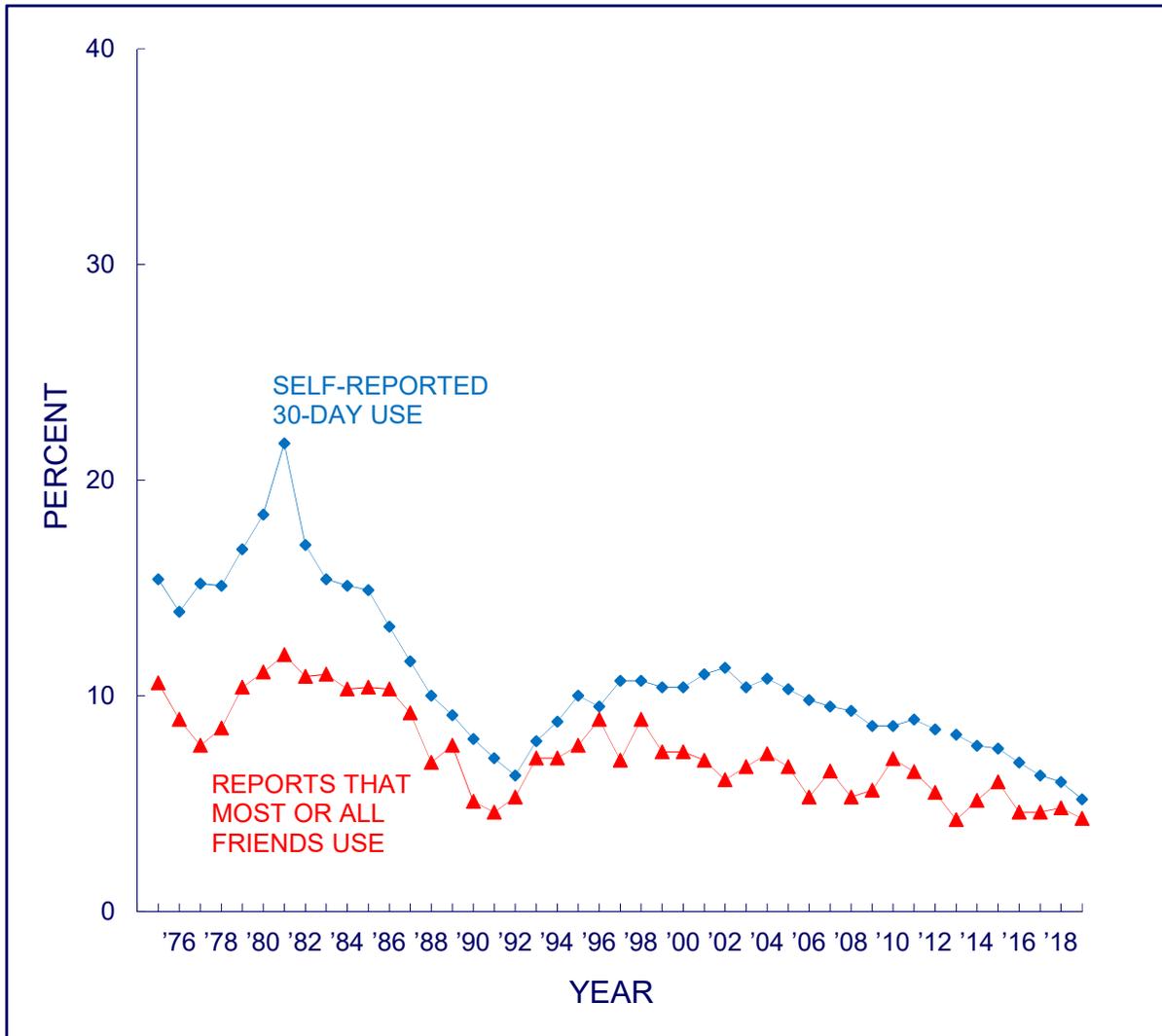
FIGURE 9-3a
ANY ILLICIT DRUG
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

^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.

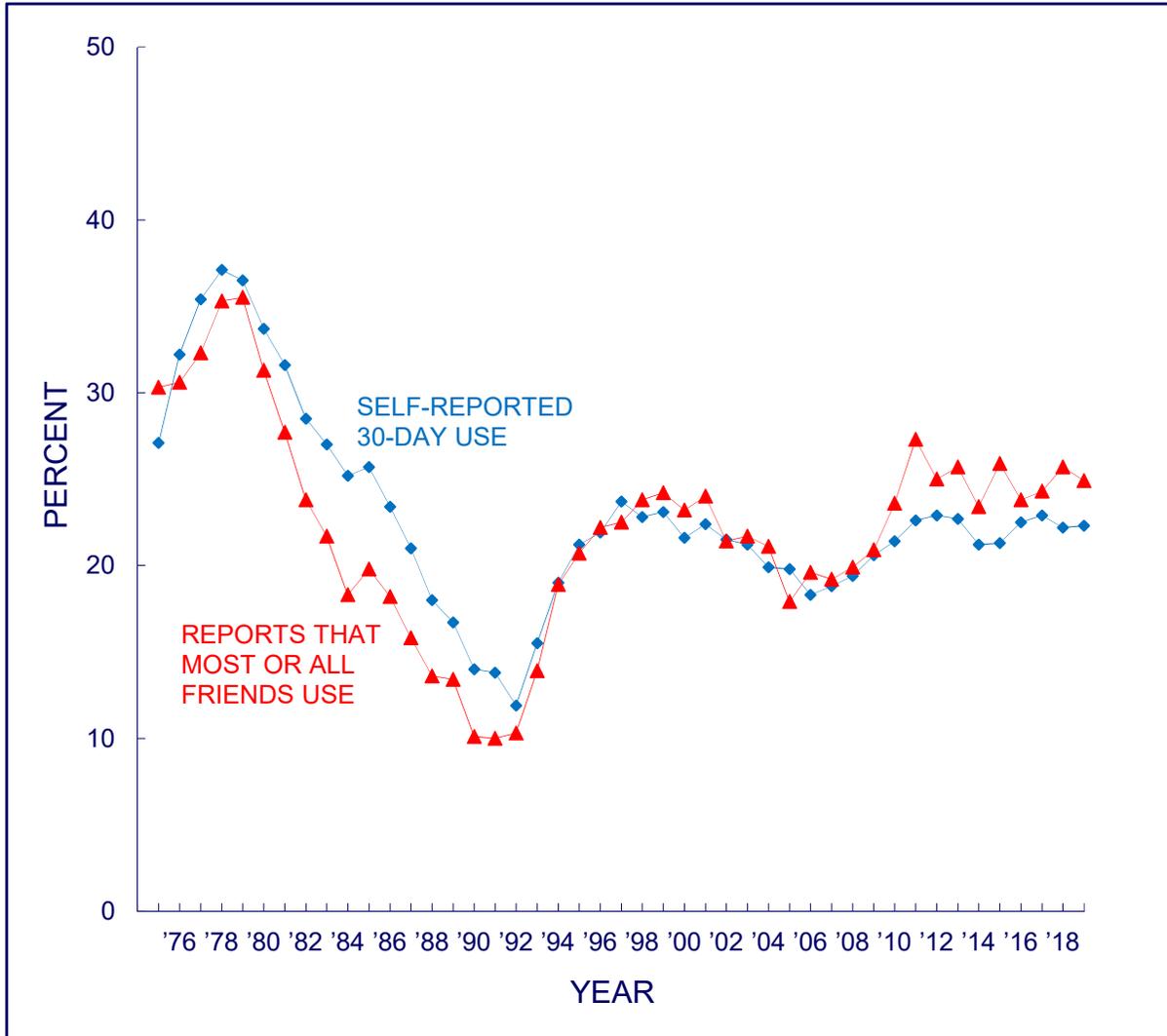
FIGURE 9-3b
ANY ILLICIT DRUG OTHER THAN MARIJUANA
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

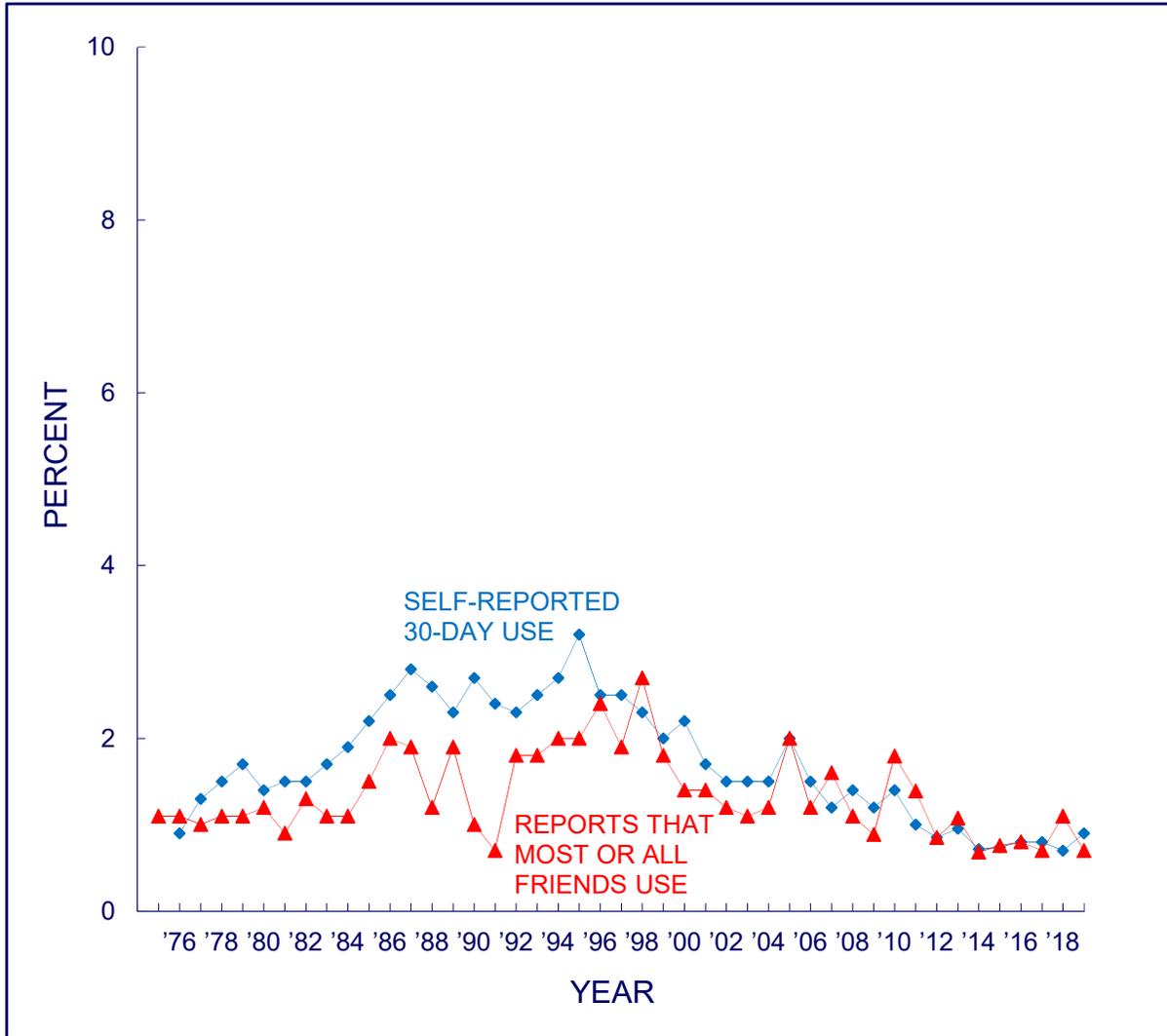
^aIn 2013, the question text for the use of amphetamines was changed on some of the questionnaire forms, with the remaining forms changed in 2014. This change affected the data for use of any illicit drug other than marijuana. Data presented here include only the changed forms.

FIGURE 9-3c
MARIJUANA
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



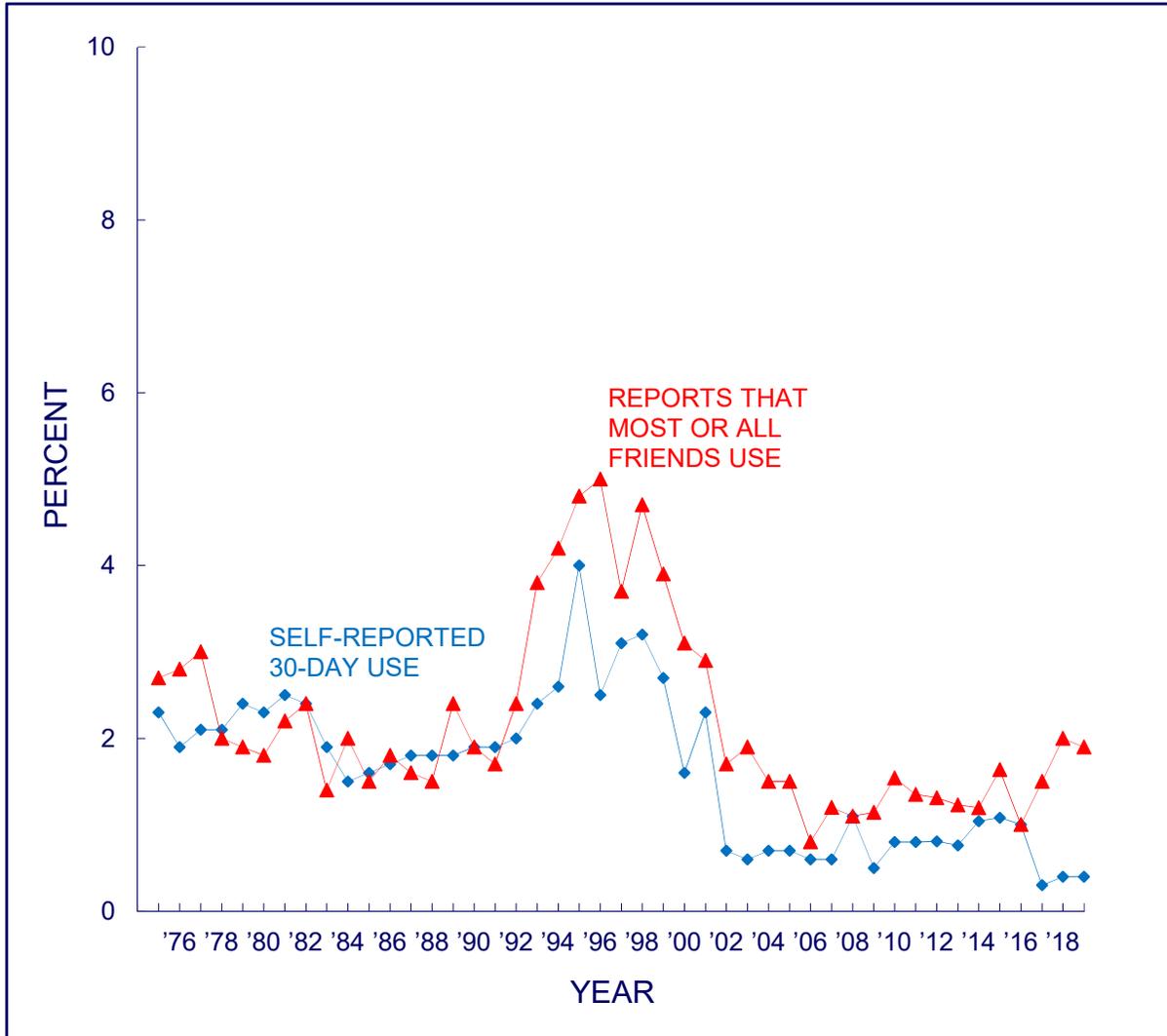
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-3d
INHALANTS
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



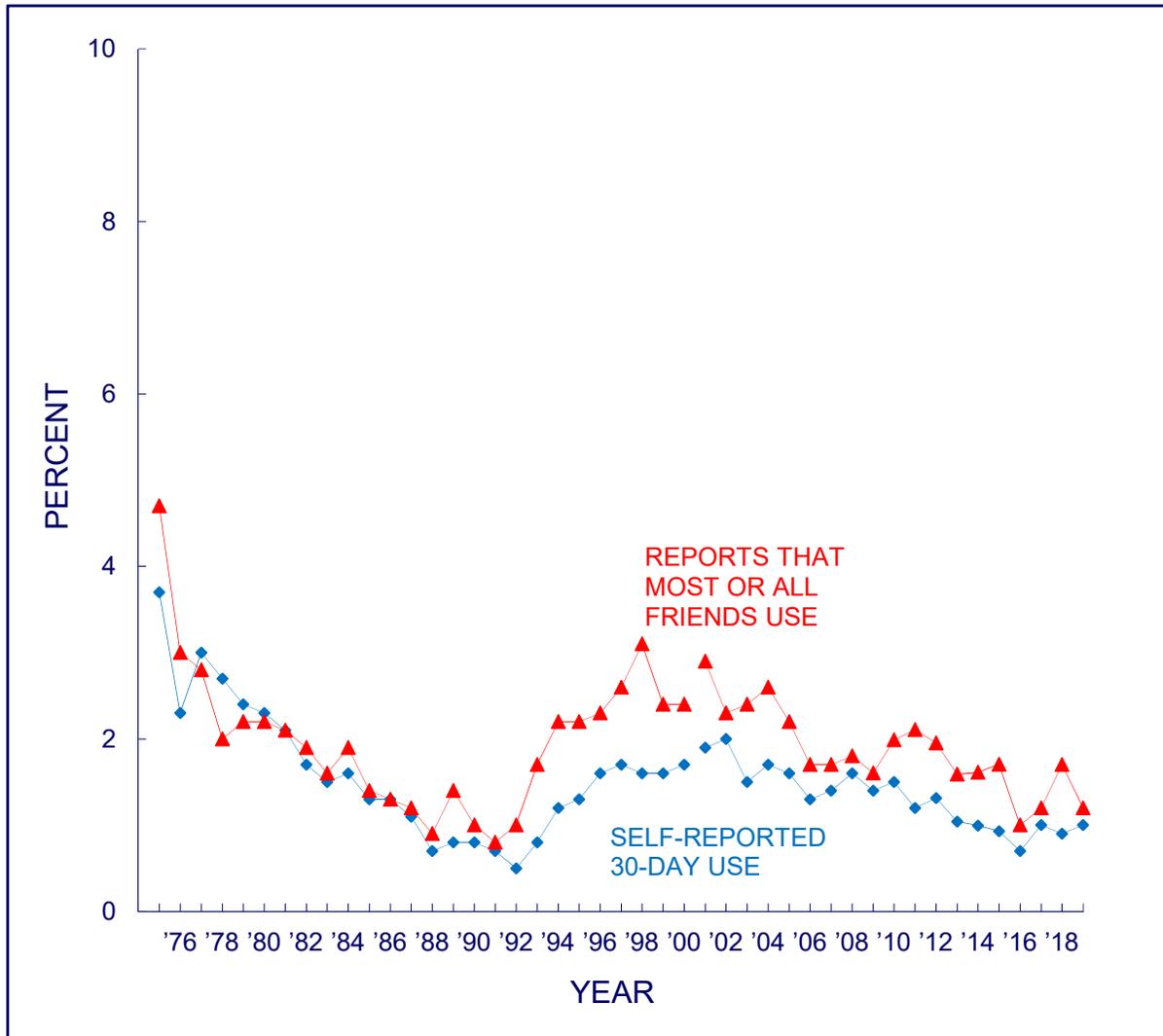
Source. The Monitoring the Future study, the University of Michigan.

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.

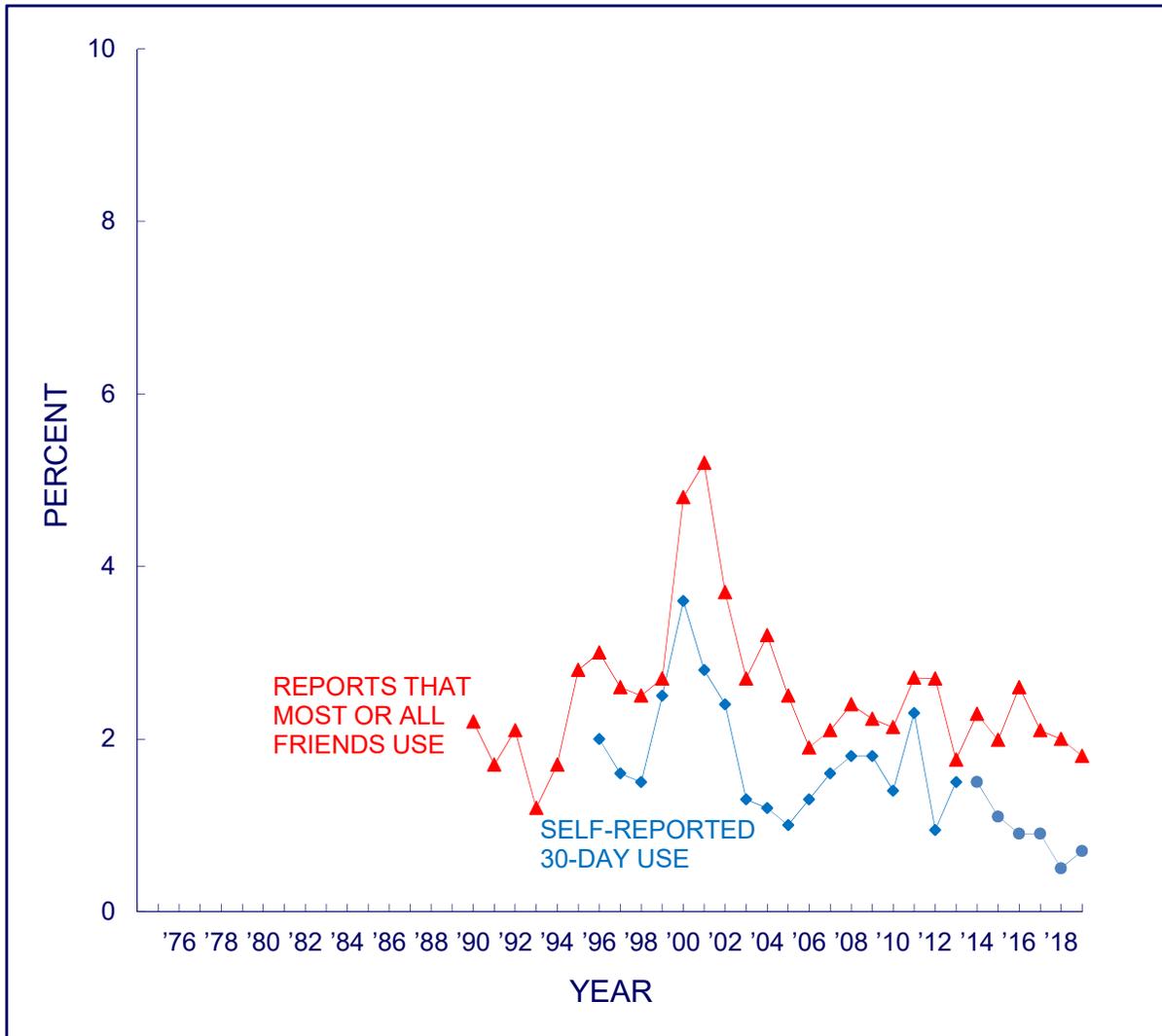
FIGURE 9-3f
HALLUCINOGENS OTHER THAN LSD
Trends in 30-Day Prevalence^a and
Friends' Use^a in Grade 12



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

^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.

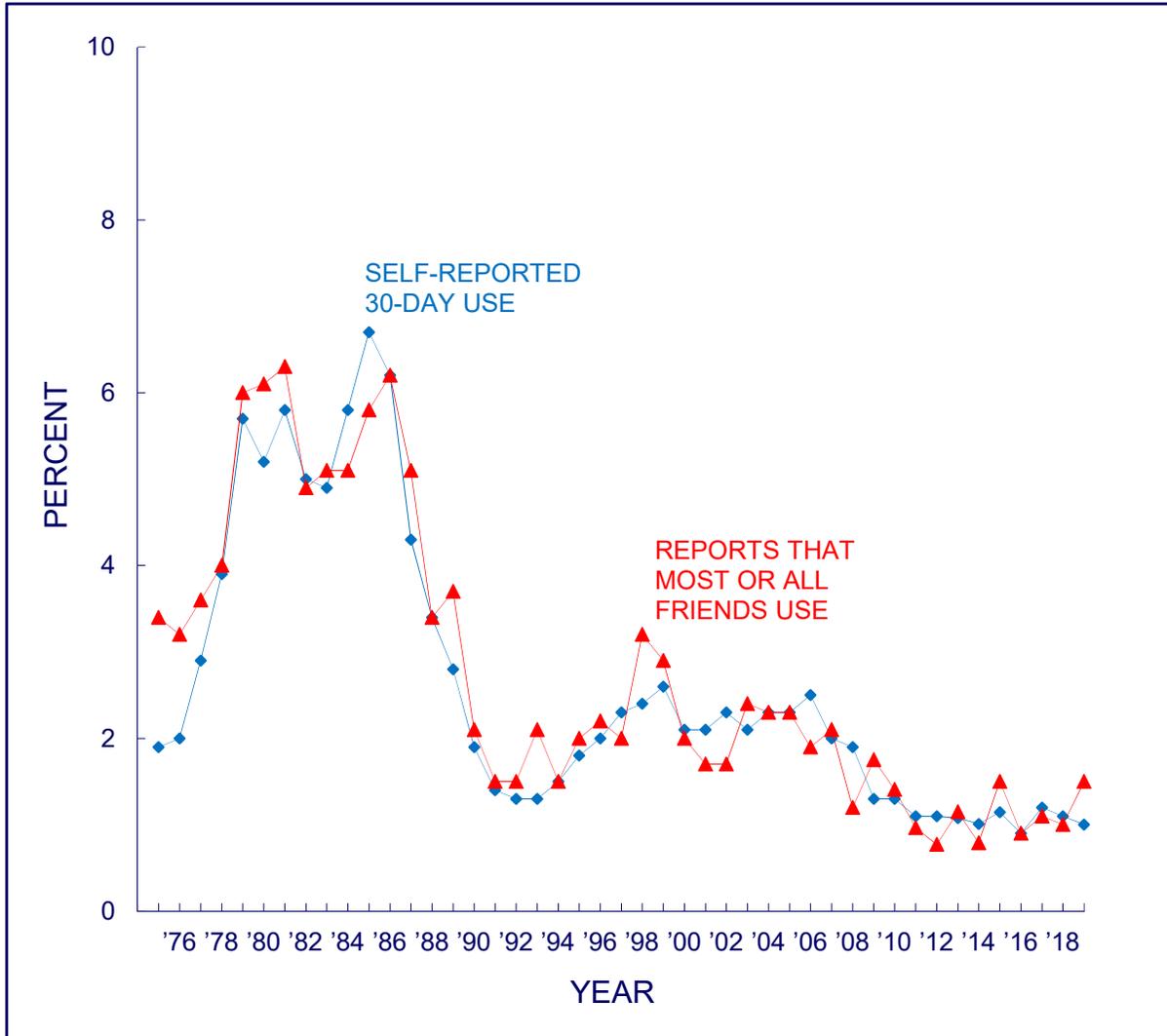
FIGURE 9-3g
MDMA (ECSTASY, MOLLY)
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

