MONITORING
THE FUTURE
National Survey Results

HIV/AIDS

Risk & Protective Behaviors among Adults Ages 21 to 40 in the U.S. 2004 - 2014

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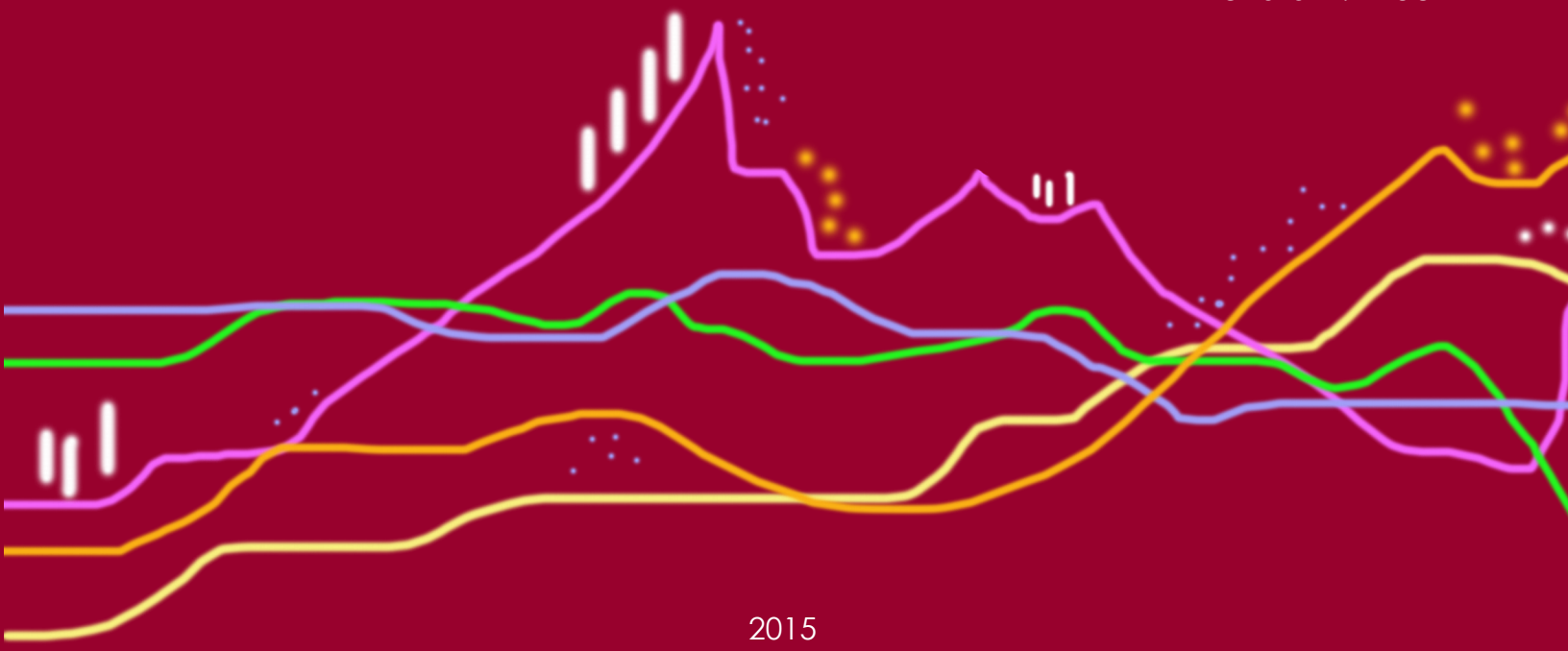

2015

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HIV/AIDS

Risk & Protective Behaviors

among Adults Ages 21 to 40 in the U.S.

2004–2014

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Chapter 1

INTRODUCTION

Monitoring the Future (MTF) is a long-term study of American adolescents, college students, and adult high school graduates through age 55. The study is supported under a series of investigator-initiated, competing research grants from the National Institute on Drug Abuse and has been conducted annually by the University of Michigan's Institute for Social Research since 1975.

The present monograph focuses on a broad range of behaviors, including certain forms of substance abuse, related to the spread of the human immunodeficiency virus (HIV) responsible for the acquired immunodeficiency syndrome (AIDS). The population under study includes high school graduates in the general population ages 21-30, surveyed since 2004; age 35, surveyed since 2008; and age 40, surveyed since 2010.

HIV infection is clearly a serious public health concern. Worldwide, about 35 million people were living with AIDS at the end of 2013 (WHO, 2015). In the United States, about 1.2 million people are living with HIV, 1 in 8 unaware of the infection, and new HIV infections remaining relatively stable in recent years (CDC, 2015). The 1990s saw decreases in HIV infection in the U.S. but, importantly, from 2002 to 2010 the trend in number of new HIV/AIDS cases and deaths remained largely unchanged (CDC, 2013). The present monograph addresses some of the factors that may be preventing further progress against HIV/AIDS.

Each year, about 50,000 individuals become newly infected in the United States (Hall et al., 2008; CDC, 2013). MTF surveys assess both sexual risk behaviors and injection drug use, which are two main sources of HIV infection. In addition to the particular risk of HIV, young adults are also at high risk of contracting other sexually transmitted diseases and infections (STDs/STIs). About half of the 19 million STDs occurring annually in the United States affect individuals aged 15 to 24 (Weinstock et al., 2004). In this monograph we track some of the key behaviors related to the spread of HIV/AIDS in the United States, some of which also affect the spread of other STDs.

The present volume is the fourth monograph in the MTF series of annual reports, all available online from the MTF website. The first monograph, *Overview of Key Findings*, is published near the beginning of each year and provides early findings on the levels and trends in use of various substances by the nation's 8th-, 10th-, and 12th-grade students surveyed in the previous year (Johnston et al., 2015a). *Volume I*, available at the beginning of June, provides more detailed and complete findings on the same population (Miech et al., 2015). *Volume II*, available at the beginning of August, provides similar prevalence and trend information on the substance-using behaviors of adult high school graduates through age 55, based on a series of follow-

up mailed surveys of representative samples of students from each high school graduating class (Johnston et al., 2015b). *Volume II* has provided findings specific to college students since 1980. HIV/AIDS risk and protective behaviors were introduced into the MTF follow-up surveys in 2004 and findings based on these measures were reported in *Volume II* from 2004 through 2008, after which they were published in separate volumes such as the present one.

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Chapter 2

BACKGROUND

Since the early 1980s, the spread of HIV/AIDS has been a serious public health concern. Some of the behaviors that put people at heightened risk of contracting and spreading HIV are connected to drug abuse—in particular, drug use by injection when it involves needle sharing. Other behaviors related to heightened risk involve sexual practices, in particular having multiple sex partners, which itself is a behavior correlated with drug use. Further, both drug use and having multiple sex partners tend to be more prevalent among young adults than other age groups (Lefkowitz & Gillen, 2006; Anderson & Dahlberg, 1992; Gavin et al., 2009). In addition, unprotected male-to-male sex continues to be recognized as a major risk behavior.

Using MTF data, Patrick et al. (2012) documented that the number of sexual partners is positively correlated with binge drinking, marijuana use, and other illicit drug use, and that these relationships vary across age. In addition, more frequent use of marijuana and other illicit drugs was associated with less frequent condom use. There was a moderation effect, indicating that the positive correlation between binge drinking and number of sexual partners was stronger for younger individuals (i.e., aged 21–24) than somewhat older individuals (i.e., aged 25–30).

An important protective behavior is getting tested for HIV/AIDS, particularly given the advent of effective retroviral treatments for the disease (Fauci & Folkers, 2012; Steinbrook, 2012). Early detection can alert the infected individual to the potential of infecting others, particularly others with whom he or she is sexually active and/or shares needles. Early and sustained treatment can not only protect the treated individual but also reduce the odds of transmission to others. In order to reduce the number of new HIV infections, infected individuals need to be identified and then receive effective care (Gardner et al., 2011).

A second main protective behavior is condom use. According to the CDC, “latex condoms, when used consistently and correctly, are highly effective in preventing the sexual transmission of HIV” and other sexually transmitted diseases (CDC, 2011). However, consistent condom use is not widespread. According to the CDC (2010), only 23% of women aged 15–44 who have never been married and are not cohabiting with a partner choose condoms as their method of contraception. Rates of dual-method contraceptive use (i.e., using the male condom plus an oral or other contraceptive method) to prevent both STDs and unintended pregnancy is very low in the United States, about 7% for women who report using the pill and even lower for women who report using other female contraceptive methods (Eisenberg et al., 2012).

Condom use is the primary way to prevent HIV and other STDs among sexually active individuals, and is a clear focus of HIV prevention efforts.[1]

Other Relevant Studies of the General Population

A considerable literature has evolved based on studies of particular high-risk populations, such as injection drug users and men who have sex with men, but there are fewer studies of risk and protective behaviors as they occur in the general population. To our knowledge, there are currently six data collection efforts in addition to the present one that provide some information on HIV/AIDS risk behaviors based on nationally representative surveys of the general population. These studies are described and compared to MTF in the Appendix to this volume. Each of these surveys provides some key HIV/AIDS risk behavior data; however, as discussed in the Appendix, none fully duplicates the type of HIV/AIDS-related information produced by the MTF study.

[1] Blood donation is not a risk behavior for contracting HIV but has carried a very small risk for transmission, estimated to be 1 in 2,000,000 (Stramer, 2007). This risk has been dramatically reduced in recent years by the routine screening of donated blood for HIV. According to the Red Cross, an HIV infection in donated blood may go undetected if the donor becomes infected during the "window period," four to seven days before donating blood (American Red Cross, n.d.). Until 2012 we examined blood donation prevalence as a risk factor for HIV transmission; but, given the extremely low risk of transmission that has been achieved, we no longer include a chapter on this factor in this volume.

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Chapter 3

RESEARCH DESIGN

MTF is uniquely suited to address key gaps in the literature concerning HIV/AIDS-related risk and protective behaviors. Most of the features that make MTF an important epidemiologic and etiologic study of drug use also apply to tracking and studying HIV/AIDS-related behaviors. MTF is population-based, prospective, cohort-sequential, and has especially rich measures of drug use with which to study how drug use relates to HIV transmission directly (through injection drug use) and indirectly (through engaging in risky sexual and other behaviors).

The MTF research design is described in detail in both *Volume I* (Miech, et al., 2015), *Volume II* (Johnston et al., 2015), and in MTF Occasional Paper 82 (Bachman et al., 2015), so we limit the description here to a brief overview.

Samples

The MTF design has included a representative subsample of each 12th-grade class sample since 1976, with 2,400 participants from each class selected in a stratified random procedure for follow-up. The 2,400 are randomly split into two half samples of 1,200 each, one surveyed on even numbered years and the other surveyed on odd numbered years up to six times, through modal age 29 or 30. After that, they are followed at five-year intervals, starting at age 35, currently up to age 55. With this design, it is possible to present data for each class every year while surveying each respondent only every other year through age 30; this schedule was judged to be less demanding, less repetitive and, therefore, more conducive to retention in the panels than an annual follow-up of each individual. In order to increase the numbers of drug users in these panels, certain groups are selected for follow-up with a higher probability (by a factor of 3.0) than the remaining 12th graders. This includes those who report 20 or more occasions of marijuana use in the prior 30 days (i.e., “daily or near-daily users”) in 12th grade and/or any use of other illicit drugs in the prior 30 days. Corrective weighting is then used in all subsequent analyses to adjust for these differential sampling probabilities. Those in the drug-using stratum receive a weight of 0.33 in the calculation of all statistics to correct for their overrepresentation in the selection stage. As a result, the *actual* numbers of follow-up respondents are larger than the *weighted Ns* given in the tables.

The respondents included in these analyses were drawn from participants in the MTF follow-up surveys of 21- to 30-year-olds in 2004–2014 (representing graduates from the classes of 1992–2011); 35-year-olds in 2008–2014 (representing graduates from the classes of 1991–1997); and 40-year-olds in 2010–2014 (representing graduates from the classes of 1988–1992).

The present monograph reports findings from respondents of modal ages 21 to 30, 35, and 40. For those ages 21 to 30, there are eleven years of data (collected in 2004

through 2014; weighted *N* = 24,160 observations), but there are fewer individuals, because most provided two or more observations (N=9,317 individuals, as is discussed below). For those age 35 there are seven years of data (collected in 2008 through 2014; weighted *N* = 6,291 observations *and* individuals). For those age 40 there are five years of data (collected in 2010 through 2014; weighted *N* = 4,437 observations *and* individuals). Because of the limited sample sizes, particularly at the older ages, certain subgroup estimates are not reliable and therefore are not reported.

Measures

Each 12th-grade respondent in recent years has been administered one of six different questionnaire forms in their senior year—a procedure adopted in order to cover much more material than would have been possible in one class period using a single form. In the follow-up surveys, each individual receives the same form as the one completed in 12th grade, though some content is replaced with more age-appropriate topics such as family formation, experiences in higher education, and work history.

In 2004, new questions covering risk and protective behaviors for HIV/AIDS were included in two of the questionnaire forms being mailed to people of modal ages 21–30. Beginning in 2007, this set of questions was added to a third questionnaire form in order to increase sample size. One reason for limiting the new HIV/AIDS-related questions to two forms initially was to determine whether the inclusion of these sensitive items would adversely affect follow-up response rates. Fortunately, no decrement was observed, so the same set of questions was added to an additional questionnaire form in the 2007 survey of young adults, raising the annual case count by half again what it had been in 2004–2006.[1]

In 2008 the same set of questions was added to the single questionnaire form that went to a random half of the 35-year-olds, and response rates were compared that year between the half sample receiving the revised form and the half sample that received the original form. The response rates again were comparable for the two half samples, so the new set of questions was included in surveys of all 35-year-olds in 2009 and later. Because of concerns about whether the impact on response rates might rise with increasing age, we surveyed the age-35 stratum first, and finding no clear adverse effect, added the question set to the age-40 stratum beginning in 2010.

Risk behavior variables include lifetime and 12-month frequency of injecting drugs without a doctor's order; lifetime and 12-month prevalence of using a needle that respondents "knew (or suspected) had been used by someone else" before they used it; number of sex partners during the 12 months prior to the survey; and whether those partners had been exclusively opposite sex, same sex, or both male and female. *Protective behavior* variables include lifetime and 12-month prevalence of being tested for HIV; obtaining the results of the most recent HIV test; and frequency of

[1] When we added this new form to the set containing questions on risk and protective behaviors for the transmission of HIV, we compared its results with those from the other two forms to make sure that there were not systematic differences across forms in the estimates derived. The results proved highly comparable across forms, which is reassuring for trend estimation based on the increasing number of forms used.

condom use in the prior 12 months.[2] The exact questions measuring these different variables are included in the tables in this monograph.

Being tested for HIV/AIDS and securing the results have been shown to be protective behaviors. First, they provide earlier protection for people testing positive who then can get treatment that should reduce the progression of the disease and the likelihood of dying from it (Cohen et al., 2011). Second, on average people who have tested positive can expose fewer partners to the disease by abstaining from sexual contact and/or by using condoms.

Field Procedures

The initial data collection from panel members occurs at 12th grade; they complete a self-administered questionnaire in a group setting, usually their normal classroom but sometimes in larger groups. They are asked to complete the questionnaires during a usual class period (about 45 minutes) and to complete a tear-off card providing contact information, which permits subsequent communication with the subsample selected for panel study follow-up. After the card is separated from the questionnaire, the identifying information on it can be matched to the questionnaire only by using a computer file at the University of Michigan, because the numbers printed on the back of the questionnaire and the card are long, randomly matched numbers. This, plus the facts that the questionnaires are machine-readable and that they are administered (and the cards are collected) separately by a field representative from the University of Michigan, helps to assure respondents that their confidentiality has been protected.

The respondents subsequently selected into the panels are followed by mail—a highly cost-effective method of data collection that helps make large sample sizes possible. Annually, each respondent receives an MTF newsletter with an address correction card enclosed; each respondent up to age 29/30 also receives an invitation letter sent prior to the questionnaire. A subsequent letter is printed on the front of the questionnaire. The questionnaire is sent with a check made out to the subject, currently in the amount of $20 in the case of the older panels (age 35 or over); the payment was raised to $25 per occasion for half of the class of 2006 and for all high school graduating classes thereafter to help offset the effects of inflation. Extensive efforts are made to secure location information on previous participants whom we are unable to locate by mail. Reminder postcards are sent about two weeks after the questionnaires, and telephone calls are made to attempt to contact those who have not responded after a reasonable interval and to request their participation. No answers to the questionnaire are obtained by telephone; responses are obtained only by mail.

[2] We also asked about lifetime and 12-month prevalence of donating blood or blood plasma, not because it is a behavior that puts the respondent at risk, but because it is a behavior that—depending on the risky behaviors of the respondent—could have posed a very small chance of putting others at risk. Because that risk is now estimated to be extremely small, we no longer report on blood donation in this series of monographs.

Panel Retention

We discuss next the nature of the panel attrition problem generally, the response rates for MTF panel surveys in recent years, and evidence relevant to assessing the impact of attrition on the study's research results.

Response Rates. Virtually all longitudinal studies—including MTF—experience attrition, which is often differential with respect to health risks including substance use (McGuigan et al., 1997). In addition, survey response rates in general have been declining over the past few decades (Dillman et al., 2009; Groves, 2006; Groves et al., 2002; Pew Research Center, 2012; Wechsler et al., 2002), highlighting an important challenge in the conduct of all population-based research.

A vital feature of the MTF panel studies is the very low cost per respondent. There are many advantages to collecting panel data through low-cost mail surveys. Indeed, given the number of MTF questionnaires sent each year (roughly 18,000) across the entire coterminous U.S., we have viewed low-cost mail surveys as our best (and really only) cost-effective option, although we are now evaluating the use of web-based data collection as an alternative, using an experimental design. One disadvantage of data collection by mail is that attrition rates tend to be higher than those that might be obtained with much more expensive methods, such as intensive personal tracking and interviewing. There exist a few large epidemiological/etiological surveys that have better retention rates, but their procedures are extremely expensive and not realistic for an ongoing effort like MTF. Our retention rates compare favorably with those of most longitudinal studies reported in the field, including interview studies. In the coming years, in an effort to increase response rates (or at least stem the general response rate erosion mentioned below) we plan to experiment with offering respondents the option of responding online to determine the extent to which web-based data collection affects response rates, data quality, respondent composition, and cost per respondent.

Retention rates in the biennial follow-ups of respondents modal ages 19–30 (corresponding to the first six follow-ups) decline with the length of the follow-up interval. For the five surveys from 2010 to 2014, the response rate in the first follow-up (corresponding to one to two years past high school) averaged 48%, and for the second through sixth follow-ups (corresponding to 3–12 years past high school) response rates averaged 45% of the originally selected panel. (Among long-term respondents—the 35-, 40-, 45-, 50-, and 55-year-olds—retention rates are quite good, apparently because some of the decline over time in retention rates reflects cohort differences.) In sum, the response rates attained under the current design range from respectable to quite good, especially when the low-cost nature of the procedure, the long-time intervals, the modest payment, and the substantial length of the questionnaires are taken into account. More importantly, the evidence discussed next leaves us confident that the data resulting from these follow-up panels are reasonably accurate, which brings us to our adjustments for panel attrition and the comparison of our results with those from other sources.

The Impact of Panel Attrition on Research Results. An important purpose of the MTF panel study is to allow estimation of drug prevalence rates among American high school graduates at various age levels. Thus, we have always been concerned about making the appropriate adjustments to account for panel attrition. In essence, our standard adjustment process is a post-stratification procedure in which we reweight the data obtained from the follow-up samples in such a way that, when reweighted, the distribution of their *12th-grade answers* on a given drug matches the original distribution of use observed for that drug based on all participating high school seniors in their graduating class. This procedure is carried out separately for cigarettes, alcohol, and marijuana, as well as other illicit drugs (combined). As expected, it produces prevalence estimates in the follow-up data that are somewhat higher than those uncorrected for attrition, indicating a positive association between drug use and panel attrition. However, the adjustments are relatively modest.

Attrition rates by levels of 12th grade substance use differ some, but less than one might expect. For example, in the classes of 1976–1998, among all respondents who had never used marijuana by 12th grade, an average of 79% participated in the first follow-up. The proportion responding was somewhat lower among those who had used marijuana once or twice in the last 12 months (75%). This proportion decreased gradually with increasing levels of marijuana use; but even among those who used marijuana on 20 or more occasions in the last 30 days in 12th grade, 67% participated in the first follow-up. The corresponding participation rates for the same drug use strata at the fourth follow-up (i.e., at modal ages 25/26) were 66%, 63%, and 56%, respectively. Thus, even among those who were active heavy users of marijuana in high school, response rates at the fourth follow-up were only 10 percentage points lower than among those who had never used marijuana by 12th grade. That is not to say that we assume all types of drug users remain in the panels at comparably high rates. We believe that people who become dependent on or addicted to illicit drugs such as heroin, cocaine, or methamphetamine are less likely to be retained in reasonable proportions. That is why we are careful not to quantify or characterize these special segments of the population; but we note that they constitute very low proportions of the adult population.

As a validation of our panel data on drug use, we compared MTF prevalence rates with those from the National Survey on Drug Use and Health (NSDUH) which provides the best available comparison data because it is also based on national samples and uses cross-sectional surveys that do not have panel attrition. Using the 2013 NSDUH data, we compared the prevalence rates on a set of drugs—cigarettes, alcohol, marijuana, and cocaine—for which there was reasonable similarity in question wording across the two studies. These comparisons showed a high degree of comparability in the prevalence estimates of the two studies, particularly with the post-stratification procedure applied to the MTF data (Johnston et al., 2015).

In addition, attrition in the MTF panel is not necessarily as great a problem as nonresponse is in a cross-sectional study. In the MTF panel we know a great deal about each of the follow-up nonrespondents, including their prior substance use, based on a lengthy questionnaire administered in 12th grade (and, for many, in

subsequent years as well). Thus, adjustments can be made utilizing data that are highly informative about the missing individuals.

Effects on Relational Analyses. While differential attrition (uncorrected) may contribute to some bias in point estimates and other univariate statistics, a considerable amount of empirical research has shown that such attrition tends to have less influence on associations among variables (Cordray & Polk, 1983; Goudy, 1976; Groves, 2006; Groves & Peytcheva, 2008; Martikainen et al., 2007; Nohr & Olsen, 2013; Peytchev, 2013; Van Loon et al., 2003). With MTF samples, we have found that correlations among variables at base year are invariant across groups who remain in the longitudinal study and those who do not (Jager et al., 2013; Schulenberg et al., 1994; Schulenberg et al., 2005; Staff et al., 2010).

Limitations

Sample Coverage. There are certain limitations to the present study for attempting to quantify HIV/AIDS-related risk and protective behaviors in the general population. Perhaps the major limitation derives from the sample under study, because MTF does not include the 8% to 15% or so of each high school class cohort that leave high school without graduating (i.e., drop out). Although our coverage includes the great majority of the population of interest (young adults who recently entered their 20s), an important and on average somewhat more deviant segment of the population—high school dropouts—is not covered. In addition, panel attrition is a limitation, but techniques have been used here to help compensate for the effects; they are described below.

These limitations likely lower the estimates of risk behaviors from what their values would be if the entire population of 21- through 30-year-olds in the United States could be surveyed, but it is difficult to quantify by how much. (We believe that we do a better job of characterizing the original target population, which is high school graduates.) However, because the school dropout rates have changed rather little since MTF began, and panel retention rates tend to change very slowly, we believe that the trend estimates—which ultimately will be among the most important results for policy purposes—will be little affected by these omissions from the sample. This is particularly true given our procedures for compensating for panel loss.[3]

Validity. The sensitive nature of questions about certain risk behaviors may affect the validity of the data reported. Recognizing this, we provide an introduction to the section of the questionnaire dealing with HIV/AIDS risk and protective factors explaining why these questions are important in helping us to increase our understanding of the HIV/AIDS epidemic. The protections of confidentiality are re-emphasized by reminding respondents that their answers are never connected with

[3] According to U.S. Census data, high school completion rates had been quite constant at 85% between 1972 and 2002 for persons 20–-24 years old. (Younger age brackets are less appropriate to use because they include some young people who are still enrolled in high school.) However, since 2002 there has been a very gradual increase in completion rates, reaching 90.6% by 2013. U.S. Census (various years). Current population reports, Series P-20, various numbers. Washington, DC: U.S. Government Printing Office.

their names and by inviting respondents to leave blank any questions that they "do not wish to answer." The decrement in response rates between the preceding nonsensitive questions and those in this section is very small—on the order of about one percentage point for five questions, and about 2 percentage points for two other questions—suggesting that the great majority of respondents feel willing and able to answer the potentially sensitive questions.

Sample Sizes and Trend Estimation for Young Adults (Ages 21–30)

The prevalence and, when available, the frequency of HIV/AIDS-related behaviors in the general population can now be established for the years of 2004 through 2014 combined. Having multiple years of data is valuable because of the low prevalence rate for some of the behaviors (in particular, for the intersection of some behaviors); the use of multiple years of data increases estimate precision. Because the intersection of some of the behaviors is of particular importance, we report the bivariate associations among them, though the low numbers of cases still limit to some degree the conclusions that can be reached. Over time the case counts continue to grow and allow more detailed analyses.

For estimates based on one or two years of data, the number of cases or observations is equivalent to the number of different or distinct individuals surveyed. However, for estimates based on all years combined, the number of different individuals is lower than the number of cases or observations. Since individuals are surveyed every two years, some individuals contribute more than one questionnaire over time. Thus, for estimates using data from 2004 through 2014, a single individual can contribute up to six waves of data. The total number of weighted observations of young adults for 2004 through 2014 is 24,160, but the total number of unique individuals is 9,317. *The weighted Ns reported in each table refer to observations and, in the case of the young adults that is not the same as individuals*. As stated earlier, for the 35- and 40-year-olds, the number of observations and individuals *are* equivalent.