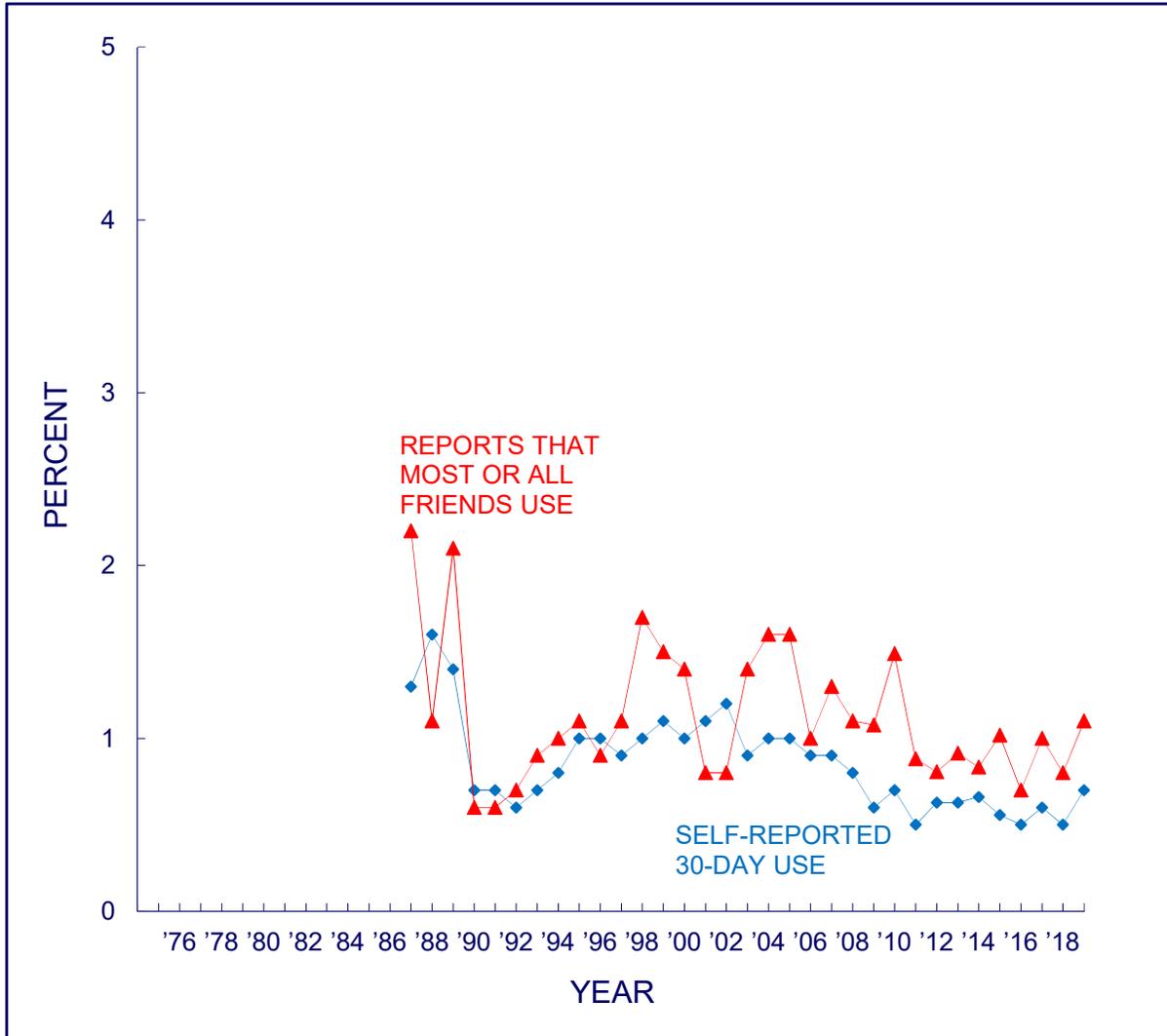
^aIn 2014, the text was changed on one of the questionnaire forms to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

FIGURE 9-3h
COCAINE
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



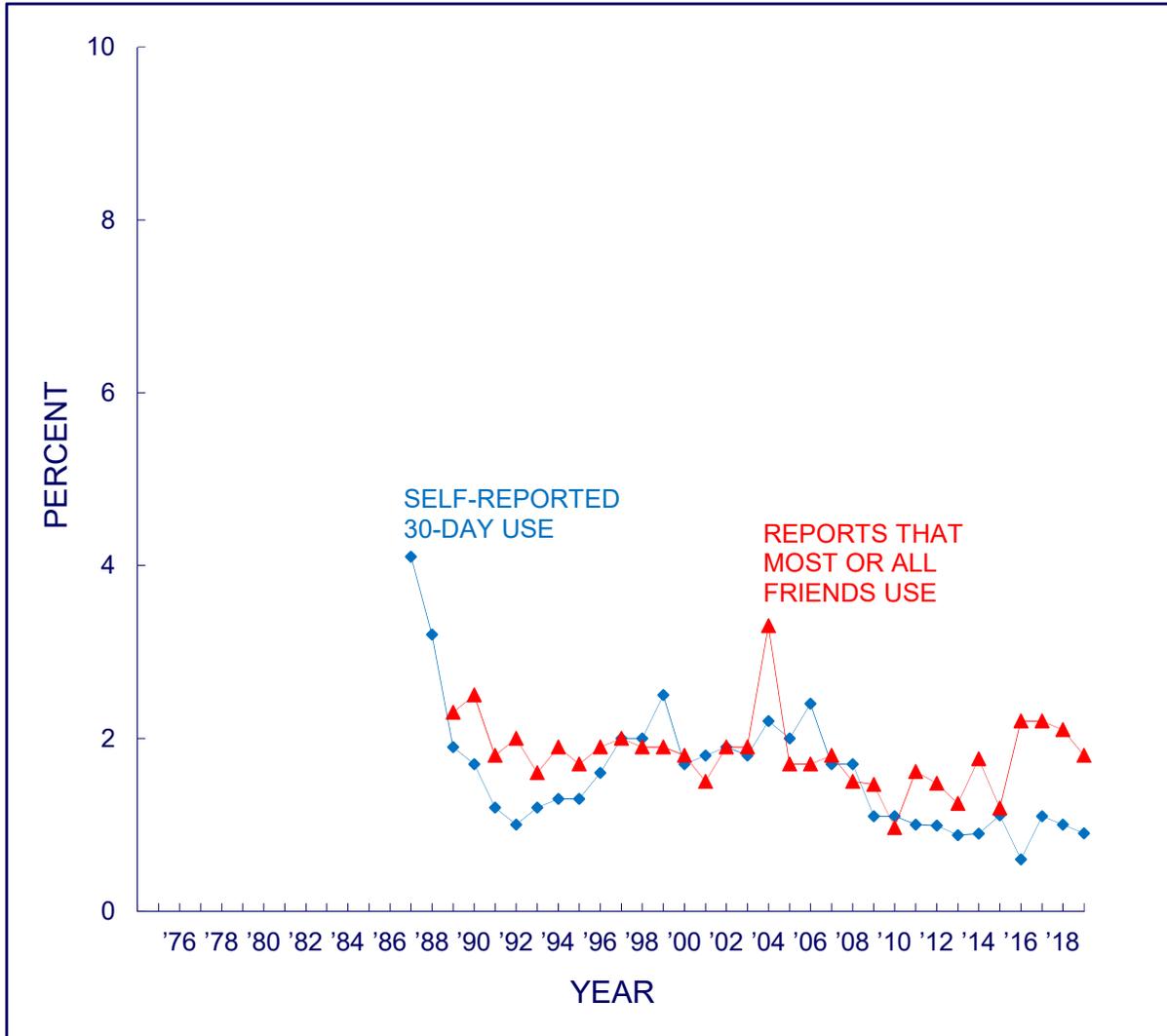
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-3i
CRACK
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



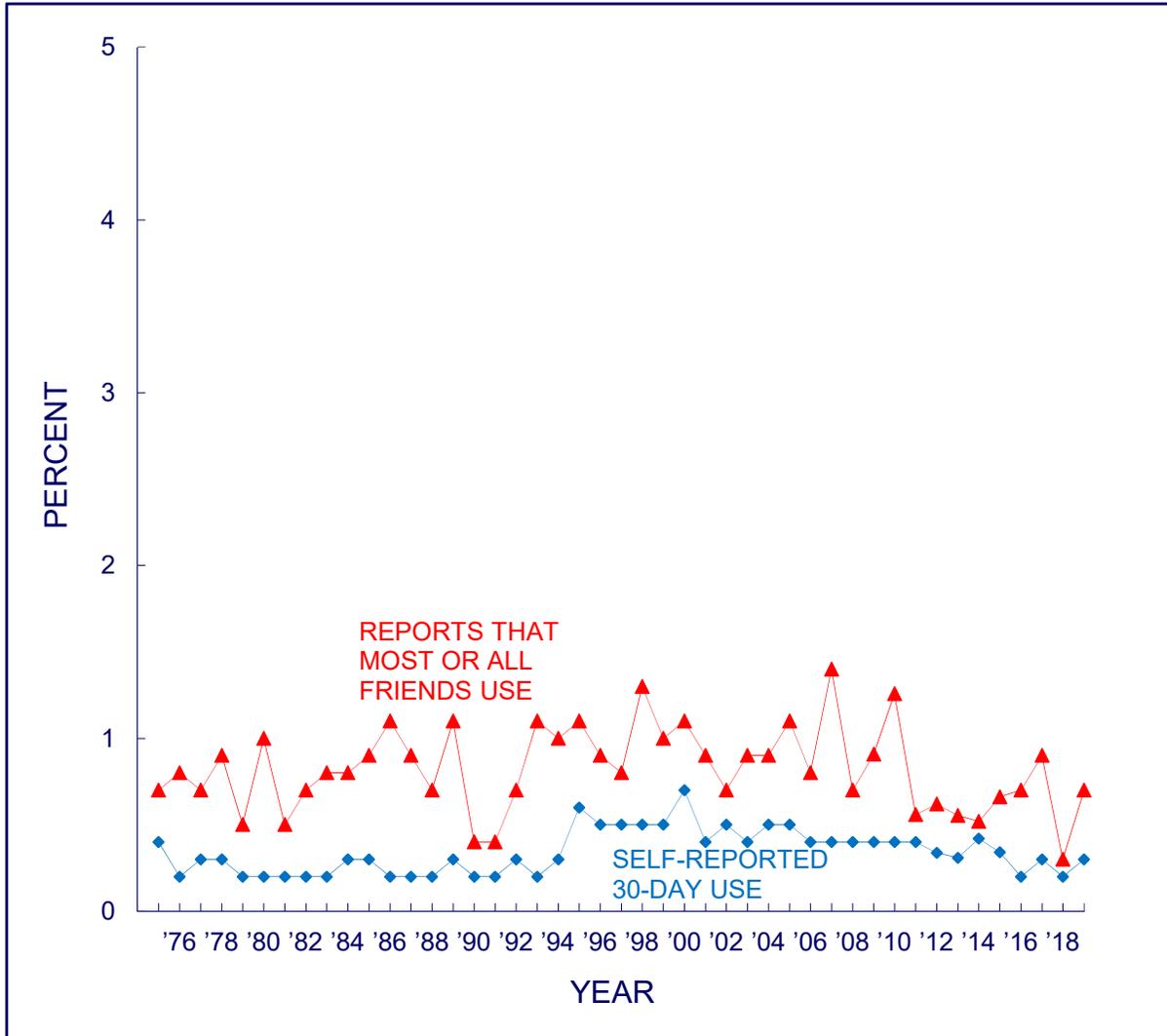
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-3j
COCAINE POWDER
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



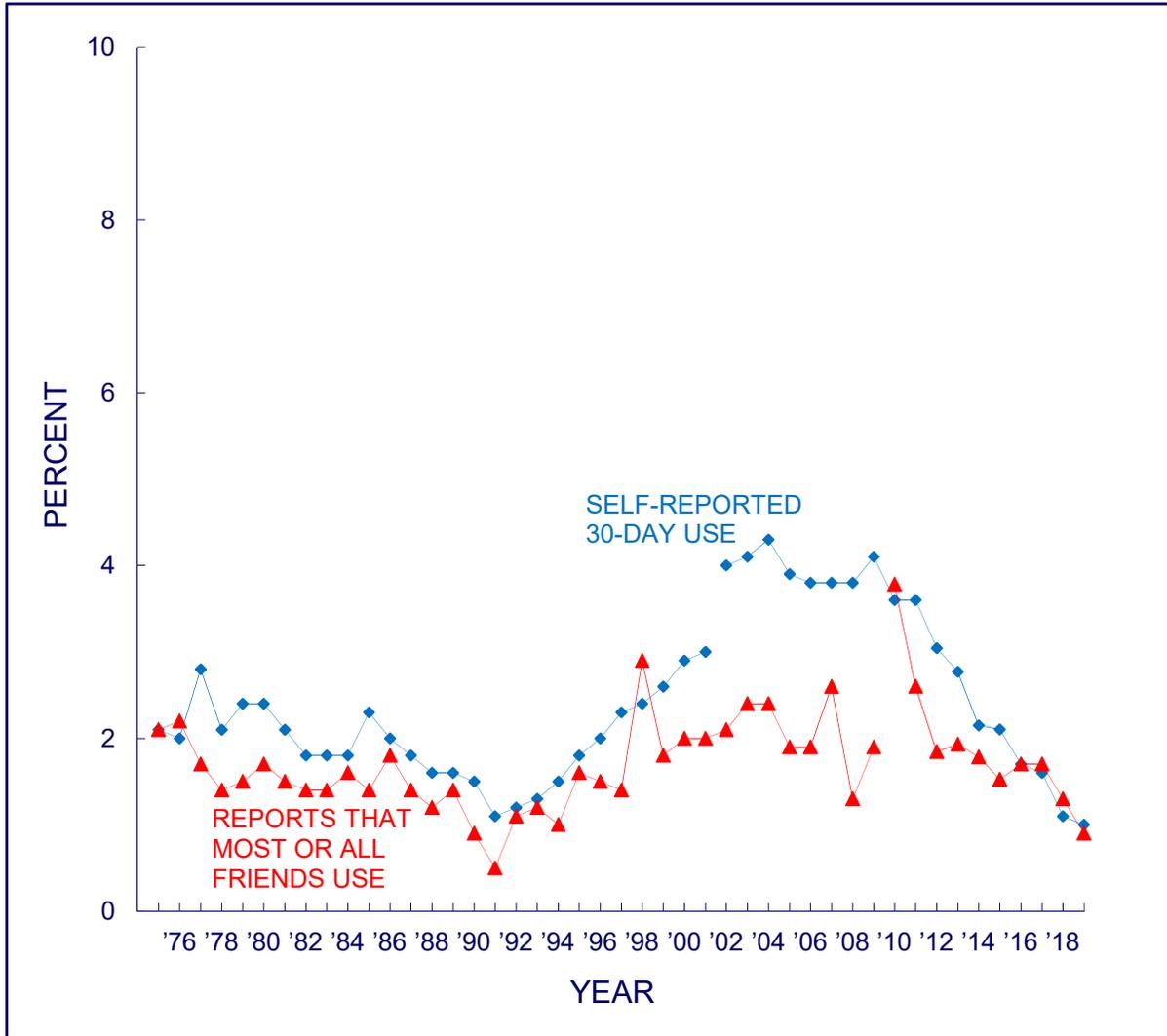
Source. The Monitoring the Future study, the University of Michigan.

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.

FIGURE 9-31
NARCOTICS OTHER THAN HEROIN
Trends in 30-Day Prevalence^a and
Friends' Use^b in Grade 12

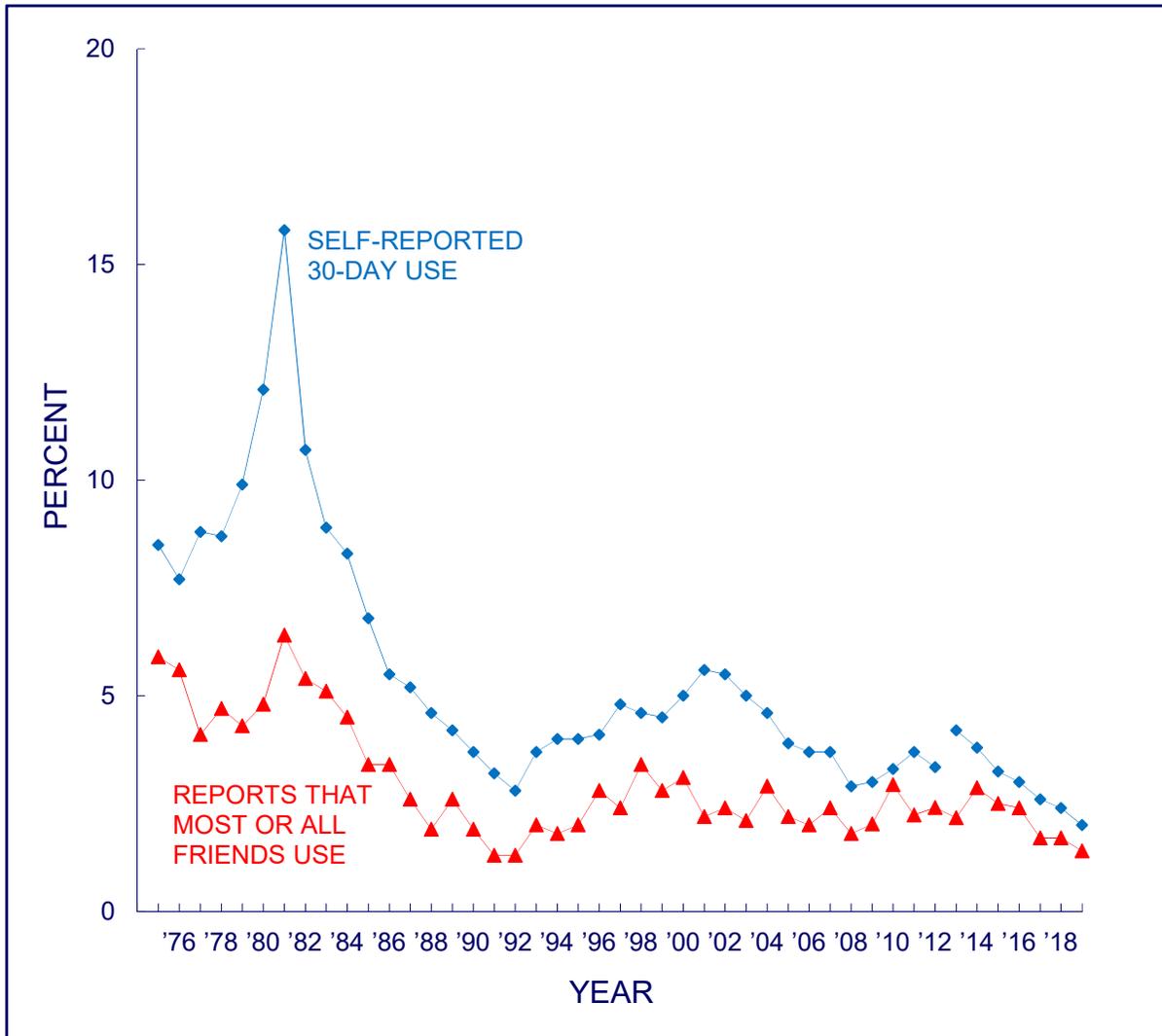


Source. The Monitoring the Future study, the University of Michigan.

^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.

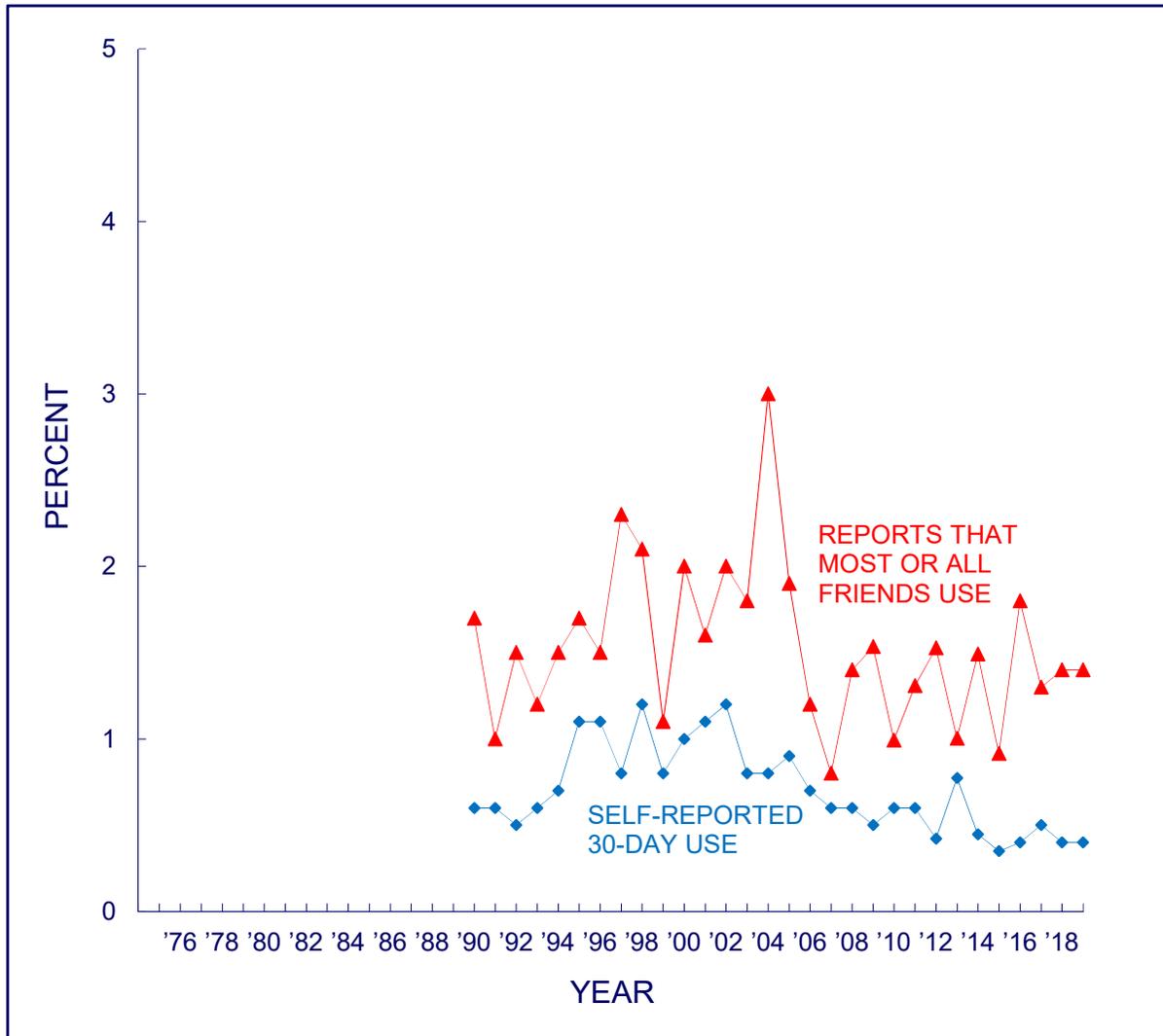
FIGURE 9-3m
AMPHETAMINES
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

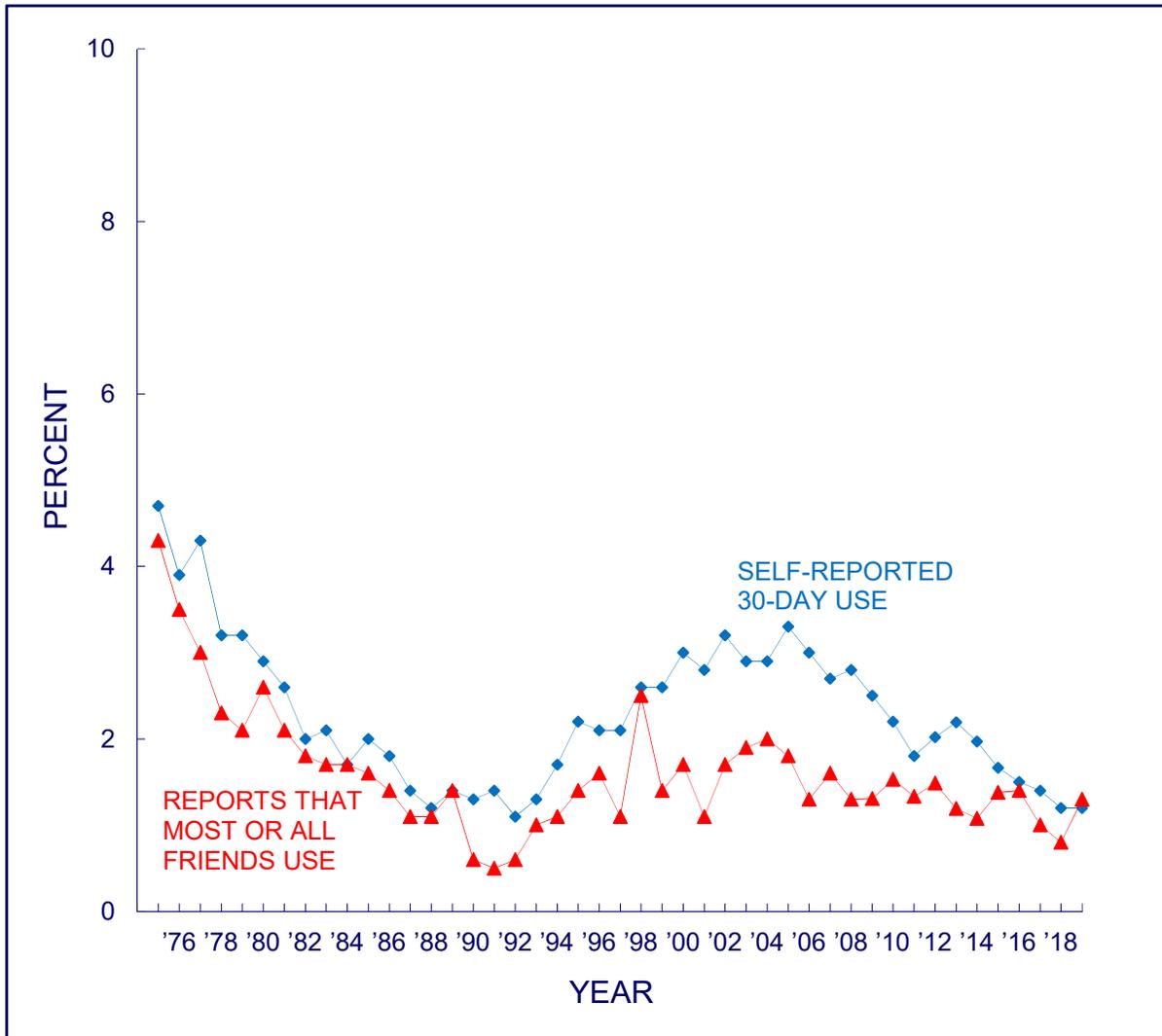
^aIn 2013, the question text for the use of amphetamines was changed on some of the questionnaire forms, with the remaining forms changed in 2014. Data presented here include only the changed forms.

FIGURE 9-3n
CRYSTAL METHAMPHETAMINE (ICE)
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



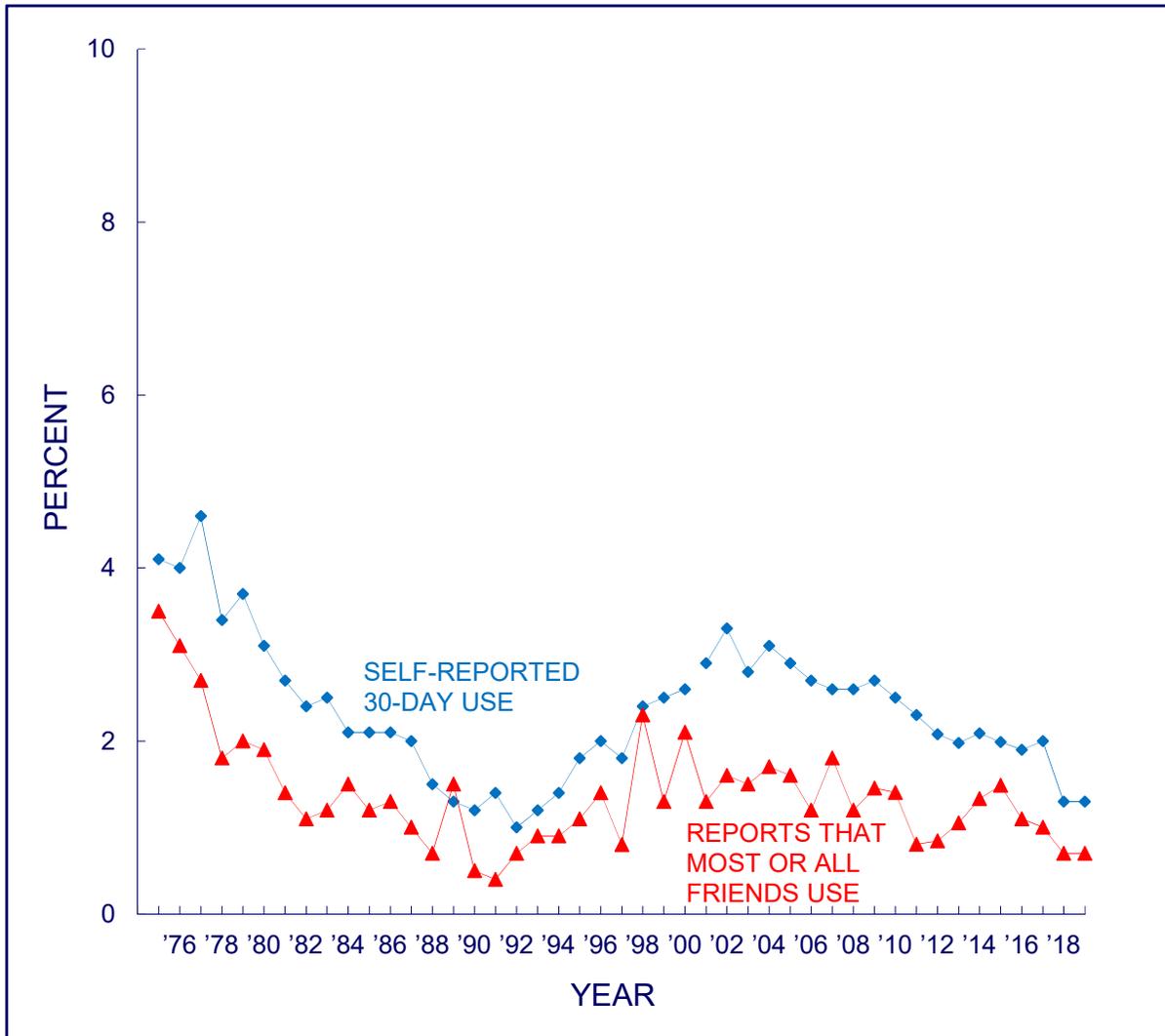
Source. The Monitoring the Future study, the University of Michigan.

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.

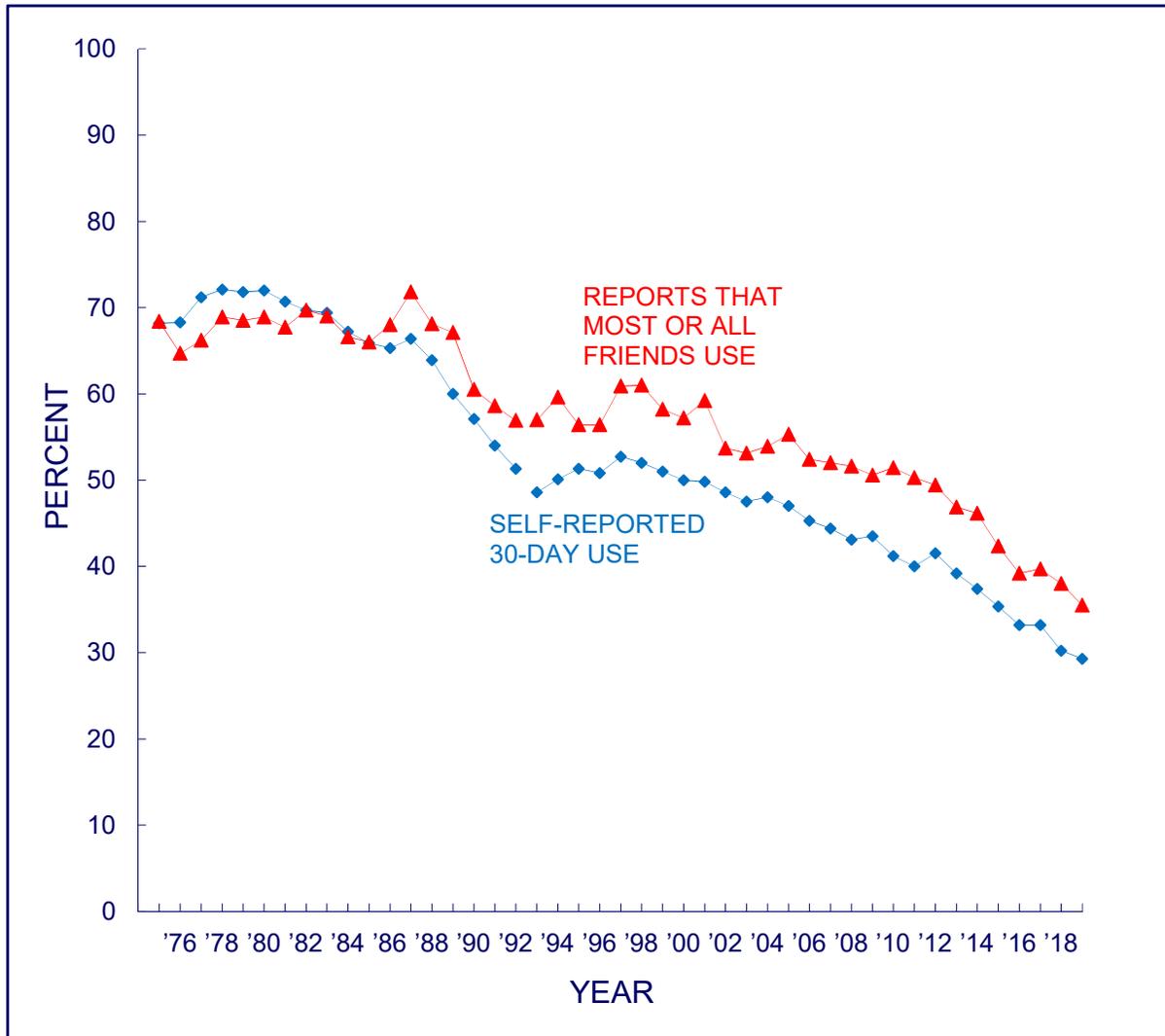
FIGURE 9-3p
TRANQUILIZERS
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

^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.

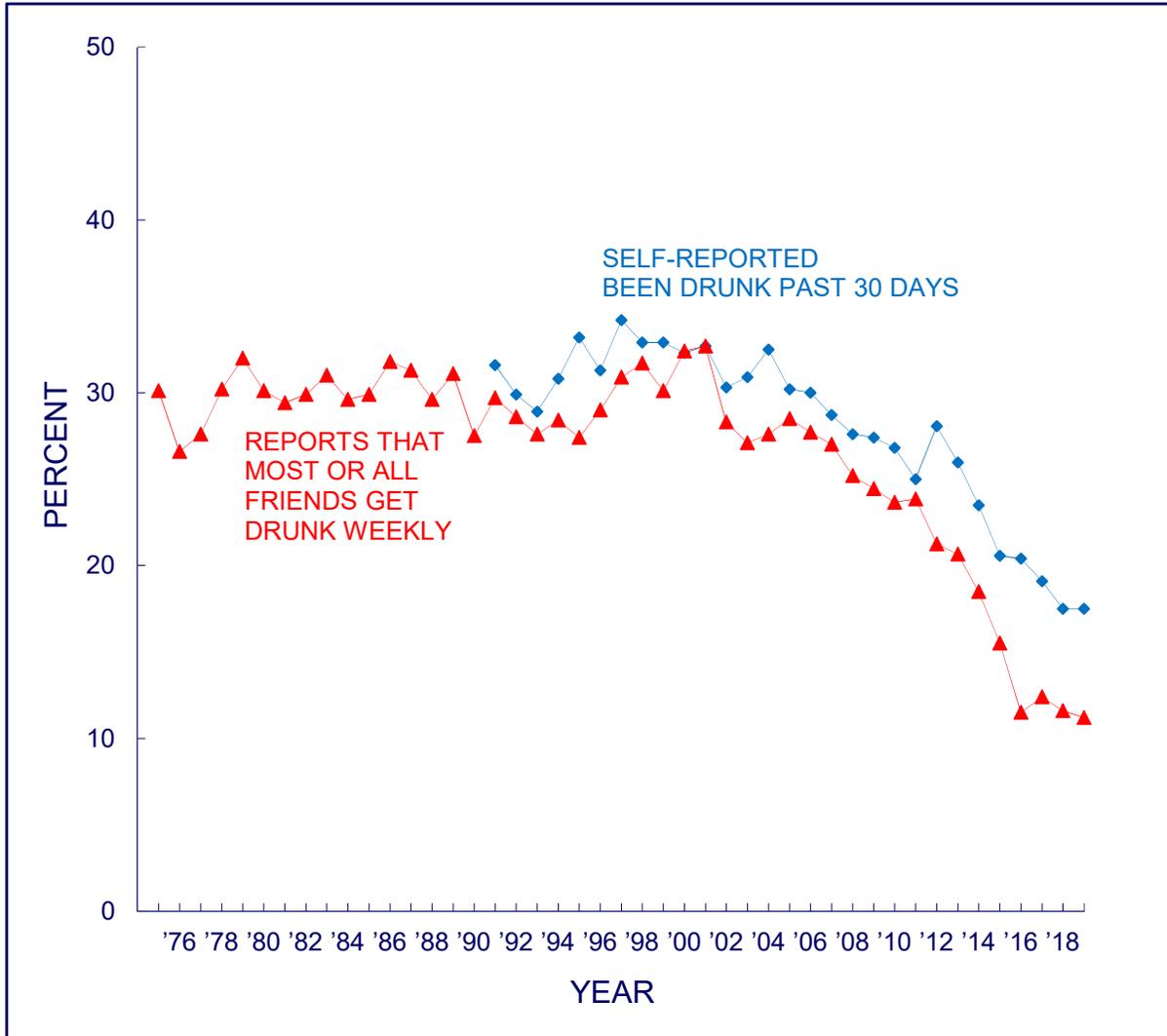
FIGURE 9-3q
ALCOHOL
Trends in 30-Day Prevalence^a and
Friends' Use in Grade 12



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

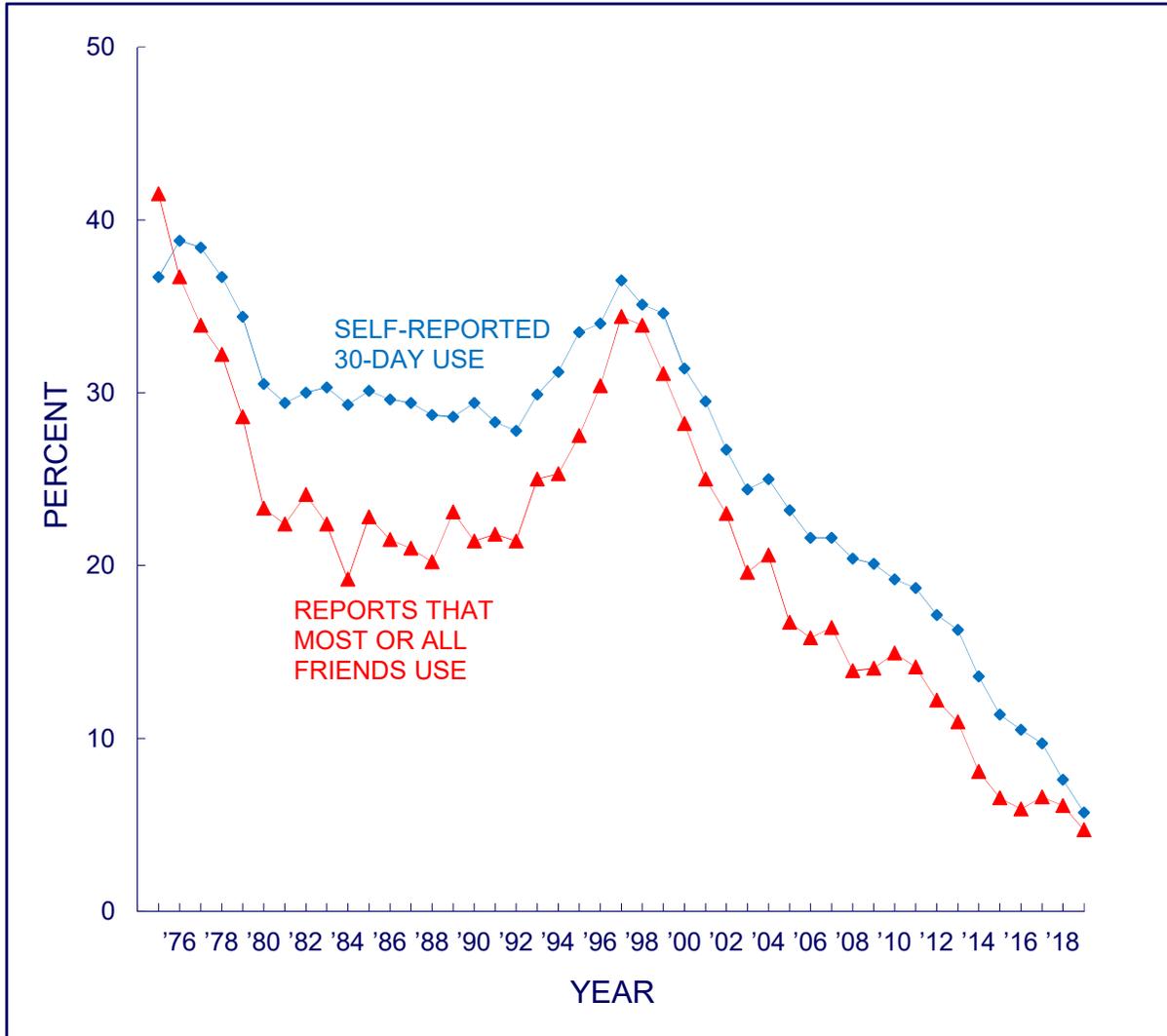
^aIn 1993, a revised set of questions on alcohol use was introduced indicating that a drink meant more than a few sips. From 1993 on, data points are based on the revised question.

FIGURE 9-3r
BEEN DRUNK
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



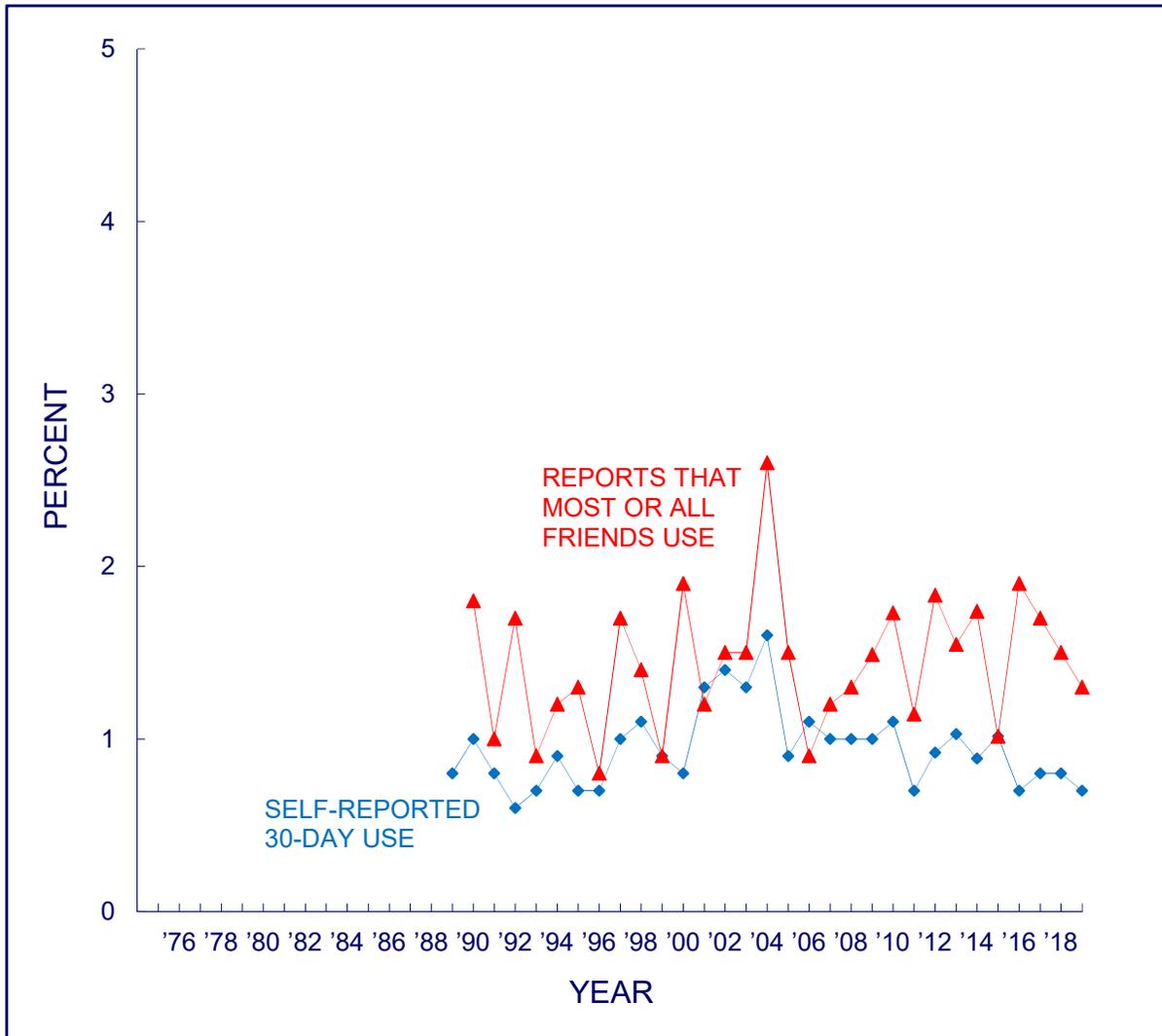
Source. The Monitoring the Future study, the University of Michigan.

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.

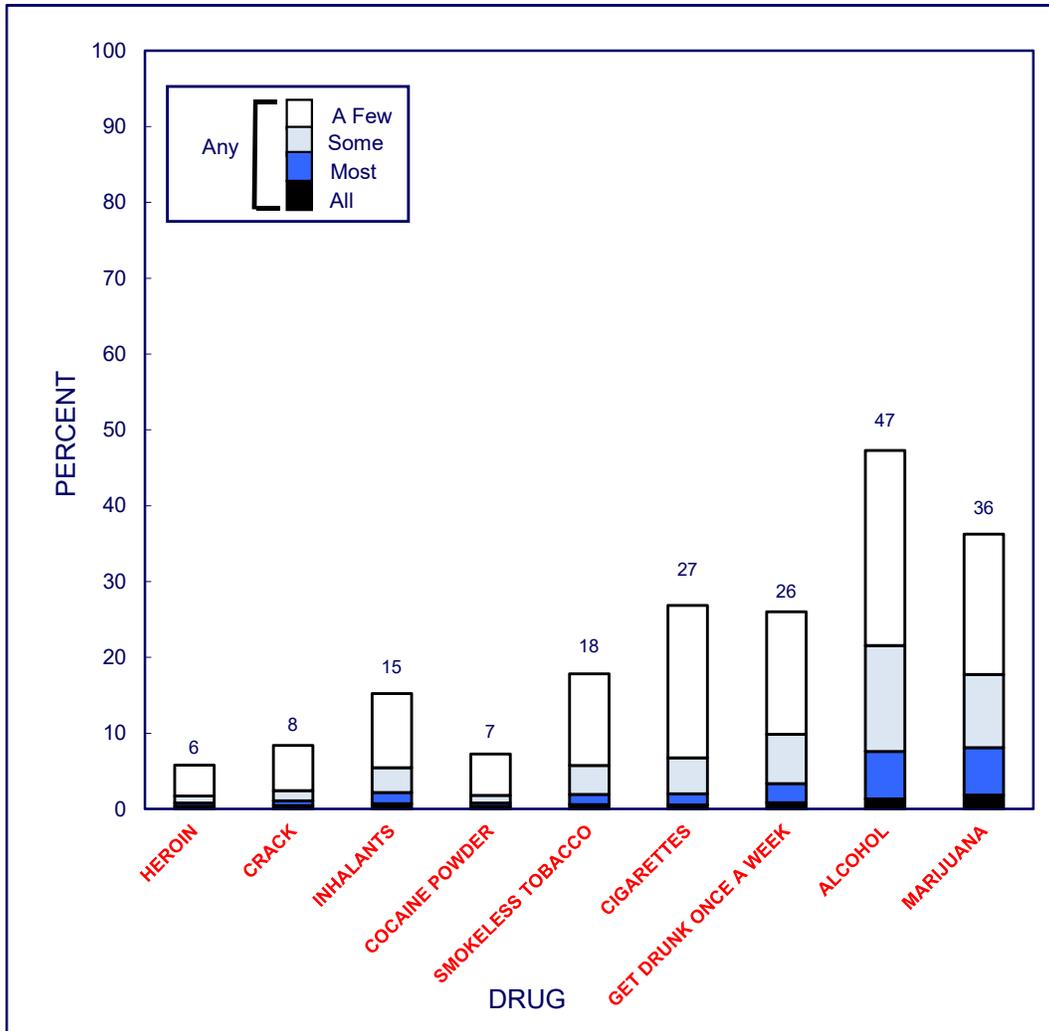
FIGURE 9-3t
STERIODS
Trends in 30-Day Prevalence and
Friends' Use in Grade 12



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

FIGURE 9-4
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2019

8th Graders

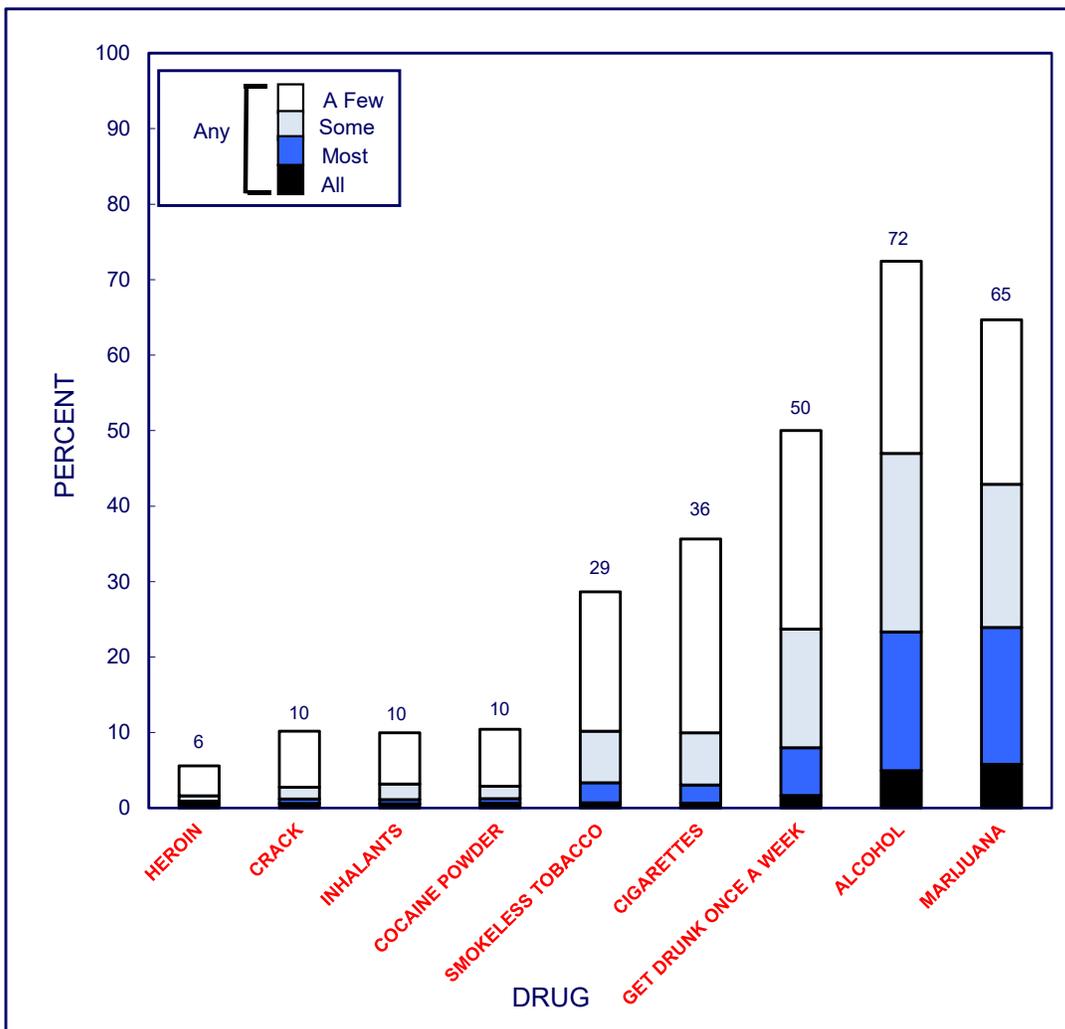


Source. The Monitoring the Future study, the University of Michigan.

(Figure continued on next page.)

FIGURE 9-4 (cont.)
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2019

10th Graders

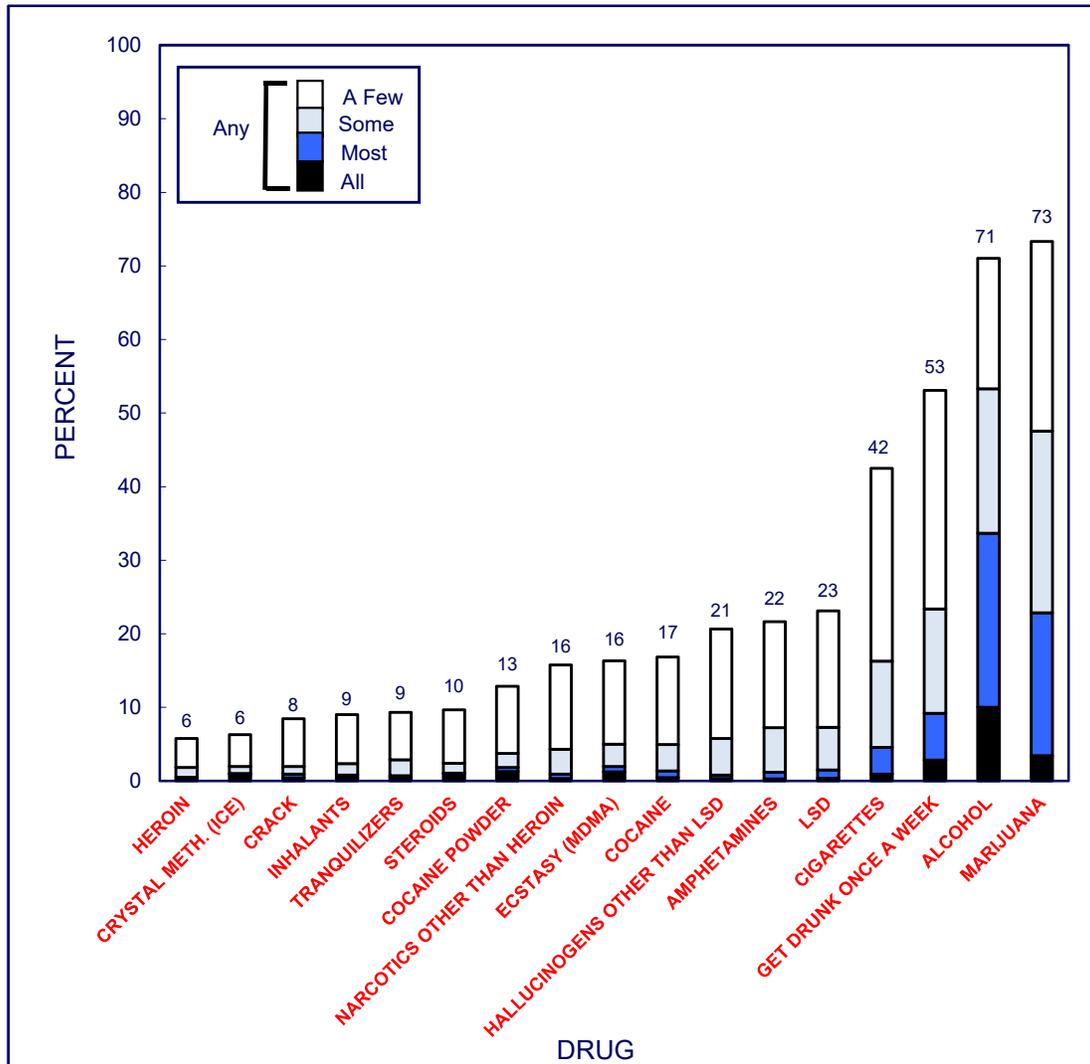


Source. The Monitoring the Future study, the University of Michigan.

(Figure continued on next page.)