It should be noted that we also examine the data for each of the eleven years (2004–2014) separately to look for signs of change in prevalence levels, and do not find much evidence of systematic trending in any of the risk or protective behaviors under study during this interval, as will be addressed in later chapters. It is encouraging, though, that the univariate distributions replicate quite well across years, which provides powerful evidence of estimate reliability.

Sample Sizes for Respondents Ages 35 and 40

For those of modal age 35, seven years of data have been collected—2008 through 2014 (weighted N = 6,291), and for those of modal age 40 there are four years of data (2010–2014; weighted N = 4,437). Because an individual respondent can contribute only one observation at each of these ages, the number of observations and the number of cases are the same. The shorter intervals and lower case counts at these ages make some prevalence estimation, and particularly trend estimation, more difficult.

Adjusting for the Effects of Panel Attrition

In chapter 3 of Volume II (Johnston et al., 2015) we described the procedures used to adjust the substance use estimates to reduce (insofar as possible) the effects of panel attrition. In the case of substance use estimates, we have data on the prevalence and frequency of the same behaviors among all respondents at 12th grade. This permits a *poststratification* procedure in which we reweight the obtained follow-up samples such that the reweighted distribution of their *senior-year* responses reproduces the original distribution obtained from the entire 12th-grade sample for the behavior under consideration.

However, measures of non-drug-using variables under consideration in this monograph were not included in the 12th-grade surveys, so this form of poststratification is unworkable. Instead, we have implemented a different poststratification reweighting procedure for the follow-up respondents, one in which we attempt to correct for their differential retention in the panels as a function of demographic and other characteristics that were measured in 12th grade. For example, males have a somewhat lower retention rate than females, which means that their proportion in the attained follow-up sample is lower than it was in the original 12th-grade in-school survey. We are able to correct for that difference by up-weighting the data from all males who *did* continue in the panel study, so that males will remain in the same proportion in the reweighted panel as they were when the panel was first selected.

Using this strategy, we *simultaneously* correct for differential attrition using multiple variables identified as being related to attrition. To do so, we calculate the retention rate for the various cells defined by the intersection of these variables and then weight the respondents in each cell by the reciprocal of the retention rate found for the people who belong in that cell. These adjustments generate a newly weighted panel with frequency distributions on the variables used in this reweighting procedure (e.g., gender or grade point average in high school) that reproduce those of the original 12th-grade sample. As a practical matter, the number of variables used in this procedure must be limited to some extent by the total sample size, lest certain cells become too small to be reliably reweighted.

The variables that we use for defining the cells are as follows: gender (male/female), ethnicity (White/non-White), grade point average in 12th grade (low/medium/high), and past 12-month illicit drug use reported in 12th grade (none/marijuana only/any other illicit drug). The first two variables were prespecified, while the latter two were chosen from a larger set entered into a regression analysis in which they emerged as the strongest predictors of retention rate.

These four variables generate 36 nonoverlapping categories (or cells) of individuals that can be reweighted to correct for differential rates of attrition. Retention rates in each of the 36 cells are then calculated based on the number of people in each cell in the *original* panel and the number who subsequently provided data at the follow-up; the participating members of each cell are assigned a new weight that is the reciprocal

of the retention rate in that cell—that is, one divided by the retention rate. (For example, if White males with low grades and illegal drug use other than marijuana are represented in the retained panel at a 50% retention rate, each of the respondents in that cell would be given a weight of two.) This new weight is then multiplied by a separate individual weight that corrects for any differential probability in being selected into the panel originally. A particular advantage to using this procedure is that it takes into account any interactions among the predictor variables, such as an interaction between gender and race/ethnicity.

With the resulting weight, we have a total weighted *N* (sample size) equal to the *original* panel size, not the actual *retained* panel, which means that we would be overstating the accuracy with which we are making prevalence estimates. Thus, in a final step, all individual weights are then multiplied by the overall sample retention rate to bring the weighted sum of cases down to the actual total number of individually weighted cases still in the panel. This entire correction procedure is carried out separately for each year of follow-up data collection.

We consider this correction procedure to be appropriate in this circumstance, but we caution the reader that it is not possible to correct entirely for the effects of panel attrition for two reasons. First, specific to our relatively small sample for these measures, we cannot adjust for all measured variables that might predict retention, because we are limited as to the number of cells that can reasonably be generated to which to assign weights. Second, and more generally, even with a prediction model that accounts for nearly all of the variance in retention, there still could be some unmeasured characteristics that differentiate the people in each cell who do and do not remain in the study. As we stated earlier, one of the most important uses of these data will be to track historical *changes* in the major HIV/AIDS risk and protective behaviors in the general population, a purpose for which these data are well suited, because these uncorrected factors are likely to be fairly constant across time.

Significance Testing Protocol

All significance tests referred to in this monograph are based on standard testing procedures that do not take account of the complex sampling design used in the initial sampling of 12th-grade students. Because the follow-up samples represent only a small sub-sample of the original clustered samples, design effects are quite small and generally ignorable. Significance tests on trends do take account of multiple responses from individuals. Also, nominal significance levels are used with no correction for multiple tests. Thus, nominal levels may be somewhat overstated; however, we take care to ascertain that any findings cited as statistically significant appear valid by examining multiple years, multiple cohorts, and general internal consistency.

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Chapter 4

PREVALENCE/FREQUENCY OF RISK BEHAVIORS

In this section we report the prevalence and frequency of four HIV/AIDS-related risk behaviors among respondents aged 21 to 40 in the MTF follow-up surveys *combined across all available survey years.*[1] Results are presented in Tables 1 and 2. The 'a' tables (i.e., 1a, 2a) provide the data for young adults aged 21 to 30 based on data from the 2004–2014 period. The 'b' tables provide the data for 35-year-olds based on data from 2008–2014. The 'c' tables provide the data for 40-year-olds based on data from 2010–2014. We present the 'a,' 'b,' and 'c' versions of each table together to facilitate comparisons across age groups. In those comparisons, it is important to recognize that the data for the three age groups come from different ranges of years, and also from different class cohorts.

We present data on the combined samples for each age group and for males and females separately within each age group. The young adult sample from 2004 through 2014 has a total weighted *N* of 24,160 observations. The sample of 35-year-old respondents from 2008 through 2014 has a total weighted *N* of 6,291, and for those of modal age 40 from 2010–2014, the total weighted *N* is 4,437. As noted earlier, the number of *observations* in the young adult (ages 21-30) sample is larger than the number of different *individuals* because some participants were surveyed more than once and thus account for more than one observation. Because the 35-year-old and 40-year-old samples each are based on only one survey age, data from each individual is included only once. For them the number of individuals and number of observations are the same.

Results are included for four behaviors related to HIV-risk to the respondent (and potentially to others[2]): injection drug use, needle sharing, having sex with multiple partners, and men having sex with men (MSM).

Injection Drug Use

While not itself a vector of HIV transmission, the amount of illicit injection drug use determines the pool of eligible persons from which the high-risk behavior of needle sharing is drawn. The question to respondents reads, “On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under

[1] This combining of all available years of data provides a much needed increase in total numbers of cases, compared with reporting just the most recent year or two. As will be seen in the later section on trends, the results are sufficiently stable to warrant this combining across years.

[2] According to the most recent statistics from CDC (http://www.cdc.gov/hiv/statistics/basics.html), the estimated number of cases of HIV infection in the U.S. in 2010 by transmission category was as follows: 28,782 for MSM, 12,875 for heterosexual contact, 3,766 for injection drug use, 1,443 for both MSM and injection drug use, and 47 for other transmission routes including blood transfusion, hemophilia, and perinatal exposure.

a doctor's orders." Note that this refers to more than just heroin use. A sequel question asks about such behavior in the prior 12-months. Trends in the prevalence of these behaviors would be indicative of changes in the pool of persons at risk.

- In the eleven-year (2004–2014) combined sample of young adults aged 21–30, 1.6% report having ever used any drug by injection without medical supervision, and 0.5% reported doing so on 40 or more occasions (Table 1a). Thus, about 1 in every 60 respondents has ever used an illicit drug by injection, and about 1 in every 200 respondents reports an extended pattern of use as indicated by use on 40 or more occasions. There is a fair-sized gender difference—2.3% of males and 0.9% of females indicate such behavior. The percentage saying they injected on 40 or more occasions is 0.6% for males and 0.3% for females.The proportions of young adults who have injected drugs during the *past 12 months* without medical supervision is considerably smaller: 0.5% overall—1 in every 200 respondents—including 0.8% of males and 0.3% of females (a significant gender difference). The proportions using 40 or more times in the past 12 months are 0.2% overall—0.2% for males and 0.1% for females.

- In the two older age strata included in this report—35- and 40-year-olds (shown in Tables 1b and 1c, respectively)—the lifetime prevalence for having ever injected drugs (1.7% and 1.5%) is fairly similar to that for the young adults (1.6%). Also, females report considerably lower prevalence rates than males. Compared to the young adults, annual prevalence of injection drug use is lower among 35-year-olds and lower still among the 40-year-olds. (The difference between the three age groups is confounded by the years of measurement and the class cohorts involved, which means that these differences across the three age groups could be more than just cohort or age differences.)

Needle Sharing

The risk of catching or transmitting a number of blood-borne diseases, including HIV, emerges when injection drug use is combined with the sharing of needles. Immediately following the MTF survey questions about injecting illicit drugs, discussed in the previous section, the question about needle sharing is asked: "Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?" Response alternatives are "Yes, in the last 12 months", "Yes, but not in the last 12 months", and "No, never." The first response provides an estimate of annual prevalence, and the sum of the first two responses provides an estimate of lifetime prevalence.

- The proportion of 21- to 30-year-olds who say they have ever shared needles in this way during their lifetime is 0.5% overall—0.5% of males and 0.4% of females (Table 1a). As noted in the previous section, 1.6% of the full samples say they have ever injected a drug, so this indicates that a minority—but still nearly a third—of the people injecting any of the several drug classes

mentioned in the question (heroin, cocaine, amphetamines, and/or steroids) shared a needle at some time.

- The proportion of 21- to 30-year-olds who say that they have shared needles in the prior 12 months is 0.2%, with no significant gender difference. This compares to 0.5% who said that they have injected a drug in the prior 12 months, so about two fifths of past year injectors shared a needle during that interval.

- Of respondents age 21-30, almost half of females who have injected in their lifetime report having shared needles (0.4%/0.9%), compared to a little more than one-fifth of male injectors (0.5%/2.3%), suggesting that young adult female injectors are more at risk of needle sharing. The lifetime prevalence for needle sharing is lower among the 35- and 40-year-olds than among the young adults. Lifetime prevalence is estimated to be 0.3% among both the 35- and 40-year-olds, compared to 0.5% among young adults (Tables 1b and 1c). This could be due to cohort-effects—lasting differences between class cohorts—and/or to attrition. In sum, needle-sharing behavior appears to have a very low prevalence among high school graduates ages 21 to 30, and even lower among 35- and 40-year-olds. It seems likely that the rates are an underestimate for the entire population in these age ranges due to the omission of high school dropouts, the likelihood that drug-addicted users would be more likely than average to leave the study, and the possibility of some underreporting of this behavior. But while the prevalence of needle sharing is low, it can still translate to sizable numbers of people engaging in shared needle use. According to the 2013 Census, there are about 44 million Americans ages 21 to 30; just 0.5% of this group would be over 220,000 individuals.

- Like the young adults, men in the two older age groups are a bit more likely than women to engage in needle sharing.

- To summarize this section, while young adult men are somewhat more likely to inject drugs than their female counterparts, they are only slightly more likely to share needles. These dangerous practices appear to decline with age, but among the 35- and 40-year-olds slightly more men indicate having shared needles in the past than do women.

Sex with Multiple Partners

Having sex with multiple partners is another behavior that increases the risk of HIV transmission and infection. The question to respondents is, “During the last 12 months, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)” Three types of sexual activity are specifically mentioned in this question because all can involve the transmission of HIV, though they vary in the degree of risk involved. Results are provided in Tables 2a, 2b, and 2c.

- Roughly one quarter (24%) of the sample of young adults aged 21 to 30 report that they have had multiple (two or more) sex partners in the prior 12 months—27% of males and 22% of females (Table 2a).

- About one-seventh (15%) of 21- to 30-year-old respondents reported having no sex partners during the prior 12 months (i.e., sexual abstinence)—17% of males and 14% of females.

- The most common answer by far to this question was having one partner during the year (61% overall), with a lower proportion of males (56%) than females (65%) giving this answer.

- While having even one sex partner is not without risk, the risk rises with an increased number of partners. About 10% of young adults report that they had a total of two partners during the past 12 months (9.4% of males and 10.1% of females); 5.7% report three partners (6.2% of males and 5.2% of females); and about one in eleven (8.9%) report having four or more partners (12% of males and 6.5% of females). Very few report having more than 20 partners in the prior year (0.7% of males and 0.1% of females). Overall, while males are slightly more likely to be abstinent than females, they are more likely to have multiple sex partners and substantially more likely to have had a large number of partners during the year.

- The reported numbers of sex partners among 35- and 40-year-olds (Tables 2b and 2c) are substantially lower than they are among young adults. The proportion reporting having had more than one partner during the past 12 months is 24.3% among young adults, 11.9% among 35-year-olds, and 10.8% among 40-year-olds. The proportions reporting four or more sex partners during the year falls from 8.9% among young adults to 4.1% among 35-year-olds and 3.6% among 40-year-olds. These numbers strongly suggest that potential exposure to HIV infection through multiple sexual contacts declines sharply between ages 21 and 35—a finding that replicates a similar one from the National Survey of Family Growth (Chandra et al., 2012; Chandra et al., 2011).

- In these older age strata, males continue to be more likely than females to report multiple sex partners (13.8% vs. 10.1%, respectively at age 35, and 13.2% vs. 8.6% at age 40). They also remain more likely to report four or more partners in the prior year (6.1% vs. 2.3% at age 35, and 5.2% vs. 1.8% at age 40).

Men Having Sex with Men, and Sex across the Genders

Because males who have sexual contact with other males have been at particular risk of contracting and transmitting HIV, we also looked at subgroups by the different gender combinations. We distinguished six configurations: males with females exclusively, males with males exclusively, males with partners of both genders,

females with males exclusively, females with females exclusively, and females with partners of both genders. For both male and female respondents the case counts turn out to be fairly limited in the two categories that involve sexual contact with partners of the same gender, so the reader is cautioned to pay particular attention to the numbers of observations for these groups (Tables 2a, 2b, and 2c). Only people reporting that they have had sexual contact with one or more partners in the prior 12 months were asked the question: "During the last 12 months, have your sex partner or partners been . . . ." The answer alternatives are: "exclusively male," "both male and female," and "exclusively female." (See Tables 2a, 2b, and 2c for the proportions in each of the three categories.)

- Of the young adult respondents reporting one or more sex partners in the prior 12 months (representing 85% of the total sample, 83% of all males, and 86% of all females), about 1 in 20 (5.3%) males indicated some sexual contact with other males during the last 12 months—4.4% saying that their partners were males exclusively and 0.9% saying that they had both male and female partners (Table 2a).

  Note that because of the low prevalence for these behaviors, the weighted number of cases is limited: a total of 488 observations from male respondents who reported having sexual contact with other males—405 observations of men having sex exclusively with other males and 83 observations of men having sex with both genders.

- Among young adult females, 4.1% reported having any female sex partners—2.2% of all female observations indicated female partners exclusively and 1.9% indicated that their partners were of both genders—almost an even split, unlike the case for males (Table 2a). Thus bisexual behavior is more common among females in this population—about twice as common, in fact (1.9% vs. 0.9% for males), and having sex only with the same gender is about twice as common among men (4.4% vs. 2.2%).

  Again, note that the numbers of reports available for study are limited: 405 reports of females having any sexual contact with other females, 239 reports of females having sexual contact exclusively with other females, and 206 reports of having sex with both female and male partners.

- Of the young adult respondents reporting one or more sex partners in the prior 12 months, 95% of the males reported that their partners were exclusively female, and a slightly higher proportion (97%) of females indicated that their partners were exclusively male (Table 2a.).

- Once more, males are at greater risk of acquiring or transmitting HIV than females because male-to-male sex carries a greater likelihood of HIV transmission than female-to-female or heterosexual sex.

- Among the 35- and 40-year-olds who reported sex with one or more partners, the proportions of males reporting sex exclusively with males in the past 12 months are similar to those observed among 21- to 30-year-olds (3.5% and 4.2% respectively for 35- and 40-year-olds, compared to 4.4% among the young adults). The proportion of both 35- and 40-year-old males reporting sex with partners of both genders (0.6%) is slightly lower than for the young adult males (0.9%)—a non-significant difference. Again, these estimates are based on relatively small sample sizes, as may be seen in Tables 3b and 3c.

- Among females, there was very little difference in the proportions reporting sex in the prior year exclusively with female partners among 35-year-olds (2.0%) and 40-year-olds (1.9%), compared with the young adults (2.2%). The proportion of females reporting having sex with partners of both genders was 0.8% and 1.0% in these two older age groups, respectively, compared to 1.9% among young adults. There appears to be some decline in the reporting of female-to-female and bisexual sex in the older groups. Note that the samples are much smaller in these groups—though still between 1,900 and 2,800 observations in each gender—and therefore the estimates have a higher level of sampling error than for the young adults.

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TABLE 1a
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2014 [a] Combined

(Entries are percentages.)

	Total	Male	Female
Lifetime Frequency of Injecting Drugs			
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.			
0 Occasions	98.4	97.7	99.1
1–2	0.4	0.5	0.3
3–5	0.2	0.3	0.1
6–9	0.1	0.2	0.1
10–19	0.2	0.3	0.1
20–39	0.1	0.2	*
40+ Occasions	0.5	0.6	0.3
Weighted N =	*23,707*	*11,105*	*12,602*
Annual Frequency of Injecting Drugs			
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.			
0 Occasions	99.5	99.2	99.7
1–2	0.1	0.2	0.1
3–5	0.1	0.1	*
6–9	0.1	0.1	*
10–19	*	0.1	*
20–39	0.1	0.1	*
40+ Occasions	0.2	0.2	0.1
Weighted N =	*23,717*	*11,110*	*12,608*
Lifetime and Annual Needle Sharing			
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?			
Yes, in the last 12 months	0.2	0.2	0.1
Yes, but not in the last 12 months	0.3	0.3	0.3
No, never	99.5	99.5	99.6
Weighted N =	*23,511*	*11,008*	*12,504*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 1b
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Age 35
in 2008–2014 [a] Combined

(Entries are percentages.)

Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*	Total	Male	Female
0 Occasions	98.3	97.4	99.1
1–2	0.7	0.9	0.5
3–5	0.1	0.2	0.1
6–9	0.1	0.2	*
10–19	0.2	0.4	*
20–39	0.1	0.2	*
40+ Occasions	0.4	0.7	0.2
Weighted N =	*5,794*	*2,743*	*3,051*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*			
0 Occasions	99.6	99.3	99.8
1–2	*	0.1	*
3–5	*	0.1	*
6–9	0.1	0.3	*
10–19	*	*	*
20–39	*	*	0.1
40+ Occasions	0.1	0.2	0.1
Weighted N =	*5,798*	*2,746*	*3,053*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*			
Yes, in the last 12 months	*	*	0.1
Yes, but not in the last 12 months	0.3	0.4	0.2
No, never	99.7	99.6	99.8
Weighted N =	*5,788*	*2,742*	*3,047*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

TABLE 1c
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Age 40
in 2010–2014 [a] Combined

(Entries are percentages.)

Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*	Total	Male	Female
0 Occasions	98.5	97.9	99.1
1–2	0.6	0.8	0.5
3–5	0.2	0.3	0.1
6–9	0.1	0.2	*
10–19	0.1	0.2	*
20–39	0.1	0.1	*
40+ Occasions	0.4	0.6	0.2
Weighted N =	*4,414*	*2,173*	*2,241*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*			
0 Occasions	99.8	99.6	100.0
1–2	*	*	*
3–5	*	*	*
6–9	*	*	*
10–19	0.1	0.1	*
20–39	*	0.1	*
40+ Occasions	0.1	0.1	*
Weighted N =	*4,415*	*2,174*	*2,241*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*			
Yes, in the last 12 months	*	*	*
Yes, but not in the last 12 months	0.3	0.4	0.2
No, never	99.7	99.6	99.8
Weighted N =	*4,407*	*2,175*	*2,231*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 2a
Number of Sex Partners and Gender of Sex Partners
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2014 [a] Combined

(Entries are percentages.)

	Total	Male	Female
Number of Partners in Last 12 Months			
During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)			
None	15.2	16.9	13.7
One	60.5	55.9	64.5
Two	9.7	9.4	10.1
Three	5.7	6.2	5.2
Four	3.7	4.2	3.3
5–10	4.1	5.6	2.8
11–20	0.7	1.1	0.3
21–100	0.3	0.5	0.1
More than 100	0.1	0.2	*
Weighted N =	*23,660*	*11,083*	*12,577*
Gender of Partners in Last 12 Months [b]			
During the LAST 12 MONTHS, have your sex partner or partners been …			
Exclusively male?	53.9	4.4	95.9
Both male and female?	1.4	0.9	1.9
Exclusively female?	44.7	94.7	2.2
Weighted N =	*20,040*	*9,199*	*10,841*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 2b

Number of Sex Partners and Gender of Sex Partners

Total and by Gender

among Respondents of Modal Age 35

in 2008–2014 [a] Combined

(Entries are percentages.)

Number of Partners in Last 12 Months *During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)*	Total	Male	Female
None	9.5	9.4	9.6
One	78.6	76.8	80.3
Two	4.8	4.6	5.1
Three	2.9	3.2	2.7
Four	1.7	2.4	1.1
5–10	1.7	2.5	1.0
11–20	0.4	0.7	0.1
21–100	0.3	0.4	0.1
More	*	0.1	*
Weighted N =	*5,774*	*2,734*	*3,040*
Gender of Partners in Last 12 Months [b] *During the LAST 12 MONTHS, have your sex partner or partners been …*			
Exclusively male?	52.7	3.5	97.2
Both male and female?	0.7	0.6	0.8
Exclusively female?	46.6	95.8	2.0
Weighted N =	*5,200*	*2,473*	*2,727*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 2c

Number of Sex Partners and Gender of Sex Partners
Total and by Gender
among Respondents of Modal Age 40
in 2010–2014 [a] Combined

(Entries are percentages.)

Number of Partners in Last 12 Months *During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)*	Total	Male	Female
None	10.6	9.2	11.9
One	78.6	77.6	79.5
Two	5.0	4.8	5.2
Three	2.3	3.2	1.6
Four	1.3	1.5	1.0
5–10	1.5	2.5	0.6
11–20	0.4	0.5	0.2
21–100	0.3	0.5	*
More than 100	0.1	0.2	*
Weighted N =	*4,405*	*2,169*	*2,235*
Gender of Partners in Last 12 Months [b] *During the LAST 12 MONTHS, have your sex partner or partners been …*			
Exclusively male?	50.7	4.2	97.2
Both male and female?	0.8	0.6	1.0
Exclusively female?	48.6	95.2	1.9
Weighted N =	*3,915*	*1,958*	*1,957*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

Chapter 5

INTERSECTION OF RISK BEHAVIORS

One goal of the MTF panel study is to determine to what extent the various HIV-related risk behaviors overlap with one another, and to determine what proportion of the population is at heightened risk of HIV transmission as a result. In this chapter, we report several pairwise combinations of risk factors.

Needle Sharing by Gender of Sex Partners

Needle sharing and male-to-male sex are known to be among the most important risk behaviors for the spread of HIV.

- Table 3a provides information on young adult injection drug use and needle sharing by the six categories of gender of partners in the prior 12 months—men who had sex exclusively with women, exclusively with men, or with both men and women; and women who had sex exclusively with men, exclusively with women, or with both men and women. As noted earlier, the very small numbers of cases in the groups reporting same-gender or both-gender sexual contact make any results rather tentative. See Tables 3a, 3b, and 3c for numbers of cases in each of the six categories.

- Keeping in mind the small sample sizes, it appears that among young adults the annual prevalence of injecting drugs and of needle sharing both tend to be highest among those who engage in sex with both genders. This holds true for both male and female respondents, but especially among males (Table 3a).

- Young adult males who report having exclusively male partners have about the same lifetime and annual prevalence rates of injection as males having exclusively female partners (Table 3a). They have a higher lifetime and annual prevalence of needle sharing, however (1.6% vs. 0.4% lifetime; 1.0% vs. 0.2% annual). So, there is some compounding of these two types of risk—needle sharing and men having sex with men—among young adult males.

- Among young adult females, the lifetime but not annual prevalence of injecting drugs is significantly higher for those having exclusively female partners than for those with exclusively male partners (4.3% vs. 0.8% for lifetime, and 0.9% vs 0.2% for annual). More importantly, the lifetime prevalence of needle sharing is also significantly higher (2.6% vs. 0.3%). Interestingly, there is less difference between these two groups in the prevalence of injecting drugs or needle sharing in the prior 12 months, so much of the heightened risk from needle sharing for women who have exclusively female partners appears to have occurred when they were younger.

- Unfortunately, the case counts are still too low to make such comparisons among the 35- and 40-year-old respondents, primarily because fewer years of data have accumulated so far for them (Tables 3b and 3c).