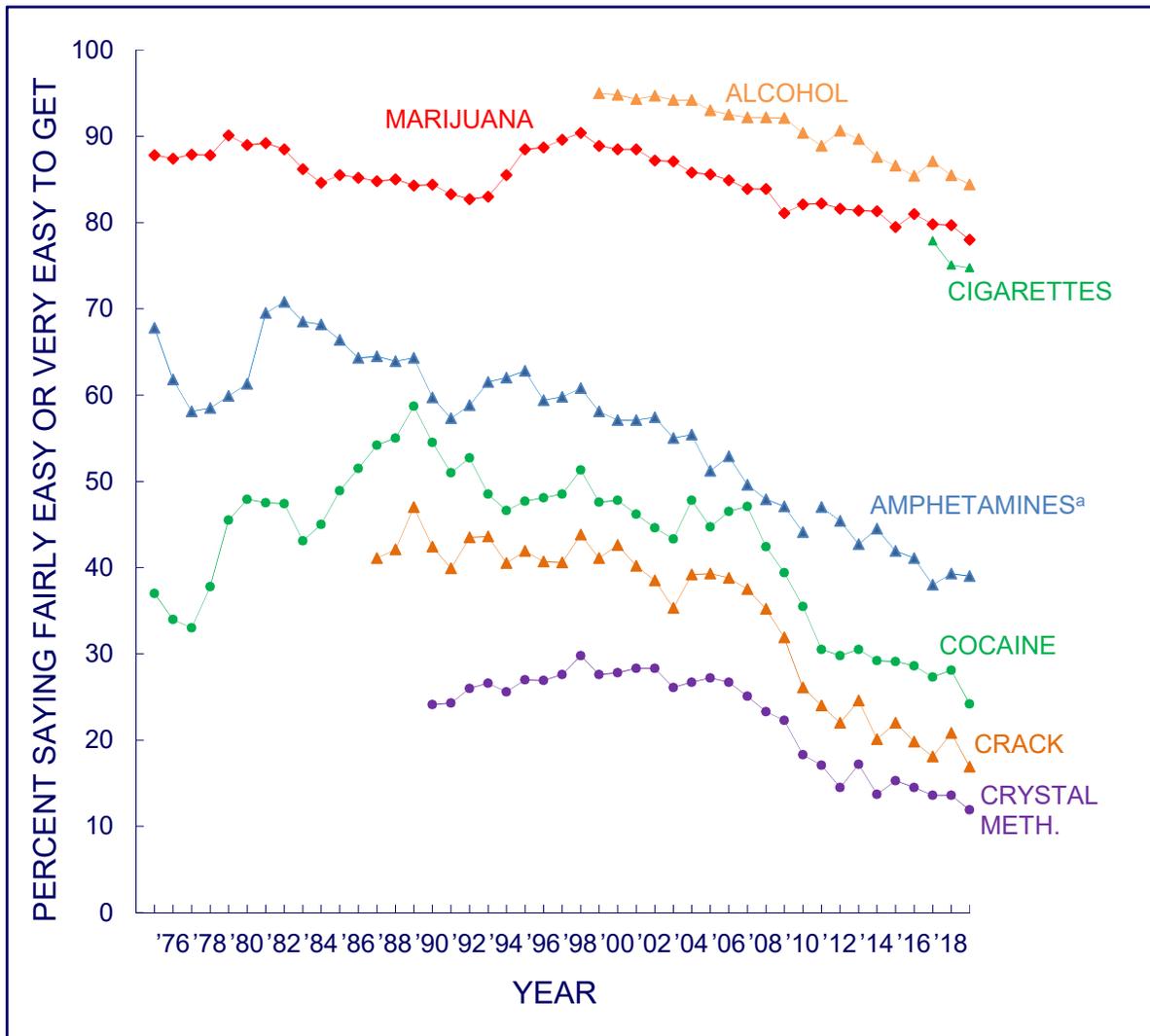
FIGURE 9-4 (cont.)
Proportion of Friends Using Each Drug
as Estimated by 8th, 10th, and 12th Graders, 2019

12th Graders



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

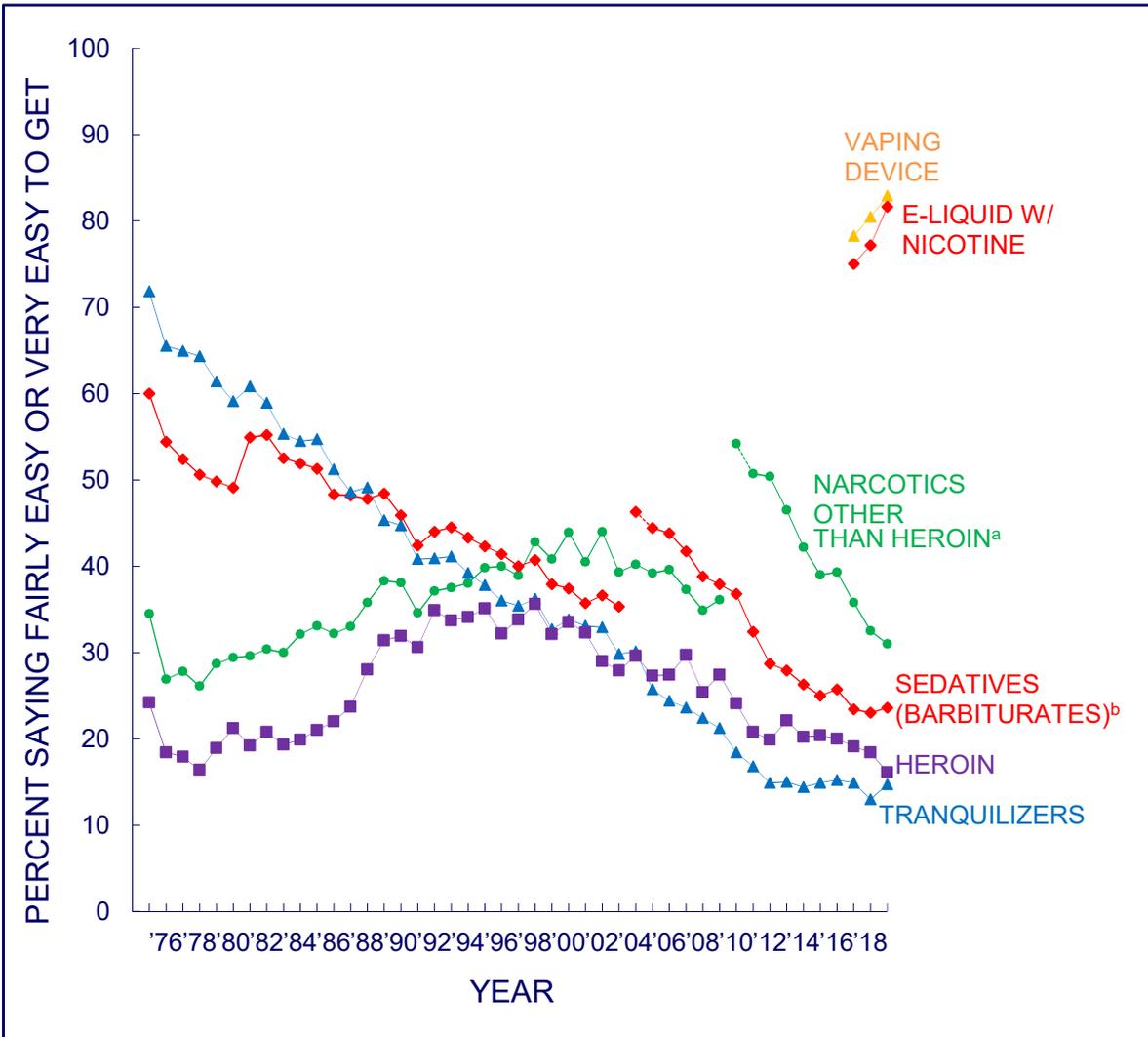
FIGURE 9-5a
Various Drugs: Trends in Perceived Availability in Grade 12



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

^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

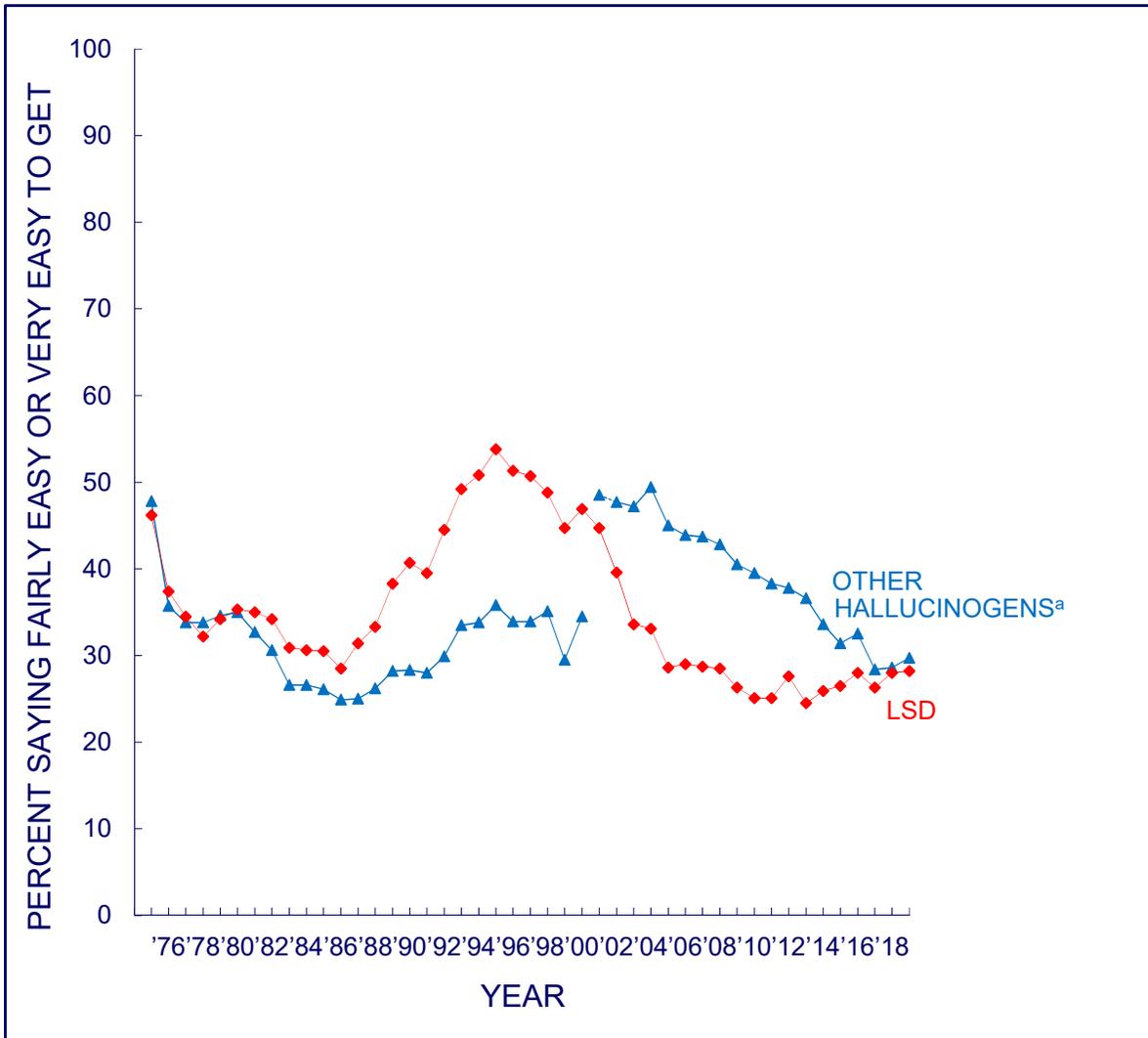


Source. The Monitoring the Future study, the University of Michigan.

^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.

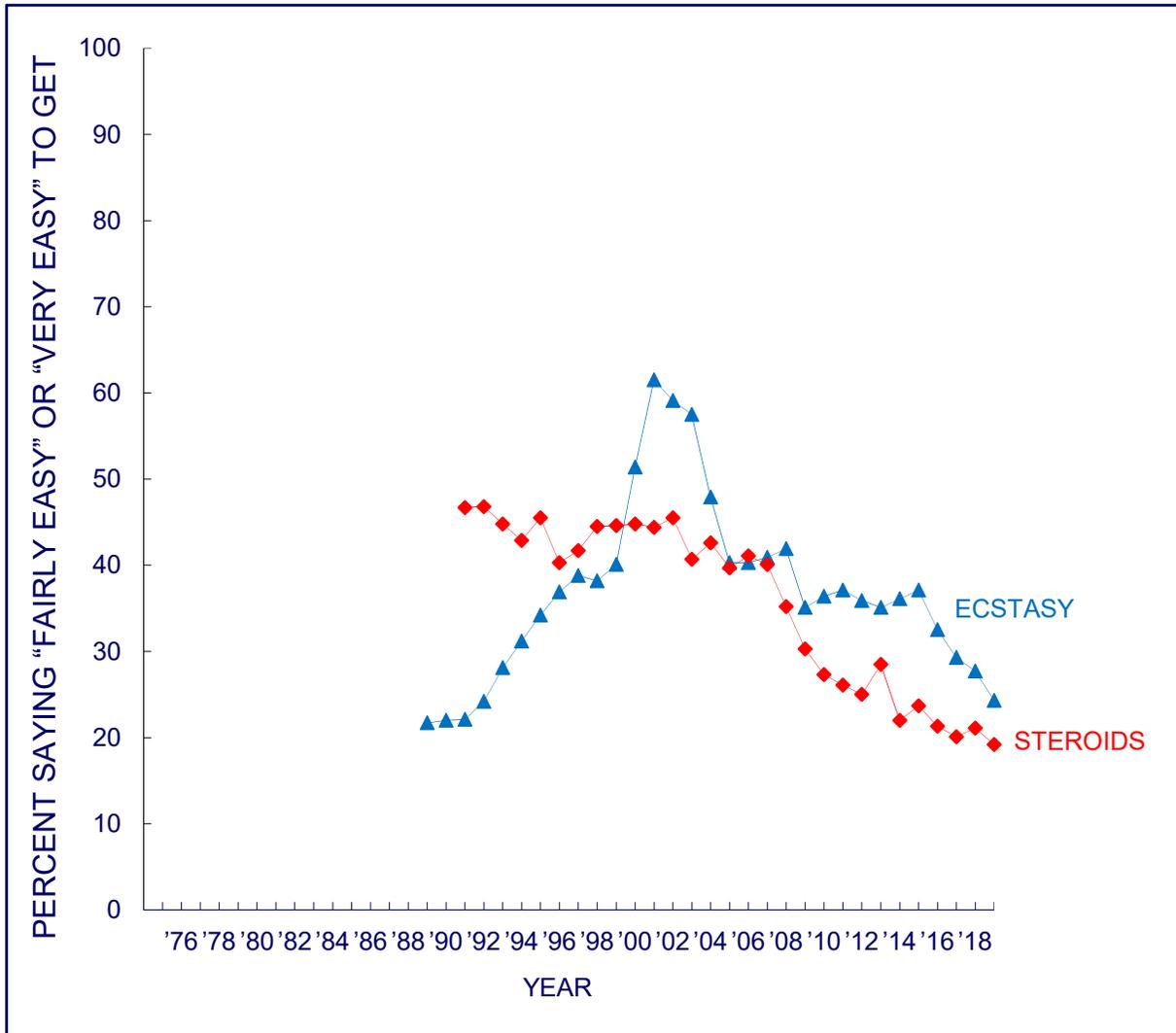
FIGURE 9-5c
LSD AND HALLUCINOGENS OTHER THAN LSD
Trends in Perceived Availability
in Grade 12



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

^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.

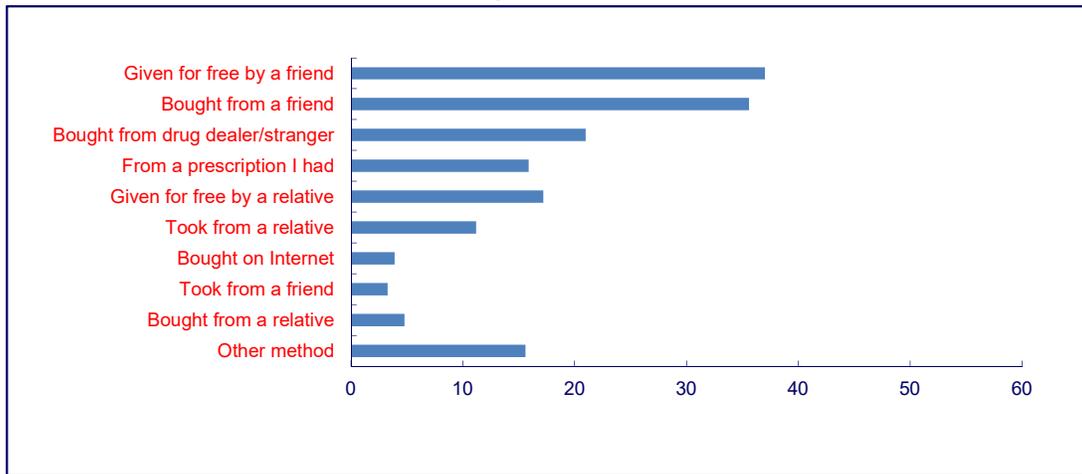
FIGURE 9-5d
ECSTASY (MDMA) AND STERIODS
Trends in Perceived Availability in Grade 12



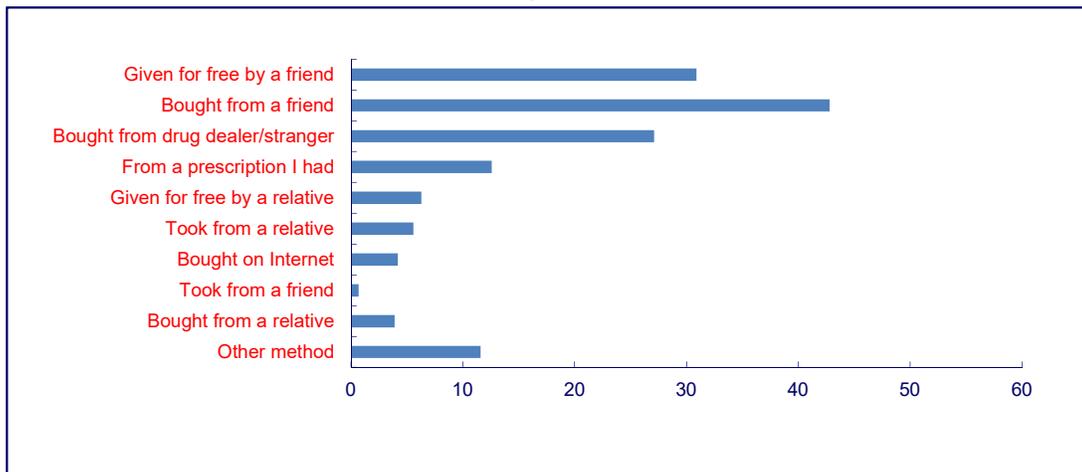
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-6
Source of Prescription Drugs
among Those Who Used in Past Year
Grade 12, 2018–2019

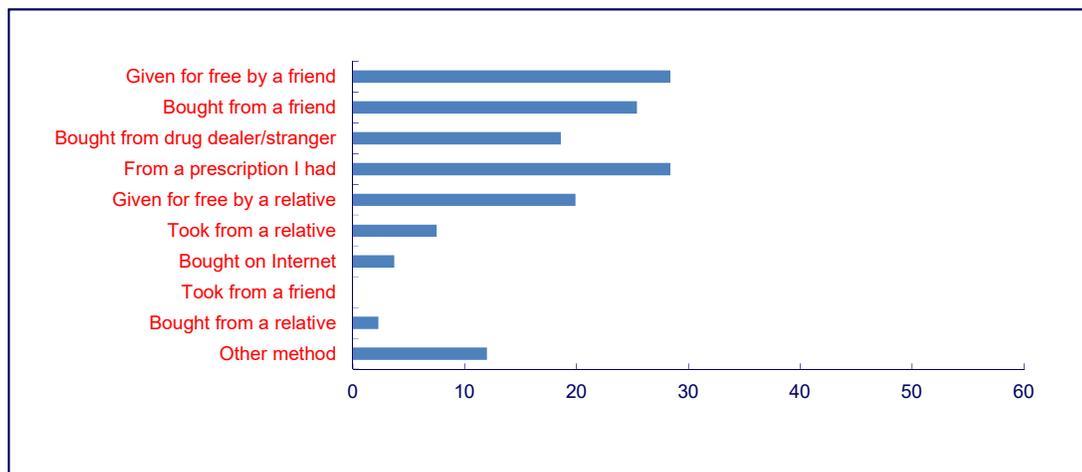
Amphetamines



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.

Trends in use and perceptions of nicotine vaping among US youth from 2017 to 2020¹

Importance: US adolescent nicotine vaping increased at a record pace from 2017 to 2019, prompting new national policies to reduce access to flavors of vaping products preferred by youth.

Objective: To estimate prevalence, perceived harm, and accessibility of nicotine vaping products among US adolescents from 2017 to 2020.

Design, Setting, and Participants: This survey study includes data from Monitoring the Future, which conducted annual, cross-sectional, school-based, nationally representative surveys from 2017 to 2020 of 10th- and 12th-grade students (results pooled grades, n = 94 320) about vaping and other topics.

Main Outcomes and Measures: Prevalence of self-reported nicotine vaping; vaping brand and flavor used most often; perceived risk of nicotine vaping; and perceived ease of getting vaping devices, nicotine solutions for vaping, and flavored solutions.

Results: In 2020, Monitoring the Future surveyed 8660 students in 10th and 12th grade, of whom 50.6% (95% CI, 47%-54%) were female, 13% (95% CI, 8%-21%) were non-Hispanic Black, 29% (95% CI, 21%-40%) were Hispanic, and 53% (95% CI, 42%-63%) were non-Hispanic White. Nicotine vaping prevalence in 2020 was 22% (95% CI, 19%-25%) for past 30-day use, 32% (95% CI, 28%-37%) for past 12-month use, and 41% (95% CI, 37%-46%) for lifetime use; these levels did not significantly change from 2019. Daily nicotine vaping (use on ≥ 20 days of the last 30 days) significantly declined from 9% (95% CI, 8%-10%) to 7% (95% CI, 6%-9%) over 2019 to 2020. JUUL brand prevalence in the past 30 days decreased from 20% (95% CI, 18%-22%) in 2019 to 13% (95% CI, 11%-15%) in 2020, while use of other brands increased. Among youth who vaped in the past 30 days in 2020, the most often used flavor was fruit at 59% (95% CI, 55%-63%), followed by mint at 27% (95% CI, 24%-30%) and menthol at 7% (95% CI, 5%-9%); significantly fewer reported easy access to vaping devices and nicotine solutions compared with 2019; and 80% (95% CI, 75%-84%) reported they could easily get a vaping flavor other than tobacco or menthol. Among all youth, perceived risk of both occasional and regular nicotine vaping increased from 2019 to 2020.

Conclusions and Relevance: Increasing US adolescent nicotine vaping trends from 2017 to 2019 halted in 2020, including a decline in daily vaping. Decreases in perceived accessibility of some vaping products, as well as increases in perceived risk of nicotine vaping, occurred from

¹ Miech, Richard A., Leventhal, A., Johnston, L. D., 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.

2019 to 2020. Yet, adolescent nicotine vaping remains highly prevalent, flavors remain highly accessible, and declines in JUUL use were countered by increased use of other brands.

The impact of survey mode on US national estimates of adolescent drug prevalence: Results from a randomized-controlled study²

Background and Aims: Increasing numbers of school-based drug surveys are transitioning data collection to electronic tablets from paper-and-pencil, which may produce a survey mode effect and consequent discontinuity in time trends for population estimates of drug prevalence. This study tested whether (a) overall, self-reported drug use prevalence is higher on electronic tablets versus paper-and-pencil surveys, (b) socio-demographics moderate survey mode effects and (c) levels of missing data are lower for electronic tablet versus paper-and-pencil modes.

Design: A randomized controlled experiment.

Setting: Results are nationally representative of students in the contiguous United States.

Participants: A total of 41 866 8th, 10th and 12th grade students who participated in the 2019 Monitoring the Future school-based survey administration.

Intervention and comparator: Surveys were administered to students in a randomly selected half of schools with electronic tablets (intervention) and with paper-and-pencil format (comparator) for the other half.

Measurements: Primary outcome was the total number of positive drug use responses. Secondary outcomes were the percentage of respondents completing all drug questions, percentage of drug questions unanswered and mean number of missing drug items.

Findings: The relative risk (RR) for total number of positive drug use responses for electronic tablets versus paper-and-pencil surveys were small and their 95% confidence intervals (CI) included the value of one for reporting intervals of life-time (RR = 1.03; 95% CI, 0.93–1.14), past 12 months (RR = 1.01; 95% CI, 0.91–1.11), past 30 days (RR = 1.05; 95% CI, 0.93–1.20) and for heavy use (RR = 1.10; 95% CI, 0.93–1.29). Multiplicative interaction tests indicated no moderation of these relative risks by race (white versus non-white), population density, census region, public/private school, year of school participation, survey version or non-complete drug responses. Levels of missing data were significantly lower for electronic tablets versus paper-and-pencil surveys.

Conclusions: Adolescent drug prevalence estimates in the United States differed little across electronic tablet versus paper-and-pencil survey modes, and showed little to no effect modification by socio-demographics. Levels of missing data were lower for electronic tablets.

Risk of persistence and progression of use of 5 cannabis products after experimentation among adolescents³

Importance: While a diverse array of cannabis products that may appeal to youth is currently available, it is unknown whether the risk of persistent cannabis use and progression to higher frequency of use after experimentation differs among cannabis products.

Objective: To estimate the comparative relative risk of experimental use of 5 cannabis products on use status and frequency of use among adolescents during 12 months of follow-up.

² Miech, Richard, Couper, M. P., Heeringa, Steven G., and Patrick, M. E. (2020). [The impact of survey mode on US national estimates of adolescent drug prevalence: results from a randomized controlled study](#). *Addiction*

³ Barrington-Trimis, Jessica, Cho, J., Ewusi-Boisvert E., Hasin, D., Unger, J. B., Miech, R. A., and Leventhal, A. M. (2020). [Risk of persistence and progression of use of 5 cannabis products after experimentation among adolescents](#). *Jama Network Open* 3(1), Article e1919792.

Design, Setting, and Participants: In this cohort study, data were collected from 3065 adolescents at 10 high schools in southern California, with baseline data collected in spring 2016, when students were in 11th grade, and 6-month and 12-month follow-up surveys collected in fall 2016 and spring 2017, when students were in 12th grade. Analyses, conducted from April to June 2019, were restricted to 2685 participants who were light or nonusers of any cannabis product (ie, ≤ 2 days in the past 30 days) at baseline.

Exposures: Number of days of use of each cannabis product (ie, combustible, blunts, vaporized, edible, or concentrated) in the past 30 days at baseline (ie, 1-2 vs 0 days).

Main Outcomes and Measures: Past 6-month use (ie, yes vs no) and number of days of use in the past 30 days at 6-month and 12-month follow-ups for each product.

Results: Of 2685 individuals in the analytic sample, 1477 (55.0%) were young women, the mean (SD) age was 17.1 (0.4) years, and a plurality (1231 [46.6%]) were Hispanic individuals. Among them, 158 (5.9%) reported combustible cannabis use on 1 to 2 days of the past 30 days at baseline, 90 (3.4%) reported blunt use, 78 (2.9%) reported edible cannabis use, 17 (0.6%) reported vaping cannabis, and 15 (0.6%) reported using cannabis concentrates. In regression models adjusting for demographic characteristics and poly-cannabis product use, statistically stronger associations of baseline use with subsequent past 6-month use at the 6-month and 12-month follow-ups were observed for combustible cannabis use (odds ratio, 6.01; 95% CI, 3.66-9.85) and cannabis concentrate use (odds ratio, 5.87; 95% CI, 1.18-23.80) compared with use of blunts (OR, 2.77; 95% CI, 1.45-5.29) or edible cannabis (OR, 3.32; 95% CI, 1.86-5.95) (P for comparison $< .05$); vaporized cannabis use (OR, 5.34; 95% CI, 1.51-11.20) was not significantly different from the other products. In similarly adjusted models, we found the association of cannabis use at baseline with mean days of use at the 6-month and 12-month follow-ups was significantly stronger for cannabis concentrate than for other cannabis products; participants who had used cannabis concentrate on 1 to 2 of the past 30 days at baseline (vs 0 days) used cannabis concentrate a mean of 9.42 (95% CI, 2.02-35.50) more days in the past 30 days at the 6-month and 12-month follow-ups (P for comparison $< .05$).

Conclusions and Relevance: Cannabis control efforts should consider targeting specific cannabis products, including combustible cannabis and cannabis concentrate, for maximum public health consequences.

Adolescent drug use before and during US national COVID-19 social distancing policies⁴

Background: How adolescent substance use and perceived availability of substances have changed during the COVID-19 pandemic remain largely unknown. Substantial reduction in availability of substances would present a unique opportunity to consider the supply-side hypothesis that reductions in drug availability will lead to reductions in drug prevalence.

Methods: Longitudinal data come from Monitoring the Future and are based on responses from 582 adolescents who were originally surveyed as part of a national sample of 12th grade students in early 2020, one month before social distancing policies began. They were surveyed again after social distancing policies were implemented, in the summer of 2020.

Results: Perceived availability of marijuana and alcohol declined across the two survey waves at the largest levels ever recorded in the 46 years of the project, by an absolute 17%, $p < .01$ and 24%,

⁴ Miech, Richard A., Patrick, M. E., Keyes, K., O'Malley, Patrick M., Johnston, L. D. (Forthcoming). Adolescent drug use before and during U.S. national COVID-19 social distancing policies. *Drug and Alcohol Dependence*.

$p < .01$, respectively. Despite these declines, prevalence levels did not significantly change across the two waves for marijuana use in the past 30 days or for binge drinking in the past two weeks. Perceived availability of vaping devices significantly declined, from 73% to 63%, as did nicotine vaping prevalence in the past 30 days, from 24% to 17%.

Conclusions: Perceived availability of marijuana, alcohol, and vaping devices declined at historic rates during the pandemic of 2020. Lack of accompanying reductions in prevalence for marijuana and binge drinking demonstrates the substantial challenges facing a supply-side approach to the reduction of adolescent use of these substances.

Changes in the order of cigarette and marijuana initiation and associations with cigarette use, nicotine vaping, and marijuana use: US 12th grade students, 2000-2019⁵

This study (a) examined changes in marijuana and cigarette initiation sequencing and (b) considered implications of such changes for prevention efforts by examining associations between initiation sequencing and current adolescent substance use. Analyses used 2000-2019 cross-sectional data from the national Monitoring the Future (MTF) study (78,252 U.S. 12th grade students). Models examined trends in six distinct patterns of initiation order, and multivariable associations between order of initiation and 30-day cigarette and marijuana use prevalence, cigarette and marijuana use frequency among users, and nicotine and marijuana vaping prevalence. While the percentage of students initiating neither cigarettes nor marijuana increased, increases also were observed in marijuana-only initiation (the fastest-growing pattern) and initiation of marijuana before cigarettes; these increases were accompanied by a significant decrease in cigarette-only initiation. Cigarette use prevalence and frequency were highest among students initiating cigarettes before marijuana; marijuana use prevalence and frequency were highest among students initiating marijuana before cigarettes. Cigarette and marijuana prevalence, as well as marijuana frequency, were lowest among students initiating only a single substance. Nicotine vaping was less prevalent among students initiating a single substance versus both substances, but no significant differences were observed in nicotine vaping prevalence between those initiating only cigarettes versus only marijuana. Implications of these findings for prevention efforts are discussed in the frameworks of both the common liability model and route of administration model.

Young adult longitudinal patterns of marijuana use among US national samples of 12th grade frequent marijuana users: A repeated-measures latent class analysis⁶

Background and Aims: Long-term frequent marijuana use is associated with significant negative outcomes, yet little is known about the longitudinal course of marijuana use among those who start frequent use during adolescence.

Objectives: are (a) to identify latent patterns of within-person marijuana use from ages 19-30 years among 12th graders reporting frequent marijuana use, (b) to examine if membership in identified patterns has changed across historical time and (c) to examine if key covariates differentiate class membership.

Design, Setting, Participants: Longitudinal, national US panel data from 4423 individuals

⁵ Terry-McElrath, Y. M., O'Malley, P. M., & Johnston, L. D. (2020). [Changes in the order of cigarette and marijuana initiation and associations with cigarette use, nicotine vaping, and marijuana use: US 12th grade students, 2000-2019](#). *Prevention Science*, 21(7), 960-971.

⁶ Terry-McElrath, Y. M., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2019). [Young adult longitudinal patterns of marijuana use among US National samples of 12th grade frequent marijuana users: a repeated-measures latent class analysis](#). *Addiction*, 114(6), 1035-1048.

[53.4% of the eligible sample; 2744 (62%) males] who reported frequent marijuana use in 12th grade (modal age 18 years; senior year cohorts 1976-2006) followed biennially from ages 19/20 to 29/30.

Measurements: Self-reported past 30-day marijuana use (frequent use defined as use on 20+ occasions), demographics, college graduation, marriage and parenthood.

Findings: Repeated-measures latent class analysis (RMLCA) identified five latent classes of past 30-day marijuana use from ages 19/20 to 29/30: continued frequent users (estimated membership 23.4%); frequent to non-frequent users (15.5%); consistent non-frequent users (18.4%); non-frequent users to discontinuers (19.5%); and discontinuers (23.2%). In multivariable models, membership in the highest-risk latent class (continued frequent users) versus one or more of the lower-risk latent classes was more likely for recent cohorts ($P = 0.038$ to <0.001), as well as those who did not marry ($P = 0.039$ to < 0.001) or become parents ($P = 0.001$) by modal age 29/30.

Conclusions: Nearly one in four 12th grade (modal age 18 years) frequent marijuana users in the US continues to report high frequency use to age 30; the proportion continuing high frequency use across young adulthood has increased among more recent cohorts.

Boredom by sensation seeking interactions during adolescence: Associations with substance use, externalizing behavior, and internalizing symptoms in a US national sample⁷

During adolescence, sensation seeking is linked to several adverse outcomes including substance use, risk taking, and psychopathology. Recent empirical interest in the construct of boredom has revealed that some similar associations may exist for boredom during adolescence. Both boredom and sensation seeking peak during adolescence, and yet, research on boredom and its interaction with sensation seeking are limited. In a multi-cohort, US nationally representative sample of 8th and 10th grade students from the Monitoring the Future study, latent-moderated structural equation modeling was used to estimate the association of boredom, sensation seeking, and their interaction, to substance use, externalizing behavior, and depressive affect. Moderation by gender was also tested. Boredom and sensation seeking were both significantly associated with most dependent variables. Significant interaction effects were found wherein individuals high on both boredom and sensation seeking reported the highest levels of depressive affect and externalizing behavior. There were no significant interaction effects for substance use indices. Gender moderation was found for depressive affect. The results of this study demonstrate the generalizability of boredom associations and the significance of boredom by sensation-seeking interactions across multiple mental health domains during adolescence. Prevention efforts that attend to both boredom and sensation seeking may be particularly effective for promoting mental health and preventing externalizing behavior.

Comparing prevalence estimates of concussion/head injury in US children and adolescents in national surveys⁸

Background and objectives: Reports on pediatric lifetime concussions/head injuries (LCHI) from national surveys have offered estimates on prevalence that range from 2.5% to 18% in the general

⁷ Freund, V. A., Schulenberg, J. E., & Maslowsky, J. (2021). [Boredom by sensation-seeking interactions during adolescence: associations with substance use, externalizing behavior, and internalizing symptoms in a US national sample](#). *Prevention science*, 1-12.

⁸ Haarbauer-Krupa, J., Lebrun-Harris, L. A., Black, L. I., Veliz, P., Daugherty, J., Desrocher, R., Schulenberg, J., Pilkey, D., & Breiding, M. (2021). [Comparing prevalence estimates of concussion/head injury in US children and adolescents in national surveys](#). *Annals of epidemiology*, 54, 11-20.

population. The purpose of this study is to examine national surveys to compare methodologies and limitations pertaining to LCHI data collection.

Methods: Three nationally representative surveys that measure LCHI in children, including the National Survey of Children's Health, the National Health Interview Survey, and the Monitoring the Future Survey were examined. Children were grouped by ages 3–17 years and adolescent ages 13–17 years, stratified by selected demographic characteristics. Participants in the surveys included parents (NSCH and NHIS) and adolescents (MTF survey). The primary outcome measure is an estimate of LCHI in children.

Results: Estimates of prevalence of LCHI ranged from 3.6% to 7.0% for children ages 3–17 years and from 6.5% to 18.3% for adolescents 13–17 years. Survey modality, question wording, and respondent may contribute to differing estimates. Prevalence showed consistent variation by age, sex, and race/ethnicity across surveys. Associations were inconsistent between LCHI and insurance status, parental education, and household primary language.

Conclusions: Although there are methodological differences in capturing pediatric LCHI across surveys, the prevalence estimates and correlational associations generated can offer awareness about the burden of these injuries and insights to research and clinical care.

Problematic social media use and depressive symptoms among U.S. young adults: A nationally-representative study⁹

Purpose: Depression is increasingly common among US adolescents; the extent to which social media exposure contributes to this increase remains controversial.

Methods: We used Monitoring the Future data from 8th and 10th grade students ($n = 74,472$), 2009–2017, to assess the relationship between daily social media use and depressive symptoms. Self-reported depressive symptom score (range: 4–20) was assessed continuously using a log-transformed outcome and at varying cut scores with logistic regression analyses. First, these outcomes were examined overall, comparing adolescents using social media daily to adolescents who were not. We then estimated predicted depressive symptom scores using 26 predictors in order to establish underlying depression risk. We partitioned students into depression risk quintiles to control for confounding due to underlying depression risk and examine heterogeneity in the association between social media use and depressive symptoms. Sensitivity analyses were used to test the robustness of results with different configurations of the predicted score model, and overall associations were examined in two-year groups to identify differences in effects.

Results: For girls, in adjusted risk-stratified analysis, daily social media use was not associated with high (vs. low) depressive symptoms. For boys, results were inconsistent, suggesting a protective effect of daily social media use at some cut scores. Results were consistent across sensitivity analyses, and any potential harmful effects appear to be limited to 2009–2010, limiting the evidence supporting social media as a current risk factor for depressive symptoms.

Conclusions: Among US adolescents, daily social media use is not a strong or consistent risk factor for depressive symptoms.

⁹Kreski, N., Platt, J., Rutherford, C., Olfson, M., Odgers, C., Schulenberg, J., & Keyes, K. M. (2021). [Problematic social media use and depressive symptoms among U.S. young adults: A nationally-representative study](#). *Journal of Adolescent Health, 68*(3), 572-579.

Medical use and misuse of prescription opioids among US 12th grade youth: School-level correlates¹⁰

Background and Objectives: Opioid misuse and overdose remains a leading US public health concern, and many youth are first exposed to opioids via medical use. In this study, we examine school-level prevalence and correlates of medical use and misuse of prescription opioids among US 12th-grade students.

Methods: A sample of 228 507 US 12th-graders in 1079 public and private schools from 2002 to 2017 from the Monitoring the Future study was used to identify school-level prevalence and correlates associated with medical use and misuse of prescription opioids.

Results: The past-year prevalence of prescription opioid misuse was 7.6% and ranged from 0% to 73% across US high schools. Lifetime medical use of prescription opioids was 16.9% and ranged from 0% to 85% across US high schools. The odds of prescription opioid misuse were higher at schools with higher proportions of male students, more white students, higher rates of marijuana use, and more medical use of prescription opioids. Students attending schools with the highest rates of medical use of prescription opioids had 57% increased odds of past-year prescription opioid misuse compared with schools with no medical use (adjusted odds ratio = 1.57, 95% confidence interval = 1.35–1.83); this association was found to weaken in recent years.

Conclusions: Differences exist in the prevalence of prescription opioid misuse among US high schools. The association between greater school-level medical use of prescription opioids and higher prevalence of prescription opioid misuse, although declining, indicates a key risk factor to target for prevention efforts.

Building on a sequential mixed-mode research design in the Monitoring the Future Study¹¹

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.

¹⁰ McCabe, S. E., Schulenberg, J., McCabe, V. V., & Veliz, P. T. (2020). [Medical use and misuse of prescription opioids in US 12th-grade youth: school-level correlates](#). *Pediatrics*, 146(4).

¹¹ Patrick, M. E., Couper, M. P., Jang, B. J., Laetz, V., Schulenberg, J. E., O'Malley, P. M., Bachman, J., & Johnston, L. D. (2020). [Building on a sequential mixed-mode research design in the Monitoring the Future study](#). *Journal of Survey Statistics and Methodology*.

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.

Comparison of a web-push survey research protocol with a mailed paper and pencil protocol in the Monitoring the Future panel survey¹²

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.

Key subgroup differences in age-related change from 18 to 55 in alcohol and marijuana use: US national data¹³

Objective: This study examined age-related change in alcohol use, marijuana use, and the association between the two, from ages 18 to 55, in a national longitudinal sample.

Method: Data were from national Monitoring the Future study participants ($N = 11,888$) who were high school seniors in 1976–1980 and were eligible to respond to the age 55 survey in 2013–2017. Time-varying effect modeling was used to model past-30-day prevalence and associations between alcohol and marijuana across ages 18–55, overall and by sex, race/ethnicity, and college attendance.

Results: Marijuana prevalence peaked at age 18 and was lowest in the late 40s; alcohol prevalence peaked at age 22 and was lowest in the early 40s. Associations between alcohol and marijuana use were strongest at age 18. Significant differences were observed by sex, race/ethnicity, and college attendance (e.g., women’s use was lower and decreased faster in the late 30s than men’s; White respondents’ alcohol and marijuana use were higher and peaked before Black respondents’);

¹² 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.

¹³ Patrick, M. E., Kloska, D. D., Mehus, C. J., Terry-McElrath, Y., O’Malley, P. M., & Schulenberg, J. E. (2021). [Key subgroup differences in age-related change from 18 to 55 in alcohol and marijuana use: US national data](#). *Journal of studies on alcohol and drugs*, 82(1), 93-102.

compared with non-attenders, college attenders' use was higher for alcohol but lower for marijuana). The alcohol and marijuana use association was strongest at ages 18–20 for most subgroups, except Black respondents, for whom the association was strongest at age 30.

Conclusions: Longitudinal data showed patterns of alcohol and marijuana use across adulthood. Such patterns highlight sociodemographic risk factors across the life span, ages that should be targeted for clinician awareness and intervention efforts, and populations at particular risk of harm from alcohol and marijuana co-use during adulthood. (*J. Stud. Alcohol Drugs*, 82, 93–102, 2021)

Trends in the prevalence of concussion reported by US adolescents, 2016-2020¹⁴

In 2016, 19.5% of US adolescents reported at least 1 concussion during their lifetime. While knowledge about concussion and management of these injuries within the adolescent population have increased over the past decade, to our knowledge no national study has tracked whether rates of concussion have declined or increased. This study estimated trends in the lifetime prevalence of self-reported concussion among a national sample of adolescents between 2016 and 2020. This study uses national cross-sectional data from the 2016-2020 Monitoring the Future (MTF), including 52949 8th, 10th, and 12th graders. A measure to assess concussion was added to the MTF in 2016, asking respondents the following: “Have you ever had a head injury that was diagnosed as a concussion?” Response options included “No”, “Yes, once”, and “Yes, more than once”. The measure did not change across the five years. Binary regression models estimated linear trends for self-reported concussion; adjusted models controlled for sex, race/ethnicity, grade-level, parental education, and participation in sports. Lifetime prevalence of at least one self-reported concussion increased from 19.5% (95% CI 18.5%,20.6%) in 2016 to 24.6% (95% CI 22.5%,26.7%) in 2020 (aPR=1.05, 95% CI=1.03,1.08). The increase in lifetime prevalence of only one self-reported concussion (aPR=1.05, 95% CI=1.02,1.08; 14.0% in 2016 versus 17.7% in 2020), and two or more self-reported concussions (aPR=1.05, 95% CI=1.01,1.11; 5.5% in 2016 versus 6.8% in 2020) between 2016-2020 was statistically significant. Increases in any self-reported concussion were found among males, females, White and Non-White respondents, respondents whose parents had a high school degree or less, and respondents who participated in competitive sports during the past-year. In conclusion, between 2016 and 2020, the estimated percent of U.S. 8th, 10th, and 12th graders who reported at least one diagnosed concussion during their lifetime increased.

Civic development across the transition to adulthood in a national US sample: Variations by race/ethnicity, parent education, and gender¹⁵

Despite a growing understanding about civic development, we know little about whether the developmental course of civic engagement is the same across different types of civic engagement or different groups of youth. To advance developmental science in this area, we documented age-related change in community service, political interest, electoral participation, and political voice across the transition to adulthood by race/ethnicity, parent education, gender, and their interactions. National multicohort probability samples of U.S. high school seniors from the Monitoring the Future study were assessed at baseline (age 18) and followed longitudinally via

¹⁴ Veliz, P., McCabe, S. E., Eckner, J. T., & Schulenberg, J. E. (2021). [Trends in the prevalence of concussion reported by US adolescents, 2016-2020](#). *JAMA*, 325(17), 1789–1791.

¹⁵ Wray-Lake, L., Arruda, E. H., & Schulenberg, J. E. (2020). [Civic development across the transition to adulthood in a national US sample: Variations by race/ethnicity, parent education, and gender](#). *Developmental psychology*, 56(10), 1948.

self-administered mail surveys across 6 follow-up waves to age 29/30. Of the sample (N = 12,557), 51.0% were women, 11.0% were Black, 7.0% were Latinx, 2.3% were Asian, and 75.4% were White. Community service decreased from age 18 to 24, then showed modest recovery. Political interest, electoral participation, and political voice increased steadily from 18 to 24 and less steeply thereafter. Intercepts and (to some extent) slopes varied by race/ethnicity, parent education, gender, and intersections of these factors. Black youth started and remained highest in community service and showed more accelerated growth in political interest and electoral participation. Young women reported higher community service, whereas gender gaps in political engagement trajectories favored young men. Black and Latinx young women stood out as having distinct civic trajectories. The role of parent education varied by race/ethnicity and gender. Diverse civic pathways advance theoretical understanding of civic development.

Patterns and predictors of high-intensity drinking and implications for intervention^{16 17}

Efforts to intervene with subgroups at particularly high risk for alcohol use require information on factors that differentiate drinking intensity levels. This paper 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 (MTF) 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.

Drinking intensity at age 29/30 as a predictor of alcohol use disorder symptoms at age 35 in a national sample¹⁸

Objective: The purpose of this longitudinal study was to differentiate associations of drinking intensity at age 29/30 with symptoms of alcohol use disorder (AUD) at age 35.

Method: Analyses used national longitudinal data from 1,253 individuals participating in the Monitoring the Future study. Age 29/30 data were collected from 2005-2013; age 35 data collected from 2010-2018. Multivariable models regressed age 35 past 5-year AUD symptoms

¹⁶ Patrick, M. E., Bonar, E. E., & Terry-McElrath, Y. M. (in press). Patterns and predictors of high-intensity drinking and implications for intervention. *Psychology of Addictive Behaviors*.

¹⁷ This study used data from a sample of MTF 12th graders followed longitudinally with supplementary funding from NIAAA (grant R01 AA023504 to Megan Patrick)

¹⁸ Patrick, M. E., Evans-Polce, R. J., Parks, M. J., & Terry-McElrath, Y. M. (in press). Drinking intensity at age 29/30 as a predictor of alcohol use disorder symptoms at age 35 in a national sample. *Journal of Studies on Alcohol and Drugs*.

(vs. non-disordered drinking/abstinence) on age 29/30 past 2-week drinking intensity (no/low [0-4] drinking, binge [5-9] drinking, high-intensity [10+] drinking), controlling for key covariates. **Results:** At age 35, 32.6% (SE 1.50) of respondents reported AUD symptoms. AUD symptoms at age 35 were reported by 77.5% (SE 4.79) of participants who reported age 29/30 high-intensity drinking and 60.6% (SE 3.95) of participants who reported age 29/30 binge drinking. Age 35 past 5-year abstinence was reported by almost no respondents reporting age 29/30 binge drinking or high-intensity drinking. AUD symptoms at age 35 were significantly more likely for those who reported binge (AOR 5.61 [95% CI 3.79, 8.30], $p < .001$) or high-intensity (AOR 12.26 [6.70, 22.41], $p < .001$) drinking versus no/low drinking at age 29/30. The likelihood of having AUD symptoms was significantly higher for high-intensity than binge drinkers (AOR 2.18 [1.14, 4.19], $p = 0.019$).

Conclusions: Nearly 80% of those young adults who reported engaging in high-intensity drinking (10+ drinks in a row) at age 29/30 later reported AUD symptoms at age 35. High-intensity drinking appears to be a strong prospective marker of risk for AUD symptoms among adults in the U.S.

Prospective associations of e-cigarette use with cigarette, alcohol, marijuana, and nonmedical prescription drug use among US adolescents¹⁹

Background: As e-cigarette use continues to increase in the U.S., research is needed to understand its prospective risk for cigarette smoking and other substance use in young adulthood, including alcohol, marijuana, and nonmedical prescription drugs (NMPDs).

Methods: This study used data from the Monitoring the Future (MTF) study a nationally representative annual survey of 12th graders (modal age 18) in the US. The analytic sample included 2014-2016 MTF cohorts that were selected and completed follow up one year later (modal age 19; $n = 717$). Using logistic regression, we examined cross-sectional and prospective associations of past 30-day e-cigarette use with past 30-day cigarette, alcohol, marijuana, and NMPD use. We examined prospective associations among the full sample and associations with incidence of each of these substances among those who reported no history of use in 12th grade.

Results: In cross-sectional analysis, those who reported past 30-day e-cigarette use at age 18 were more likely to report past 30-day cigarette use, alcohol use, marijuana use, and NMPD use at age 19. In multivariable longitudinal analysis, past 30-day e-cigarette users at age 18 were more likely to report past 30-day cigarette, marijuana, and NMPD use at age 19, including e-cigarette users who had no history of using these substances at age 18.

Conclusions: This study suggests that e-cigarette use may be an indicator of future substance use risk in young adulthood. Adolescent e-cigarette users may benefit from secondary prevention efforts to mitigate this risk.

Taxation reduces smoking but may not reduce smoking disparities in youth²⁰

Objective: This study examines the extent to which cigarette taxes affect smoking behaviour and disparities in smoking among adolescents by gender, socioeconomic status (SES) and race/ethnicity.

Methods: We used US nationally representative, repeated cross-sectional data from the 2005 to

¹⁹ Evans-Polce, R. J., Patrick, M. E., McCabe, S. E., & Miech, R. A. (2020). [Prospective associations of e-cigarette use with cigarette, alcohol, marijuana, and nonmedical prescription drug use among US adolescents](#). *Drug and Alcohol Dependence*.

²⁰ Fleischer, N. L., Donahoe, J. T., McLeod, M. C., Thrasher, J. F., Levy, D. T., Elliott, M. R., Meza, R., & Patrick, M. E. (2021). [Taxation reduces smoking but may not reduce smoking disparities in youth](#). *Tobacco Control*.

2016 Monitoring the Future study to evaluate the relationship between state cigarette taxes and past 30-day current smoking, smoking intensity, and first cigarette and daily smoking initiation using modified Poisson and linear regression models, stratified by grade. We tested for interactions between tax and gender, SES and race/ethnicity on the additive scale using average marginal effects.

Results: We found that higher taxes were associated with lower smoking outcomes, with variation by grade. Across nearly all of our specifications, there were no statistically significant interactions between tax and gender, SES or race/ethnicity for any grades/outcomes. One exception is that among 12th graders, there was a statistically significant interaction between tax and college plans, with taxes being associated with a lower probability of 30-day smoking among students who definitely planned to attend college compared with those who did not.

Conclusion: We conclude that higher taxes were associated with reduced smoking among adolescents, with little difference by gender, SES and racial/ethnicity groups. While effective at reducing adolescent smoking, taxes appear unlikely to reduce smoking disparities among youth.

College attendance type and subsequent alcohol and marijuana use in the US²¹

Background: College attendance is a risk factor for frequent and heavy drinking and marijuana initiation but less is known about the extent to which risk varies by type of college attendance and across age.

Methods: Using panel data of young adults who were high school seniors in 1990-1998 from the Monitoring the Future study (n=13,123), we examined the associations between college attendance at age 19/20 (4-year college full-time, other college, and non-attendance) and subsequent alcohol and marijuana use at age 21/22, 25/26, 29/30 and 35. Inverse propensity score weighting was used to balance the three college groups on pre-existing differences when examining associations with substance use outcomes.

Results: Compared to non-attendance, attending a 4-year college full-time was associated with significantly greater odds of binge drinking at age 21/22 (aOR=1.20) and 25/26 (aOR=1.12) and lower odds of alcohol abstinence at age 35 (aOR=0.51). Similarly, other college attendance was associated with greater odds of binge drinking at age 21/22 (aOR=1.08) and 25/26 (aOR=1.04) and lower odds of abstinence at age 35 (aOR=0.70). Four-year college full-time attendance was associated with greater odds of marijuana use at age 21/22 (aOR=1.07) and 25/26 (aOR=1.02) but lower odds at age 29/30 (aOR=0.99). Other college attendance was associated with lower odds of marijuana use at age 25/26 (aOR=0.98) and 29/30 (aOR=0.97). Marijuana use at age 35 did not differ by college attendance.

Conclusions: College attendance may confer elevated risk of substance use post-college. The magnitude and duration of risk vary by type of college attendance and substance.

A latent class analysis of heavy substance use in young adulthood and impacts on physical, cognitive, and mental health outcomes in middle age²²

Background: This study examines whether longitudinal patterns of persistent or experimental heavy substance use across young adulthood were associated with physical and mental health in

²¹ Jang, B. J., Schuler, M. S., Evans-Polce, R. J., & Patrick, M. E. (2019). [College attendance type and subsequent alcohol and marijuana use in the U.S. *Drug and Alcohol Dependence*](#).

²² Patrick, M. E., Berglund, P. A., Joshi, S., & Bray, B. C. (2020). [A latent class analysis of heavy substance use in young adulthood and impacts on physical, cognitive, and mental health outcomes in middle age. *Drug and Alcohol Dependence*](#).

midlife.

Methods: Data (N = 21,347) from Monitoring the Future from adolescence (age 18) to midlife (age 40) were used. Repeated measures latent class analysis modeled patterns of patterns of cigarettes, alcohol, marijuana, and other illicit drugs across young adulthood (ages 18–30). Latent classes were then used as predictors of physical health problems, cognitive problems, self-rated health, and psychological problems in midlife (age 40), while controlling for sociodemographic variables (i.e., gender, race/ethnicity, parental education).

Results: Identified classes were “Extreme Heavy Users” (3.9%), “Early Young Adult Users” (8.9%), “Cigarette Smokers” (9.2%), “All But Cigarette Smokers” (5.0%), “Frequent Alcohol Bingers” (10.4%), and “Not-Heavy Users” (62.6%). Extreme Heavy Users, Early Young Adult Users, and Cigarette Smokers had significantly poorer overall health based on a number of physical conditions and self-rated health. Extreme Heavy Users, Early Young Adult Users, Cigarette Smokers, and All But Cigarette Smokers had more cognitive problems than other classes. Extreme Heavy Users, Early Young Adult Users, Cigarette Smokers, and All But Cigarette Smokers were more likely to see a health professional for a psychological problem.

Conclusions: Patterns of heavy substance use were associated with health across decades. Regular cigarette smokers and heavy users across substances and ages had the worst health in midlife, although even those with time-limited use during young adulthood were at risk for later physical and cognitive health problems.

High-intensity drinking by parental status: Differences by age and sex²³

Aims: To examine differences in high-intensity drinking (HID) by parental status, parent age, and parent sex, including two- and three-way interaction effects of these parent demographic categories.

Methods: The present study included individuals ages 18–50 from the National Epidemiologic Study of Alcohol and Related Conditions-III (2012–13), a sample of non-institutionalized adults in the US (N = 22,278). We calculated weighted estimates of past-year HID ($\geq 10/\geq 8$ standard drinks for men/women on a single occasion) for each parental status group (parents of young children <5, parents of children 5–17, not parents of children <18) overall and stratified by sex and stratified by age. We then examined the overall association of parental status and HID and tested for interactions of parental status \times sex, parental status \times age, and parental status \times age \times sex, while controlling for other relevant sociodemographic characteristics.

Results: Prevalence of HID varied considerably by parental status, with 14.84% of parents with kids under age 5, 12.72% of parents with kids 5 to 17, and 23.15% of non-parents reporting HID. The strength of the associations of parenthood and HID were strongest for females and for older parents.

Conclusions: While parents engage in HID less than those who are not parents, a portion of parents of young and adolescent children do report heavy drinking. Younger parents and male parents, in particular, are at high risk for HID. Given the risks to children and parents, interventions focused on preventing HID among parents, especially fathers, could have significant public health impacts.

²³ Patrick, M. E., Evans-Polce, R. J., Wagner, A. C., & Mehus, C. J. (2020). [High-intensity drinking by parental status: Differences by age and sex](#). *Addictive Behaviors*.

Drinking motives and drinking consequences across days: Differences and similarities between moderate, binge, and high-intensity drinking^{24 25}

Abstract Background: The current study examined the extent to which within-person variation in drinking motives differentiates moderate, binge, and high-intensity drinking; and independent associations of motives and drinking intensity with alcohol use consequences in a sample of young adult drinkers from across the United States.

Methods: Participants were past 30-day drinkers in the U.S. nationally representative Monitoring the Future 12th grade sample in 2018, who also reported alcohol use during a 14-day data collection burst 1 year later (N = 484 people, mean age 19.3 [SD 0.40], 43% female; N = 1042 drinking days) as part of the Young Adult Daily Life Study in 2019. Weighted multilevel modeling estimated within- and between-person associations of drinking motives, drinking intensity (i.e., moderate [women 1–3, men 1–4 drinks], binge [women 4–7, men 5–9 drinks], and high-intensity drinking [women 8+, men 10+ drinks]), and number of positive and negative alcohol consequences.

Results: On days participants reported greater enhancement and social motives, they were more likely to engage in high-intensity (vs. binge) drinking and binge (vs. moderate) drinking and experience more positive alcohol consequences. On days participants reported greater enhancement and coping motives, they experienced more negative alcohol consequences. Binge (vs. moderate) drinking on a given day was associated with more positive and negative alcohol consequences; high-intensity (vs. binge) drinking on a given day was associated with more negative alcohol consequences that day. Moderation analyses indicated that social motives were associated with high-intensity (vs. binge) drinking only among college students.

Conclusions: Stronger drinking motives on a given day were associated with drinking intensity (enhancement and social motives) and negative consequences (enhancement and coping). High-intensity (vs. binge or moderate) drinking was associated with more negative consequences but not more positive consequences. These results underscore that high-intensity drinking and consequences vary across days and time-varying, occasion-specific risks such as current motivational context are appropriate targets for intervention.

Negative alcohol-related consequences experienced by young adults in the past 12 months: Differences by college attendance, living situation, binge drinking, and sex²⁶

Purpose: This study estimated the prevalence of negative consequences associated with alcohol use in a national sample of young adults one or two years after graduating from high school, focusing on differences by college attendance, living situation, binge drinking, and sex.

Methods: A subsample (N=1068) of U.S. nationally representative Monitoring the Future study 12th grade students from 2006 to 2016 cohorts was followed-up at modal age 19 or 20 (in 2008-2017) and asked about negative consequences related to their own alcohol use during the past 12 months. Differences in prevalence were estimated and multivariable models examined associations with college attendance, living situation, binge drinking, and sex.

Results: Half of surveyed U.S. 19/20-year-old alcohol users (a third of non-binge drinkers and

²⁴ Patrick, M. E., & Terry-McElrath, Y. M. (2021). [Drinking motives and drinking consequences across days: Differences and similarities between moderate, binge, and high-intensity drinking](#). *Alcoholism: Clinical & Experimental Research*.