Injection Drug Use and Needle Sharing by Number of Sex Partners

- Among young adults, the prevalence of having injected drugs either over a lifetime or in the prior 12 months rises considerably with the number of sex partners reported in the prior 12 months (Table 4a). For example, those who report zero, one, or two partners during the prior 12 months report a prevalence of injecting a drug in the prior 12 months of 0.2%, 0.2%, and 0.5%, respectively, whereas those reporting five or more partners have a prevalence of 3.1%. Although the association holds for both males and females, it is much stronger for males: 6% of males reporting five or more sex partners in the prior 12 months have injected drugs at some time in their lifetime. A similar relationship exists for annual prevalence of injecting drugs.

- At ages 35 and 40 (Tables 4b and 4c) a similar positive association holds between number of sex partners in the prior 12 months and both lifetime and annual injection drug use, and the association is due almost entirely to males. among the 35- and 40-year-olds. Females of those ages report essentially little to no injecting in the prior 12 months and relatively little in their lifetime).

- Among the young adults, the dangerous practice of sharing needles relates positively to the number of sex partners; past-12-month sharing was 0.1% or less among those who had two or fewer partners in the past 12 months, and 0.9% among those reporting five or more partners in that period (Table 4a, bottom panel). *This means that needle sharers, who are at particular risk of contracting HIV, are more likely than others to have been exposing somewhat larger numbers of partners to that risk through sexual contact; and this is true for both genders.*

- There are very low rates of reported needle sharing among the age 35 and 40 respondents (Tables 4b and 4c), but lifetime needle sharing rates have some positive association with number of sex partners in the prior 12 months. Those reporting five or more partners in the prior 12 months are most likely to have ever shared needles. (No association is found for females at age 40.)

Number of Sex Partners by Gender of Sex Partners

- We examined the number of sex partners reported by the genders of those partners (Table 5a). Among sexually active young adult males, of those who had sex exclusively with other males during the prior 12 months (N = 405 observations), about half (52%) reported that they had more than one sex partner, compared to 31% among those males who reported that they had

sexual contact exclusively with females. One fifth (20%) of males with exclusively male partners reported sexual contact with five or more partners, compared to 8% of males with exclusively female partners. The proportions having more than ten sex partners during the year are 9.0% vs. 1.7%, respectively. *Thus, although their proportion of the total population is small, and these particular findings are thus based on a small subsample, it appears that appreciable numbers of young adult males are potentially placing themselves and others at greater risk by having multiple sex partners, and this is especially true for males who have had sex exclusively with other males during the year*. These two risk behaviors—men having sex with men and having large numbers of sex partners—are positively correlated, as others have found (NCHHSTP Media Team, 2013).

- The finding that young adult males whose sex partners are exclusively male tend to have more sex partners is also seen among 35- and 40-year-old male respondents (*N* = 85 and 82 observations, respectively; see Tables 5b and 5c). Indeed, across ages only about half of males who reported having sex exclusively with men also reported sex with only one partner; what differs by age is the percent of males who had sex exclusively with females and who had only one partner—among young adults it is 69%, but among both 35- and 40-year-olds it is 87%.

- Among sexually active young adult females who had sex exclusively with other females during the year (*N* = 242), 76% reported having only one partner, indicating a considerably higher level of monogamy than among males. This rate is the same as the 76% who reported being monogamous among females who had male partners exclusively. Again, these estimates are only suggestive, given the limited sample sizes involved. *However, this suggests that females who have sex exclusively with other females are at lower risk of contracting or transmitting HIV than are males who have sex exclusively with other males, based both on the types of female-to-female sex practices and on the number of sex partners they have.*

- There were insufficient numbers of 35- and 40-year-old females reporting same sex partners to provide reliable estimates (Tables 5b and 5c).

- Individuals who have sexual relations with both genders carry the risk of spreading HIV across genders, making their behavior of particular importance. The numbers of cases collected to date are very small; young adult weighted *N*s = 205 observations for females and 82 for males reporting relations with partners of both genders in the prior 12 months. Given these small numbers, the results can be considered only tentative and suggestive. Nevertheless, based on the 287 cases that report partners of both genders, the proportions reporting five or more partners appear to be quite high for both genders (Table 5a).

- There are currently insufficient numbers of cases among those ages 35 and 40 who report having sex partners of both genders in the prior 12 months to provide estimates (Tables 5b and 5c).

References

NCHHSTP Media Team. (2013). Estimated numbers and characteristics of men who have sex with men and use injection drugs — United States, 1999–2011. *Morbidity and Mortality Weekly Report*, September 19. Retrieved from http://www.cdc.gov/media/mmwrnews/2013/0919.html

TABLE 3a
Injection Drug Use and Needle Sharing by Gender of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Lifetime Frequency of Injecting Drugs						
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.						
0 Occasions	97.5	97.4	86.6	99.2	95.7	92.6
1–2	0.6	0.7	2.8	0.3	1.4	2.7
3–5	0.4	1.1	1.7	0.1	1.6	1.1
6–9	0.2	0.1	3.4	0.0	*	0.8
10–19	0.4	*	*	0.1	*	0.5
20–39	0.2	0.1	1.4	*	*	*
40+ Occasions	0.7	0.6	4.2	0.3	1.3	2.3
Weighted N =	*8,676*	*401*	*82*	*10,356*	*241*	*205*
Annual Frequency of Injecting Drugs						
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.						
0 Occasions	99.2	98.5	88.8	99.8	99.1	95.6
1–2	0.1	0.6	3.6	*	*	2.0
3–5	0.1	0.3	0.9	*	0.2	0.3
6–9	0.1	*	2.9	*	*	*
10–19	0.1	*	1.4	*	0.4	0.2
20–39	0.1	*	1.2	*	*	0.2
40+ Occasions	0.3	0.6	1.3	0.1	0.4	1.7
Weighted N =	*8,680*	*401*	*82*	*10,360*	*241*	*205*
Lifetime and Annual Needle Sharing						
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?						
Yes, in the last 12 months	0.2	1.0	1.2	0.1	0.4	2.0
Yes, but not in the last 12 months	0.3	0.5	4.0	0.2	2.3	1.2
No, never	99.6	98.4	94.7	99.7	97.4	96.7
Weighted N =	*8,607*	*400*	*79*	*10,286*	*241*	*204*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 3b

Injection Drug Use and Needle Sharing by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*						
0 Occasions	97.4	99.4	†	99.1	†	†
1–2	0.9	*	†	0.4	†	†
3–5	0.2	*	†	0.1	†	†
6–9	0.2	*	†	*	†	†
10–19	0.4	0.6	†	0.1	†	†
20–39	0.2	*	†	*	†	†
40+ Occasions	0.7	*	†	0.2	†	†
Weighted N =	*2,362*	*87*	*16*	*2,640*	*55*	*21*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*						
0 Occasions	99.5	99.4	†	99.8	†	†
1–2	*	*	†	*	†	†
3–5	0.1	*	†	*	†	†
6–9	0.2	0.6	†	*	†	†
10–19	*	*	†	*	†	†
20–39	*	*	†	0.1	†	†
40+ Occasions	0.2	*	†	0.1	†	†
Weighted N =	*2,365*	*87*	*16*	*2,641*	*55*	*21*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*						
Yes, in the last 12 months	*	*	†	0.1	†	†
Yes, but not in the last 12 months	0.3	*	†	0.2	†	†
No, never	99.7	100.0	†	99.8	†	†
Weighted N =	*2,360*	*87*	*16*	*2,636*	*55*	*21*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates. ' * ' indicates a prevalence rate of less than 0.05%.

[a]In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

TABLE 3c

Injection Drug Use and Needle Sharing by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*						
0 Occasions	98.2	94.4	†	99.1	†	†
1–2	0.6	4.2	†	0.5	†	†
3–5	0.2	0.4	†	0.1	†	†
6–9	0.1	1.1	†	*	†	†
10–19	0.3	*	†	*	†	†
20–39	0.2	*	†	*	†	†
40+ Occasions	0.5	*	†	0.2	†	†
Weighted N =	*1,854*	*82*	*11*	*1,898*	*37*	*19*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*						
0 Occasions	99.6	98.5	†	99.9	†	†
1–2	*	1.1	†	*	†	†
3–5	*	0.4	†	*	†	†
6–9	*	*	†	*	†	†
10–19	0.2	*	†	*	†	†
20–39	0.1	*	†	*	†	†
40+ Occasions	0.1	*	†	0.1	†	†
Weighted N =	*1,855*	*82*	*11*	*1,898*	*37*	*19*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*						
Yes, in the last 12 months	*	*	†	*	†	†
Yes, but not in the last 12 months	0.4	1.1	†	0.2	†	†
No, never	99.6	98.9	†	99.8	†	†
Weighted N =	*1,856*	*82*	*11*	*1,891*	*37*	*18*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates. ' * ' indicates a prevalence rate of less than 0.05%.

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 4a
Injection Drug Use and Needle Sharing by Number of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
	None	One	Two	Three or Four	Five or More
Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*					
Total					
0 Occasions	99.4	98.8	98.0	96.7	95.2
1+ Occasions	0.6	1.2	2.0	3.3	4.8
Weighted N =	*3,578*	*14,269*	*2,293*	*2,208*	*1,218*
Male					
0 Occasions	99.1	98.3	97.4	95.3	94.0
1+ Occasions	0.9	1.7	2.6	4.7	6.0
Weighted N =	*1,867*	*6,180*	*1,034*	*1,142*	*810*
Female					
0 Occasions	99.7	99.2	98.5	98.2	97.4
1+ Occasions	0.3	0.8	1.5	1.8	2.6
Weighted N =	*1,711*	*8,088*	*1,259*	*1,066*	*408*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*					
Total					
0 Occasions	99.8	99.8	99.5	98.6	96.9
1+ Occasions	0.2	0.2	0.5	1.4	3.1
Weighted N =	*3,581*	*14,273*	*2,294*	*2,209*	*1,219*
Male					
0 Occasions	99.8	99.6	99.6	97.9	96.2
1+ Occasions	0.2	0.4	0.4	2.1	3.8
Weighted N =	*1,868*	*6,182*	*1,034*	*1,143*	*811*
Female					
0 Occasions	99.8	99.9	99.4	99.3	98.2
1+ Occasions	0.2	0.1	0.6	0.7	1.8
Weighted N =	*1,713*	*8,090*	*1,260*	*1,066*	*408*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*					
Total					
Yes, in the last 12 months	0.1	0.0	0.1	0.5	0.9
Yes, but not in the last 12 months	0.2	0.2	0.4	0.7	0.4
No, never	99.7	99.7	99.5	98.8	98.7
Weighted N =	*3,535*	*14,169*	*2,272*	*2,194*	*1,207*
Male					
Yes, in the last 12 months	0.1	0.1	0.1	0.6	0.9
Yes, but not in the last 12 months	0.4	0.2	0.4	1.0	0.3
No, never	99.5	99.8	99.6	98.4	98.8
Weighted N =	*1,845*	*6,137*	*1,018*	*1,136*	*800*
Female					
Yes, in the last 12 months	0.1	*	0.1	0.5	0.9
Yes, but not in the last 12 months	*	0.2	0.5	0.3	0.5
No, never	99.9	99.7	99.4	99.2	98.6
Weighted N =	*1,690*	*8,032*	*1,254*	*1,057*	*407*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 4b

Injection Drug Use and Needle Sharing by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
	None	One	Two	Three or Four	Five or More
Lifetime Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.*					
Total					
0 Occasions	98.4	98.6	96.8	95.8	95.5
1+ Occasions	1.6	1.4	3.2	4.2	4.5
Weighted N =	*546*	*4,521*	*278*	*269*	*139*
Males					
0 Occasions	97.0	98.0	94.4	94.0	94.0
1+ Occasions	3.0	2.0	5.6	6.0	6.0
Weighted N =	*254*	*2,092*	*125*	*154*	*100*
Females					
0 Occasions	99.5	99.1	98.8	98.3	99.2
1+ Occasions	0.5	0.9	1.2	1.7	0.8
Weighted N =	*291*	*2,430*	*153*	*115*	*39*
Annual Frequency of Injecting Drugs *On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.*					
Total					
0 Occasions	99.4	99.8	98.0	98.9	99.0
1+ Occasions	0.6	0.2	2.0	1.1	1.0
Weighted N =	*546*	*4,525*	*278*	*269*	*139*
Males					
0 Occasions	98.8	99.7	96.0	98.5	98.6
1+ Occasions	1.2	0.3	4.0	1.5	1.4
Weighted N =	*254*	*2,094*	*125*	*154*	*100*
Females					
0 Occasions	100.0	99.8	99.5	99.4	100.0
1+ Occasions	*	0.2	0.5	0.6	*
Weighted N =	*291*	*2,431*	*153*	*115*	*39*
Lifetime and Annual Needle Sharing *Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?*					
Total					
Yes, in the last 12 months	*	0.1	*	*	*
Yes, but not in the last 12 months	0.3	0.2	0.1	1.3	1.2
No, never	99.7	99.7	99.9	98.7	98.8
Weighted N =	*545*	*4,516*	*279*	*268*	*139*
Males					
Yes, in the last 12 months	*	*	*	*	*
Yes, but not in the last 12 months	0.4	0.3	*	2.2	1.4
No, never	99.6	99.7	100.0	97.8	98.6
Weighted N =	*255*	*2,089*	*125*	*154*	*100*
Females					
Yes, in the last 12 months	*	0.1	*	*	*
Yes, but not in the last 12 months	0.1	0.2	0.2	*	0.8
No, never	99.9	99.7	99.8	100.0	99.2
Weighted N =	*290*	*2,427*	*154*	*114*	*39*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

TABLE 4c

Injection Drug Use and Needle Sharing by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

		Number of Partners in Last 12 Months				
Lifetime Frequency of Injecting Drugs		None	One	Two	Three or Four	Five or More
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.						
Total						
0 Occasions		98.0	98.7	99.0	96.6	94.5
1+ Occasions		2.0	1.3	1.0	3.4	5.5
	Weighted N =	*464*	*3,447*	*220*	*160*	*99*
Males						
0 Occasions		96.3	98.4	97.8	95.3	93.2
1+ Occasions		3.7	1.6	2.2	4.7	6.8
	Weighted N =	*200*	*1,674*	*103*	*101*	*80*
Females						
0 Occasions		99.3	99.0	100.0	98.8	100.0
1+ Occasions		0.7	1.0	*	1.2	*
	Weighted N =	*263*	*1,773*	*116*	*58*	*19*
Annual Frequency of Injecting Drugs						
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.						
Total						
0 Occasions		99.8	99.9	99.3	99.8	97.4
1+ Occasions		0.2	0.1	0.7	0.2	2.6
	Weighted N =	*464*	*3,448*	*220*	*160*	*99*
Males						
0 Occasions		99.5	99.8	98.6	99.7	96.8
1+ Occasions		0.5	0.2	1.4	0.3	3.2
	Weighted N =	*200*	*1,675*	*103*	*101*	*80*
Females						
0 Occasions		100.0	99.9	100.0	100.0	100.0
1+ Occasions		*	0.1	*	*	*
	Weighted N =	*263*	*1,773*	*116*	*58*	*19*
Lifetime and Annual Needle Sharing						
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?						
Total						
Yes, in the last 12 months		*	*	*	*	*
Yes, but not in the last 12 months		0.4	0.3	0.2	0.9	1.4
No, never		99.6	99.7	99.8	99.1	98.6
	Weighted N =	*461*	*3,447*	*218*	*159*	*96*
Males						
Yes, in the last 12 months		*	*	*	*	*
Yes, but not in the last 12 months		0.2	0.3	0.5	1.4	1.7
No, never		99.8	99.7	99.5	98.6	98.3
	Weighted N =	*200*	*1,681*	*101*	*101*	*78*
Females						
Yes, in the last 12 months		*	*	*	*	*
Yes, but not in the last 12 months		0.7	0.2	*	*	*
No, never		99.3	99.8	100.0	100.0	100.0
	Weighted N =	*261*	*1,766*	*117*	*58*	*19*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 5a

Number of Sex Partners by Gender of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
Number of Partners in Last 12 Months	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)						
None	—	—	—	—	—	—
One	68.8	47.5	10.6	76.1	75.5	6.2
Two	11.2	12.5	15.0	11.4	11.2	24.3
Three	7.2	11.0	10.3	5.7	7.7	21.7
Four	4.7	9.5	21.9	3.5	3.0	17.2
5–10	6.4	10.6	28.6	2.8	2.7	23.5
11–20	1.1	4.6	7.6	0.3	*	5.4
21 or more partners	0.6	4.4	6.0	0.1	*	1.6
Weighted N =	*8,679*	*405*	*82*	*10,370*	*242*	*205*

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

Notes ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 5b

Number of Sex Partners by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Number of Partners in Last 12 Months						
During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)						
None	—	—	†	—	†	†
One	86.5	49.9	†	89.6	†	†
Two	5.0	4.1	†	5.4	†	†
Three	3.0	10.5	†	2.5	†	†
Four	2.5	6.4	†	1.1	†	†
5–10	2.1	24.2	†	1.1	†	†
11–20	0.6	2.9	†	0.2	†	†
21 or more partners	0.4	1.9	†	0.1	†	†
Weighted N =	*2,359*	*85*	*16*	*2,649*	*55*	*21*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates. ' — ' indicates not applicable.

' * ' indicates a prevalence rate of less than 0.05%.

[a]In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

TABLE 5c

Number of Sex Partners by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Number of Partners in Last 12 Months *During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)*						
None	—	—	†	—	†	†
One	87.3	53.5	†	91.0	†	†
Two	4.8	14.2	†	5.6	†	†
Three	3.3	6.6	†	1.7	†	†
Four	1.5	6.0	†	0.9	†	†
5–10	2.2	13.4	†	0.6	†	†
11–20	0.5	2.6	†	0.2	†	†
21 or more partners	0.4	3.8	†	*	†	†
Weighted N =	*1,861*	*82*	*11*	*1,900*	*37*	*19*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates. ' — ' indicates not applicable.

' * ' indicates a prevalence rate of less than 0.05%.

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

Chapter 6

PREVALENCE OF PROTECTIVE BEHAVIORS

Various precautions can diminish the likelihood of contracting and/or transmitting HIV. One, of course, is simply to avoid the high-risk behaviors already discussed (men having sex with men, having multiple sex partners, sharing needles). Another is to use condoms during intercourse as protection against viral transmission. A third—getting tested for HIV—increases the likelihood that an infected individual will (a) be identified as infected and receive appropriate treatment that may save his or her life, and (b) refrain from behaviors that put others at risk of contracting the virus.

Condom Use

Respondents who indicate that they have had one or more sexual partners during the prior 12 months are asked, "When you had sexual intercourse during the last 12 months, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)" The answer alternatives are: never, seldom, sometimes, most times, and always. Both genders respond to this question. (Respondents who report no sex partners in the prior 12 months are not included in the data presented here.)

- Just over half (54%) of sexually active young adult respondents report that they "seldom" or "never" used condoms during the past 12 months—with 49% of males and 59% of females giving these answers (Table 6a). Indeed, a large proportion (40%) indicate that they did not use condoms at all during the prior 12 months—36% of the sexually active males and 45% of the sexually active females. Higher rates of monogamy among females may help to explain their lower rate of condom use; however, their partners may or may not be monogamous, and if not, the risk to the woman increases, quite possibly without her awareness. In addition, women having sex with other women are less likely to report condom use.

- Only about one third (33%) of sexually active young adults say that they used a condom "most times" or "always"—37% of males and 29% of females.

- An examination of two-year age groups among the 21- to 30-year-olds shows that the prevalence of condom use declines steadily with age (Table 6d). About three quarters (76%) of the 21- to 22-year-olds report some condom use in the last 12 months, compared to only 46% of the 29- to 30-year-olds. And while 46% of the 21- to 22-year-old group report using condoms "most times" or "always," only 22% of the 29- to 30-year-olds say that. One plausible explanation for these age-related declines in condom use is an increase in proportions becoming married, cohabiting, monogamous, and/or trying to have biological children; however, Table 6e shows that even among young adults not married at the times of the surveys, proportions reporting any condom use decline with age by 18 percentage points (from 78% of 21- to 22-

year-olds to 60% of 29- to 30-year-olds). Among those who report being married, the prevalence of condom use is indeed lower at each age, but there is also a 16 percentage point decline with age (from 51% of the married 21- to 22-year-olds reporting any condom use to 35% among married 29- to 30-year-olds). Thus, the decline with age is only partially explainable by an increased proportion being married.

- Condom use is lower among sexually active 35-year-olds than among young adults, with 61% of the older males and 70% of the females saying that they seldom or never used condoms in the prior 12 months (Table 6b). And condom use is lower still among the sexually active 40-year-olds, with 77% of the males and 82% of the females saying that they seldom or never used condoms in the prior 12 months (Table 6c). Changes in marital and cohabiting status account for much of this change with age (see Tables 6a, b, and c).

Getting Tested for HIV

Respondents were asked if they had ever been tested for HIV/AIDS; the question instructed them not to include any testing that may have occurred when they were donating blood. The results for young adults may be found in Tables 7a, 7b, and 7c.

- Less than half (43%) of all young adults ages 21 to 30 indicate that they have ever been tested for HIV outside of blood donation screening. Despite the fact that males are at considerably higher risk of contracting HIV (CDC, 2012), females are more likely to report having been tested than are males (50% versus 35%). The higher rate of being tested among females may be partly due to being tested during pregnancy.

- Lifetime prevalence of HIV testing rises with age among young adults (Table 7d). Summing across the surveys from 2004 to 2014, 29% of 21- to 22-year-olds report some testing in their lifetime compared to 54% of 29- to 30-year-olds.

- About one fifth (21%) of young adults say they have been tested in the last 12 months, and as with lifetime prevalence, a higher percentage of females than males report being tested (25% versus 16%, Table 7a).

- The great majority (93%) of those who have been tested receive the results of their most recent test, with little difference by gender.

- Among 35- and 40-year-olds, the lifetime prevalence of being tested for HIV/AIDS (55% and 54%, respectively) is higher than among young adults ages 21 to 30 (43%). Lifetime rates are higher among females than among males in all three age groups. Unlike lifetime rates, rates of being tested in the past 12 months decline some with age (from 21% in ages 21-30, 16% at age 35, and 12% at age 40). (See Tables 7a, b, and c.) Again, the higher proportions of older respondents who are married or in a monogamous

relationship no doubt contribute to their lower rates of testing, just as it helped to account for their lower use of condoms.

References

Centers for Disease Control and Prevention (CDC). (2015). HIV incidence. Retrieved from

http://www.cdc.gov/hiv/statistics/surveillance/incidence.html

TABLE 6a
Frequency of Condom Use
Total and by Gender and Marital Status among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months[b]	Total Sample			Married			Not Married		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)									
Never	40.4	35.6	44.5	60.4	57.3	62.8	30.5	25.8	34.7
Seldom	14.0	13.8	14.1	13.3	14.8	12.1	14.3	13.3	15.2
Sometimes	12.8	13.3	12.3	11.1	12.2	10.3	13.6	13.8	13.4
Most times	14.9	16.6	13.4	7.7	8.6	7.0	18.4	20.2	16.8
Always	18.0	20.7	15.7	7.5	7.1	7.8	23.3	26.9	20.0
Weighted N =	*19,874*	*9,145*	*10,729*	*6,549*	*2,836*	*3,714*	*13,229*	*6,267*	*6,962*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a tid questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6b
Frequency of Condom Use
Total and by Gender and Marital Status
among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*	Total Sample			Married			Not Married		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Never	65.7	61.4	69.5	74.4	70.6	77.7	44.9	39.4	50.0
Seldom	8.4	9.8	7.1	7.1	8.4	5.9	11.8	13.4	10.3
Sometimes	8.4	9.4	7.4	6.8	8.1	5.7	12.0	12.3	11.7
Most times	8.2	9.5	7.0	5.5	6.4	4.7	14.6	17.1	12.3
Always	9.4	9.9	9.0	6.3	6.5	6.1	16.8	17.8	15.8
Weighted N =	*5,184*	*2,466*	*2,718*	*3,627*	*1,723*	*1,905*	*1,517*	*720*	*796*

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

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents.

In 2009 and after, these questions were included in all questionnaires for this group.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6c
Frequency of Condom Use
Total and by Gender
among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*	Total Sample			Married			Not Married		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Never	74.2	71.4	77.1	81.5	79.1	83.9	50.1	45.4	54.8
Seldom	5.4	6.0	4.8	4.1	4.5	3.8	9.9	11.5	8.4
Sometimes	6.1	7.1	5.1	4.3	5.4	3.2	11.7	11.9	11.5
Most times	6.2	6.8	5.5	4.7	5.1	4.3	11.0	13.1	8.9
Always	8.1	8.7	7.5	5.3	5.9	4.8	17.3	18.2	16.5
Weighted N =	*3,893*	*1,947*	*1,946*	*2,923*	*1,467*	*1,456*	*879*	*435*	*443*

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

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b]Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6d

Use of Condoms in Past Year by 2-Year Age Groups among Young Adults 2004–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months	Age of Respondent				
	21–22	23–24	25–26	27–28	29–30
Never	24.0	33.1	40.2	49.7	54.0
Seldom	14.9	15.3	14.4	13.1	12.2
Sometimes	14.8	12.8	13.1	11.9	11.4
Most times	19.9	17.6	15.1	11.5	10.6
Always	26.3	21.2	17.3	13.9	11.8
Weighted N =	*3,816*	*4,021*	*3,947*	*3,962*	*4,128*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 6e

Use of Condoms in Past Year by 2-Year Age Groups among Respondents who Report NOT Being Married among Young Adults 2004–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months	Age of Respondent				
	21–22	23–24	25–26	27–28	29–30
Never	21.5	28.1	32.2	39.0	39.6
Seldom	14.8	15.5	13.9	13.2	12.8
Sometimes	14.7	12.9	14.0	12.6	13.4
Most times	20.9	19.3	18.0	15.4	16.0
Always	28.1	24.1	22.0	19.9	18.3
Weighted N =	*3,469*	*3,251*	*2,611*	*2,084*	*1,814*

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

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 6f

Use of Condoms in Past Year by 2-Year Age Groups among Respondents who Report Being Married among Young Adults 2004–2014 [a] Combined

(Entries are percentages.)

	Age of Respondent				
Frequency of Condom Use in Last 12 Months	**21–22**	**23–24**	**25–26**	**27–28**	**29–30**
Never	49.0	54.2	56.1	61.8	65.4
Seldom	16.4	15.0	15.1	12.9	11.6
Sometimes	17.4	12.1	11.3	11.0	9.9
Most times	9.1	10.3	9.1	7.2	6.3
Always	8.1	8.5	8.4	7.2	6.8
Weighted N =	*330*	*744*	*1,311*	*1,863*	*2,301*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 7a
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2014 [a] Combined

(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Total	Male	Female
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)			
Yes, in the last 12 months	20.7	15.8	25.0
Yes, but not in the last 12 months	22.2	19.4	24.7
No, never	57.1	64.8	50.3
Weighted N =	*23,810*	*11,159*	*12,651*
Received HIV Test Results [b]			
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)			
Yes	93.2	92.0	94.0
No	6.8	8.0	6.0
Weighted N =	*10,091*	*3,876*	*6,215*

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

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7b
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Age 35
in 2008–2014 [a] Combined

(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*	Total	Male	Female
Yes, in the last 12 months	16.4	13.8	18.7
Yes, but not in the last 12 months	38.8	34.1	43.1
No, never	44.8	52.1	38.2
Weighted N =	*5,788*	*2,740*	*3,047*
Received HIV Test Results [b] *Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)*			
Yes	94.1	91.3	96.1
No	5.9	8.7	3.9
Weighted N =	*3,142*	*1,289*	*1,853*

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

[a]In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7c
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Age 40
in 2010–2014 [a] Combined

(Entries are percentages.)

Test for	Total	Male	Female
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)			
Yes, in the last 12 months	11.7	12.5	11.0
Yes, but not in the last 12 months	42.1	35.2	48.8
No, never	46.1	52.3	40.1
Weighted N =	*4,399*	*2,168*	*2,231*
Received HIV Test Results [b]			
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)			
Yes	93.2	91.3	94.7
No	6.8	8.7	5.3
Weighted N =	*2,317*	*1,014*	*1,303*

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

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7d

Percentage of Respondents Who Have Had an HIV Test in Their Lifetime [a]

by 2-Year Age Groups

(Entries are percentages.)

	Year of Administration											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004–2014
Age 21–22	33.2	29.7	29.5	32.9	28.8	31.2	26.4	27.5	28.8	27.1	26.9	29.4
Weighted N =	*404*	*360*	*357*	*493*	*531*	*565*	*548*	*506*	*489*	*438*	*450*	*4,691*
Age 23–24	37.8	38.0	39.3	39.9	39.1	41.2	41.9	41.4	37.6	32.6	31.9	38.9
Weighted N =	*392*	*373*	*354*	*475*	*490*	*477*	*473*	*495*	*508*	*466*	*453*	*4,501*
Age 25–26	45.0	46.6	43.0	45.6	43.8	48.0	46.5	46.3	46.2	40.7	37.2	45.2
Weighted N =	*378*	*349*	*320*	*468*	*468*	*441*	*478*	*420*	*427*	*424*	*435*	*4,173*
Age 27–28	54.5	50.5	52.6	48.2	53.7	51.3	50.2	45.6	54.4	45.7	52.7	50.6
Weighted N =	*343*	*366*	*344*	*468*	*467*	*436*	*449*	*414*	*429*	*397*	*372*	*4,112*
Age 29–30	56.8	54.2	54.3	52.5	54.3	52.1	53.3	52.6	53.3	53.4	56.1	53.6
Weighted N =	*369*	*330*	*305*	*514*	*509*	*470*	*453*	*422*	*425*	*407*	*418*	*4,204*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

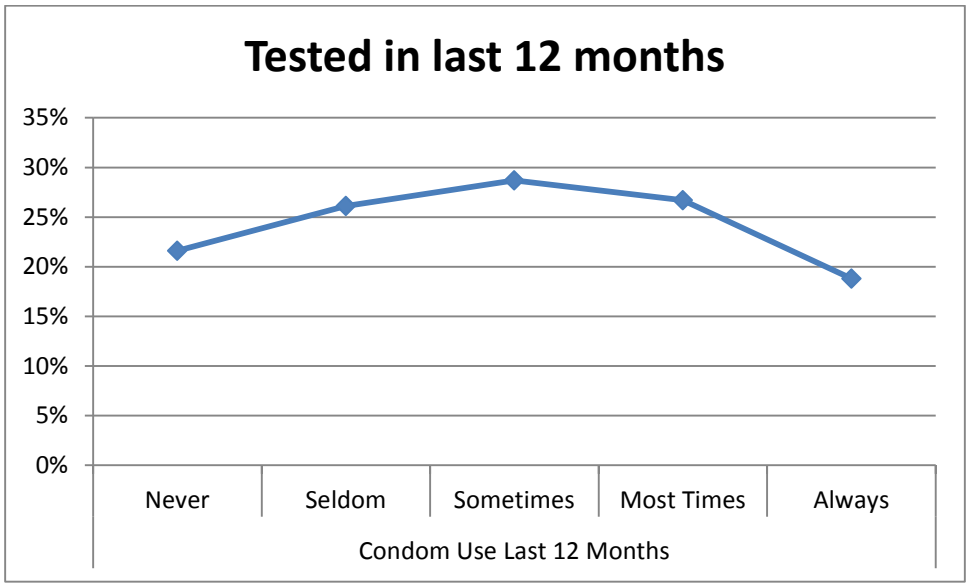
Chapter 7

INTERSECTION OF PROTECTIVE BEHAVIORS

To the extent that people who use one type of protection against HIV transmission are more likely to use another type, it may be useful to consider a broader construct of individual differences in avoidance of HIV infection in general. We look here at the degree of association between the two protective behaviors of getting tested and using condoms.

Frequency of Condom Use by Getting Tested for HIV

- Are people who take the precaution of using condoms also the ones who are getting tested for HIV? The answer appears to be somewhat complicated (Table 8a), with the association being slightly curvilinear among both male and female young adults. Of those who say they "always" used condoms in the last 12 months, 19% indicate getting tested for HIV in that period, compared to the 26%–29% who say they seldom, sometimes, or most times use condoms. Perhaps those who always use condoms consider themselves to be at less risk of contracting HIV. Sexually active respondents who say they never use condoms are also slightly less likely to have been tested in the prior 12 months (22%) than the middle groups. The chart below shows the curvilinear association.



- Among the 35- and 40-year-olds the same curvilinear relationship between HIV testing and condom use appears to hold (Tables 8b and 8c). The differences in testing as a function of how often sexually active respondents use condoms are not large, but some of those differences are fairly consistent. For example, among 35-year-olds who reported not using condoms at all in

the past 12 months, 15% were tested in the past 12 months. That proportion rises to 21% among those who seldom use condoms and to 25% among those who sometimes use condoms; it then declines back to 21% among those who use condoms most times, and falls further to 16% among those who always use condoms.

- As noted in the previous chapter, marital status is related to the likelihood of using condoms, and perhaps for some similar reasons (e.g., assumptions of fidelity), it is possible that marriage is also related to the prevalence of testing in the prior 12 months. A comparison of Tables 8d and 8e shows that indeed young adults who are married are somewhat less likely to be tested for HIV in the last 12 months than those who are not married, especially among females: but the relationship between testing and condom use remains curvilinear even after controlling for whether or not the respondent is married.

- Tables 8d and 8e also show that the frequency of condom use in the past year is considerably higher among those who are not married than among those who are, as would be expected.

- There appears to be little association between condom use and the proportion of those getting tested for HIV who actually secure the results of their tests. As Tables 8a, 8b, and 8c illustrate, nearly all respondents (93%–97%) secure their test results, regardless of how often they have used condoms in the prior year. Securing the results of the most recent HIV/AIDS test is very slightly lower for males than for females.

- In sum, there is little evidence that the two protective behaviors discussed here—condom use and getting tested for HIV—are positively correlated.

TABLE 8a
Test for HIV, Lifetime and Last 12 Months
by Frequency of Condom Use
among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

		Condom Use in Last 12 Months [b]				
Test for HIV: Lifetime and Last 12 Months		Never	Seldom	Sometimes	Most Times	Always
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)						
Total						
Yes, in the last 12 months		21.6	26.7	28.8	26.1	18.8
Yes, but not in the last 12 months		28.8	23.7	23.8	22.7	17.7
No, never		49.6	49.6	47.4	51.3	63.5
	Weighted N =	*8,020*	*2,765*	*2,532*	*2,948*	*3,571*
Male						
Yes, in the last 12 months		15.5	18.6	22.5	21.0	16.7
Yes, but not in the last 12 months		24.7	22.6	22.1	21.5	15.3
No, never		59.8	58.7	55.3	57.6	68.0
	Weighted N =	*3,250*	*1,257*	*1,214*	*1,518*	*1,888*
Female						
Yes, in the last 12 months		25.8	33.5	34.6	31.5	21.2
Yes, but not in the last 12 months		31.6	24.6	25.3	24.0	20.4
No, never		42.6	42.0	40.1	44.6	58.5
	Weighted N =	*4,770*	*1,508*	*1,318*	*1,429*	*1,683*
Received HIV Test Results [c]						
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)						
Total						
Yes		93.5	92.6	93.9	94.4	93.3
No		6.5	7.4	6.1	5.6	6.7
	Weighted N =	*3,991*	*1,374*	*1,320*	*1,420*	*1,298*
Male						
Yes		92.3	91.5	92.1	93.0	93.4
No		7.7	8.5	7.9	7.0	6.6
	Weighted N =	*1,298*	*507*	*533*	*633*	*600*
Female						
Yes		94.1	93.2	95.1	95.5	93.2
No		5.9	6.8	4.9	4.5	6.8
	Weighted N =	*2,693*	*867*	*787*	*787*	*697*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8b

Test for HIV, Lifetime and Last 12 Months by Frequency of Condom Use among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

		Condom Use in Last 12 Months [b]				
Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*		Never	Seldom	Sometimes	Most Times	Always
Total						
Yes, in the last 12 months		15.4	20.8	24.7	21.1	16.2
Yes, but not in the last 12 months		41.0	37.3	33.3	41.6	42.3
No, never		43.6	41.9	42.0	37.3	41.5
	Weighted N =	*3,397*	*433*	*433*	*423*	*485*
Males						
Yes, in the last 12 months		12.6	14.6	20.6	19.6	12.6
Yes, but not in the last 12 months		35.7	31.8	32.3	38.0	41.4
No, never		51.7	53.7	47.0	42.4	46.0
	Weighted N =	*1,514*	*239*	*232*	*235*	*241*
Females						
Yes, in the last 12 months		17.6	28.5	29.4	22.9	19.7
Yes, but not in the last 12 months		45.4	44.2	34.5	46.1	43.2
No, never		37.1	27.4	36.1	30.9	37.1
	Weighted N =	*1,884*	*194*	*201*	*188*	*244*
Received HIV Test Results [c] *Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)*						
Total						
Yes		94.3	93.5	94.1	93.6	94.9
No		5.7	6.5	5.9	6.4	5.1
	Weighted N =	*1,891*	*245*	*248*	*263*	*282*
Males						
Yes		91.0	89.0	92.4	91.7	94.9
No		9.0	11.0	7.6	8.3	5.1
	Weighted N =	*715*	*108*	*122*	*134*	*130*
Females						
Yes		96.4	97.0	95.7	95.5	95.0
No		3.6	3.0	4.3	4.5	5.0
	Weighted N =	*1,176*	*137*	*126*	*129*	*151*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8c
Test for HIV, Lifetime and Last 12 Months by Frequency of Condom Use among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

		Condom Use in Last 12 Months [b]				
Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*		Never	Seldom	Sometimes	Most Times	Always
Total						
Yes, in the last 12 months		10.0	19.1	21.4	17.6	16.0
Yes, but not in the last 12 months		44.5	37.0	43.2	39.8	39.6
No, never		45.5	43.9	35.4	42.6	44.4
	Weighted N =	*2,882*	*211*	*236*	*237*	*313*
Males						
Yes, in the last 12 months		10.4	20.9	22.0	17.7	20.0
Yes, but not in the last 12 months		37.8	32.7	33.5	30.3	30.4
No, never		51.8	46.4	44.5	52.0	49.6
	Weighted N =	*1,388*	*117*	*137*	*131*	*167*
Females						
Yes, in the last 12 months		9.6	17.0	20.7	17.5	11.4
Yes, but not in the last 12 months		50.6	42.3	56.6	51.6	50.1
No, never		39.7	40.7	22.7	31.0	38.5
	Weighted N =	*1,494*	*94*	*99*	*106*	*146*
Received HIV Test Results [c] *Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)*						
Total						
Yes		92.8	92.1	95.6	96.9	93.2
No		7.2	7.9	4.4	3.1	6.8
	Weighted N =	*1,535*	*117*	*148*	*133*	*172*
Males						
Yes		90.9	92.5	94.2	95.0	89.0
No		9.1	7.5	5.8	5.0	11.0
	Weighted N =	*656*	*63*	*72*	*62*	*84*
Females						
Yes		94.3	91.7	96.9	98.5	97.1
No		5.7	8.3	3.1	1.5	2.9
	Weighted N =	*879*	*54*	*76*	*70*	*88*

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

Notes. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8d
Test for HIV, Lifetime and Last 12 Months
by Frequency of Condom Use
among Respondents who Report NOT Being Married
among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

		Condom Use in Last 12 Months [b]				
Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*		Never	Seldom	Sometimes	Most Times	Always
Total						
Yes, in the last 12 months		23.7	30.0	30.5	28.3	20.2
Yes, but not in the last 12 months		26.9	22.4	23.0	21.4	16.3
No, never		49.4	47.6	46.6	50.2	63.6
	Weighted N =	*4,025*	*1,879*	*1,795*	*2,430*	*3,071*
Male						
Yes, in the last 12 months		16.3	21.3	23.1	22.4	17.4
Yes, but not in the last 12 months		24.4	21.8	22.2	21.1	14.6
No, never		59.4	56.9	54.8	56.5	68.0
	Weighted N =	*1,615*	*828*	*866*	*1,264*	*1,682*
Female						
Yes, in the last 12 months		28.6	36.9	37.3	34.7	23.6
Yes, but not in the last 12 months		28.6	22.9	23.7	21.8	18.3
No, never		42.8	40.2	39.0	43.4	58.2
	Weighted N =	*2,410*	*1,051*	*929*	*1,166*	*1,389*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

TABLE 8e

Test for HIV, Lifetime and Last 12 Months by Frequency of Condom Use among Respondents who Report Being Married among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

		Condom Use in Last 12 Months [b]				
		Never	Seldom	Sometimes	Most Times	Always
Test for HIV: Lifetime and Last 12 Months						
Have you ever been tested for HIV/AIDS? (Do not						
Total						
Yes, in the last 12 months		19.2	19.4	24.5	14.9	10.2
Yes, but not in the last 12 months		30.8	26.1	25.6	29.1	26.7
No, never		50.0	54.5	49.9	56.0	63.2
	Weighted N =	*3,950*	*871*	*726*	*505*	*487*
Male						
Yes, in the last 12 months		14.6	13.3	20.7	13.0	10.3
Yes, but not in the last 12 months		25.1	23.3	22.1	24.1	22.1
No, never		60.3	63.4	57.2	62.9	67.7
	Weighted N =	*1,620*	*420*	*345*	*245*	*199*
Female						
Yes, in the last 12 months		22.4	25.1	28.0	16.7	10.2
Yes, but not in the last 12 months		34.8	28.7	28.8	33.8	29.7
No, never		42.8	46.2	43.3	49.5	60.1
	Weighted N =	*2,330*	*451*	*381*	*259*	*288*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

Chapter 8

INTERSECTION OF RISK AND PROTECTIVE BEHAVIORS

It is useful to know whether people who are at greatest risk of contracting or transmitting HIV are more likely than others to practice protective behaviors in order to compensate for their heightened risk. In this chapter we examine the frequency of condom use as a function of three known risk factors (1) the number of sex partners the respondent reported having in the prior 12 months, (2) the gender of those partners, and (3) a history of sharing needles. We also look at the prevalence of getting tested for HIV/AIDS as a function of those same three risk factors.

Frequency of Condom Use Related to Number of Partners

- Among sexually active young adults, both the prevalence and frequency of condom use rise with the number of sexual partners the respondent had in the last 12 months; this holds true for both genders (Table 9a). The *prevalence* of using a condom at least once in the prior 12 months rises from 50% among those having only one partner to 79% for those having two partners, to 87% for those having three or four partners, and to 89% among those reporting five or more partners. The prevalence is slightly higher among males than females (Table 9a).

- The results regarding *frequency* are less encouraging. Only about one third (33%) of sexually active young adults said that they used a condom "most times" or "always"—37% of males and 29% of females (Table 6a). It is encouraging, however, that this statistic rises considerably for both genders with the number of partners reported (Table 9a).

- As might be expected, many of the young adults not using condoms are respondents who had only one partner during the year (Table 9a). Among those reporting only one partner (who comprise the great majority of all respondents), 50% said they did *not* use condoms at all in the last 12 months. *In sum, use of condoms, which help prevent exposure to and transmission of HIV (and many other sexually transmitted diseases), is considerably more prevalent among young adults who are at heightened risk due to the number of sexual partners they have. That is the encouraging part of this finding. However, only 53% of those reporting five or more sexual partners in the last 12 months also report using condoms "most times" or "always," leaving a considerable portion of this population at risk.*

- Compared to young adults age 21-30, a lower proportion of 35- and 40-year-olds report having multiple partners, but there is a similar increase in the prevalence and frequency of condom use as a function of the number of sexual partners reported (Tables 9b and 9c).

- The prevalence of condom use declines sharply with increasing age, very likely a result of more respondents being married or in another committed relationship at these later ages. Among 35- and 40-year-olds, the case counts become quite low for people reporting a relatively high number of partners.

Frequency of Condom Use Related to Gender of Partners

- Extensive efforts have been made in past years to encourage the use of condoms by men who have sex with men (MSM), in an attempt to stem the spread of HIV/AIDS in this high-risk population. While the numbers of such cases available for analysis so far are quite limited (among the 21- to 30-year olds, the weighted *N* is 399 who report having sex with men exclusively), results suggest that the use of condoms in among men having sex exclusively with men (39% reporting "most times" or "always") is only slightly higher than in the population of men reporting sex exclusively with women (37% reporting "most times" or "always", n.s.) in the last 12 months. Similar proportions of both of these groups (39% and 36%, respectively, n.s.) report never using condoms (Table 10a). (The rate of condom use among men having sex only with women is likely suppressed some by the proportion trying to conceive a child.) *Thus among young adult men who have sex exclusively with men there seems to be rather little attempt to compensate for their considerably higher degree of risk. Fortunately, among young adult males who have had sex with both genders in the prior 12 months, there do appear to be higher prevalence (almost 80%) and higher frequency (39% saying most times or always) of condom use than are found in either of the other two groups of men. If true, this should help to reduce the transmission of the disease across genders.*

- By way of contrast, among 35- and 40-year-olds, the prevalence and frequency of condom use among man having sex exclusively with men do appear to be higher than among men the same age who have sex only with women, although the case counts for men who have sex with men exclusively are still quite low in those age groups (Tables 10b and 10c).

- As would be expected, the great majority of young adult women who had sex exclusively with women in the last 12 months report *not* using condoms during the prior year (83%) vs. 44% of those having sex exclusively with men. Among women reporting having sex with both genders during the year, only 25% report no use of condoms in the past 12 months, and they report the highest rate of using condoms "most times" or "always" of the three female groups, though still only 47% report using condoms that frequently.

- The case counts are still too small for 35- and 40-year-olds to make these comparisons among the female respondents (Tables 10b and 10c).

Frequency of Condom Use Related to Needle Sharing

- The association between needle sharing and condom use is not very clear; there is a suggestion that those who reported some sharing in their lifetime may be less likely to have used condoms most times or always when they had sexual intercourse in the last 12 months. Given that condom use is dependent on a variety of factors such as gender, gender of partners, number of partners, marital status, etc., it is difficult to draw clear inferences from the association with needle sharing, particularly given the small numbers of cases to date, even among the young adults (Table 11).

- There are too few cases for needle-sharing among 35- and 40-year-olds to report on differences in condom use, so no tables are provided.

Getting Tested for HIV Related to Number of Partners

- Among young adults, the prevalence of getting tested for HIV rises with the number of partners reported in the last 12 months (Table 12a). While only 6.2% of those reporting no partners in the last 12 months say that they have been tested in the last 12 months, the rate rises to 19% of those reporting one partner, 30% for those reporting two partners, and up to 39% for those reporting five or more partners.

- The proportion of young adults getting the results of their tests is very high in all groups, but a bit higher among those with multiple sexual partners. (Table 12a).

- *It thus appears that those young adults at increased risk because of the number of sexual partners they have are more likely to exhibit the protective behaviors of getting tested and securing the results of the test. However, about two thirds of those reporting multiple partners did not have an HIV test in the last 12 months (Table 12a).*

- Among the 35-year-olds and 40-year-olds, the proportion getting tested also rises with the number of partners in the last 12 months; the prevalence rates are about the same as among the young adults (Tables 12b and 12c).

Getting Tested for HIV Related to Gender of Partners

- Because men who have sex with men are at particular risk for contracting and transmitting HIV, we examined if HIV testing was more prevalent among those reporting sex exclusively with men in the past year (Table 13a). While the number of young adult cases of men who have sex exclusively with men is limited (403 weighted cases), *the results are suggestive of increased vigilance in this population. Two thirds (67%) of males having exclusively male partners in the last 12 months indicated being tested for HIV at some time, and about four in every ten (40%) said that they had been tested in just the*

past year. These rates compare to 38% and 17%, respectively, among men who had female partners exclusively during the past year. Hardly any (2%) of the males reporting relations exclusively with other men in the past year said that they failed to get the results of their most recent test, versus 8% of those who had only female partners.

- Similar differences appear among 35-year-old men (Table 13b), though the case counts are very limited and thus the results are only suggestive at this point.

Getting Tested for HIV Related to Needle Sharing

- Young adults who have shared needles in their lifetime are considerably more likely to report having been tested for HIV both in their lifetime and in the last 12 months, compared with those who have never shared needles. Those who have shared needles in the past year are also significantly more likely to report getting tested for HIV during the last 12 months than those who did not share needles during the last 12 months (Table 14).

Thus, those who have shared needles—one of the highest risk groups for HIV infection—are among the most likely to exhibit the protective behavior of getting tested for HIV; but they may be less likely to use condoms than those who have not shared needles. Men having sex exclusively with men—another very high risk group —use condoms at about the same rate as men having sex exclusively with women; however, they do get tested for HIV/AIDS more frequently. Fortunately, another risk group-- those having multiple sex partners-- are more likely to engage in both of these protective behaviors (wearing condoms and getting tested).

TABLE 9a

Condom Use by Number of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b]	Number of Partners in Last 12 Months				
	None	One	Two	Three or Four	Five or More
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)					
Total					
Never	—	50.3	21.5	13.4	10.9
Seldom	—	13.1	16.8	16.4	14.2
Sometimes	—	10.3	17.1	18.9	22.3
Most times	—	9.4	20.9	31.6	36.0
Always	—	16.9	23.8	19.7	16.7
Weighted N =	—	*14,114*	*2,278*	*2,206*	*1,222*
Male					
Never	—	46.1	18.2	13.2	10.7
Seldom	—	13.4	15.0	15.4	13.0
Sometimes	—	11.0	15.5	17.9	21.3
Most times	—	10.6	21.8	30.2	36.0
Always	—	18.9	29.6	23.3	19.0
Weighted N =	—	*6,123*	*1,029*	*1,146*	*814*
Female					
Never	—	53.5	24.2	13.7	11.3
Seldom	—	12.9	18.2	17.5	16.7
Sometimes	—	9.7	18.4	20.0	24.2
Most times	—	8.5	20.2	33.0	35.9
Always	—	15.4	19.0	15.7	12.0
Weighted N =	—	*7,991*	*1,248*	*1,059*	*409*

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

Notes. ' — ' indicates not applicable.