²⁵ This study used data from a sample of MTF 12th graders followed longitudinally with supplementary funding from NIAAA (grant R01 AA023504 to Megan Patrick)

²⁶ Patrick, M. E., Terry-McElrath, Y., Evans-Polce, R. J., & Schulenberg, J. (2020). [Negative alcohol-related consequences experienced by young adults in the past 12 months: Differences by college attendance, living situation, binge drinking, and sex](#). *Addictive Behaviors*.

almost three-quarters of binge drinkers) experienced negative consequences in the past year. The likelihood of experiencing several consequence types was significantly associated with college attendance prior to controlling for living situation. In multivariable models controlling for living situation, unsafe driving due to drinking remained more likely for students attending 2-year colleges or vocational/technical schools than for 4-year college students or non-attenders. In general, negative consequence risk was elevated among young adults not living with parents (vs. those living with parents) and women (vs. men).

Conclusion: Negative consequences from alcohol use are prevalent among young adults and differ by college attendance, living situation, binge drinking, and sex. Students at 2-year/vocational/technical schools are at particular risk for unsafe driving, warranting specific research attention and targeted intervention.

Solitary use of alcohol and marijuana by US 12th grade students: 1976-2019²⁷

Introduction: Recent reviews have highlighted adolescent solitary alcohol and marijuana use as risk indicators associated with negative consequences. This study provides 2018-2019 prevalence estimates of and 1976-2019 trends in solitary alcohol and marijuana use among 12th grade students in the US.

Methods: Data were collected from spring 1976 through spring 2019 through the US nationally representative Monitoring the Future study. Solitary use was asked on 1 of 6 randomly distributed questionnaires. Respondents self-reported past 12-month alcohol and marijuana use and how often such use occurred when alone.

Results: Among all 12th grade students in 2018-2019, 14.8% reported solitary alcohol use and 15.8% reported solitary marijuana use. Trend analyses among all students showed solitary alcohol use decreased nonsignificantly from 1976-1977 through 1986-1987 and decreased significantly from 1992-1993 through 2018-2019. Solitary marijuana use among all students decreased significantly from 1976-1977 through 1992-1993 and increased significantly from 1998-1999 through 2018-2019. Among those who used alcohol in the past 12 months, solitary alcohol use decreased significantly from 1976-1977 through 2000-2001 for female students and through 2014-2015 for male students. Among female students, prevalence increased significantly from 2000-2001 through 2018-2019 but from 2014-2015 through 2018-2019 there was no significant prevalence change among male students. The percentage of both female and male students who used marijuana reporting solitary marijuana use decreased significantly from 1976-1977 through 1992-1993 and then increased significantly from 1992-1993 through 2018-2019. Solitary marijuana use prevalence estimates among students reporting use in 2018-2019 were the highest level observed since data collection began in 1976.

Discussion: In 2018-2019, solitary drinking and solitary marijuana use were each reported by approximately 15% of all US 12th grade students. The percentage of female 12th grade students who had used alcohol in the past 12 months who reported solitary alcohol use is increasing, as are percentages of both male and female students who use marijuana and reported solitary marijuana use. These data indicate growing cause for concern about potential negative consequences for a substantial percentage of adolescent substance users.

²⁷ Terry-McElrath, Y. M., O'Malley, P. M., & Patrick, M. E. (2020). [Solitary use of alcohol and marijuana by U.S. 12th grade students: 1976-2019](#). *JAMA Pediatrics*.

How do high school seniors get marijuana? Prevalence and sociodemographic differences²⁸

Introduction: Efforts to understand how adolescents acquire marijuana will help to contextualize its use among youth. Little is known about ways of getting marijuana and how they differ between subgroups of adolescents. The present study sought to determine how adolescents get marijuana and if modes of access vary by sociodemographic characteristics.

Method: Data were from the nationally representative Monitoring the Future study of 12th graders in the United States from 2012 to 2018 (N=4,262 students). Participants used marijuana in the past 12 months and were asked how they got marijuana. Multivariable logistic regression models were used to predict modes of getting marijuana based on sex, race/ethnicity, urbanicity, parental education, and survey year. Cross-tabulation analyses compared how recent frequent and non-frequent use related to ways of getting marijuana.

Results: The most endorsed methods of getting marijuana were given for free by friends, bought from friends, and bought from a drug dealer/stranger. Differences by sociodemographic subgroup and recent frequent use emerged, including for riskier modes of obtainment such as buying from a drug dealer/stranger (for male students, urban students, and recent frequent users). Recent frequent users were more likely to endorse getting marijuana by nearly each method, except non-frequent users were more likely to be given marijuana for free by friends.

Discussion: Understanding the prevalence of different modes of getting marijuana among adolescents and which subgroups are most susceptible to riskier means of getting marijuana will allow drug use prevention efforts to be tailored appropriately so as to maximize effectiveness.

A latent transition analysis of self-reported reasons for marijuana use during young adulthood²⁹

Individuals' reasons for marijuana use have been linked to their risk for continued use and development of disordered use. Although individuals tend to have multiple reasons for use, co-occurrence of reasons is not always accounted for in analytic approaches. Latent transition analysis (LTA) is ideal for modeling transitions in co-occurring reasons. Using longitudinal panel data from Monitoring the Future, LTA was used to identify profiles of self-reported reasons for marijuana use among young adults, examine transitions between profiles, and determine whether cohort, gender, race/ethnicity, parent education, grade of first marijuana use, and 4-year college attendance predicted transitions between profiles. Data included senior year cohorts from 1976–2009 and were collected at ages 19/20, 21/22, and 23/24 (weighted n = 7,294; 55.9% female; 79.3% White). Five latent classes were identified: Non-Users and individuals with Experimental, Typical, Get High + Relax, and Escape + Coping Reasons. Transitions among Non-Users, Experimental Reasons, and Typical Reasons were common; generally, those with earlier cohort membership, early initiation, college non-attending parents, and college attendance were more likely to make transitions to higher-risk classes. As the legalization of recreational marijuana use continues to expand, change over time in reasons for use should be considered carefully as interventions are developed and implemented.

²⁸ Wagner, A. C., Parks, M. J., & Patrick, M. E. (2021). [How do high school seniors get marijuana? Prevalence and sociodemographic differences.](#) *Addictive Behaviors*.

²⁹ Bray, B. C., Berglund, P. A., Evans-Polce, R. J., & Patrick, M. E. (2021). [A latent transition analysis of self-reported reasons for marijuana use during young adulthood.](#) *Evaluation and The Health Professions*, 44(1), 9-24.

Prevalence of spanking in US national samples of 35-year-old parents from 1993 to 2017³⁰

Sporadically, studies have presented prevalence estimates of corporal punishment from one-time national samples; together, they suggest a decrease over recent decades. However, to our knowledge, no repeated surveys have documented trends in the prevalence of spanking in the US. We used national panel data from the Monitoring the Future (MTF) study on 25 consecutive cohorts (graduating high school seniors in 1976-2000) assessed 17 years later (data at modal age 35 years collected from 1993-2017). The analytic sample ($n=16,390$) included those reporting at least 1 child age 2 to 12 years living at home part-time or full-time (including biological, adopted, or stepchildren). In a sample of parents at modal age 35 years with children aged 2 to 12 years, spanking declined over 25 years. The modeled prevalence of spanking decreased (slope = -0.005 ; SE = 0.001 ; $P < .001$) from 50% in 1993 to 35% in 2017. In post hoc analyses, the modeled prevalence for men decreased from 52% to 36% and for women from 48% to 35%. Spanking has been reported to be highest with children age 2 to 4 years; this study's results show a decrease across cohorts despite parents having slightly younger children in later cohorts. Spanking decreased among mothers and fathers from 1993 to 2017. Although a downward trend was observed, there is a clear need for ongoing education about alternative discipline strategies.

Tobacco taxation and its prospective impact on disparities in smoking initiation and progression among young adults³¹

Purpose: Limited research exists on tobacco taxes and cigarette smoking initiation and progression, particularly across different sociodemographic groups in young adulthood. This project examines how cigarette pack price in late adolescence prospectively relates to smoking initiation and progression by 21 years of age, focusing on differences across demographics.

Methods: Data are from the longitudinal Monitoring the Future project (2001–2017). Monitoring the Future examines drug use behaviors with nationally representative samples of 12th graders annually. Subsamples of 12th graders are followed up longitudinally. We examined past 30-day cigarette smoking among baseline never smokers ($N = 9,232$) and daily smoking among youths who were not daily cigarette smokers at baseline ($N = 15,141$). Using logistic regression, we examined state-level cigarette pack price at a modal age of 18 years and smoking at follow-up ages 19–20 years; we used interaction terms to assess differences across sociodemographic groups (by gender, race/ethnicity, and parental education).

Results: For each dollar increase in price at baseline, the odds of initiation by age 19–20 years were reduced by 12% (adjusted odds ratio = $.88$; 95% confidence interval = $.78, .99$) and the odds of progression to daily smoking were reduced by 16% (adjusted odds ratio = $.84$; 95% confidence interval = $.76, .92$). After adjusting for multiple testing, for both outcomes there were no statistically significant interactions between price and demographics.

Conclusions: Cigarette prices in late adolescence were associated with a prospective reduction in cigarette smoking initiation and progression among young adults, with limited differences across sociodemographic characteristics. Higher cigarette prices can prevent smoking initiation and progression; however, complementary interventions are needed to reduce initiation and

³⁰ Mehus, C. J., & Patrick, M. E. (2021). [Prevalence of spanking in US national samples of 35-year-old parents from 1993 to 2017](#). *JAMA pediatrics*, 175(1), 92-93.

³¹ Parks, M. J., Patrick, M. E., Levy, D. T., Thrasher, J. F., Elliott, M. R., & Fleischer, N. L. (2021). [Tobacco taxation and its prospective impact on disparities in smoking initiation and progression among young adults](#). *Journal of Adolescent Health*, 68(4), 765-772.

progression among subgroups disproportionately affected by tobacco.

Diverging trends in the relationship between binge drinking and depressive symptoms among adolescents in the US from 1991 through 2018³²

Purpose: From 1991 to 2018, binge drinking among U.S. adolescents has precipitously declined; since 2012, depressive symptoms among U.S. adolescents have sharply increased. Binge drinking and depressive symptoms have historically been correlated, thus understanding whether there are dynamic changes in their association informs prevention and intervention.

Methods: Data were drawn from the U.S. nationally representative cross-sectional Monitoring the Future surveys (1991-2018) among school-attending 12th-grade adolescents (N = 58,444). Binge drinking was measured as any occasion of more than five drinks/past 2 weeks; depressive symptoms were measured with four items (e.g., belief that life is meaningless or hopeless), dichotomized at 75th percentile. Time-varying effect modeling was conducted by sex, race/ethnicity, and parental education.

Results: In 1991, adolescents with high depressive symptoms had 1.74 times the odds of binge drinking (95% confidence interval 1.54-1.97); by 2018, the strength of association between depressive symptoms and binge drinking among 12th(-)grade adolescents declined 24% among girls and 25% among boys. There has been no significant relation between depressive symptoms and binge drinking among boys since 2009; among girls, the relationship has been positive throughout most of the study period, with no significant relationship from 2016 to 2017.

Conclusions: Diverging trends between depressive symptoms and alcohol use among youth are coupled with declines in the strength of their comorbidity. This suggests that underlying drivers of recent diverging population trends are likely distinct and indicates that the nature of comorbidity between substance use and mental health may need to be reconceptualized for recent and future cohorts.

When does attrition lead to biased estimates of alcohol consumption? Bias analysis for loss to follow-up in 30 longitudinal cohorts³³

Objectives: Survey nonresponse has increased across decades, making the amount of attrition a focus in generating inferences from longitudinal data. Use of inverse probability weights [IPWs] and other statistical approaches are common, but residual bias remains a threat. Quantitative bias analysis for nonrandom attrition as an adjunct to IPW may yield more robust inference.

Methods: Data were drawn from the Monitoring the Future panel studies [twelfth grade, base-year: 1976-2005; age 29/30 follow-up: 1987-2017, N = 73,298]. We then applied IPW imputation in increasing percentages, assuming varying risk differences [RDs] among nonresponders. Measurements included past-two-week binge drinking at base-year and every follow-up. Demographic and other correlates of binge drinking contributed to IPW estimation.

Results: Attrition increased: 31.14%, base-year 1976; 61.33%, base-year 2005. The magnitude of bias depended not on attrition rate but on prevalence of binge drinking and RD among nonrespondents. The probable range of binge drinking among nonresponders was 12-45%. In

³² Keyes, K. M., Hamilton, A., Patrick, M. E., & Schulenberg, J. (2020). [Diverging trends in the relationship between binge drinking and depressive symptoms among adolescents in the US from 1991 through 2018](#). *Journal of Adolescent Health, 66*(5), 529-535.

³³ Keyes, K. M., Jager, J., Platt, J., Rutherford, C., Patrick, M. E., Kloska, D. D., & Schulenberg, J. (2020). [When does attrition lead to biased estimates of alcohol consumption? Bias analysis for loss to follow-up in 30 longitudinal cohorts](#). *International journal of methods in psychiatric research, 29*(4), 1-9.

every scenario, base-year and follow-up binge drinking were associated. The likely range of true RDs was 0.14 [95% CI: 0.11-0.17] to 0.28 [95% CI: 0.25-0.31].

Conclusions: When attrition is present, the amount of attrition alone is insufficient to understand contribution to effect estimates. We recommend including bias analysis in longitudinal analyses.

Alcohol use among 10th-graders: Distinguishing between high-intensity drinking and other levels of use³⁴

Introduction: Drinking at levels beyond standard binge drinking thresholds poses particularly high risks to youth. Few studies have examined high-intensity drinking (HID; 10+ drinks in a row) in high school students and none have tested whether peer drunkenness and parental knowledge (e.g., about youth's whereabouts) distinguish between binge and high-intensity drinkers.

Methods: We used data from the Monitoring the Future study collected from nationally-representative samples of U.S. 10th graders (modal age 16 years old) in 2016–2018 (n = 14,824; 48.3% girls, 46.8% boys). We conducted multinomial logistic regression to examine odds of drinking at one of four mutually-exclusive levels: HID in the past 2 weeks, binge (5+) drinking in the past 2 weeks, any alcohol use in the past year, and no alcohol use in the past year.

Results: Low parental knowledge and peer drunkenness were both associated with higher odds of each drinking level, including HID vs. binge, binge vs. alcohol use, and alcohol use vs. no alcohol use. Boys had higher odds than girls of HID compared to binge drinking and of no alcohol use compared to alcohol use.

Conclusions: Parent and peer risk factors differentiate HID from other levels of drinking.

Trends in reported marijuana vaping among US adolescents, 2017-2019³⁵

Introduction: This study reports the prevalence of marijuana vaping for 2019 among US adolescents and the prevalence increases between 2017, 2018, and 2019.

Methods: Monitoring the Future annually surveys nationally representative samples of US 8th, 10th, and 12th graders between February and June. A randomly selected two-thirds sample received the marijuana vaping questions in 2019, and a randomly selected one-third sample received the questions in 2017 and 2018.

Results: In 2019, past 30-day prevalence of marijuana vaping was reported by 3.9% of 8th graders, 12.6% of 10th graders, and 14.0% of 12th graders. Reported past 30-day prevalence levels significantly increased from 2018 to 2019. The absolute increases were 1.3% in 8th graders, 5.6% in 10th graders, and 6.5% in 12th graders. Among 12th graders, this increase was significantly larger than the increase from 2017 to 2018 by an absolute difference of 4.0%. Among 10th graders, the increase was by 2.9%. Results were similar for use during the past 12 months and lifetime use. Prevalence increases in every year were statistically significant for all grades. For all reporting intervals, the prevalence increases among 12th graders were larger from 2018 to 2019 than from 2017 to 2018. In 2019, near daily marijuana vaping was reported by 0.8% of 8th graders, 3.0% of 10th graders, and 3.5% of 12th graders.

Discussion: Reported adolescent marijuana vaping increased from 2018 to 2019. The absolute increases from 2018 to 2019 among 12th graders for past 30-day use are the second largest, single-

³⁴ Mehus, C. J., & Patrick, M. E. (2020). [Alcohol use among 10th-graders: Distinguishing between high-intensity drinking and other levels of use.](#) *Journal of Adolescence*, 83, 27-30.

³⁵ Miech, R. A., Patrick, M. E., O'Malley, P. M., Johnston, L. D., & Bachman, J. G. (2020). [Trends in reported marijuana vaping among US adolescents, 2017-2019.](#) *Jama*, 323(5), 475-476.

year increases ever tracked by Monitoring the Future for any substance in its 45-year history (increased nicotine vaping from 2017 to 2018 ranks first). Study limitations include potential for reporting error and the absence of high-school dropouts. As the number of adolescents who vape marijuana increases, so too does the scope and effect of any associated health consequences, which may include lung injury when using black market formulations.⁴ The rapid rise of marijuana vaping indicates the need for new prevention and intervention efforts aimed specifically at adolescents.

Trends in marijuana vaping and edible consumption from 2015 to 2018 among adolescents in the US³⁶

This study documents prevalence and trends from 2015 to 2018 in noncombustible marijuana use and differences by use frequency and sociodemographic characteristics (i.e., sex, race/ethnicity, SES, and school urbanicity). Monitoring the Future data from 2015 to 2018 included 9097 responses from students in 12th grade on relevant forms; 2989 (32.9%) reported using marijuana in the past 12 months, and of these, 2412 (80.7%) had complete data on modes of use and covariates. Methods of use included smoking, vaping, and edibles. Frequency of past 30-day use was dichotomized to regular/daily marijuana use (20 or more occasions) or less. From 2015 to 2018, smoking marijuana decreased and vaping and edible use increased among adolescent users. Similar increases have been reported for vaping across substances, although levels of marijuana use overall remained steady.⁶ Modes of use differed by subgroup. As the legal status of marijuana changes, changes in youth behaviors and attitudes should continue to be monitored. Daily use was more common among vape and edible users than smokers. More than one-quarter of students who vaped or used edibles in the past year used marijuana daily in the last month. Health care professionals should consider asking adolescent patients about noncombustible marijuana use to identify heavy users.

A latent class analysis of adolescents' technology and interactive social media use: Associations with academics and substance use³⁷

This study used latent class analysis to identify patterns of technology and social media use among adolescents in a national study (n = 26,348). Multinomial logistic regression was used to examine associations between latent classes and academics and substance use.

Results indicated four classes of technology/social media use: Infrequent Users (55%), Interactive Users (21%), Television Watchers (14%), and Constant Users (10%). Compared to Infrequent Users, Interactive, and Constant Users had lower grades and higher alcohol and marijuana use. Television Watchers had lower grades and participated in fewer extracurricular activities compared to Infrequent Users, but there were no differences on substance use. Results show that adolescents with the most media-intensive profiles were also at greater risk for poor academic outcomes and substance use.

³⁶ Patrick, M. E., Miech, R. A., Kloska, D. D., Wagner, A. C., & Johnston, L. D. (2020). [Trends in marijuana vaping and edible consumption From 2015 to 2018 among adolescents in the US](#). *JAMA pediatrics*, 174(9), 900-902.

³⁷ Tang, S., & Patrick, M. E. (2020). [A latent class analysis of adolescents' technology and interactive social media use: Associations with academics and substance use](#). *Human Behavior and Emerging Technologies*, 2(1), 50-60.

U.S. adolescent alcohol use by race/ethnicity: Consumption and perceived need to reduce/stop use³⁸

Understanding racial/ethnic drinking patterns and service provision preferences is critical for deciding how best to use limited alcohol prevention, intervention, and treatment resources. We used nationally representative data from 150,727 U.S. high school seniors from 2005 to 2016 to examine differences in a range of alcohol use behaviors and the felt need to reduce or stop alcohol use based on detailed racial/ethnic categories, both before and after controlling for key risk/protective factors. Native-American students reported particularly high use but corresponding high felt need to reduce/stop use. White and dual-endorsement students reported high use but low felt need to stop/reduce alcohol use.

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 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](#)³⁹ presents trends up to 2019 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.⁴⁰

³⁸ Terry-McElrath, Y. M., & Patrick, M. E. (2020). [U.S. adolescent alcohol use by race/ethnicity: Consumption and perceived need to reduce/stop use](#). *Journal of Ethnicity in Substance Abuse*, 19(1), 3–27.

³⁹ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2020). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2019](#) (Monitoring the Future Occasional Paper No. 94). Ann Arbor, MI: Institute for Social Research, University of Michigan.

⁴⁰ Johnston, L. D., Schulenberg, J. E., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2020). [Demographic subgroup trends among young adults in the use of various licit and illicit drugs, 1988-2019](#) (Monitoring the Future Occasional Paper No. 95). Ann Arbor, MI: Institute for Social Research, University of Michigan, 115 pp.

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 the same year the data were collected; and (2) an [Overview of Key Findings](#) monograph posted at the end of the following January.

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 entire 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 negligible, absentees and dropouts constitute virtually all of the nonrespondents shown in the response rate in Table 3-1, or about 20% of all 12th graders (the percentage varies slightly by year). US 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

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 of 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 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 2020 absentees comprised 21% of the 12th graders who should be in school, they comprised only 11% of 10th graders and 12% of 8th graders (see Table 3-1). Thus, the prevalence estimate adjustments that would result from corrections for this missing segment would also be considerably less for 8th and 10th graders than for 12th graders.

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.

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.

In sum, it is clear that corrections for dropouts and absentees would be small at 10th grade and 8th grade. For this reason, and because the corrections described 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.

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 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 2020. 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, a group with increasingly small numbers.

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%.

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 up 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 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 drawn to be representative of students *in* school, not all persons in an age cohort.

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. No hypothesis offered for such a differential shift among dropouts has been convincing, at least to the present authors.

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 rates reported by 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, and there is no reason to think that absentee or dropout rates at those levels have changed since 1991 in any way that could have changed the trend data. *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 omission of dropouts and absentees from the study, 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 – a conclusion also reached by the members of the 1982 NIDA technical review on this subject and reflected in the abstract of the review:⁴ “The analyses provided in this report show that failure to include these two groups (absentees and dropouts) does not substantially affect the estimates of the incidence and prevalence of drug use.” We believe this conclusion is even more true today, as dropout rates have dropped to their lowest levels ever.

⁴ Clayton, R. R. & Voss, H. L. (1982). *Technical review on drug abuse and dropouts*. Rockville, MD: National Institute on Drug Abuse.

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: $.8(\text{Column 5}) + .2(\text{Column 6})$

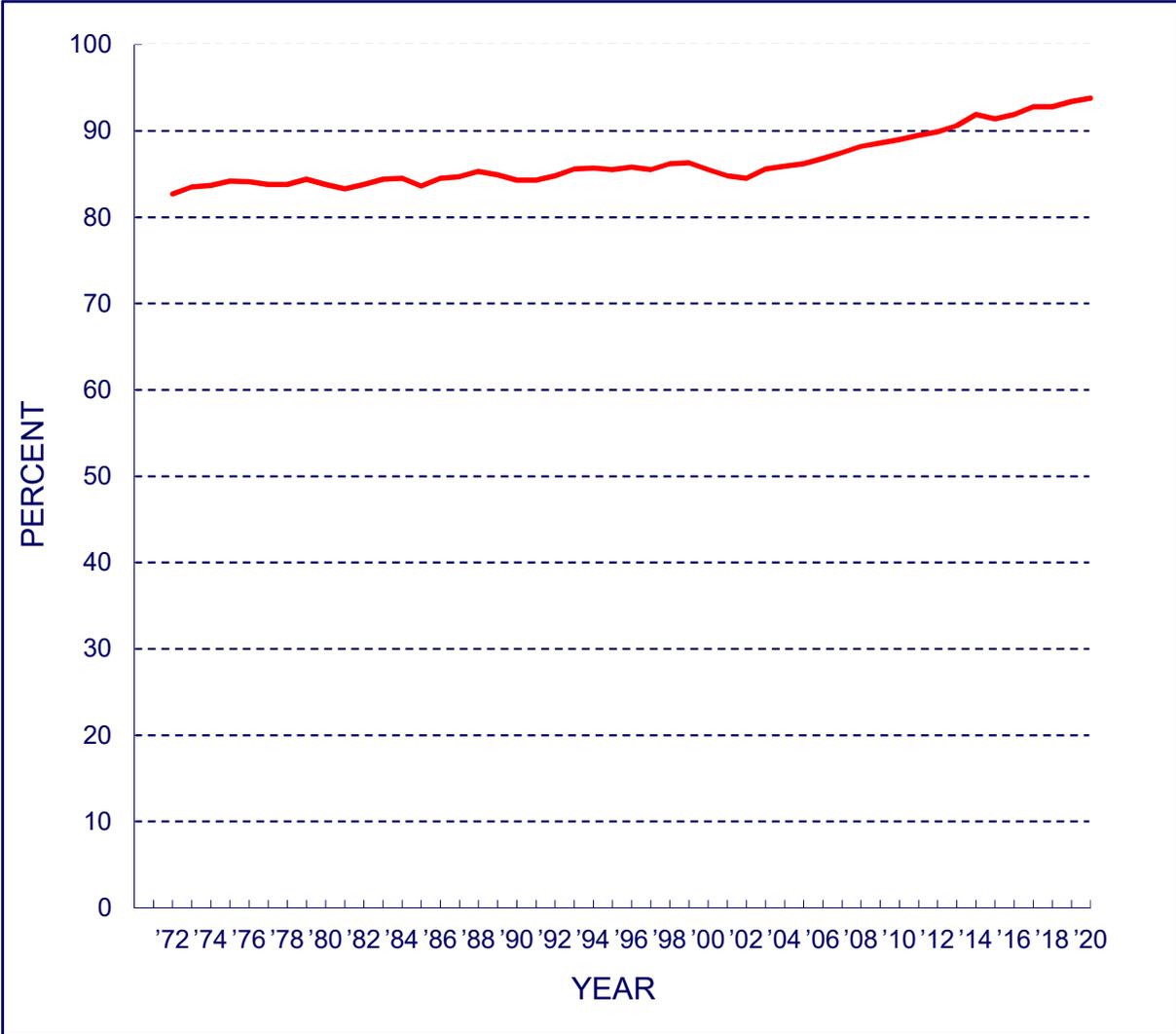
Column 8: Column 5 + 1.5(Column 6 - Column 5)

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

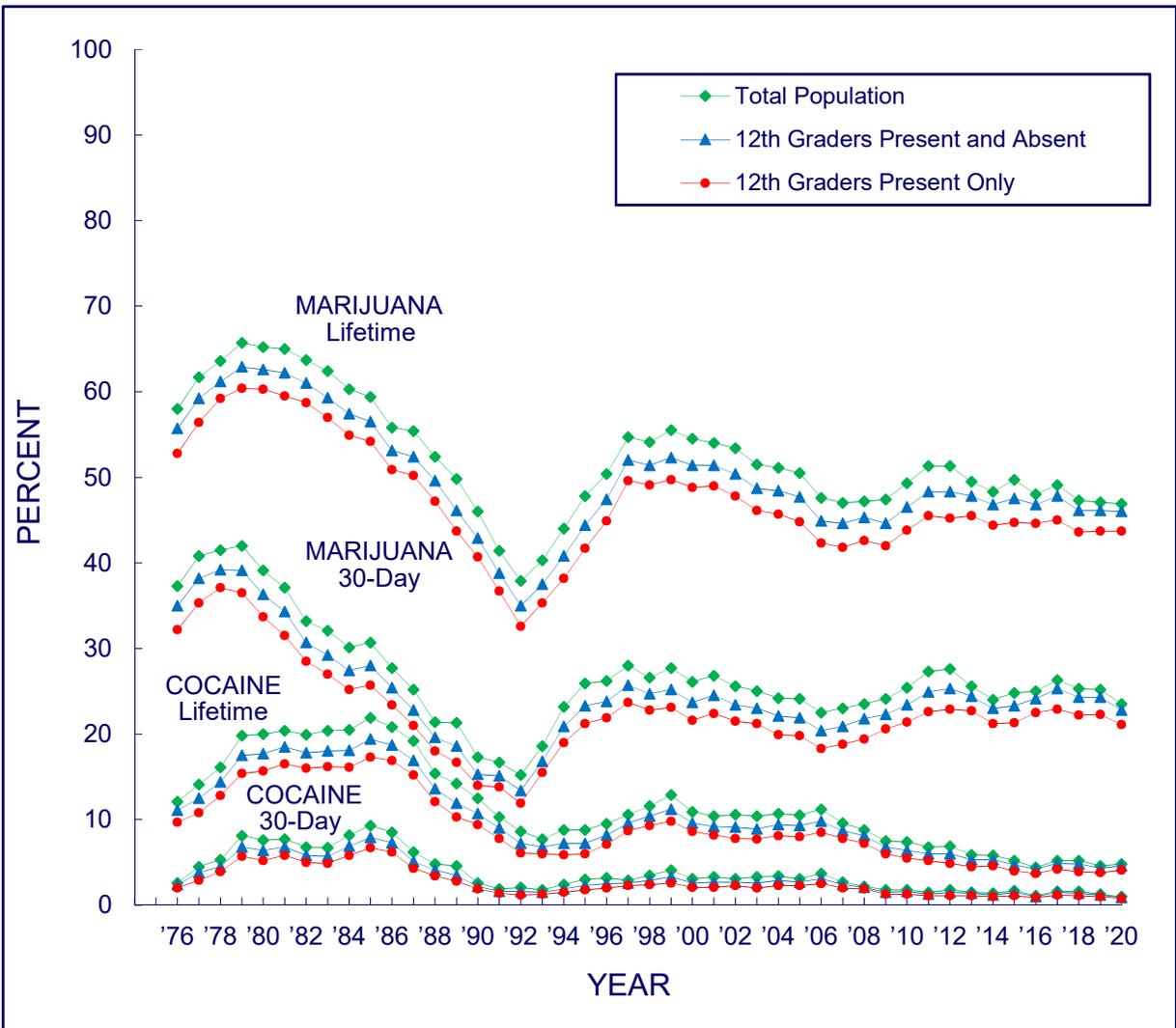
Column 11: Columns 10 and 11 combined per their size as estimated using the U.S. Census for 2016-2018: $.925(\text{Column 7}) + .075(\text{Column 10})$

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 2019 MTF survey, can be found in [Occasional Paper 94](#).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?” 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. (2020). [Demographic subgroup trends among adolescents in the use of various licit and illicit drugs, 1975-2019](#) (Monitoring the Future Occasional Paper No. 94). 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 (which has been variously defined over time by the U.S. Bureau of the Census, as described below). 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 Census Bureau classifications of Metropolitan Statistical Areas (MSAs). 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 Office of Management and Budget publication, *Metropolitan Statistical Areas, 1990* (NTIS-PB90-214420), Washington, D.C. 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 MSA. 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, Chicago, Philadelphia PA-NJ, Detroit, Washington DC-MD-VA, Dallas-Ft. Worth, and Boston. The other 16 large MSAs are Houston, Atlanta, Seattle-Tacoma, Minneapolis 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 MSAs, as defined by the Census, 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 natural father, answer for the one that was most important in raising you.”