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 9b

Condom Use by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*	Number of Partners in Last 12 Months				
	None	One	Two	Three or Four	Five or More
Total					
Never	—	71.7	32.9	25.1	14.2
Seldom	—	7.4	15.7	12.5	18.2
Sometimes	—	7.1	16.6	17.2	16.2
Most times	—	5.7	16.7	26.6	36.9
Always	—	8.2	18.1	18.6	14.5
Weighted N =	—	*4,492*	*277*	*268*	*139*
Males					
Never	—	68.5	35.6	20.4	12.1
Seldom	—	8.6	16.1	13.6	18.9
Sometimes	—	7.9	18.6	16.3	16.9
Most times	—	6.7	9.8	29.3	36.5
Always	—	8.2	19.8	20.4	15.6
Weighted N =	—	*2,084*	*123*	*154*	*100*
Females					
Never	—	74.5	30.8	31.4	19.5
Seldom	—	6.3	15.3	11.1	16.6
Sometimes	—	6.3	15.0	18.4	14.4
Most times	—	4.7	22.2	23.0	38.0
Always	—	8.2	16.7	16.1	11.5
Weighted N =	—	*2,408*	*154*	*114*	*39*

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

Notes. ' — ' indicates not applicable.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 9c

Condom Use by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*	Number of Partners in Last 12 Months				
	None	One	Two	Three or Four	Five or More
Total					
Never	—	79.5	47.0	32.7	20.9
Seldom	—	4.2	12.5	19.5	8.5
Sometimes	—	4.5	12.8	21.4	20.5
Most times	—	4.4	10.9	16.1	36.4
Always	—	7.3	16.8	10.3	13.8
Weighted N =	—	*3,412*	*220*	*158*	*99*
Males					
Never	—	78.3	45.4	28.2	17.7
Seldom	—	4.4	15.1	21.8	8.7
Sometimes	—	5.5	9.8	19.3	20.7
Most times	—	4.6	9.0	15.5	36.0
Always	—	7.2	20.7	15.2	17.0
Weighted N =	—	*1,661*	*103*	*100*	*80*
Females					
Never	—	80.6	48.4	40.4	34.6
Seldom	—	4.1	10.2	15.5	7.2
Sometimes	—	3.6	15.5	25.1	19.8
Most times	—	4.3	12.6	17.0	38.3
Always	—	7.4	13.4	2.0	*
Weighted N =	—	*1,751*	*117*	*58*	*19*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a] The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 10a

Condom Use by Gender of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Frequency of Condom Use in Last 12 Months [b]						
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)						
Never	35.6	39.2	21.4	44.1	82.8	24.5
Seldom	13.9	9.5	15.9	14.3	5.0	11.7
Sometimes	13.3	12.1	14.1	12.4	3.2	16.5
Most times	16.4	18.6	28.8	13.3	3.2	25.5
Always	20.7	20.6	19.8	15.8	5.8	21.8
Weighted N =	*8,642*	*399*	*82*	*10,287*	*227*	*202*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 10b

Condom Use by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*						
Never	62.4	41.6	†	69.6	†	†
Seldom	9.7	9.1	†	7.3	†	†
Sometimes	9.2	9.3	†	7.4	†	†
Most times	9.0	24.5	†	6.9	†	†
Always	9.7	15.5	†	8.8	†	†
Weighted N =	*2,358*	*84*	*16*	*2,641*	*51*	*21*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 10c

Condom Use by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Frequency of Condom Use in Last 12 Months [b] *When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)*						
Never	72.5	51.3	†	77.0	†	†
Seldom	5.8	10.1	†	5.0	†	†
Sometimes	7.1	9.0	†	5.2	†	†
Most times	6.3	18.4	†	5.4	†	†
Always	8.3	11.2	†	7.5	†	†
Weighted N =	*1,853*	*80*	*11*	*1,890*	*35*	*19*

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

Notes '†' indicates that the sample size is too limited to provide reliable estimates.

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b]Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 11

Condom Use by Needle Sharing

among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months [b]	Needle Sharing: Yes, in Last 12 Months	Needle Sharing: Yes, but not in Last 12 Months	Needle Sharing: No, Never
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)			
Never	29.9	48.3	40.5
Seldom	36.1	27.7	13.9
Sometimes	14.3	9.3	12.8
Most times	18.5	8.6	14.9
Always	1.2	6.0	18.0
Weighted N =	*31*	*61*	*19,655*

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

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b]Those respondents who report never having sex in the last 12 months are excluded from these percentages.

TABLE 12a
Test for HIV, Lifetime and Last 12 Months by Number of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
Test for HIV: Lifetime and Last 12 Months	None	One	Two	Three or Four	Five or More
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)					
Yes, in the last 12 months	6.2	19.4	29.8	33.5	38.5
Yes, but not in the last 12 months	10.1	25.9	21.3	20.9	19.8
No, never	83.7	54.7	48.9	45.6	41.8
Weighted N =	*3,568*	*14,281*	*2,297*	*2,215*	*1,224*
Received HIV Test Results [b]					
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)					
Yes	89.7	93.5	91.7	93.3	96.2
No	10.3	6.5	8.3	6.7	3.8
Weighted N =	*567*	*6,400*	*1,159*	*1,198*	*697*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 12b

Test for HIV, Lifetime and Last 12 Months by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*	None	One	Two	Three or Four	Five or More
Yes, in the last 12 months	9.6	14.7	29.4	32.7	43.8
Yes, but not in the last 12 months	24.7	40.7	39.5	36.7	34.8
No, never	65.7	44.7	31.1	30.7	21.5
Weighted N =	*543*	*4,527*	*279*	*268*	*138*
Received HIV Test Results [b] *Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)*					
Yes	92.9	94.2	94.8	96.6	90.8
No	7.1	5.8	5.2	3.4	9.2
Weighted N =	*177*	*2,465*	*192*	*184*	*107*

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

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 12c

Test for HIV, Lifetime and Last 12 Months by Number of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
Test for HIV: Lifetime and Last 12 Months *Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)*	None	One	Two	Three or Four	Five or More
Yes, in the last 12 months	7.6	9.6	26.0	34.2	36.4
Yes, but not in the last 12 months	32.9	43.5	45.5	40.4	36.9
No, never	59.6	46.9	28.5	25.4	26.7
Weighted N =	*460*	*3,447*	*219*	*160*	*98*
Received HIV Test Results [b] *Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)*					
Yes	91.5	93.8	86.8	92.9	97.0
No	8.5	6.2	13.2	7.1	3.0
Weighted N =	*183*	*1,791*	*153*	*118*	*68*

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

[a]The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 13a

Test for HIV, Lifetime and Last 12 Months by Gender of Sex Partners in Last 12 Months among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Test for HIV: Lifetime and Last 12 Months						
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)						
Yes, in the last 12 months	16.8	39.7	32.5	27.5	25.8	45.1
Yes, but not in the last 12 months	21.3	25.9	18.6	27.0	22.9	26.1
No, never	61.8	34.4	48.9	45.5	51.2	28.8
Weighted N =	*8,693*	*403*	*82*	*10,373*	*241*	*205*
Received HIV Test Results [b]						
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)						
Yes	92.1	98.1	83.3	94.1	92.7	95.0
No	7.9	1.9	16.7	5.9	7.3	5.0
Weighted N =	*3,280*	*259*	*40*	*5,598*	*118*	*142*

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

[a] In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

[b] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 13b

Test for HIV, Lifetime and Last 12 Months by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 35 in 2008–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Test for HIV: Lifetime and Last 12 Months						
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)						
Yes, in the last 12 months	12.9	42.8	†	19.7	25.7	†
Yes, but not in the last 12 months	35.6	42.2	†	44.2	44.0	†
No, never	51.4	15.0	†	36.1	30.3	†
Weighted N =	*2,364*	*87*	*16*	*2,643*	*55*	*21*
Received HIV Test Results [b]						
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)						
Yes	91.2	96.6	†	96.1	97.9	†
No	8.8	3.4	†	3.9	2.1	†
Weighted N =	*1,127*	*74*	*11*	*1,669*	*38*	*17*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates. ' * ' indicates a prevalence rate of less than 0.05%.

[a] In 2008, the HIV questions were added to one half of the questionnaires administered to the 35-year-old respondents. In 2009 and after, these questions were included in all questionnaires for this group.

[b] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 13c

Test for HIV, Lifetime and Last 12 Months by Gender of Sex Partners in Last 12 Months among Respondents of Modal Age 40 in 2010–2014 [a] Combined

(Entries are percentages.)

	MALE RESPONDENTS			FEMALE RESPONDENTS		
	Gender of Partner(s)			Gender of Partner(s)		
	Female Only	Male Only	Male and Female	Male Only	Female Only	Male and Female
Test for HIV: Lifetime and Last 12 Months						
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)						
Yes, in the last 12 months	11.7	47.2	†	10.9	†	†
Yes, but not in the last 12 months	36.1	31.8	†	50.8	†	†
No, never	52.2	21.0	†	38.3	†	†
Weighted N =	*1,856*	*82*	*11*	*1,893*	*37*	*19*
Received HIV Test Results [b]						
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)						
Yes	90.9	97.5	†	94.9	†	†
No	9.1	2.5	†	5.1	†	†
Weighted N =	*870*	*65*	*8*	*1,140*	*21*	*12*

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

Notes. ' † ' indicates that the sample size is too limited to provide reliable estimates.

[a] The HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

[b] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 14

Testing for HIV by Needle Sharing

among Respondents of Modal Ages 21–30 in 2004–2014 [a] Combined

(Entries are percentages.)

	Needle Sharing		
Test for HIV: Lifetime and Last 12 Months			
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)	Yes, in the last 12 months	Yes, but not in the last 12 months	No, never
Yes, in the last 12 months	42.0	40.0	20.6
Yes, but not in the last 12 months	18.6	39.2	22.2
No, never	39.4	20.8	57.2
Weighted N =	*34*	*71*	*23,410*

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

[a]In 2004–2006, the HIV questions were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

Chapter 9

TRENDS IN THE PREVALENCE AND FREQUENCY OF RISK BEHAVIORS

We believe there is considerable value in tracking *change* in the prevalence of the various risk and protective behaviors related to the spread of HIV. Ongoing data collections allow us to monitor the prevalence and frequency of these behaviors over time. While the numbers of cases available remain limited for estimating the intersection of behaviors like needle sharing and men having sex with men, continuing data collection will provide more in-depth consideration of these important subgroups and correlates.

The 2014 MTF data collection is the eleventh to include the set of questions on HIV risk and protective behaviors among young adults ages 21 to 30. We present the trend data in this chapter and the next using two-year moving averages in order to smooth the trend estimates and reduce fluctuations due primarily to sampling error. This is done by taking an arithmetic average of (a) the results for the year labeled at the top of each column in Tables 15 and 16, and (b) the results from the prior year.[1] Rather little change in ***any of the risk behaviors*** under study from 2005 to 2014 is seen among young adults ages 21–30 (Tables 15a, 16a, and top panels of Figures 1a, b, c through 5a, b, c). Indeed, the level of replication of the results is very high, which serves as evidence of the reliability of these estimates. These points are elaborated below.

Injection drug use

- The prevalence of past-year injection drug use (Figure 2 and Table 15a) and lifetime ***needle sharing*** show little systematic change over the interval 2005–2014 among 21- to 30-year-olds. Among young adult males lifetime injection drug use (Figure 1) did show some evidence of a peak around 2008. The prevalence of both of these behaviors has consistently been quite low in this population drawn from high school graduates.

- Among 35- and 40-year-olds the trend lines are less smooth, most likely because they are based on considerably fewer cases than the estimates for young adults (Table 15b and the lower panels in Figures 1–3).[2] Nonetheless, some evidence suggests there may have been changes in certain rates. *Among 35-year-olds, males showed an increase in the lifetime prevalence of injection*

[1] The annual sample size increased in 2007 due to the inclusion of this set of questions in an additional questionnaire form; but the 2006 and 2007 data are weighted equally in calculating the two-year moving average for 2007.

[2] The numbers of cases that underlie the annual estimates for both age groups may be found in the trend tables (e.g., Tables 15a and 15b). They show that the estimates for young adults are based on 3,400 to 4,900 cases each year whereas the estimates for 35-year-olds are based on 1,400 to 1,900 cases, and the estimates for 40-year-olds are based on 1,700 to 1,800 cases.

drug use from 2.1% in 2011 to 3.6% in 2014 (n.s.). They also showed an increase in the frequency of use, with the percent reporting using 20 or more times in their lifetime rising from 0.5% in 2012 to 1.6% in 2014 (p< .05).

- The 40-year-old males and females showed rather little change in lifetime prevalence of injecting drugs between 2011, when data were first gathered on them, and 2014, though there is some evidence of a slight upward drift (Figure 1, lower panel). Annual injection prevalence has been very low in these two age groups, but higher among the 35-year-old males than among the other three groups (Figure 2 and Tables 15b, c). Thirty-five-year-old females did not show much change in their lifetime prevalence of injection drug use between 2011 and 2014 but they did show some increase in frequency of using 40 or more times, from 0.1% in 2009 through 2011 to 0.3% from 2012 through 2014. However, while one or more of these differences among the 35-year-olds may be real, none of them reached statistical significance.

Needle sharing

- Among young adults the rates of lifetime needle sharing were consistently very low during the 2005 to 2014 interval, and were even lower among females in 2013 and 2014 (n.s.) (Figure 3 and Table 15a). The past year rates of needle sharing were quite flat across the entire interval, ranging from 0.2% to 0.4% for all young adults. Among the 35- and 40-year-olds lifetime needle sharing is under 1.0% for both genders in all years, though there is some evidence of a rise among 35-year old males from 2009-2011 and among 40-year-old males and females from 2011-2013 (Figure 3, Tables 15b, c).

Number of sex partners

- In Table 16a and Figure 4 young adult males show little or no change over the interval 2005–2014 in the prevalence of having more than one sex partner in the prior year; but the percent of young adult females reporting multiple partners in the prior year has risen slightly, from 20.9% in 2011 to 22.1% in 2014 (a non-significant difference). Interestingly, this has been occurring at much the same time that the percent of young adult females reporting *zero* partners has risen from 12.8% in 2008 to 14.8% in 2014 (p< .05), as the proportion reporting just one partner has fallen a bit. The general shift from one partner to zero partners can be observed in the data for both genders (see Table 16a.)

- Among 35-year-olds (Table 16b and Figure 4, lower panel) there is rather little evidence of systematic change**.** Each year, over 75% of 35-year-old males report having only one partner in the year and over 79% of the females—higher proportions than among young adults. And in the five years shown, only 10%–12% of all 35-year-olds indicated that they had multiple partners and under 11% of the 40-year-olds, compared with about 24% among the young adults. Thus, this risk factor clearly declines with age.

Gender of sex partners

- The proportions of young adult respondents reporting sex with partners of the same gender during the prior year have been quite stable over time (Table 16a and Figure 5). Each year between 3.9% and 5.0% of the men indicated having sex exclusively with other men. Among women, between 1.8% and 2.5% indicated having sex exclusively with other women (although this practice by females is not a risk behavior for HIV transmission).

- Among 35-year-olds, compared to young adults, the rates of exclusively same-gender sex are slightly lower for males (between 2.9% and 3.8%) but about the same for females (between 1.3% and 2.8%). Figure 5 suggests that there has been little systematic change among 35-year-olds over the five-year interval studied; and the same is true for the 40-year-olds (Tables 16a and b, and Figure 5).

- To summarize, in the young adult population (ages 21–30) and among 35- and 40-year-olds there has been considerable stability in recent years in the major risk behaviors under study here—drug injecting, sharing needles, having multiple sex partners, and men having sex with men. An exception is a possible upward drift in recent years in drug injecting and needle sharing among 35- and 40-year-olds (see Figures 1 and 2). Thirty-five-year-old males have shown some increase in both prevalence and frequency of injecting drugs, quite possibly reflecting the resurgence in heroin use in recent years among this age group (CDC, 2015). One seemingly contradictory finding regarding number of sex partners in the prior year is that among young adult females there has been a slight rise in the number of partners reported while there also has been a slight increase in the proportion reporting having no partners during the year. These two trends would likely have offsetting effects on the risk of HIV/AIDS transmission.

References

Centers for Disease Control and Prevention. (2015). *Today's heroin epidemic*. Available at http://www.cdc.gov/vitalsigns/heroin/.

TABLE 15a

Trends [a] in Injection Drug Use and Needle Sharing

Total and by Gender among Respondents of Modal Ages 21–30

(Entries are percentages.)

	Total											Male											Female										
Lifetime Frequency of Injecting Drugs	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.																																	
0 Occasions	—	98.5	98.5	98.3	98.2	98.4	98.5	98.4	98.4	98.5	98.6	—	97.9	97.7	97.4	97.3	97.5	97.9	97.6	97.7	97.8	98.1	—	99.1	99.2	99.0	99.1	99.1	99.0	99.0	99.1	99.0	99.1
1–2	—	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.2	—	0.6	0.6	0.7	0.7	0.8	0.5	0.4	0.4	0.6	0.4	—	0.3	0.5	0.5	0.3	0.3	0.4	0.4	0.3	0.3	0.1
3–5	—	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	—	0.2	0.3	0.5	0.5	0.4	0.3	0.3	0.4	0.3	0.2	—	0.2	0.1	0.1	0.1	0.1	0.1	0.1	*	*	0.2
6–9	—	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	*	0.1	—	0.1	0.3	0.4	0.3	0.2	0.3	0.4	0.1	*	*	—	*	*	*	*	*	0.1	0.1	*	*	0.1
10–19	—	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	—	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.2	—	*	*	0.1	0.1	0.1	*	*	*	0.2	0.1
20–39	—	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	—	0.2	0.2	0.3	0.4	0.3	0.1	0.3	0.3	0.2	0.1	—	*	*	*	0.1	0.1	*	*	*	*	*
40+ Occasions	—	0.4	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.6	—	0.5	0.5	0.4	0.4	0.6	0.6	0.8	0.9	0.9	0.9	—	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.4	0.3
Weighted N =	—	*3,643*	*3,441*	*4,076*	*4,856*	*4,838*	*4,765*	*4,634*	*4,523*	*4,392*	*4,245*	—	*1,727*	*1,615*	*1,904*	*2,282*	*2,296*	*2,255*	*2,160*	*2,109*	*2,032*	*1,956*	—	*1,916*	*1,826*	*2,172*	*2,574*	*2,542*	*2,511*	*2,474*	*2,414*	*2,360*	*2,289*
Annual Frequency of Injecting Drugs																																	
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.																																	
0 Occasions	—	99.5	99.6	99.6	99.5	99.5	99.5	99.5	99.5	99.4	99.4	—	99.2	99.3	99.2	99.3	99.3	99.3	99.2	99.2	99.2	99.1	—	99.7	99.9	99.8	99.7	99.7	99.7	99.7	99.7	99.7	99.6
1–2	—	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	—	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	—	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
3–5	—	*	0.1	*	*	0.1	0.1	0.1	0.1	*	0.1	—	*	0.1	0.1	*	0.1	0.2	0.2	0.1	0.1	0.2	—	*	*	*	*	*	*	*	*	*	*
6–9	—	*	0.1	0.1	0.2	0.1	*	*	0.1	0.1	0.1	—	*	0.1	0.2	0.3	0.2	*	*	0.1	0.1	*	—	*	*	*	*	*	*	*	*	0.1	0.1
10–19	—	0.1	0.1	0.1	0.1	*	*	*	*	*	*	—	0.2	0.2	0.1	0.1	*	*	0.1	0.1	*	*	—	*	*	*	*	*	*	*	*	*	*
20–39	—	*	*	*	0.1	0.1	0.1	0.1	*	*	*	—	0.1	*	*	0.1	0.2	0.2	0.1	0.1	0.1	*	—	*	*	*	0.1	0.1	*	*	*	*	*
40+ Occasions	—	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	—	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.5	—	0.2	0.1	*	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Weighted N =	—	*3,644*	*3,441*	*4,077*	*4,857*	*4,839*	*4,767*	*4,639*	*4,528*	*4,393*	*4,246*	—	*1,727*	*1,615*	*1,905*	*2,282*	*2,296*	*2,256*	*2,163*	*2,111*	*2,033*	*1,956*	—	*1,917*	*1,826*	*2,172*	*2,575*	*2,543*	*2,511*	*2,476*	*2,417*	*2,360*	*2,289*
Lifetime and Annual Needle Sharing																																	
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?																																	
Yes, in the last 12 months	—	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	—	0.1	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.3	0.3	—	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Yes, but not in the last 12 months	—	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.2	—	0.3	0.4	0.3	0.4	0.3	0.3	0.5	0.4	0.4	0.3	—	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.1
No, never	—	99.7	99.5	99.5	99.5	99.5	99.6	99.4	99.5	99.5	99.6	—	99.6	99.4	99.4	99.5	99.5	99.5	99.4	99.4	99.4	99.5	—	99.7	99.6	99.6	99.5	99.6	99.6	99.5	99.5	99.7	99.8
Weighted N =	—	*3,610*	*3,387*	*4,032*	*4,823*	*4,802*	*4,731*	*4,597*	*4,488*	*4,357*	*4,217*	—	*1,708*	*1,582*	*1,888*	*2,271*	*2,275*	*2,238*	*2,141*	*2,088*	*2,014*	*1,941*	—	*1,902*	*1,805*	*2,144*	*2,552*	*2,527*	*2,492*	*2,456*	*2,399*	*2,343*	*2,276*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2005 data is 2004 and 2005 combined and so forth. The questions were contained in two questionnaire forms in 2004 through 2006 and three forms beginning in 2007.

TABLE 15b

Trends [a] in Injection Drug Use and Needle Sharing

Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

	Total							Male							Female						
Lifetime Frequency of Injecting Drugs	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.																					
0 Occasions	—	98.7	98.4	98.5	98.4	97.6	97.8	—	97.9	97.6	97.9	97.7	96.2	96.4	—	99.6	99.2	98.9	99.0	98.9	99.1
1–2	—	0.8	0.8	0.5	0.6	0.8	0.6	—	1.4	1.1	0.3	0.9	1.3	0.7	—	0.3	0.6	0.7	0.3	0.5	0.5
3–5	—	0.1	0.1	0.2	0.2	0.2	0.1	—	0.2	0.2	0.3	0.2	0.2	0.2	—	*	*	0.2	0.3	0.1	*
6–9	—	*	0.1	0.1	0.1	0.2	0.2	—	0.1	0.2	0.1	0.0	0.4	0.4	—	*	*	*	0.1	0.1	*
10–19	—	*	0.1	0.3	0.3	0.3	0.3	—	*	0.1	0.5	0.7	0.7	0.7	—	*	0.1	0.1	*	*	*
20–39	—	0.1	0.1	0.1	*	0.2	0.2	—	0.2	0.2	0.1	*	0.3	0.4	—	*	*	*	0.1	0.1	*
40+ Occasions	—	0.2	0.4	0.4	0.4	0.6	0.7	—	0.3	0.7	0.7	0.5	1.0	1.2	—	0.1	0.1	0.1	0.3	0.3	0.3
Weighted N =	—	*1,453*	*1,908*	*1,796*	*1,770*	*1,750*	*1,648*	—	*711*	*923*	*843*	*824*	*819*	*774*	—	*742*	*985*	*954*	*946*	*932*	*874*
Annual Frequency of Injecting Drugs																					
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.																					
0 Occasions	—	99.8	99.6	99.6	99.7	99.5	99.3	—	99.7	99.4	99.1	99.6	99.2	98.9	—	99.9	99.8	99.9	99.9	99.7	99.7
1–2	—	0.1	0.1	0.1	*	*	*	—	0.1	0.1	0.1	*	*	*	—	*	*	*	*	*	*
3–5	—	*	*	*	*	0.1	0.1	—	*	*	*	*	0.2	0.2	—	*	0.1	0.1	*	*	*
6–9	—	*	0.1	0.2	0.2	0.1	0.2	—	*	0.2	0.5	0.4	0.2	0.3	—	*	*	*	*	*	*
10–19	—	*	*	*	*	0.0	0.1	—	*	*	*	*	0.1	0.1	—	*	*	*	*	*	*
20–39	—	*	0.1	0.1	0.1	0.1	*	—	*	0.1	0.1	*	*	*	—	*	*	*	0.1	0.1	0.1
40+ Occasions	—	0.1	0.1	*	*	0.2	0.3	—	0.1	0.2	0.1	*	0.2	0.5	—	0.1	0.1	*	*	0.1	0.2
Weighted N =	—	*1,453*	*1,909*	*1,797*	*1,772*	*1,753*	*1,649*	—	*711*	*923*	*843*	*825*	*821*	*775*	—	*743*	*986*	*954*	*947*	*932*	*874*
Lifetime and Annual Needle Sharing																					
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?																					
Yes, in the last 12 months	—	*	0.1	*	*	*	0.1	—	*	*	*	*	*	*	—	0.1	0.1	0.1	*	*	0.1
Yes, but not in the last 12 months	—	0.1	0.2	0.4	0.4	0.4	0.4	—	0.1	0.3	0.7	0.7	0.4	0.4	—	*	0.1	0.1	0.1	0.3	0.4
No, never	—	99.9	99.7	99.6	99.6	99.6	99.6	—	99.9	99.7	99.3	99.3	99.5	99.6	—	99.9	99.8	99.8	99.9	99.7	99.6
Weighted N =	—	*1,455*	*1,911*	*1,790*	*1,763*	*1,749*	*1,647*	—	*711*	*924*	*841*	*822*	*818*	*773*	—	*744*	*987*	*949*	*941*	*931*	*874*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2009 data is 2008 and 2009 combined and so forth. The questions were contained in three of the six questionnaire forms.

TABLE 15c

Trends [a] in Injection Drug Use and Needle Sharing

Total and by Gender among Respondents of Modal Age 40

(Entries are percentages.)