**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/Caucasian. 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.

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 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 UP TO 2019 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 2019. We do not present results for 2020 because of insufficient sample size. Information for 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 is too small to produce reliable estimates that year. We will resume examining trends with 2021 data next year.

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

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.

than when a branching question precedes them. For example, the 2003 prevalence rates for PCP 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 2019 “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

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.

question. In 2019 the annual prevalence from a branching question was 0.4% vs. 1.1% from the stand-alone question.

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 1.5%.

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 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 very low annual prevalence in 2019, with Ambien the highest at 0.3%.

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. 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 in 2019.

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>	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>
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>

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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>

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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														2019-2020 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>	
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	§	—
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	§	—
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	§	—
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	§	—
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	§	—
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	§	—
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	§	—
<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	2,100	2,200	2,100	§	

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>	<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>2,000</i>	<i>2,100</i>	<i>2,400</i>	<i>2,400</i>	<i>2,400</i>	<i>2,300</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														2019-2020 change
	2007	2008	2009	2010	2011	2012	2013 ^d	2014 ^d	2015	2016	2017	2018	2019 ^e	2020	
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	§	—
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	§	—
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	§	—
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	§	—
Vyvanse	—	—	—	—	—	—	1.3	1.6	1.4	1.5	1.1	1.1	0.7	§	—
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	§	—
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	§	—
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	§	—
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	§	—
<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	§	

Table continued on next page.

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> 2,700 2,900 3,400 3,100 3,000 3,300 3,400 3,200 3,100 3,100 3,000 3,100 3,200 2,700 2,500 2,400																

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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

Table continued on next page.

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														2019-2020 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	
Librium	0.2	0.2	0.1	0.5	0.2	*	0.2	*	0.1	0.0	0.2	0.1	0.4	§	—
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	§	—
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	§	—
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	§	—
Serax	0.1	*	*	0.4	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	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	§	—
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	§	—
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	§	—
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	§	—
<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	§	

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>

Table continued on next page.

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>

Table continued on next page.

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>	Percentage of ALL SENIORS using drug indicated in last 12 months														2019-2020 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
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	\$	—
Tramadol	—	—	—	—	—	—	0.8	0.6	1.1	0.5	0.2	0.1	0.1	\$	—
MS Contin	—	—	—	—	—	—	*	0.1	0.1	0.0	0.0	0.0	0.0	\$	—
Suboxone	—	—	—	—	—	—	0.2	0.1	0.2	0.2	*	0.1	0.0	\$	—
Roxycodone	—	—	—	—	—	—	0.3	0.3	—	—	—	—	—	—	—
Oxycodone	—	—	—	—	—	—	—	—	1.4	2.4	1.1	0.9	0.5	\$	—
Tylox	—	—	—	—	—	—	0.0	*	0.1	0.0	0.0	0.1	0.0	\$	—
Hydrocodone (Lortab, Lorcet, Norco)	—	—	—	—	—	—	2.9	2.9	2.2	2.1	1.1	1.3	0.5	\$	—
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	\$	—
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	\$	—
<i>Approximate weighted N =</i>	<i>2,400</i>	<i>2,300</i>	<i>2,300</i>	<i>2,200</i>	<i>2,200</i>	<i>2,100</i>	<i>2,000</i>	<i>1,900</i>	<i>2,100</i>	<i>1,800</i>	<i>2,000</i>	<i>2,100</i>	<i>2,000</i>	\$	

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}

<i>What sedatives have you taken during the last year without a doctor's orders?</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>1991-2006</u>
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	—
<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>3,100</i>	<i>2,700</i>	—

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														2019-2020 change
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^d	2020	
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	§	—
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	§	—
Dalmane	—	—	—	—	—	—	0.05	0.0	*	0.2	*	0.0	0.2	§	—
Restoril	—	—	—	—	—	—	0.08	*	0.2	0.3	*	0.0	0.1	§	—
Halcion	—	—	—	—	—	—	0.12	0.0	0.1	0.3	0.5	0.1	0.2	§	—
Tuinal ^c	0.1	*	0.0	0.2	0.1	0.2	—	—	—	—	—	—	—	—	—
Nembutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luminal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Desbutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amytal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adrenoccal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	§	—
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	§	—
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	§	—
Intermezzo	—	—	—	—	—	—	0.11	0.0	*	0.2	*	0.0	0.2	§	—
Zolpimist	—	—	—	—	—	—	0.21	0.1	0.1	0.2	0.1	0.1	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	§	—
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	§	—
Approximate weighted N =															
	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	§	

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 1991–2020.) 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 grade 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 is 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 measured in all three grades are shown in these tables.

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 on 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
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
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
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
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
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
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
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
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
Ecstasy (MDMA) ^c	—	—	—	—	—	4.9	5.2	4.5	5.3	7.2	8.0	6.9	5.4	4.7	4.0
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
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
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
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
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
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
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
Methamphetamine	—	—	—	—	—	—	—	—	6.5	6.2	5.8	5.3	5.0	4.5	3.9
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
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
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
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	54.7	54.7
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
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
Any Vaping ^d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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

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.)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020	2019–2020 change	Peak year–2020 change		Low year–2020 change		
																Absolute change	Proportional change (%) ^a	Absolute change	Proportional change		
Any Illicit Drug ^b	34.0	32.7	32.6	33.2	34.4	34.7	34.1	36.0†	34.9	34.3	<u>32.6</u>	33.4	33.9	34.8	34.7	-0.1	-0.2	-0.5	+2.1	+6.4	
Any Illicit Drug other than Marijuana ^b	18.2	17.7	16.8	16.5	16.8	16.1	15.5	16.8†	15.8	15.1	14.3	<u>14.0</u>	14.2	14.2	14.3	+0.1	-1.5	-9.7	+0.3	+2.1	
Any Illicit Drug including Inhalants ^b	39.3	38.0	37.9	37.9	38.8	38.7	37.9	39.3†	37.9	37.4	<u>34.9</u>	36.5	36.6	37.8	38.3	+0.5	—	—	+3.4 s	+9.9	
Marijuana/Hashish	28.9	27.9	<u>27.9</u>	29.0	30.4	31.0	30.7	32.0	30.5	30.0	28.6	29.3	29.7	30.6	30.2	-0.4	-7.5 sss	-20.0	+2.3	+8.4	
Inhalants	13.7	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	+0.8	-11.3 sss	-58.4	+1.6 s	+24.6	
Hallucinogens	5.7	5.8	5.6	5.3	5.8	5.7	5.0	5.0	4.3	4.3	4.3	4.2	<u>4.1</u>	4.6	5.0	+0.4	-4.1 sss	-45.1	+0.9	+21.5	
LSD	2.5	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	+0.4	-5.2 sss	-57.5	+1.4 sss	+59.9	
Hallucinogens other than LSD	5.2	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	+0.3	-3.3 sss	-50.0	+0.5	+18.0	
Ecstasy (MDMA) ^c	4.3	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	<u>2.6</u>	-0.1	-2.4 sss	-48.3	—	—	
Cocaine	5.3	5.2	4.8	4.2	3.8	3.4	3.3	3.1	2.9	2.7	<u>2.3</u>	2.5	2.6	2.4	2.4	-0.1	-4.8 sss	-67.0	0.0	+1.6	
Crack	2.6	2.5	2.2	2.0	1.9	1.6	1.5	1.5	1.3	1.3	<u>1.0</u>	1.1	1.1	1.1	1.0	-0.1	-2.8 sss	-72.9	0.0	+1.7	
Other cocaine	4.7	4.6	4.1	3.7	3.4	3.1	2.9	2.7	2.5	2.3	<u>2.1</u>	2.1	2.3	2.1	2.2	+0.1	-4.0 sss	-64.5	+0.1	+7.1	
Heroin	1.4	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>	-0.2	-1.8 sss	-82.3	—	—	
With a needle	0.9	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>	-0.2	-1.1 sss	-82.4	—	—	
Without a needle	1.0	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	<u>0.3</u>	-0.1	-1.5 sss	-85.1	—	—	
Amphetamines ^b	10.1	9.5	8.6	8.6	8.9	8.6	8.3	10.5†	9.7	9.1	8.1	7.7	7.7	<u>7.6</u>	7.8	+0.2	-1.9 ss	-19.9	+0.2	+2.6	
Methamphetamine	3.4	2.5	2.5	2.2	2.2	1.8	1.6	1.5	1.4	1.1	0.8	0.9	<u>0.7</u>	0.8	1.2	+0.4	-5.4 sss	-81.8	+0.4	+59.6	
Tranquilizers	7.0	6.7	6.3	6.5	6.6	6.0	5.8	5.2	5.3	<u>5.2</u>	5.5	5.6	5.4	5.3	5.2	0.0	-2.6 sss	-33.3	0.0	+0.5	
Alcohol	57.0	56.3	55.1	54.6	53.6	51.5	50.0	48.4	46.4	45.2	41.9	41.7	<u>41.2</u>	41.5	44.0	+2.5 s	-24.8 sss	-36.0	+2.8 s	+6.7	
Been drunk	37.6	36.6	35.1	35.9	34.2	32.5	32.8	31.7	29.2	28.2	26.4	26.0	25.6	<u>25.0</u>	26.4	+1.4	-19.9 sss	-42.9	+1.4	+5.6	
Flavored alcoholic beverages	53.1	51.3	49.3	47.9	46.7	44.5	42.7	41.1	38.8	37.4	33.8	33.5	34.3	<u>30.6</u>	32.8	+2.2	-21.9 sss	-40.0	+2.2	+7.2	
Cigarettes	35.0	33.3	31.3	31.2	30.9	28.7	27.0	25.6	22.9	21.1	18.2	17.0	16.1	<u>15.3</u>	16.2	+0.9	-41.6 sss	-72.0	+0.9	+5.9	
Smokeless tobacco	13.3	12.9	12.3	13.5	14.5	13.8	13.5	12.8	12.1	11.3	10.3	8.7	8.8	<u>8.7</u>	12.0	+3.3 sss	-14.3 sss	-54.5	+3.3 sss	+38.0	
Any Vaping ^d	—	—	—	—	—	—	—	—	—	—	29.9	26.6†	<u>28.2</u>	33.4	36.7	37.2	+0.4	—	—	+9.0 sss	+31.8
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	<u>18.9</u>	25.2	32.3	35.0	+2.7 ss	—	—	+16.1 sss	+85.6
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	<u>8.5</u>	11.7	18.1	20.1	+2.0 s	—	—	+11.6 sss	+136.6	
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	<u>24.9</u>	28.3	25.3	25.0	-0.4	-3.3 ss	-11.7	+0.0	+0.2	
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	28.1	<u>27.7</u>	-0.4	-0.4	-1.4	—	—	
Steroids	2.0	1.8	1.6	1.5	1.5	1.5	1.4	1.5	1.4	1.5	1.3	<u>1.2</u>	1.3	1.6	1.9	+0.4	-1.4 sss	-41.5	+0.7 ss	+53.0	

(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

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
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
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
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
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
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
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
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
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
Ecstasy (MDMA) ^d	—	—	—	—	—	3.1	3.4	2.9	3.7	5.3	6.0	4.9	3.1	2.6	2.4
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
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
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
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
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
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
OxyContin	—	—	—	—	—	—	—	—	—	—	—	2.7	3.2	3.3	3.4
Vicodin	—	—	—	—	—	—	—	—	—	—	—	6.0	6.6	5.8	5.7
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
Ritalin	—	—	—	—	—	—	—	—	—	—	4.2	3.8	3.5	3.6	3.3
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine	—	—	—	—	—	—	—	—	4.1	3.5	3.4	3.2	3.0	2.6	2.4
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
OTC Cough/Cold Medicines	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol	—	—	—	—	—	1.1	1.1	1.1	0.8	0.7	0.9‡	0.8	0.8	0.9	0.8
GHB ^b	—	—	—	—	—	—	—	—	—	1.4	1.2	1.2	1.2	1.1	0.8
Ketamine ^b	—	—	—	—	—	—	—	—	—	2.0	1.9	2.0	1.7	1.3	1.0
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
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
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	44.5	43.9
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

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.)

	2019–2020																Peak year–2020 change		Low year–2020 change	
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020	change	Absolute change	Proportional change (%) ^a	Absolute change	Proportional change
Any Illicit Drug ^c	25.8	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	-0.3	-0.3	-1.2	+2.0	+7.9
Any Illicit Drug other than Marijuana ^c	12.7	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	+0.2	-1.8 s	-16.1	+0.2	+2.4
Any Illicit Drug including Inhalants ^c	28.7	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	+0.2	—	—	+2.9 s	+11.2
Marijuana/Hashish	22.0	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	-0.6	-5.5 sss	-18.2	+3.2 ss	+15.1
Synthetic marijuana	—	—	—	—	—	—	8.0	6.4	4.8	4.2	3.1	2.8	2.6	2.9	2.2	-0.7 ss	-6.8 sss	-84.4	—	—
Inhalants	6.9	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	+0.6	-2.6 sss	-25.4	+0.8 s	+29.9
Hallucinogens	3.6	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	+0.5	-2.6 sss	-43.2	+0.7	+24.6
LSD	1.4	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	+0.3	-3.8 sss	-60.9	+1.1 sss	+76.1
Hallucinogens other than LSD	3.3	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	+0.1	-2.0 sss	-50.3	+0.3	+15.4
Ecstasy (MDMA) ^d	2.7	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	-0.4	-2.1 sss	-61.6	—	—
Salvia	—	—	—	—	3.5	3.6	2.7	2.3	1.4	1.2	1.2	0.9	0.8	0.8	0.8	0.0	-2.8 sss	-77.1	+0.1	+9.4
Cocaine	3.5	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	0.0	-3.0 sss	-68.2	0.0	+0.4
Crack	1.5	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	0.0	-1.8 sss	-74.0	0.0	+6.5
Other cocaine	3.1	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	+0.2	-2.6 sss	-64.1	+0.2	+16.0
Heroin	0.8	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	-0.1	-1.1 sss	-82.2	—	—
With a needle	0.5	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	-0.5 sss	-70.8	—	—
Without a needle	0.6	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	-1.0 sss	-88.8	—	—
OxyContin	3.5	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	-0.3	-2.5 sss	-64.6	—	—
Vicodin	6.3	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	-0.2	-5.7 sss	-86.9	—	—
Amphetamines ^c	6.8	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	0.0	-2.0 sss	-30.1	0.0	+0.1
Ritalin	3.5	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	+0.1	-3.1 sss	-74.9	+0.3	+33.3
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	+0.2	-1.2 ss	-26.8	+0.2	+4.9
Methamphetamine	2.0	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	-3.4 sss	-83.3	+0.2	+48.7
Bath salts (synthetic stimulants)	—	—	—	—	—	—	0.9	0.9	0.8	0.7	0.8	0.5	0.7	—	—	—	—	—	—	—
Tranquilizers	4.6	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	-0.4	-2.8 sss	-51.7	—	—
OTC Cough/Cold Medicines	5.4	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	+0.9 ss	-1.6 sss	-30.4	+0.9 ss	+33.7
Rohypnol	0.7	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	+0.5 ss	—	—	+0.5 ss	+118.7
GHB ^b	0.9	0.7	0.9	0.9	0.8	0.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketamine ^b	1.1	1.0	1.2	1.3	1.2	1.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol	50.7	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	+2.4 s	-23.0 sss	-37.5	+2.4 s	+6.8
Been drunk	30.7	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	+2.6 ss	-14.8 sss	-40.1	+2.6 ss	+13.3
Flavored alcoholic beverages	42.4	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	+1.9	-18.0 sss	-40.4	+1.9	+7.8
Alcoholic beverages containing caffeine	—	—	—	—	—	19.7	18.6	16.6	14.3	13.0	11.2	10.6	10.1	9.2	8.6	-0.6	-11.0 sss	-56.1	—	—
Any Vaping	—	—	—	—	—	—	—	—	—	—	—	21.5	28.9	31.9	30.7	-1.2	-1.2	-3.9	+9.2 sss	+42.7
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	13.9	21.6	27.3	27.1	-0.2	-0.2	-0.8	+13.2 sss	+94.4
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	6.8	9.9	15.6	16.3	+0.7	—	—	+9.5 sss	+138.6
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	17.2	21.8	18.6	15.8	-2.8 s	-6.0 sss	-27.4	—	—
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	23.9	18.0	-5.9 sss	-5.9 sss	-24.6	—	—
Dissolvable tobacco products	—	—	—	—	—	—	1.4	1.4	1.2	1.1	0.9	0.9	1.0	1.0	0.9	-0.1	-0.5	-35.1	—	—
Snus	—	—	—	—	—	—	5.6	4.8	4.1	3.8	3.6	2.6	3.0	2.2	2.7	+0.5	-2.9 sss	-52.1	+0.5	+25.0
Steroids	1.3	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	+0.2	-0.9 sss	-46.4	+0.3 s	+42.9

(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
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
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
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
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
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
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
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
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
Ecstasy (MDMA) ^c	—	—	—	—	—	1.5	1.3	1.2	1.6	2.4	2.4	1.8	1.0	0.9	0.9
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
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
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
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
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
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
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
Methamphetamine	—	—	—	—	—	—	—	—	1.5	1.5	1.4	1.5	1.4	1.1	0.9
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
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
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
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	23.0	21.6
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
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
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

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.)

	2006-2020																Peak year-2020 change		Low year-2020 change	
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020	2019-2020 change	Absolute change	Proportional change (%) ^a	Absolute change	Proportional change
Any Illicit Drug ^b	14.9	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	-1.0	-0.3	-1.7	+0.7	+4.6
Any Illicit Drug other than Marijuana ^b	6.4	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	-0.3	-1.5 sss	-26.7	—	—
Any Illicit Drug including Inhalants ^b	16.5	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	-0.5	-0.5	-2.9	+1.4	+8.4
Marijuana/Hashish	12.5	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	-1.0	-3.4 sss	-18.7	+2.2 ss	+17.7
Inhalants	2.7	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	+0.2	-2.7 sss	-62.5	+0.5 s	+43.2
Hallucinogens	1.3	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	+0.1	-0.9 sss	-40.5	+0.4 s	+45.2
LSD	0.6	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	+0.1	-1.8 sss	-64.0	+0.4 ss	+89.1
Hallucinogens other than LSD	1.1	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	+0.1	-0.7 sss	-46.8	+0.2 s	+42.6
Ecstasy (MDMA) ^c	1.0	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	-0.1	-0.6 s	-51.5	+0.1	+14.9
Cocaine	1.6	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	-0.2	-1.4 sss	-74.1	—	—
Crack	0.7	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	-0.1 s	-0.7 sss	-70.9	—	—
Other cocaine	1.4	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	-0.1	-1.2 sss	-71.4	+0.1	+18.5
Heroin	0.4	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	0.0	-0.3 sss	-55.0	+0.1	+73.1
With a needle	0.3	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	0.0	-0.2 ss	-51.6	+0.1	+48.2
Without a needle	0.3	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	0.0	-0.3 sss	-72.6	0.0	+61.0
Amphetamines ^b	3.0	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	-0.2	-1.2 sss	-38.2	—	—
Methamphetamine	0.7	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	+0.2	-1.1 sss	-74.3	+0.2	+110.3
Tranquilizers	2.1	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	-0.3 s	-1.4 sss	-60.2	—	—
Alcohol	31.0	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	+2.6 sss	-17.9 sss	-46.2	+2.6 sss	+14.5
Been drunk	17.4	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	+1.1	-10.7 sss	-50.4	+1.4	+15.6
Flavored alcoholic beverages	21.7	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	+0.7	-11.2 sss	-48.5	+1.0	+9.0
Cigarettes	14.4	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	+0.4	-24.1 sss	-85.2	+0.4	+11.8
Smokeless tobacco	5.1	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	+1.9 ss	-4.7 sss	-49.1	+1.9 ss	+60.2
Any Vaping ^d	—	—	—	—	—	—	—	—	—	12.8	9.9†	12.0	19.2	22.5	21.2	-1.2 s	-1.2 s	-5.5	+9.3 sss	+77.5
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	7.5	14.2	18.1	18.0	-0.2	-0.2	-0.9	+10.5 sss	+140.2
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	3.6	5.7	10.1	9.2	-0.9 s	-0.9 s	-8.9	+5.6 sss	+154.8
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	8.0	11.5	9.6	8.5	-1.1 ss	-3.0 sss	-25.9	+0.5	+6.6
JUUL	—	—	—	—	—	—	—	—	—	—	—	—	—	15.8	10.4	-5.4 sss	-5.4 sss	-34.1	—	—
Large Cigars	—	—	—	—	—	—	—	—	3.9	4.2	3.3	3.2	3.2	2.8	1.8	-1.0 sss	-2.4 sss	-56.6	—	—
Flavored Little Cigars	—	—	—	—	—	—	—	—	7.4	7.1	5.6	5.4	5.5	4.5	3.1	-1.4 sss	-4.4 sss	-58.8	—	—
Regular Little Cigars	—	—	—	—	—	—	—	—	4.5	4.9	3.6	3.6	3.4	3.0	2.4	-0.6 ss	-2.5 sss	-51.1	—	—
Tobacco using a hookah	—	—	—	—	—	—	—	—	—	—	4.3	3.4	2.7	2.5	1.1	-1.4 ss	-3.2 sss	-74.5	—	—
Steroids	0.7	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	+0.1	-0.4 ss	-39.2	+0.2 s	+47.5

(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
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
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
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
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
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
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
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

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.)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b	2020	2019–2020 change	Peak year–2020 change		Low year–2020 change	
																	Absolute change	Proportional change (%) ^a	Absolute change	Proportional change
Marijuana	2.8	<u>2.7</u>	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	-0.1	-0.1	-1.3	+1.3 sss	+48.9
Alcohol	1.5	1.6	1.4	1.3	1.4	1.0	1.2	1.1	1.0	0.8	0.7	0.7	<u>0.6</u>	0.8	1.3	+0.5 sss	-0.9 sss	-39.7	+0.7 sss	+126.8
5+ drinks in a row in last 2 weeks	17.4	17.2	15.5	16.1	14.9	13.6	14.3	13.2	11.7	10.7	9.4	9.9	<u>8.6</u>	8.7	10.1	+1.4 s	-11.8 sss	-54.0	+1.5 s	+18.0
Been drunk	0.7	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.3	<u>0.3</u>	0.4	0.3	0.4	0.4	0.0	-0.5 sss	-52.4	+0.1	+42.9
Cigarettes	7.6	7.1	6.4	6.4	6.4	5.7	5.2	4.7	3.6	3.2	2.5	2.3	2.0	<u>1.5</u>	1.6	+0.2	-15.3 sss	-90.4	+0.2	+11.1
1/2 pack+/day	3.4	3.0	2.7	2.6	2.5	2.1	1.9	1.8	1.4	1.1	0.9	0.8	0.8	<u>0.5</u>	0.6	+0.1	-8.1 sss	-92.7	+0.1	+17.7
Vaping nicotine	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	<u>5.9</u>	-3.3 sss	-6.7 sss	-72.3	—	—
Vaping marijuana	—	—	—	—	—	—	—	—	—	—	—	—	—	2.4	<u>1.6</u>	-0.8 ss	-1.4 ss	-57.5	—	—
Vaping just flavoring	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	<u>1.4</u>	-0.6 sss	-1.3 sss	-65.4	—	—
Smokeless tobacco	1.5	1.6	1.6	1.8	2.1	1.8	1.9	1.7	1.8	1.7	1.4	1.0	1.0	<u>0.8</u>	1.6	+0.7 s	-1.4 s	-47.3	+0.7 s	+86.4

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.

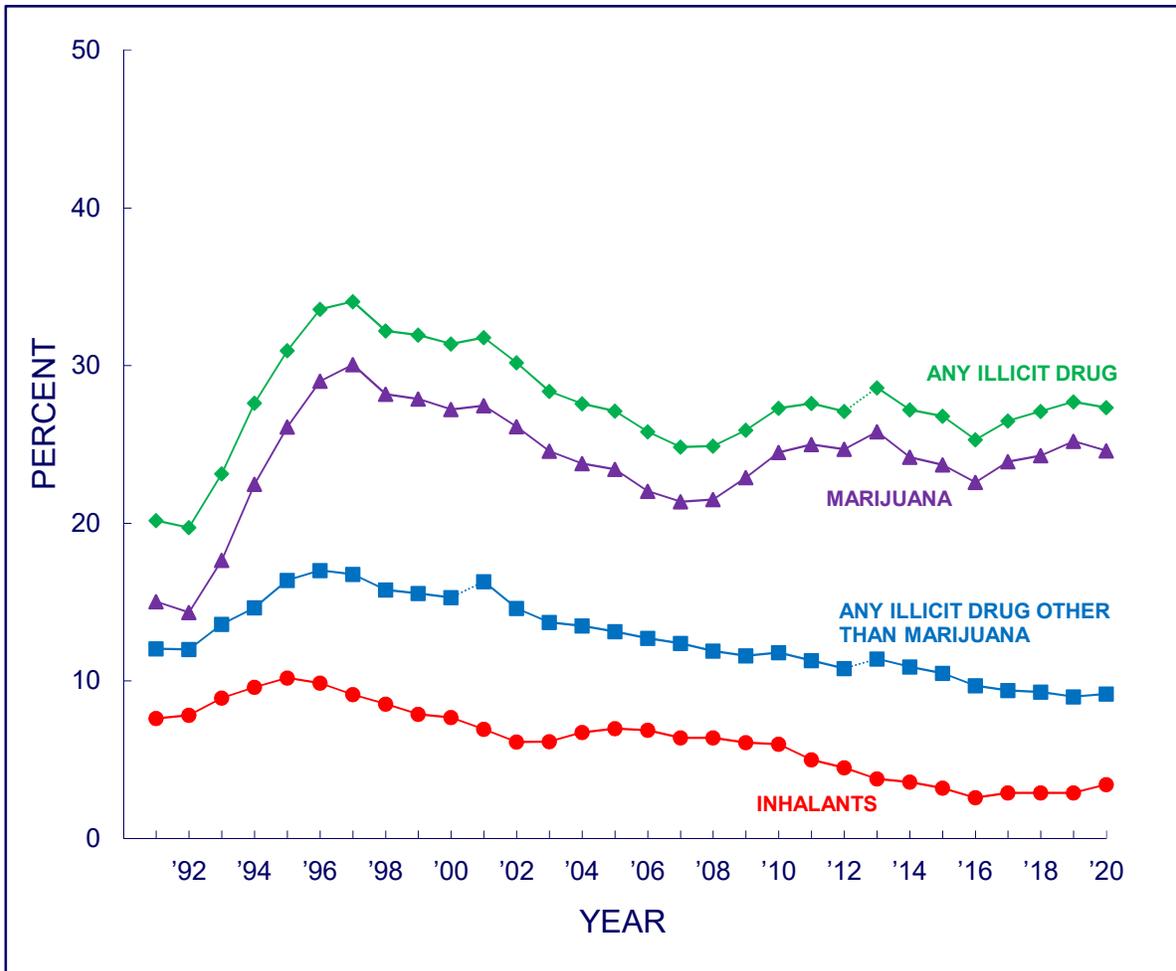
Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

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

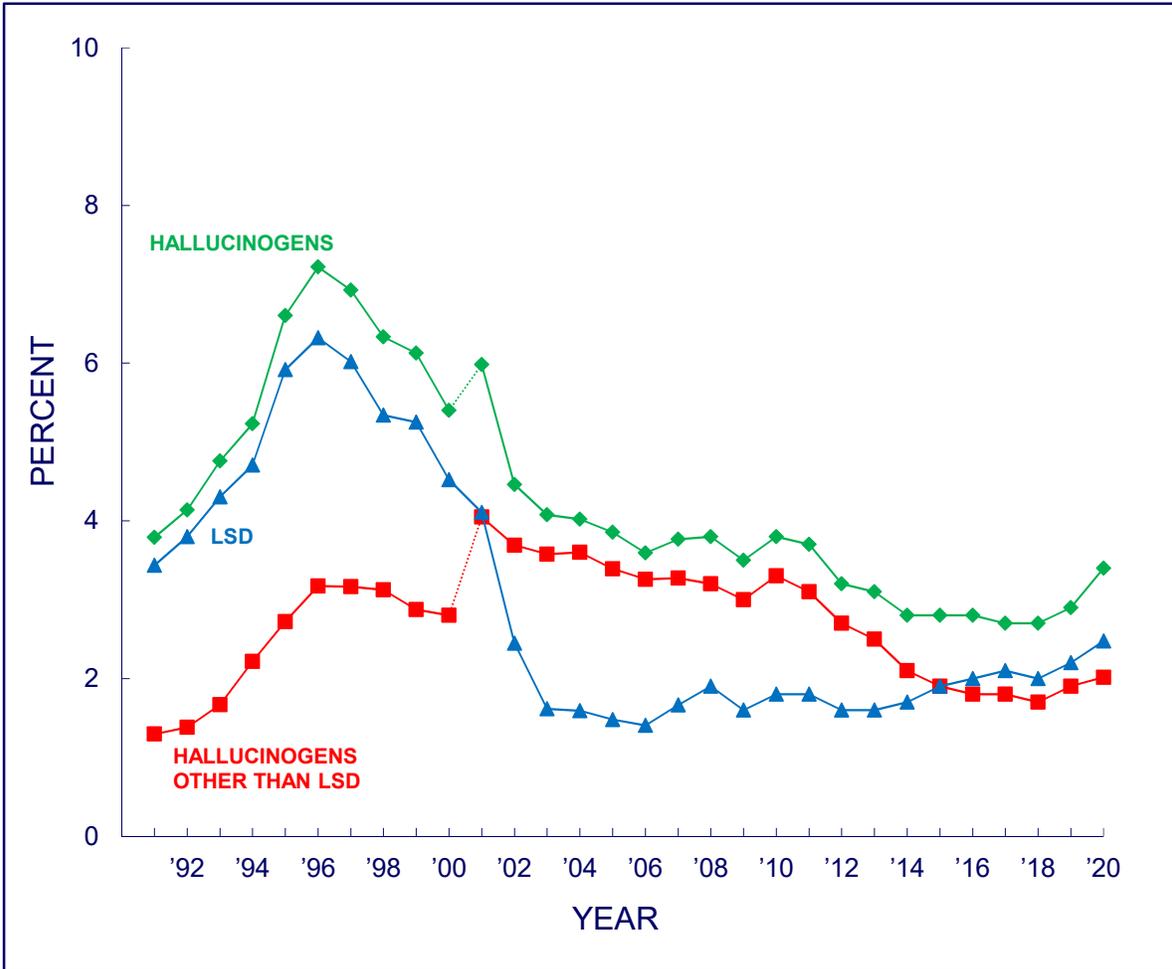


Source. The Monitoring the Future study, the University of Michigan.