	Total				Males				Females			
Lifetime Frequency of Injecting Drugs	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) in your lifetime? Do not include anything you took under a doctor's orders.												
0 Occasions	98.7	98.5	98.3	98.4	98.1	97.9	97.7	97.9	99.3	99.1	99.0	98.9
1–2	0.7	0.5	0.5	0.8	0.9	0.6	0.5	0.8	0.4	0.4	0.5	0.8
3–5	0.2	0.3	0.3	0.1	0.2	0.5	0.5	0.2	0.2	0.1	0.1	0.1
6–9	0.2	0.1	0.0	0.0	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10–19	0.1	0.1	0.3	0.2	0.1	0.2	0.5	0.4	0.0	0.0	0.1	0.0
20–39	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0
40+ Occasions	0.1	0.5	0.5	0.4	0.1	0.7	0.7	0.6	0.1	0.3	0.2	0.2
Weighted N =	*1813*	*1719*	*1693*	*1752*	*873*	*856*	*850*	*869*	*940*	*864*	*843*	*883*
Annual Frequency of Injecting Drugs												
On how many occasions (if any) have you taken any drugs by injection with a needle (like heroin, cocaine, amphetamines, or steroids) during the last 12 months? Do not include anything you took under a doctor's orders.												
0 Occasions	99.9	99.8	99.7	99.7	99.8	99.6	99.4	99.5	100.0	100.0	100.0	99.9
1–2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3–5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6–9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10–19	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0
20–39	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0
40+ Occasions	0.0	0.1	0.2	0.1	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.1
Weighted N =	*1814*	*1720*	*1693*	*1752*	*874*	*857*	*850*	*869*	*940*	*864*	*843*	*883*
Lifetime and Annual Needle Sharing												
Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?												
Yes, in the last 12 months	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yes, but not in the last 12 months	0.1	0.3	0.6	0.4	0.2	0.4	0.7	0.5	0.1	0.3	0.5	0.3
No, never	99.9	99.7	99.4	99.6	99.9	99.6	99.3	99.5	99.9	99.7	99.5	99.7
Weighted N =	*1811*	*1718*	*1685*	*1747*	*873*	*857*	*852*	*870*	*939*	*861*	*833*	*877*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

TABLE 16a

Trends [a] in Number of Sex Partners and Gender of Sex Partners

Total and by Gender among Respondents of Modal Ages 21–30

(Entries are percentages.)

	Total											Male											Female										
Number of Partners in Last 12 Months *During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)*	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
None	—	14.5	14.6	13.7	13.5	14.1	14.8	16.0	16.6	16.8	17.2	—	16.9	16.6	14.7	14.3	14.6	15.6	17.6	19.1	19.5	20.0	—	12.3	12.8	12.7	12.8	13.6	14.0	14.7	14.5	14.4	14.8
One	—	61.2	61.5	61.9	62.2	61.2	60.6	59.9	59.1	58.9	59.1	—	56.3	56.2	57.0	58.6	57.6	55.8	54.7	54.6	54.5	54.6	—	65.6	66.1	66.2	65.3	64.5	64.9	64.4	62.9	62.7	63.1
Two	—	10.1	9.3	9.5	9.4	9.2	9.9	10.0	9.7	9.8	9.7	—	10.1	8.7	8.9	8.8	9.3	10.3	9.6	8.6	9.1	9.3	—	10.2	9.8	10.1	10.0	9.2	9.5	10.4	10.8	10.5	10.1
Three	—	5.9	6.2	5.8	5.9	5.9	5.9	5.2	4.9	5.6	5.8	—	6.1	7.5	7.2	6.4	6.1	6.4	5.9	5.2	5.5	6.2	—	5.6	5.1	4.5	5.4	5.8	5.5	4.6	4.7	5.7	5.5
Four	—	3.2	3.4	4.0	4.1	4.1	3.3	3.5	4.0	3.8	3.7	—	3.5	4.3	4.8	4.4	4.7	3.8	4.4	5.0	4.2	3.7	—	2.9	2.6	3.3	3.7	3.5	2.9	2.8	3.2	3.5	3.7
5–10	—	3.9	4.1	4.2	4.0	4.3	4.5	4.2	4.4	4.1	3.6	—	5.2	5.3	5.8	5.5	5.8	6.4	6.0	5.6	5.5	5.0	—	2.7	3.0	2.8	2.6	3.0	2.7	2.6	3.4	2.8	2.5
11–20	—	0.9	0.7	0.6	0.7	0.8	0.6	0.7	0.9	0.7	0.4	—	1.5	0.9	0.9	1.3	1.3	0.8	0.9	1.3	1.2	0.6	—	0.4	0.5	0.4	0.2	0.3	0.3	0.5	0.5	0.3	0.3
21–100	—	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	—	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.6	0.5	0.5	—	0.1	*	*	0.1	0.2	0.2	0.1	0.1	0.1	0.0
More than 100	—	0.1	0.2	0.1	0.1	0.2	0.2	0.1	*	0.1	0.1	—	0.1	0.2	0.1	0.2	0.4	0.4	0.2	*	0.1	0.1	—	0.1	0.1	*	*	*	*	*	*	*	*
Weighted N =	—	*3,628*	*3,432*	*4,066*	*4,844*	*4,829*	*4,758*	*4,630*	*4,519*	*4,378*	*4,241*	—	*1,720*	*1,611*	*1,902*	*2,276*	*2,289*	*2,248*	*2,156*	*2,104*	*2,026*	*1,959*	—	*1,908*	*1,821*	*2,163*	*2,568*	*2,540*	*2,510*	*2,474*	*2,415*	*2,352*	*2,282*
Gender of Partners in Last 12 Months [b] *During the LAST 12 MONTHS, have your sex partner or partners been …*																																	
Exclusively male?	—	53.4	54.0	54.0	53.4	52.7	52.9	54.0	54.5	54.9	55.0	—	3.9	4.3	4.6	4.1	4.2	3.9	4.6	5.0	4.5	4.7	—	95.8	96.0	96.3	96.4	96.3	96.0	95.6	95.4	95.6	95.4
Both male and female?	—	1.5	1.4	1.4	1.3	1.4	1.4	1.4	1.6	1.4	1.5	—	1.0	0.8	1.0	0.9	0.9	0.8	0.7	0.9	0.8	0.9	—	1.9	1.9	1.7	1.7	1.9	1.8	2.0	2.2	1.9	2.0
Exclusively female?	—	45.1	44.6	44.6	45.3	45.8	45.7	44.6	43.8	43.7	43.5	—	95.0	94.9	94.4	95.0	94.9	95.3	94.7	94.1	94.8	94.5	—	2.3	2.1	2.0	1.9	1.8	2.2	2.4	2.4	2.5	2.7
Weighted N =	—	*3,103*	*2,935*	*3,504*	*4,180*	*4,142*	*4,051*	*3,886*	*3,763*	*3,642*	*3,505*	—	*1,432*	*1,344*	*1,616*	*1,950*	*1,959*	*1,896*	*1,777*	*1,702*	*1,626*	*1,560*	—	*1,672*	*1,590*	*1,888*	*2,230*	*2,184*	*2,155*	*2,108*	*2,061*	*2,015*	*1,945*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2005 data is 2004 and 2005 combined and so forth. The 2007 data is a simple average of 2006 and 2007, because these questions were included in two questionnaire forms in 2006 and three forms beginning in 2007.

[b]Based on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 16b

Trends [a] in Number of Sex Partners and Gender of Sex Partners

Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

Number of Partners in Last 12 Months	Total							Male							Female						
	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014
During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)																					
None	—	9.5	9.7	8.8	8.7	9.6	10.4	—	9.9	9.8	9.6	8.5	8.4	9.6	—	9.1	9.5	8.1	8.8	10.6	11.2
One	—	78.5	78.2	79.1	80.3	79.5	77.5	—	76.4	77.0	76.0	78.9	79.6	75.3	—	80.5	79.4	81.8	81.4	79.5	79.4
Two	—	4.9	5.1	4.4	4.3	5.0	5.2	—	4.9	4.3	4.1	3.8	4.4	5.6	—	4.9	5.8	4.8	4.8	5.6	4.9
Three	—	3.1	3.4	3.5	2.7	2.2	2.4	—	2.9	4.0	4.0	2.9	2.6	2.7	—	3.2	2.8	3.0	2.4	1.8	2.2
Four	—	1.6	1.6	2.0	2.1	1.6	1.5	—	1.9	2.0	3.3	3.2	2.0	2.1	—	1.3	1.3	0.8	1.1	1.3	1.0
5–10	—	1.6	1.3	1.5	1.4	1.6	2.3	—	2.5	1.8	2.0	1.6	2.2	3.6	—	0.8	0.9	1.0	1.1	1.0	1.2
11–20	—	0.5	0.3	0.3	0.3	0.3	0.4	—	1.0	0.6	0.3	0.3	0.5	0.7	—	0.1	0.1	0.2	0.2	0.1	0.1
21–100	—	0.2	0.3	0.3	0.4	0.2	0.2	—	0.3	0.4	0.5	0.7	0.4	0.3	—	*	0.2	0.2	0.1	0.1	0.1
More than 100	—	0.1	0.1	*	*	*	*	—	0.2	0.1	0.1	0.1	*	*	—	*	*	*	*	*	*
Weighted N =	—	*1,449*	*1,902*	*1,784*	*1,763*	*1,748*	*1,645*	—	*707*	*918*	*837*	*821*	*819*	*775*	—	*742*	*984*	*947*	*942*	*929*	*871*
Gender of Partners in Last 12 Months [b]																					
During the LAST 12 MONTHS, have your sex partner or partners been …																					
Exclusively male?	—	51.7	52.2	53.8	53.3	51.8	52.8	—	3.5	3.3	3.7	3.8	2.9	3.7	—	97.0	97.6	97.7	97.1	96.4	97.4
Both male and female?	—	0.6	1.0	1.1	0.7	0.5	0.4	—	0.5	1.0	1.3	0.5	0.3	0.4	—	0.6	1.0	1.0	0.8	0.7	0.4
Exclusively female?	—	47.7	46.8	45.1	46.0	47.7	46.8	—	95.9	95.6	95.0	95.7	96.9	96.0	—	2.3	1.5	1.3	2.1	2.8	2.1
Weighted N =	—	*1,307*	*1,701*	*1,611*	*1,605*	*1,578*	*1,469*	—	*634*	*818*	*753*	*754*	*752*	*700*	—	*673*	*882*	*858*	*851*	*825*	*769*

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

Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2009 data is 2008 and 2009 combined and so forth. The questions were contained in three of the six questionnaire forms.

[b]Based on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 16c

Trends [a] in Number of Sex Partners and Gender of Sex Partners

Total and by Gender among Respondents of Modal Age 40

(Entries are percentages.)

	Total				Males				Females			
Number of Partners in Last 12 Months	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014
During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)												
None	11.1	11.1	9.9	9.4	9.7	9.0	8.4	8.2	12.4	13.2	11.5	10.6
One	79.2	78.0	78.6	79.1	79.4	77.0	76.2	78.0	79.0	79.0	81.0	80.2
Two	4.5	5.2	5.0	5.2	4.1	5.4	5.2	4.8	4.8	5.0	4.9	5.6
Three	1.9	2.1	2.7	2.7	2.3	3.0	4.1	3.8	1.6	1.3	1.3	1.5
Four	1.2	1.0	1.3	1.5	1.3	1.5	1.6	1.7	1.2	0.4	0.9	1.3
5–10	1.4	1.7	1.6	1.6	2.2	2.6	2.8	2.4	0.6	0.8	0.5	0.7
11–20	0.6	0.4	0.2	0.2	0.7	0.5	0.4	0.4	0.5	0.2	0.0	0.0
21–100	0.2	0.3	0.4	0.3	0.3	0.5	0.9	0.6	0.0	0.0	0.0	0.0
More than 100	0.0	0.2	0.2	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Weighted N =	*1,813*	*1,723*	*1,690*	*1,740*	*872*	*860*	*850*	*864*	*942*	*863*	*840*	*876*
Gender of Partners in Last 12 Months [b]												
During the LAST 12 MONTHS, have your sex partner or partners been …												
Exclusively male?	52.1	49.6	49.2	50.0	4.7	4.1	3.8	3.7	97.6	97.5	96.8	96.7
Both male and female?	0.7	0.8	0.7	0.8	0.1	0.8	1.0	0.5	1.2	0.7	0.4	1.0
Exclusively female?	47.2	49.6	50.1	49.2	95.1	95.0	95.2	95.8	1.2	1.8	2.9	2.3
Weighted N =	*1,601*	*1,525*	*1,515*	*1,566*	*784*	*782*	*775*	*786*	*817*	*743*	*741*	*780*

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

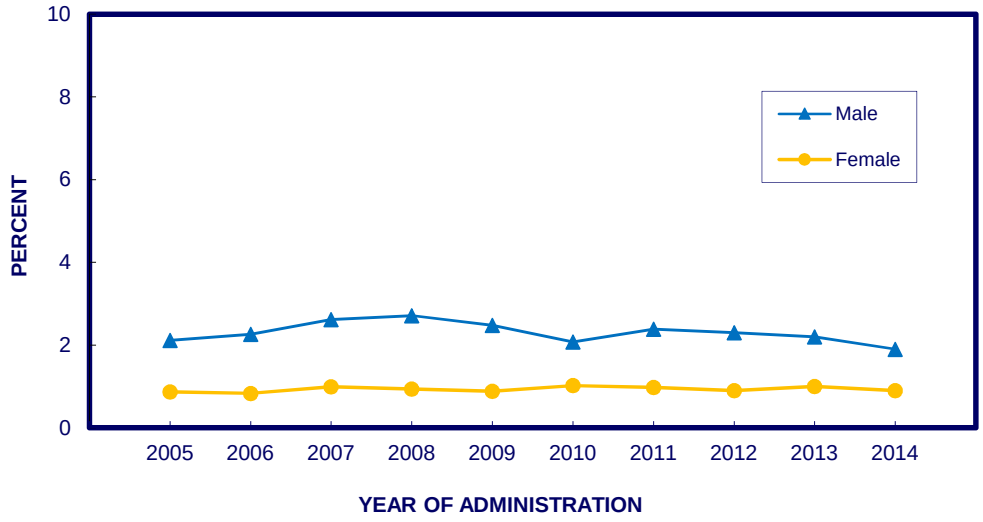
Notes. ' — ' indicates not applicable. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Data presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

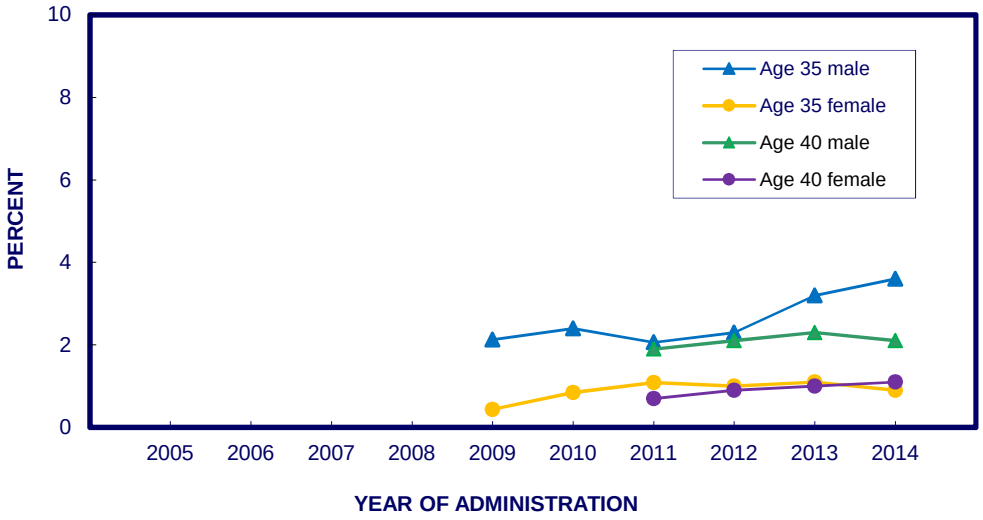
[b]Based on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

FIGURE 1

Trends (2-year average) in Lifetime Injection Drug Use by Gender among Respondents of Modal Ages 21-30



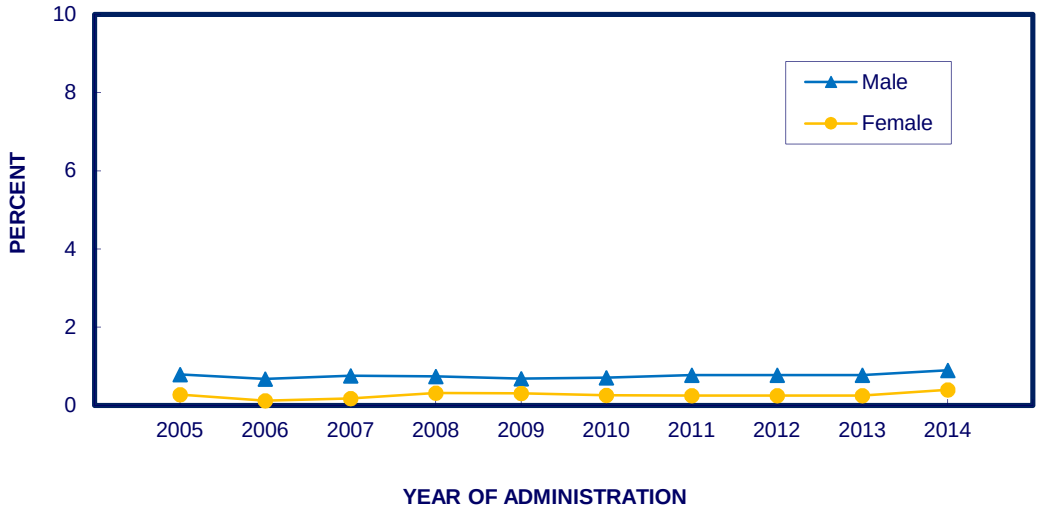
Trends (2-year average) in Lifetime Injection Drug Use by Gender among Respondents of Modal Age 35/40



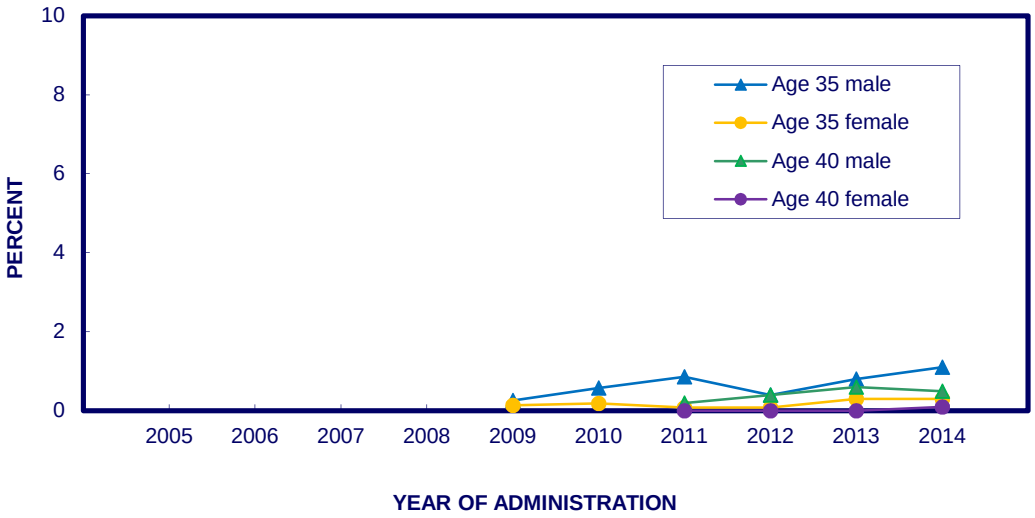
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 2

Trends (2-year average) in Annual Injection Drug Use by Gender among Respondents of Modal Ages 21-30



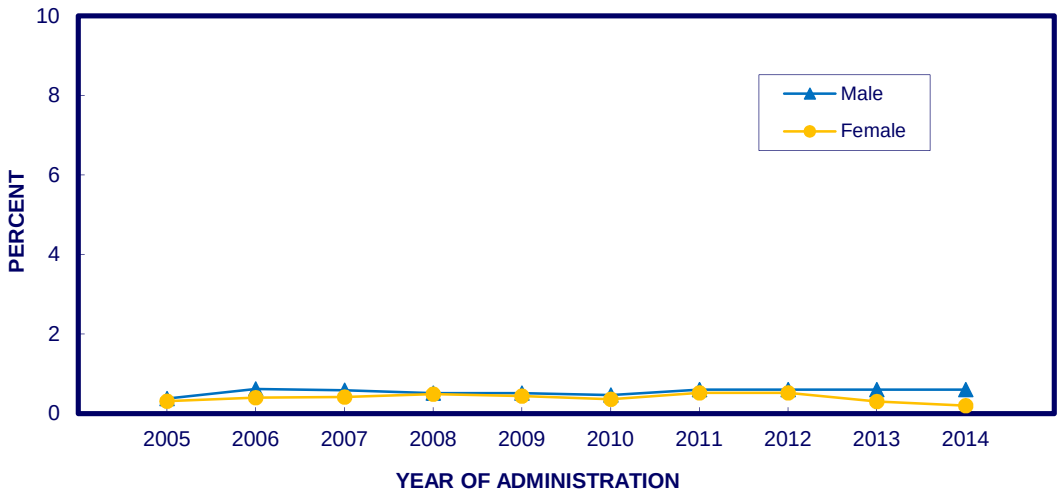
Trends (2-year average) in Annual Injection Drug Use by Gender among Respondents of Modal Age 35/40



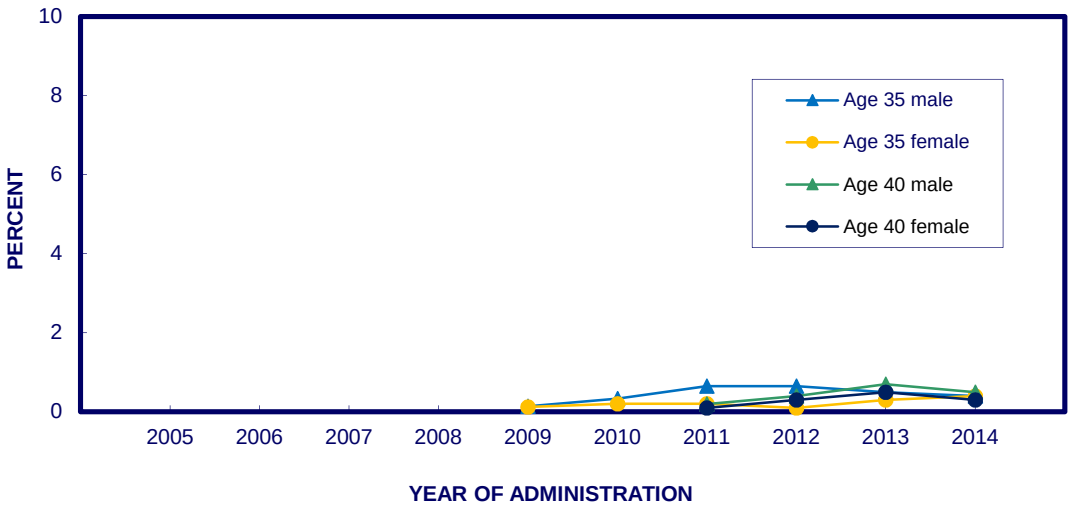
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 3

Trends (2-year average) in Lifetime Needle Sharing by Gender among Respondents of Modal Ages 21-30

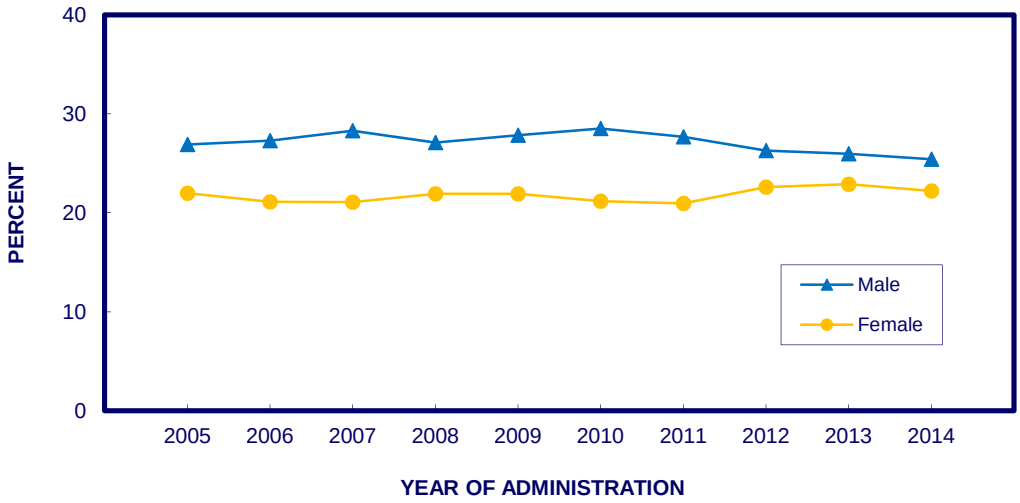


Trends (2-year average) in Lifetime Needle Sharing by Gender among Respondents of Modal Age 35/40

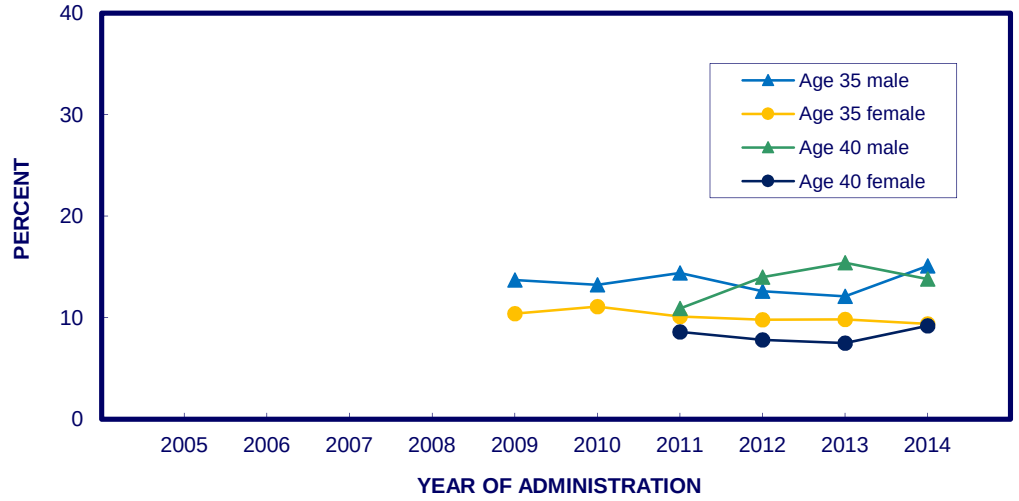


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 4
Trends (2-year average) in Having More than One Sex Partner in the Last Year by Gender [a] among Respondents of Modal Ages 21-30



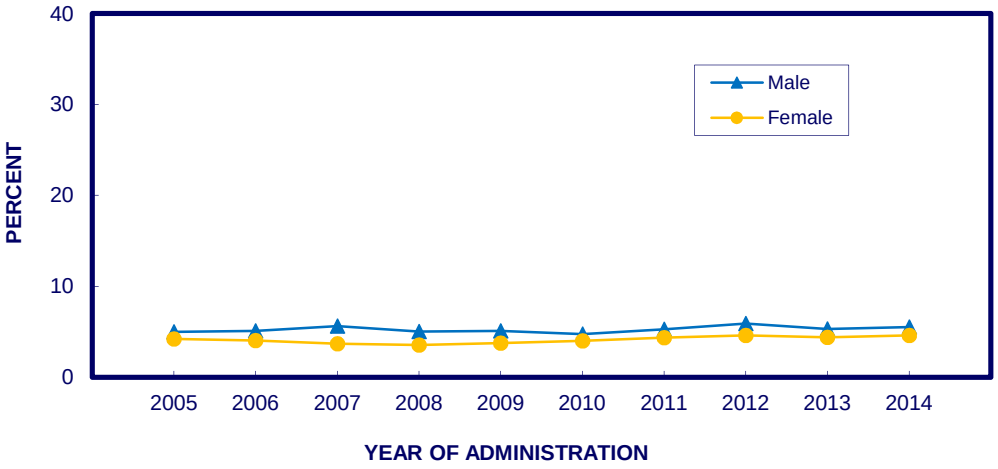
Trends (2-year average) in Having More than One Sex Partner in the Last Year by Gender [a] among Respondents of Modal Age 35/40



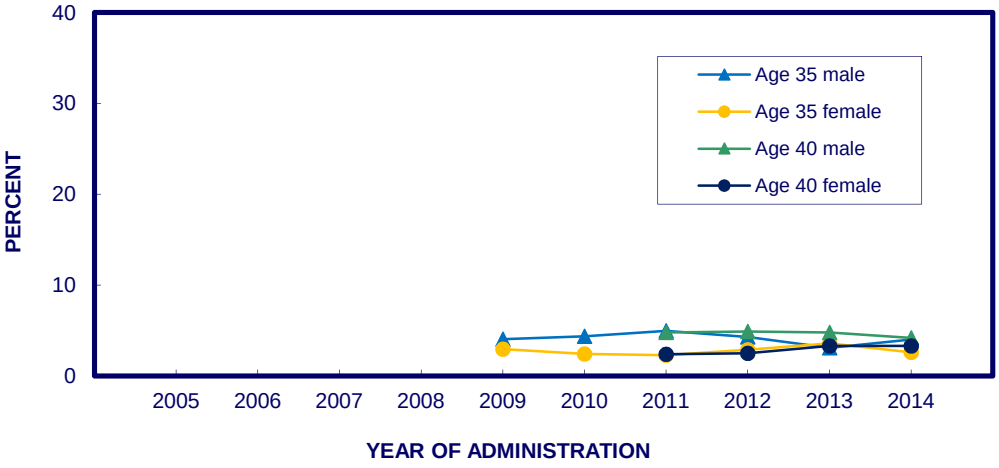
Source. The Monitoring the Future study, the University of Michigan.

[a]Based on those reporting having had an HIV/AIDS test in the last 12 months. Those respondents who have not been tested are omitted.

FIGURE 5
Trends (2-year average) in Having a Sex Partner of the Same/Both Genders by Gender [a] among Respondents of Modal Ages 21-30



Trends (2-year average) in Having a Sex Partner of the Same/Both Genders by Gender [a] among Respondents of Modal Age 35/40



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

[a]Based on those reporting sexual activity with one or more partners during the past year. Those reporting no partners are omitted.

Chapter 10

TRENDS IN THE PREVALENCE AND FREQUENCY OF PROTECTIVE BEHAVIORS

Like the risk behaviors, the behaviors that can help to protect against the spread of HIV have not shown much change in the 2005–2014 interval among young adults.

Condom Use

Past-year prevalence of ***condom use*** among young adults did not change much from 2005 to 2014 (Table 17a and Figure 6). The proportion indicating having used condoms at all when having sex in the past 12 months has remained fairly flat for both genders since 2005, with levels among males (ranging between 63% and 67%) considerably higher than among females (ranging between 53% and 58%). Among 35-year-olds, the prevalence and frequency of condom use appeared to increase somewhat among males; the proportion saying that they have used them in the past 12 months rose from 35% to 42% over the 2009–2011 interval but has declined some since then (to 37% in 2014), offsetting much of the earlier improvement. Among 35-year-old females it appears that there may have been some recent decline in condom use, with annual prevalence going from 32% in 2011 to 29% in 2012–2014 (Table 17b and Figure 6). This decline does not reach statistical significance.

Table 6d makes clear that the prevalence and frequency of using condoms declines over the young adult years. While 76% of the 21- to 22-year-olds reported they used a condom at least once in the past 12 months, the rate falls to 46% among those ages 29 to 30. And, while 46% of the 21- to 22-year-olds in 2014 said they have used condoms most times or always, that rate falls by half to 22% among the 29- to 30-year-olds, in part due to the rising proportion who are married. Use of condoms declines further among those age 35, and still further among those age 40.

Getting Tested for HIV/AIDS

Young adult males showed a slight fall off from 2010 in both the annual and lifetime prevalence of ***getting tested*** for HIV/AIDS (Figure 7). Their lifetime prevalence of getting tested fell from 36.2% in 2009 to 30.5% in 2014. Their annual prevalence for getting tested fell from 16.2% in 2009 to 14.6% in 2014. At the same time, among young adult females the prevalence of getting tested in the past year rose slightly from 23.7% in 2005 to 26.1% in 2010, but has fallen back some to 25.0% in 2014. It seems likely that these changes are simply random fluctuations due to sampling error.

Since 2005 there has been, if anything, a rise among young adult males in ***securing the test results*** after being tested (from 89.8% in 2005 to 94.0% in 2014), but the levels have been very high throughout this historical period. They have been even higher and fairly stable among young adult females (Table 17a and Figure 8).

Among 35-year-olds, both males and females have shown some increase in the percent getting tested in the last 12 months: from 12% in 2009 to 18% in 2014 among males, and from 18% in 2009 to 21% in 2014 among females (Figure 7). Females have consistently had higher rates of getting tested than males of the same age. Both genders have shown a very slight increase in the proportions who do ***secure the results***—a positive development (Table 17b).

Among 40-year-olds, who have lower rates of testing than 35-year-olds, there was an apparent decline in testing from 2011 to 2012 for both genders, but a leveling since then. The rates of securing the test results for those who have had testing have been consistently very high.

Summary

It is clear that condom use is a protective behavior that occurs relatively infrequently. On average 30–40% of sexually active young adults indicate *any* use of condoms in the prior year—more males than females—and there has been little change in this practice since 2005. The use of condoms declines considerably between ages 19–20 and 29–30 and then declines further through age 40.

Only between 40% and 50% of all young adults report getting tested for HIV/AIDS at some time in their lives—the second protective behavior studied here—more females than males. That rate has been fairly stable. Failing to obtain the test results after being tested is rare, and thus seems not to be a serious problem.

It appears that rate of change in both the risk and protective behaviors related to the spread of HIV in the young adult population has ranged from negligible to very gradual over the past several years. Over the seven-year interval covered so far, we note a very limited amount of systematic movement in these factors.

While those concerned with public health no doubt would wish the data to show greater change toward lowering the risk of HIV among young adults, the high degree of replication of findings across sequential national surveys provides strong evidence of the reliability of these measures when applied to a national population.

TABLE 17a

Trends [a] in Frequency of Condom Use and Testing for HIV

Total and by Gender among Respondents of Modal Ages 21–30

(Entries are percentages.)

	Total											Male											Female										
Frequency of Condom Use in Last 12 Months [b]	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)																																	
Never	—	42.1	41.6	40.5	40.7	39.9	39.2	40.1	39.9	39.3	40.5	—	37.0	36.4	35.8	36.0	35.0	35.9	36.1	34.8	33.2	34.9	—	46.5	46.1	44.4	44.8	44.2	42.1	43.4	44.2	44.3	45.0
Seldom	—	13.7	13.2	13.6	13.2	13.3	14.1	14.4	14.5	14.8	14.4	—	13.7	12.8	13.3	13.8	13.3	13.0	13.7	14.4	15.2	14.4	—	13.7	13.5	13.7	12.6	13.3	15.1	15.0	14.6	14.5	14.4
Sometimes	—	12.4	13.3	13.5	13.0	13.1	13.0	12.2	12.6	12.8	12.5	—	12.8	13.0	13.3	13.2	13.4	13.2	12.7	13.6	13.7	13.7	—	12.0	13.5	13.7	12.8	12.9	12.8	11.8	11.7	12.0	11.6
Most times	—	15.5	15.2	15.2	14.9	14.5	14.2	14.7	15.3	14.7	14.3	—	17.8	18.0	16.8	15.7	15.8	16.0	16.8	16.9	16.7	16.5	—	13.5	12.9	13.9	14.3	13.4	12.6	12.9	13.9	13.2	12.5
Always	—	16.4	16.7	17.2	18.3	19.2	19.6	18.6	17.7	18.4	18.3	—	18.8	19.9	20.7	21.3	22.6	21.9	20.6	20.3	21.2	20.5	—	14.3	14.0	14.3	15.6	16.2	17.5	16.9	15.5	16.1	16.4
Weighted N =	—	*3,076*	*2,905*	*3,476*	*4,160*	*4,108*	*4,011*	*3,851*	*3,734*	*3,610*	*3,477*	—	*1,423*	*1,330*	*1,607*	*1,946*	*1,946*	*1,878*	*1,765*	*1,697*	*1,620*	*1,550*	—	*1,653*	*1,574*	*1,869*	*2,214*	*2,162*	*2,132*	*2,087*	*2,036*	*1,990*	*1,927*
Testing for HIV: Lifetime and Last 12 Months																																	
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)																																	
Yes, in the last 12 months	—	20.4	19.6	20.1	20.9	21.3	20.6	20.5	21.6	20.9	20.2	—	16.7	16.0	16.0	16.4	16.2	14.5	14.9	16.7	15.7	14.6	—	23.7	22.9	23.8	24.9	25.9	26.1	25.3	25.9	25.4	25.0
Yes, but not in the last 12 months	—	24.0	23.9	23.5	22.9	22.6	22.9	22.1	21.1	20.6	19.7	—	21.2	20.8	21.2	20.7	20.1	19.8	18.7	18.7	17.3	15.9	—	26.5	26.6	25.5	24.8	24.9	25.7	25.0	23.3	23.5	23.0
No, never	—	55.7	56.5	56.4	56.2	56.1	56.5	57.5	57.3	58.5	60.1	—	62.2	63.2	62.8	62.9	63.8	65.7	66.3	64.6	67.1	69.5	—	49.8	50.6	50.7	50.3	49.2	48.2	49.7	50.9	51.1	52.0
Weighted N =	—	*3,664*	*3,459*	*4,098*	*4,882*	*4,853*	*4,790*	*4,658*	*4,534*	*4,409*	*4,260*	—	*1,738*	*1,629*	*1,919*	*2,293*	*2,301*	*2,265*	*2,174*	*2,113*	*2,041*	*1,966*	—	*1,927*	*1,830*	*2,179*	*2,589*	*2,553*	*2,524*	*2,485*	*2,422*	*2,368*	*2,294*
Received HIV Test Results [c]																																	
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)																																	
Yes	—	92.2	92.8	92.5	92.7	93.1	93.7	94.2	94.0	93.6	93.8	—	89.8	91.2	92.2	92.0	91.4	91.3	92.5	93.3	92.7	94.0	—	93.9	93.8	92.7	93.2	94.2	95.1	95.2	94.4	94.1	93.7
No	—	7.8	7.2	7.5	7.3	6.9	6.3	5.8	6.0	6.4	6.2	—	10.2	8.8	7.8	8.0	8.6	8.7	7.5	6.7	7.3	6.0	—	6.1	6.2	7.3	6.8	5.8	4.9	4.8	5.6	5.9	6.3
Weighted N =	—	*1,610*	*1,486*	*1,764*	*2,113*	*2,110*	*2,059*	*1,953*	*1,909*	*1,804*	*1,679*	—	*655*	*591*	*701*	*842*	*823*	*760*	*715*	*735*	*659*	*592*	—	*955*	*895*	*1,063*	*1,271*	*1,287*	*1,299*	*1,238*	*1,174*	*1,145*	*1,087*

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

Notes. ' — ' indicates not applicable.

[a] Data presented in this table are two-year moving averages. The 2005 data is 2004 and 2005 combined and so forth. The questions were contained in two questionnaire forms in 2004–2006 and three forms beginning in 2007.

[b] Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c] Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 17b

Trends [a] in Frequency of Condom Use and Testing for HIV

Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

	Total							Male							Female						
Frequency of Condom Use in Last 12 Months [b]	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014	2008	2009	2010	2011	2012	2013	2014
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)																					
Never	—	66.5	64.8	63.5	65.5	66.9	66.9	—	65.4	61.8	58.4	59.0	62.4	62.6	—	67.5	67.7	68.1	71.3	71.1	70.8
Seldom	—	8.0	8.6	8.4	9.2	8.9	7.6	—	7.4	8.6	10.3	12.6	10.9	8.9	—	8.6	8.6	6.8	6.3	7.1	6.5
Sometimes	—	8.6	9.3	9.1	7.6	7.8	7.9	—	8.9	10.2	11.2	9.1	8.6	8.8	—	8.3	8.5	7.3	6.2	7.1	7.0
Most times	—	6.9	8.0	9.2	9.1	8.2	7.9	—	8.0	9.4	11.0	11.1	9.3	8.8	—	5.9	6.7	7.6	7.3	7.2	7.2
Always	—	10.0	9.2	9.7	8.6	8.1	9.7	—	10.2	10.0	9.2	8.3	8.9	10.9	—	9.8	8.5	10.2	8.9	7.4	8.6
Weighted N =	—	*1,306*	*1,702*	*1,605*	*1,595*	*1,570*	*1,462*	—	*637*	*823*	*747*	*745*	*749*	*698*	—	*670*	*879*	*857*	*850*	*822*	*764*
Testing for HIV: Lifetime and Last 12 Months																					
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)																					
Yes, in the last 12 months	—	15.0	15.0	15.4	15.3	16.7	19.5	—	11.8	12.1	12.3	12.2	15.2	18.1	—	18.1	17.7	18.1	18.0	18.0	20.7
Yes, but not in the last 12 months	—	38.6	38.1	41.1	41.8	38.6	35.3	—	32.5	32.2	35.8	39.2	34.7	30.0	—	44.3	43.7	45.9	44.1	42.0	39.9
No, never	—	46.4	46.9	43.5	42.9	44.7	45.2	—	55.7	55.8	51.9	48.6	50.1	51.9	—	37.6	38.6	36.1	37.9	40.0	39.4
Weighted N =	—	*1,452*	*1,903*	*1,787*	*1,767*	*1,752*	*1,651*	—	*707*	*918*	*840*	*825*	*820*	*775*	—	*745*	*985*	*947*	*942*	*932*	*876*
Received HIV Test Results [c]																					
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)																					
Yes	—	92.4	93.2	94.8	94.2	94.3	95.1	—	89.3	89.6	91.1	89.6	91.9	94.3	—	94.5	95.6	97.2	97.5	96.0	95.7
No	—	7.6	6.8	5.2	5.8	5.7	4.9	—	10.7	10.4	8.9	10.4	8.1	5.7	—	5.5	4.4	2.8	2.5	4.0	4.3
Weighted N =	—	*764*	*1,000*	*996*	*991*	*948*	*883*	—	*310*	*402*	*397*	*415*	*400*	*364*	—	*454*	*598*	*599*	*577*	*549*	*519*

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

Notes. ' — ' indicates not applicable.

[a]Data presented in this table are two-year moving averages. The 2005 data is 2004 and 2005 combined and so forth. The questions were contained in two questionnaire forms in 2004–2006 and three forms beginning in 2007.

[b]Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 17c

Trends [a] in Frequency of Condom Use and Testing for HIV

Total and by Gender among Respondents of Modal Age 40

(Entries are percentages.)

	Total				Males				Females			
Frequency of Condom Use in Last 12 Months [b]	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014
When you had sexual intercourse during the LAST 12 MONTHS, how often were condoms used? (This includes vaginal and anal sex, but not oral sex.)												
Never	74.7	74.7	74.1	73.5	72.1	72.9	70.3	69.9	77.2	76.5	78.0	77.1
Seldom	5.4	4.9	4.8	6.4	5.8	5.5	5.7	7.1	5.0	4.2	3.9	5.7
Sometimes	5.8	6.6	6.8	5.5	6.4	7.7	8.3	6.7	5.2	5.4	5.2	4.2
Most times	6.0	6.0	5.7	6.3	6.6	6.3	6.6	6.9	5.5	5.8	4.8	5.6
Always	8.1	7.9	8.6	8.3	9.1	7.6	9.1	9.4	7.2	8.1	8.1	7.3
Weighted N =	*1,593*	*1,523*	*1,504*	*1,553*	*782*	*781*	*767*	*778*	*810*	*742*	*737*	*775*
Testing for HIV: Lifetime and Last 12 Months												
Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)												
Yes, in the last 12 months	11.8	8.4	8.4	8.1	12.6	8.2	8.5	7.8	11.1	8.6	8.3	8.4
Yes, but not in the last 12 months	43.4	45.9	45.6	45.0	37.8	49.7	47.2	46.5	48.6	42.2	43.9	43.5
No, never	44.8	45.7	46.0	46.9	49.6	42.1	44.3	45.7	40.3	49.2	47.8	48.1
Weighted N =	*1,808*	*1,720*	*1,686*	*1,744*	*868*	*859*	*847*	*866*	*940*	*861*	*839*	*878*
Received HIV Test Results [c]												
Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)												
Yes	93.5	93.5	92.7	92.7	91.7	92.6	90.9	89.7	94.9	94.2	94.1	94.8
No	6.5	6.5	7.3	7.3	8.3	7.4	9.1	10.3	5.1	5.8	5.9	5.2
Weighted N =	*973*	*893*	*871*	*905*	*429*	*401*	*380*	*380*	*544*	*492*	*491*	*525*

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

Notes. ' — ' indicates not applicable.

[a]Data presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

[b]Percentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

[c]Those respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 17d

Use of Condoms in Past Year by 2-Year Age Groups[a] among Young Adults

(Entries are percentages.)

	Year of Administration											
Age 21–22	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004–2014
Frequency of Condom Use in Past Year:												
Never	26.1	26.6	26.8	23.5	23.4	23.8	22.7	25.9	19.3	22.2	25.4	24.0
Seldom/Sometimes	32.5	30.7	29.8	28.7	28.7	28.7	29.0	30.6	31.0	29.5	29.6	29.8
Most times/Always	41.4	42.6	43.4	47.8	47.9	47.5	48.3	43.5	49.7	48.3	45.0	46.2
Weighted N =	*307*	*266*	*266*	*376*	*424*	*419*	*394*	*351*	*365*	*312*	*336*	*3,816*
Age 23–24												
Frequency of Condom Use in Past Year:												
Never	36.8	36.2	31.1	30.1	33.2	30.2	31.8	34.3	32.0	33.7	36.1	33.1
Seldom/Sometimes	28.8	30.8	28.8	29.0	31.7	24.7	27.2	28.5	29.8	27.4	22.4	28.1
Most times/Always	34.4	33.0	40.1	40.9	35.1	45.1	41.1	37.2	38.2	38.9	41.5	38.8
Weighted N =	*322*	*316*	*284*	*398*	*422*	*394*	*398*	*399*	*400*	*336*	*351*	*4,021*
Age 25–26												
Frequency of Condom Use in Past Year:												
Never	43.1	39.5	41.6	40.1	40.4	40.6	40.8	38.0	39.8	38.3	39.8	40.2
Seldom/Sometimes	23.5	27.1	29.2	27.8	21.6	29.4	30.5	26.3	28.5	27.8	29.9	27.4
Most times/Always	33.4	33.4	29.3	32.1	37.9	30.0	28.7	35.7	31.7	33.9	30.3	32.4
Weighted N =	*331*	*299*	*273*	*408*	*387*	*392*	*417*	*355*	*360*	*365*	*360*	*3,947*
Age 27–28												
Frequency of Condom Use in Past Year:												
Never	47.0	55.2	50.2	49.6	53.3	47.7	46.7	50.6	51.7	45.6	48.8	49.7
Seldom/Sometimes	27.1	19.8	24.2	25.6	22.9	28.4	26.1	24.0	25.2	25.4	24.9	24.9
Most times/Always	33.4	25.0	25.6	24.8	23.9	23.8	27.2	25.4	23.2	29.0	26.3	25.4
Weighted N =	*308*	*320*	*312*	*413*	*409*	*387*	*388*	*365*	*382*	*343*	*334*	*3,962*
Age 29–30												
Frequency of Condom Use in Past Year:												
Never	54.3	53.8	51.3	54.8	53.7	51.8	55.9	53.4	53.5	54.0	57.3	54.0
Seldom/Sometimes	21.4	19.4	25.8	23.1	23.1	24.6	21.9	22.0	24.7	26.7	25.9	23.5
Most times/Always	24.3	26.8	22.9	22.1	23.2	23.6	22.2	24.6	21.8	19.3	16.8	22.4
Weighted N =	*319*	*287*	*281*	*464*	*459*	*416*	*405*	*379*	*378*	*368*	*372*	*4,128*

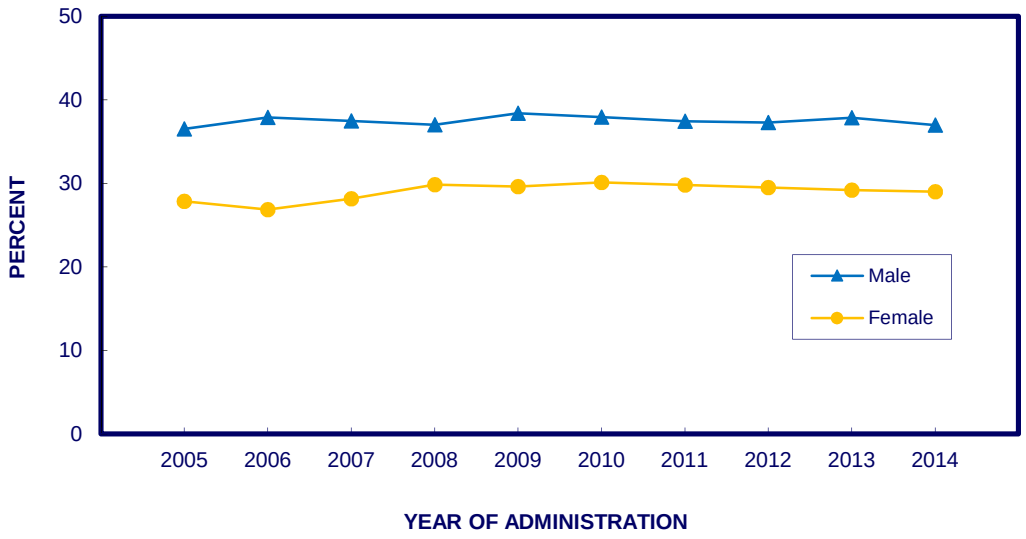
Source. The Monitoring the Future study, the University of Michigan.

[a]In 2004–2006, the questions about condom use were included in two questionnaire forms. In 2007, these questions were added to a third questionnaire form.