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

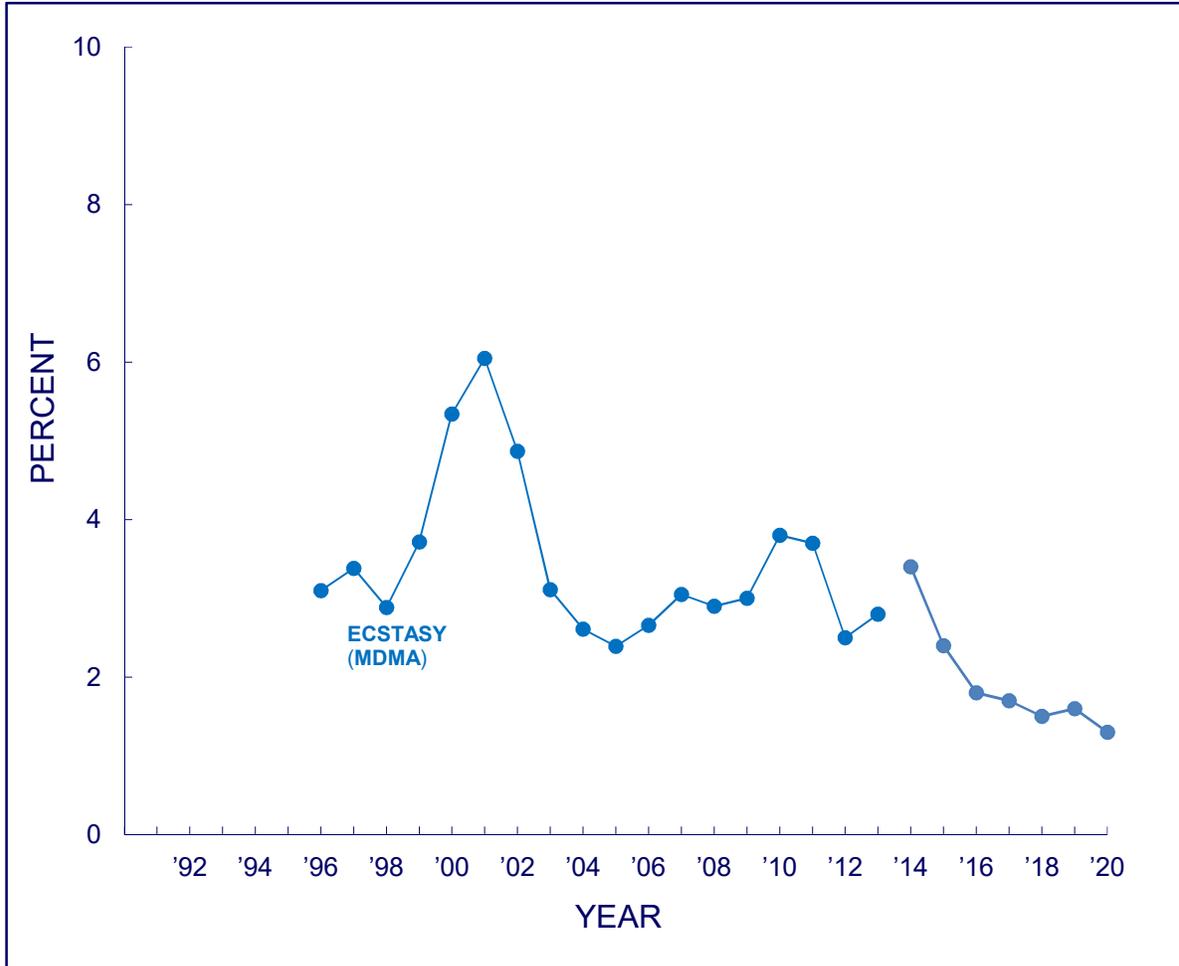


Source. The Monitoring the Future study, the University of Michigan.

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.

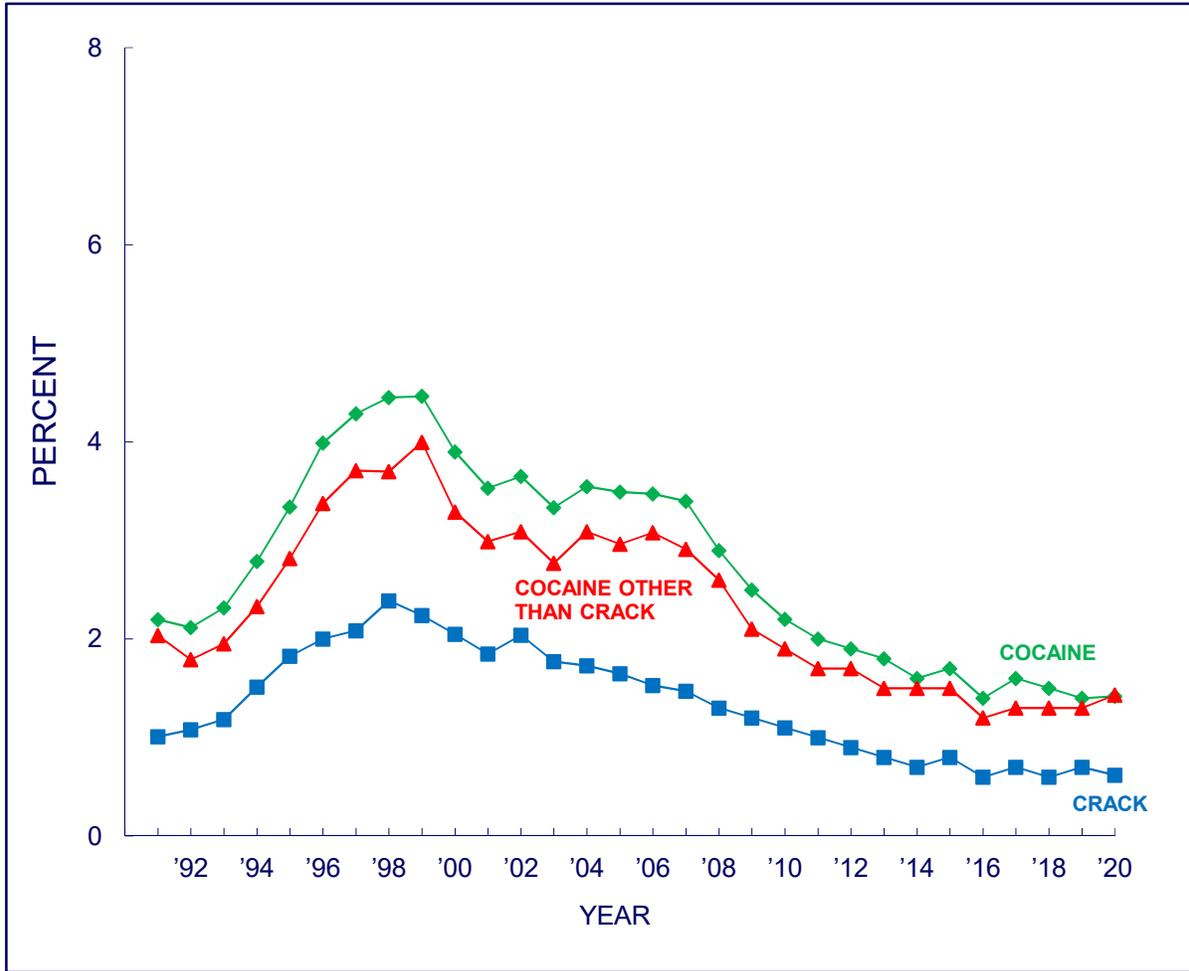
FIGURE D-3
ECSTASY (MDMA)
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



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

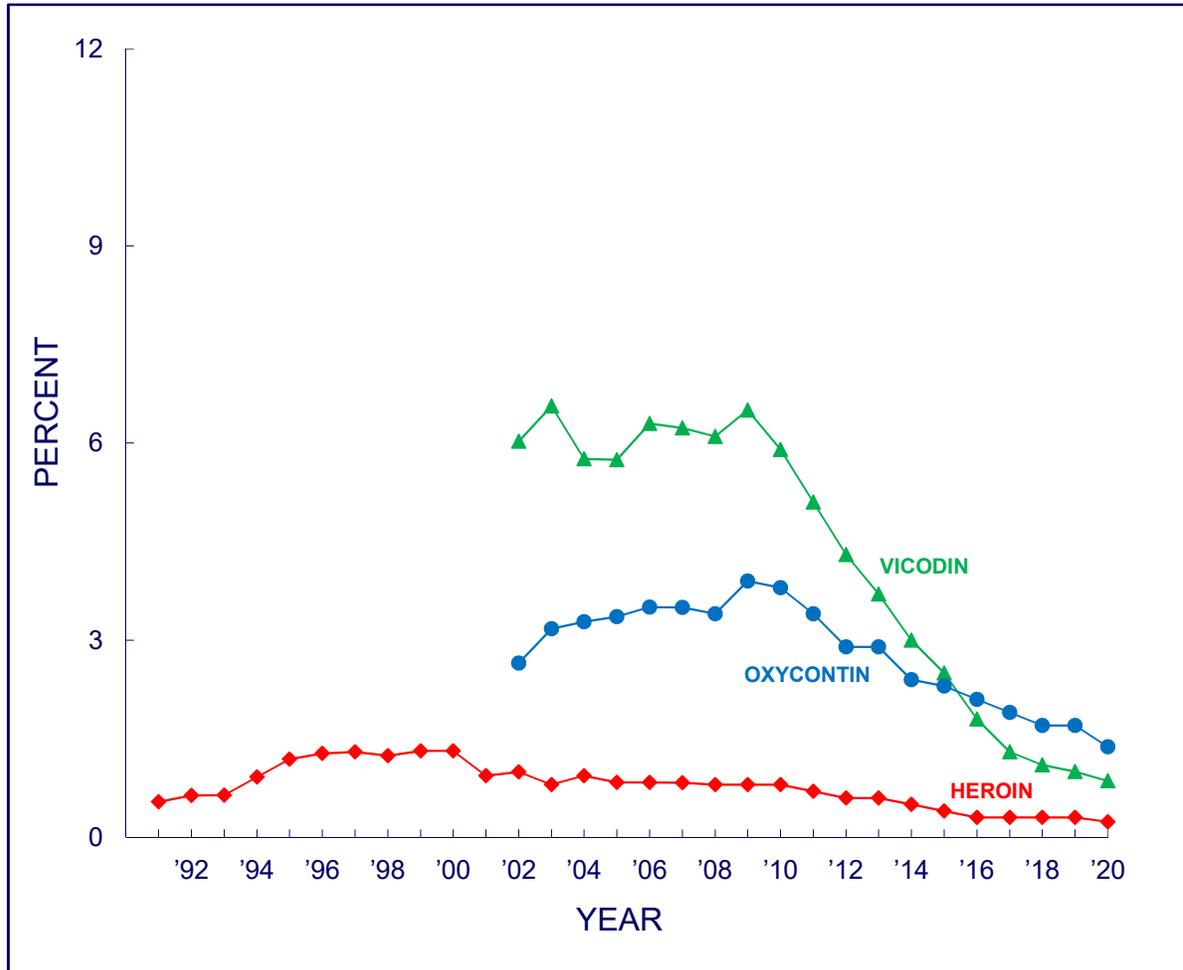
Notes. In 2014, the text was changed on one of the questionnaire forms for 8th, 10th, and 12th graders to include "molly" in the description. The remaining forms were changed in 2015. Data for both versions of the question are presented here.

FIGURE D-4
COCAINE AND CRACK
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



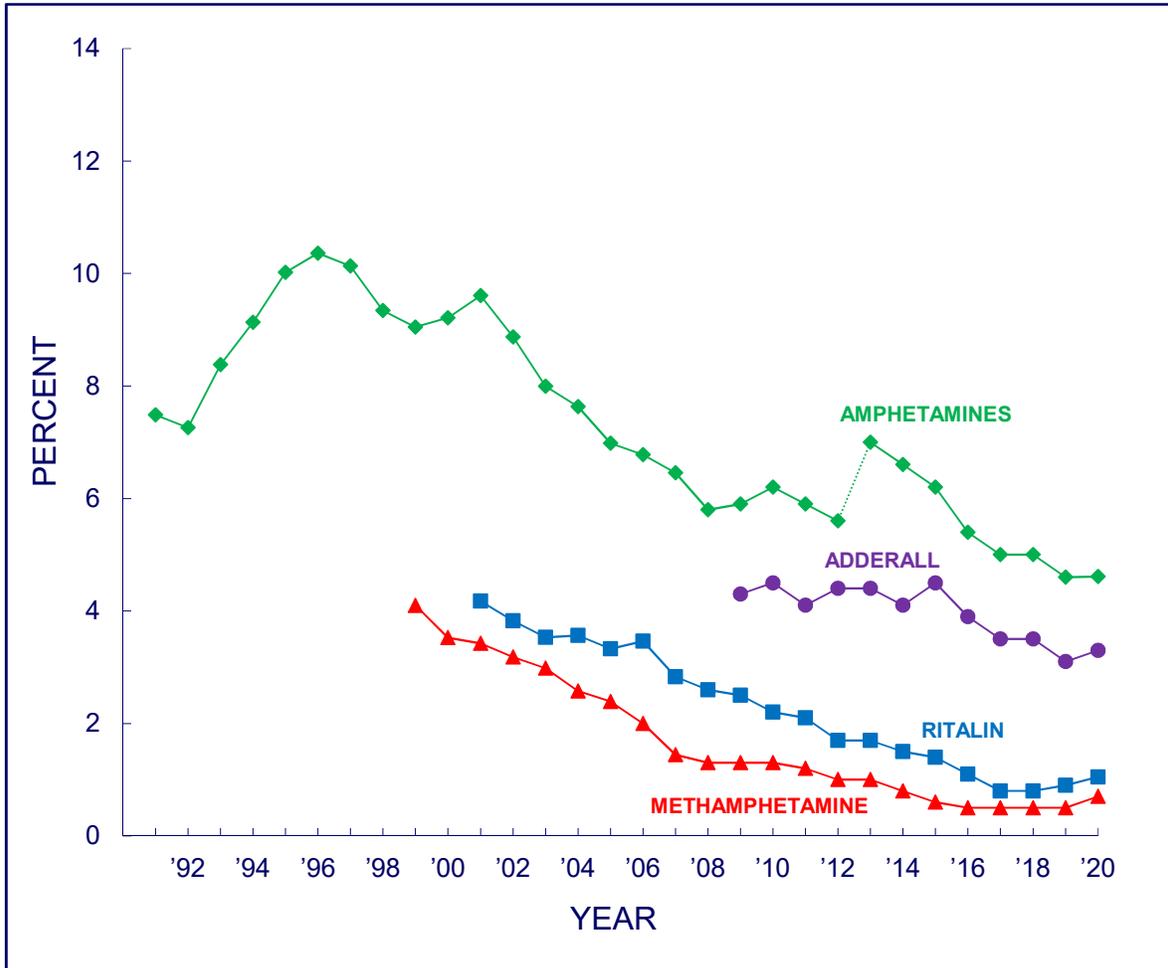
Source. The Monitoring the Future study, the University of Michigan.

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.

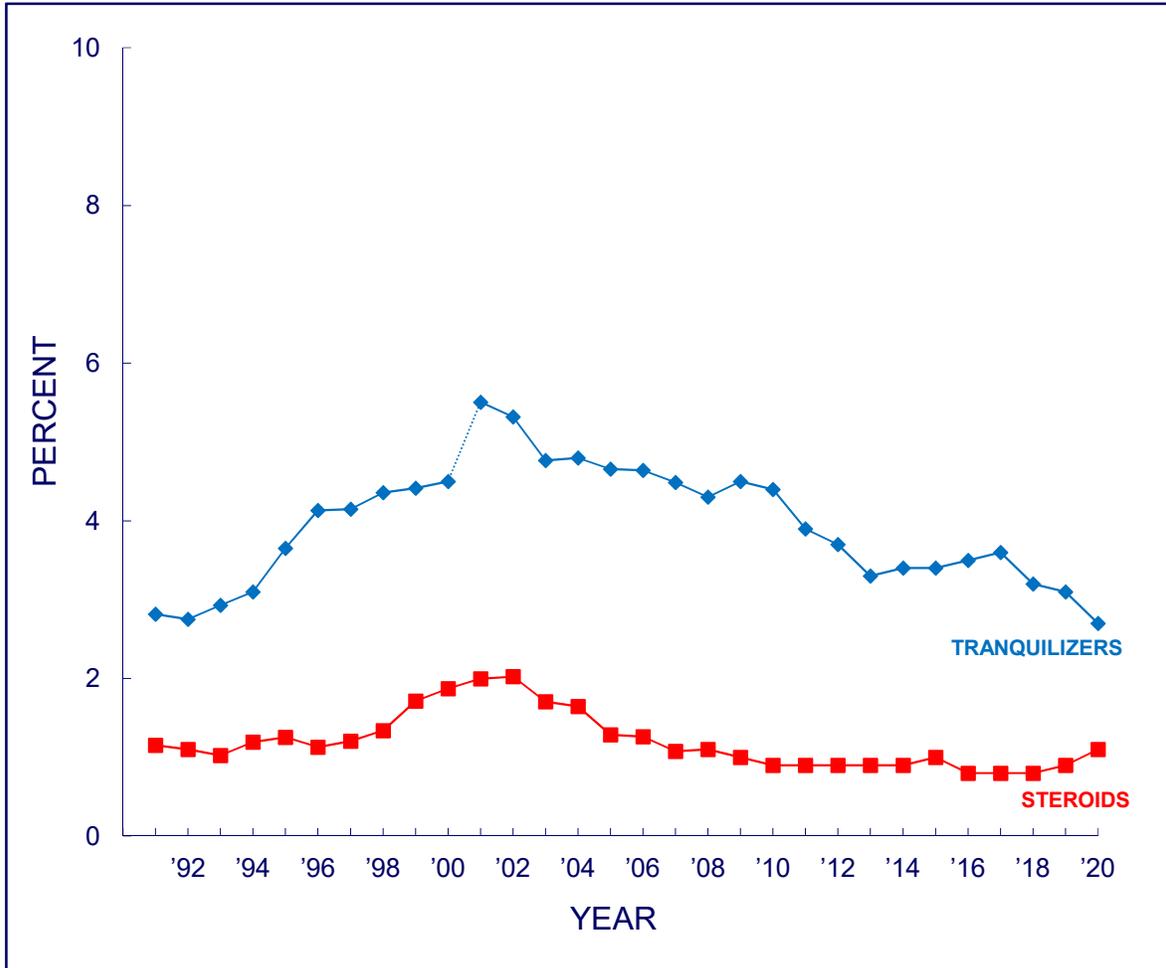
FIGURE D-6
STIMULANT DRUGS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



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.

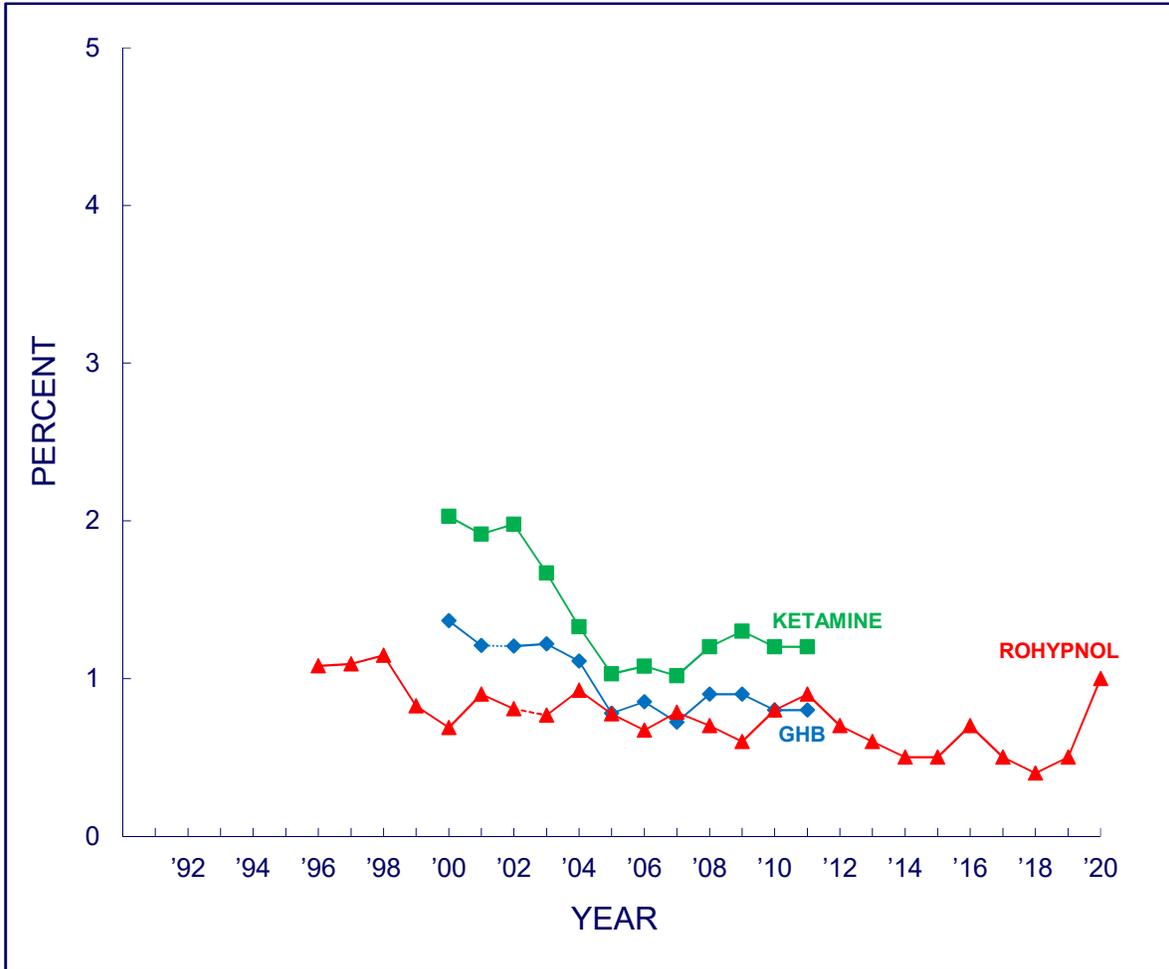
FIGURE D-7
TRANQUILIZERS AND STEROIDS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



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.

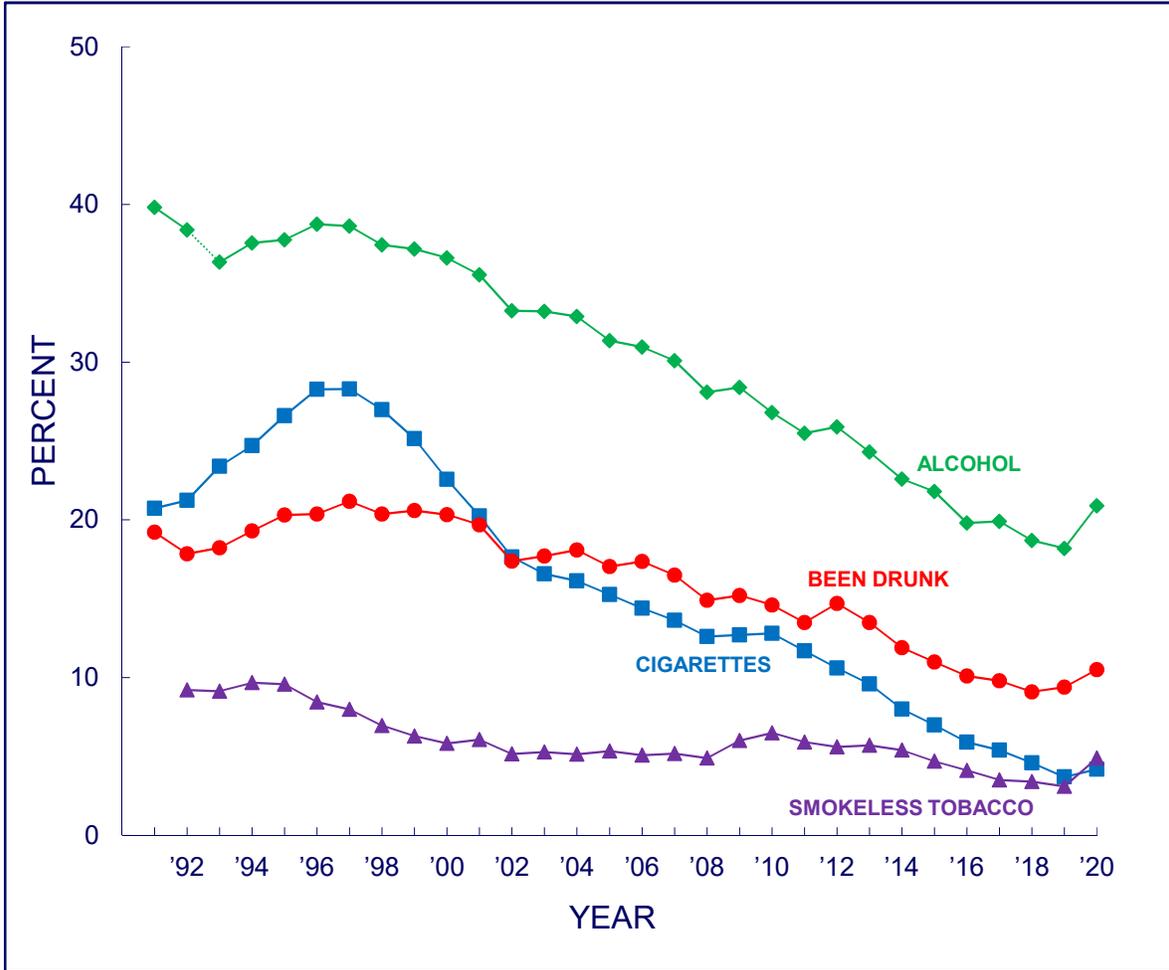
FIGURE D-8
CLUB DRUGS
Trends in Annual Prevalence
for Grades 8, 10, and 12 Combined



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>**