FIGURE 6

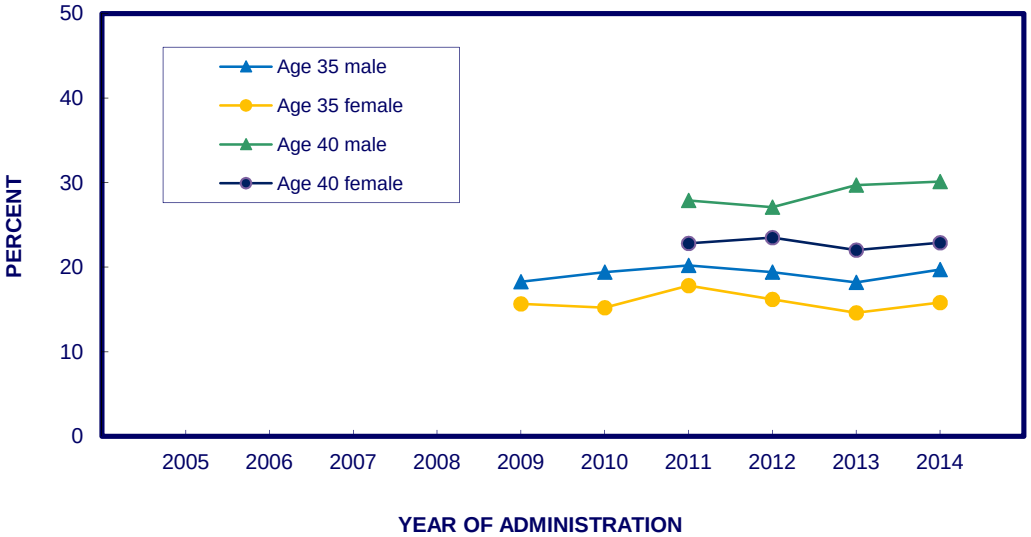
Trends (2-year average) in Annual Condom Use by Gender [a] among Respondents of Modal Ages 21-30

(most times or always)



Trends (2-year average) in Annual Condom Use by Gender [a] among Respondents of Modal Age 35/40

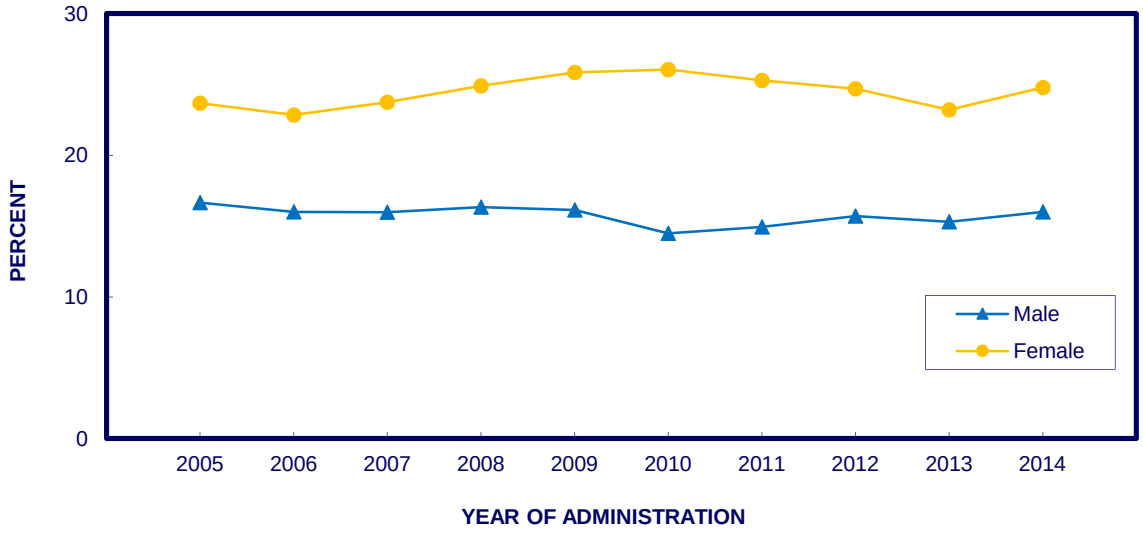
(most times or always)



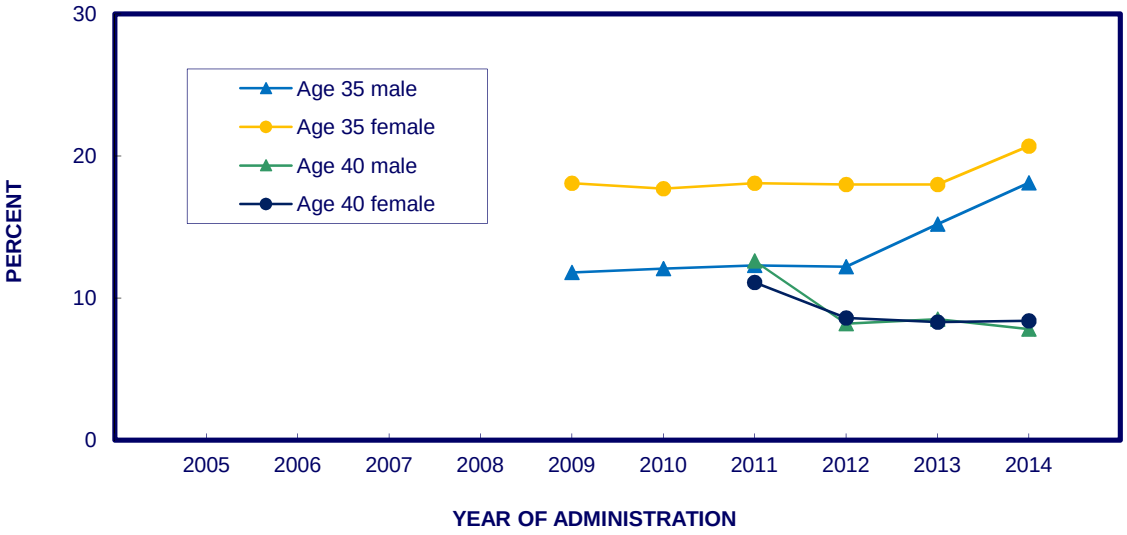
Source. The Monitoring the Future study, the University of Michigan.

[a]Based on those reporting sexual activity with one or more partners during the past year. Those reporting no partners are omitted.

FIGURE 7
Trends (2-year average) in Having an HIV/AIDS Test in the Past Year by Gender among Respondents of Modal Ages 21-30



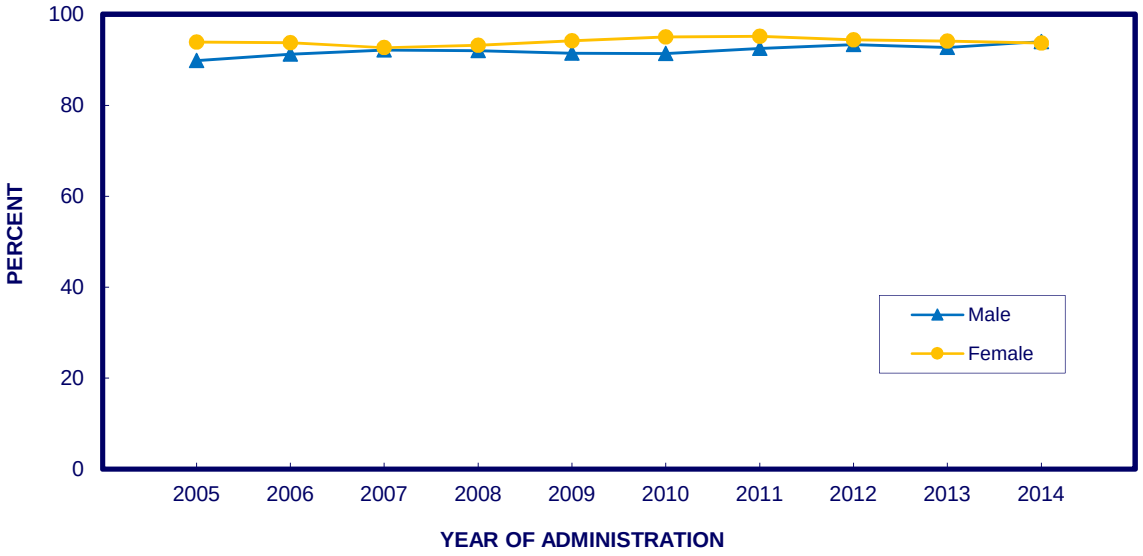
Trends (2-year average) in Having an HIV/AIDS Test in the Past Year by Gender among Respondents of Modal Age 35/40



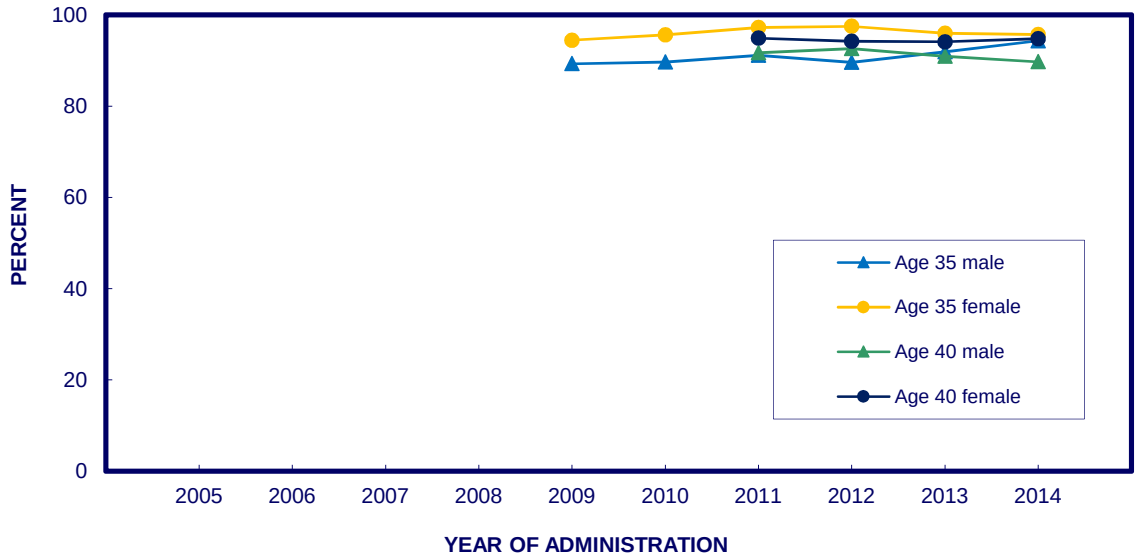
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 8

Trends (2-year average) in Receiving HIV/AIDS Test Results by Gender [a] among Respondents of Modal Ages 21-30



Trends (2-year average) in Receiving HIV/AIDS Test Results by Gender [a] among Respondents of Modal Age 35/40



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

[a]Those respondents who report never having been tested for HIV are excluded from these percentages.

Chapter 11

CONCLUSIONS

Risk behaviors for the spread of HIV/AIDS are all too prevalent among today's young adults. The number of young adults who engage in sex with multiple partners and the number of men who engage in the high-risk behavior of having unprotected sex with other men are perhaps the most important. Based on our 2004 through 2014 national surveys combined, about one quarter (24%) of young adults aged 21 to 30 indicated having more than one sex partner in the prior 12 months, 9% said they had more than three partners (12% of males and 7% of females), and 5% said they had five or more partners.

Young adult men reporting sex exclusively with men are considerably more likely to have multiple partners than men reporting sex exclusively with women, thus compounding their risk. Among sexually active male respondents in 2014 about one in twenty (5.3%) indicated having had any sex with a male partner in the prior 12 months; slightly over half of them reported having multiple male partners, including 20% of them reporting five or more male partners. Among 35- and 40-year-old men who have sex exclusively with men the picture is much the same: in the prior year 50% and 47% reported having multiple sex partners—much higher rates than among men the same age who have exclusively female partners.

While young adult men who have sex exclusively with men use condoms slightly more frequently than men who have sex exclusively with women, the differences are small and not statistically significant—39% of the former group say they use condoms "most times" or "always" versus 37% in the latter group. Among the 35- and 40-year-olds, men who have sex exclusively with men have a lower prevalence of using condoms than those having sex exclusively with women; but it is also the case that 30–40% of them use them "most times" or "always." So, there is limited evidence of compensation for the heightened risk involved in men having sex with men.

Among all young adults the protective behavior of condom use rises considerably with the number of sex partners reported, and that is true among 35- and 40-year-olds, as well. The higher the number of partners, the higher the rate of condom use; this holds true for both genders. So, there is at least some compensatory protective behavior associated with the increased risk derived from having more sex partners, but certainly not enough to fully offset the added risk.

Some 40% of young adult men who report having sex exclusively with men in the prior 12 months indicate having been tested for HIV/AIDS in the same interval. This compares with only 17% of young adult men who report having sex exclusively with women. Men who have sex exclusively with men are also more likely to obtain the

results of their tests. Thus there is evidence of some compensatory behavior indicated in this high risk group.

Among all respondents, the proportion getting tested for HIV/AIDS rises with the number of sex partners reported—again indicating some compensatory protective behavior related to increased risk—though even among those with five or more partners during the year, only 39% indicate being tested in that interval.

These data suggest that a number of people recognize that their sexual practices put them at greater risk and take action to determine whether or not they are already infected. That can be particularly important because it can allow a person testing positive to initiate treatment *and* protect against spreading the disease to others by refraining from sexual contact, by using condoms if they do have sexual contacts, and by avoiding sharing needles with others if they are drug injectors. Interestingly, condom use and HIV testing—two risk-reduction behaviors—do not seem to correlate with each other.

Only about 0.3% of 21- to 30-year-old respondents surveyed in 2004–2014 (combined) admitted to ever sharing needles in their lifetime—0.1% in the prior 12 months. Importantly, about one-third of young adults who ever injected drugs (1.6%) reported having ever shared needles (0.5%). Of those injecting drugs in the prior year (0.5%) more than half (0.3%) indicated that they shared needles in that year. Although those who have shared needles represent a small proportion of the population, they are at particularly high risk for contracting and for transmitting HIV. Furthermore, we believe it likely that our estimates of the size of this group are low.

Findings reported here for young adults are based on the eleven years of data collection combined; and, as we have stated at various points in this monograph, even then the numbers of cases often are not sufficient to provide statistical confidence with the relatively rare behaviors or intersecting rare behaviors. But the prevalence data tend to replicate across years, giving us increased confidence in their validity.

The extent to which these HIV/AIDS risk and protective behaviors are changing over time is of great importance to the country, and the evidence here from the most recent ten-year interval suggests that rather little change is taking place in the general population of young adults who have completed high school. One of the few changes to achieve statistical significance was a gradual decline in the proportion of young adult males who reported ever getting tested for HIV/AIDS—a change in the wrong direction—but fortunately there has been an offsetting reversal of that trend since 2010. One positive development is that the proportion of all young adults who fail to secure their test results started out low at about 8% in 2004—the beginning year for this study—and became still lower (about 6%) by 2011 by a statistically significant amount. (It was 6.2% in 2014.) Overall, there is not much evidence of progress in HIV risk reduction during this historical period.[1]

[1] It should be noted that we have not been able to make estimates for some of the highest risk subgroups in the population as identified by the Centers for Disease Control and Prevention (March 14, 2012): these include (in order after White men who

As we have argued in the context of drug abuse, there is always a danger of *generational forgetting*—that through generational replacement combined with less attention to the topic in media and fewer interventions, younger cohorts may not acquire the knowledge and concern about risks that earlier cohorts possessed and that motivated them to avoid risky behaviors. It seems likely that there has been a considerable shift over the past two decades in the perceived dangers of HIV/AIDS. Some reduction in perceptions of risk may be due to improvements in treatment effectiveness, but this has left recent cohorts of young adults more vulnerable to taking the kinds of risks associated with both contracting and transmitting the disease. In particular, survival rates for those having AIDS have increased, starting around 1996 with the introduction of antiretroviral therapy (Crum et al., 2006; see also http://www.cdc.gov/media/pressrel/aids-d1.htm). This improvement in survival rates is certainly a very favorable development—but one that also carries its own risks (reduced perceptions of the dangers of AIDS) for incoming cohorts of young adults.

Although great progress has been made in HIV risk reduction in recent decades, the MTF results show that there is no room for complacency. There appears to be a substantial portion of the population that current HIV policies and interventions are not reaching. These MTF results suggest that efforts to reduce HIV risk beyond current levels will require further effort, research, and innovation in the HIV prevention field.

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have sex with men [MSM]) Black MSM, Hispanic/Latino MSM, Black heterosexual women, Black heterosexual men, Hispanic/Latina heterosexual women, (followed by White heterosexual women), etc. To be able to make meaningful estimates for these subgroups would require much larger samples.

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APPENDIX

OTHER RELEVANT STUDIES OF THE GENERAL POPULATION

The six other studies that generate information on risk and protective behaviors on national samples of the U.S. population are described below. The degree of overlap with MTF is discussed for each.

National Longitudinal Study of Adolescent Health (Add Health). The Add Health study is a nationally representative, longitudinal study of U.S. youth who were in grades 7–12 during the 1994–1995 school year. The original panel, surveyed in-home, initially comprised around 21,000 individuals, with about 15,000 interviewed at waves 2, 3, and 4. This set of class cohorts has been followed into adulthood, with additional data collection waves in 1996, 2001/2002, and 2007/2008 (Harris et al., 2008). Collected data include measures on perceived risk of HIV/AIDS, sexual behavior history, contraceptive use, sexually transmitted disease (STD) history, and substance use including injection drug use (IDU) and needle sharing. Not all of the HIV/AIDS risk behavior measures are asked at each wave of data collection. Analyses published with Add Health data have shown important racial/ethnic differences in contraceptive use (including condom use) and number of sexual partners (Bartlett et al., 2008), prevalence rates of STDs and HIV infections, as well as sexual behavior and substance use patterns (Hallfors et al., 2007; Kuo & Lawrence, 2006; Morris, et al., 2006). It has shown relationships between chronic depression and having multiple sexual partners (Khan et al., 2009). Important sociodemographic differences in self-reported HIV testing have also been found (Nguyen et al., 2006). The Add Health study, which uses in-home data collections, follows one set of six adjacent class cohorts, in contrast to MTF, which continually adds cohorts and can thus track historical trends for fixed age groups and for various cohorts over the years. For more information about Add Health, see http://www.cpc.unc.edu/projects/addhealth.

General Social Survey (GSS). Conducted by the National Opinion Research Center at the University of Chicago, GSS began in 1972 as an annual survey (although no surveys were conducted in 1979, 1981, or 1992) and went to a biennial format beginning in 1994. Prior to 2008, the study used cross-sectional surveys of the U.S. adult household population (ages 18 and over). Starting in 2008, the design was changed to a rotating panel, with each entering cohort to be followed up for the next two consecutive surveys (e.g., the 2006 cohort was interviewed in 2008 and 2010; National Opinion Research Center, n.d.). However, the HIV/AIDS risk behaviors are not included in the panel re-interviews. The majority of GSS data is obtained using face-to-face interviewing; in 2002, it switched to computer-assisted personal interviewing (CAPI). As part of the CAPI format the respondent is handed the interviewer's laptop computer to self-complete the more sensitive sections. Because MTF uses self-administered, mailed questionnaires, and thus does not have an interviewer present, a higher level of perceived privacy may exist for respondents when answering HIV/AIDS risk behavior–related items (Brener et al., 2006) resulting in more valid data. Items on sexual risk and protective factors were added to the GSS starting in 1988, and now include measures such as number and type of sex partners, ever

paying for sex, heterosexual and homosexual sex, condom use, and HIV/AIDS testing. A limited number of substance use items are asked, including injection drug use (but not needle sharing) and crack cocaine use (both asking about lifetime and past 30 days). However, the only other item on substance use (use of any illegal drugs in the past 12 months) has not been asked since 2004 (Davis & Smith, 2007). The majority of HIV/AIDS publications from the GSS have reported on sexual risk behaviors (Anderson, 2003; Anderson et al., 2003; Choi et al., 1994; Johnen et al., 1995). Given that substance use behaviors are not consistently collected in the GSS and needle sharing is not measured, MTF provides an important additional source for data that look at the intersection of these behaviors with other HIV/AIDS risk and protective factors. MTF also includes the collection of longitudinal panel data, in addition to cross-sectional data, on both risk and protective behaviors. For more information about GSS, see http://www.norc.org/Research/Projects/Pages/general-social-survey.aspx.

National Survey on Drug Use and Health (NSDUH). Begun in 1971, the NSDUH study is now an annual, cross-sectional survey of the civilian, non-institutionalized U.S. population ages 12 and older (SAMHSA, 2006). Approximately 67,500 persons are interviewed in NSDUH each year. In 1999, NSDUH was redesigned to allow state-level estimates. As suggested by the study name, the focus is on measures related to substance use, including injection drug use (IDU) (SAMHSA, 2009; SAMHSA, 2008). Published findings utilizing NSDUH data related to IDU have reported national IDU prevalence levels, as well as important demographic and geographic variation in such use (SAMHSA, 2007). Data are also collected on lifetime and past-year HIV/AIDS diagnoses as well as related health conditions such as hepatitis and sexually transmitted diseases. However, data on participation in high-risk sexual behaviors and behaviors such as needle-sharing are not collected, which distinguishes NSDUH from MTF. In addition, MTF collects longitudinal data on individuals over time as part of its cohort-sequential design. For more information about NSDUH, see https://nsduhweb.rti.org.

National Health and Nutrition Examination Survey (NHANES). NHANES began in the early 1960s as a series of surveys initiated by the National Center for Health Statistics, focusing on different population groups and health topics. In 1999, NHANES began to be conducted on a continuous basis with a nationally representative cross-sectional sample of approximately 5,000 individuals per year (CDC, 2009). Data on number and type of sexual partners, as well as condom use, are collected from respondents aged 14–69. Through 2004, only limited drug use data were collected. However, beginning in 2005, age at first use, lifetime, and past 30-day use of marijuana, cocaine, heroin, methamphetamine, and injection drug use were collected from individuals aged 12–69 (needle sharing is not included). NHANES data for these items are collected using audio computer-assisted self-interviewing (A-CASI) at NHANES mobile examination centers. In an A-CASI, the interviewer is aware of neither the highly sensitive questions as they are asked nor the answers being given, thus providing respondents with a high level of privacy similar to self-administered questionnaires like those used in MTF (Brener, et al., 2006). NHANES is the only national survey that collects blood samples and tests blood samples from participants aged 18–49 for the HIV antibody (CDC, 2011). Longitudinal data are not collected on NHANES participants. MTF includes a broader range of substance use measures, including needle sharing, and is able to utilize panel data to examine individual change over time in HIV/AIDS risk and protective behaviors. For more information about NHANES, see http://www.cdc.gov/nchs/nhanes.htm.

National Survey of Family Growth (NSFG). Sponsored by the National Center for Health Statistics, NSFG was begun in 1973 and was initially designed to be a national U.S. fertility study, with only female respondents. Beginning in 2002 (Cycle 6), the survey provided nationally representative cross-sectional samples of both males and females ages 15–44. In mid-2006, the NSFG began continuous interviewing utilizing a rolling, cumulating yearly nationally representative sample of U.S. households (Lepkowski et al., 2006). From 2006 to 2010 approximately 4,500 interviews were collected annually. The latest cycle gathers detailed data on sexual risk behaviors of many kinds, including number of sex partners and condom use, differentiating by age and race/ethnicity (Gavin et al., 2009), other sociodemographic differences in heterosexual anal and oral sex (Leichliter et al., 2007), and sexual health risks and formal sex education (Kohler et al., 2008). Homosexual sex is also detailed in the interviews. The NSFG contains some items on substance use, including a lifetime measure of needle sharing; it also asks about diagnoses of sexually transmitted diseases related to HIV/AIDS risk behaviors. A-CASIs are used to gather data on these highly sensitive and detailed sexual behaviors, thus providing respondents with a high level of privacy. MTF uses self-administered, mailed questionnaires, which should also provide respondents with a high level of privacy similar to that in A-CASI and thus provide similarly valid data (Brener et al., 2006). As with NSDUH, longitudinal panel data are not collected on respondents in NSFG. MTF has relevant prior and subsequent data from the respondents in its panels, including HIV/AIDS risk and protective behaviors from age 21 into later time points. Further, MTF is capable of correcting for the recanting of earlier reported behaviors (Johnston & O'Malley, 1997; Johnston et al., 2015). MTF encompasses every cohort graduating from high school since 2004, gathering data annually on each, starting when they reach age 21. For more information about NSFG, see http://www.cdc.gov/nchs/nsfg.htm.

National Youth Risk Behavior Survey (YRBS). YRBS is conducted every two years, and provides nationally representative, cross-sectional data on priority health risk behaviors for 9th- through 12th-grade students in public and private U.S. schools (Brener et al., 2004). The number of respondents averages around 16,000 cases per survey. Several HIV/AIDS-related risk behaviors have been measured since its inception in 1991, including substance use and sexual activity. Published YRBS data include national and sociodemographic group-specific prevalence measures of high school student licit and illicit substance use (including a measure of lifetime intravenous drug use), lifetime and current sexual activity (including number of partners), condom use, substance use before sexual behavior, and HIV/AIDs education and testing (Eaton et al., 2008; Voetsch et al., 2009). YRBS data have been used to examine trends over time in such behaviors (Gavin et al., 2009; Balaji et al., 2008), as well as how substance use and sexual risk behaviors interrelate (Santelli et al., 2009; Springer et al., 2007). The work of MTF complements that of the YRBS coverage of 14- through18-year olds by covering respondents ages 21 to 40, a highly relevant age group for the spread of HIV/AIDS. It also contains a considerably more complete set of drug use measures, including annual and 30-day injection drug use, and lifetime and past-year needle sharing. In addition, the longitudinal nature of MTF allows an examination of how HIV/AIDS risk behaviors change over time across age within different cohorts. For more information about YRBS, see http://www.cdc.gov/HealthyYouth/yrbs/index.htm.

Key Distinctions among the Studies

A review of these six studies shows that, although key data are provided by each, none of the studies allows for the ongoing, cohort-sequential prospective examination of both substance use and other risk and protective behaviors for HIV/AIDS among the U.S. young adult population. YRBS does not cover age groups above age 18 or 19; GSS does not broadly examine substance use behaviors, nor does it include the HIV/AIDS risk and protective behaviors in its panels; NSDUH does not cover sexual behaviors; Add Health covers only six class-cohorts; NSFG has longer time cycles between surveys, and NSFG, YRBS and NSDUH do not gather longitudinal panel data on their respondents. Further, most of these studies do not duplicate all of the measures of risk and protective behaviors covered in MTF. Thus, along with these other national studies, MTF is an essential component of the nation's efforts to monitor and understand HIV/AIDS risk behaviors in the normal population, as opposed to specially selected high risk populations.

Whatever changes occur in the proportions of American young adults choosing to engage in these risk and risk-reduction behaviors will, of course, have very important consequences for the course of the nation’s HIV/AIDS epidemic, which is why MTF findings stand to make important contributions to our understanding of this major health problem and our ability to deal with it effectively.

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