

MONITORING THE FUTURE

National Survey Results

HIV/AIDS

Risk & Protective Behaviors
among Adults Ages 21 to 40 in the U.S.
2004 - 2017

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An abstract graphic at the bottom of the page features several overlapping, wavy lines in shades of purple, blue, green, and yellow. Interspersed among these lines are small, glowing dots in white, blue, and yellow, creating a sense of movement and data visualization.

2018

HIV/AIDS

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

This publication was written by the principal investigators and staff of the Monitoring the Future project at the Institute for Social Research, the University of Michigan, under Research Grants No. R01 DA 001411 and R01 DA 016575 from the National Institute on Drug Abuse. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institutes of Health.

Published October 2018
Institute for Social Research
The University of Michigan
Ann Arbor, Michigan

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Recommended Citation

Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., Patrick, M. E., & Miech, R. A. (2018). HIV/AIDS: Risk & Protective Behaviors among Adults Ages 21 to 40 in the U.S., 2004–2017. Ann Arbor: Institute for Social Research, The University of Michigan.

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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 60. 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 use, related to the spread of the human immunodeficiency virus (HIV), which is responsible for acquired immunodeficiency syndrome (AIDS). The populations under study here includes high school graduates in the general population ages 21-30, surveyed annually since 2004; age 35, surveyed annually since 2008; and age 40, surveyed annually since 2010.

HIV infection is clearly a serious public health concern. Worldwide, about 36.9 million people were living with AIDS at the end of 2017 (WHO, 2018). In the United States, about 1.1 million people were living with HIV in 2015, and 1 in 7 were unaware of their infection (CDC, 2018a). The rate of new HIV infections has been decreasing, albeit very gradually, in recent years; between 2011 and 2015, the rate of new HIV infections dropped by 5% (CDC, 2018a). However, progress has been uneven, and some segments of the population continue to show increases in infections (CDC, 2018a). The present monograph addresses some of the factors that may be preventing further progress against HIV/AIDS.

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 relate to the spread of other sexually transmitted diseases (STD). In 2016, about 40,000 individuals became newly infected with HIV in the United States (CDC, 2018a). MTF surveys assess both sexual risk behaviors and injection drug use (including needle sharing), which are two main sources of HIV infection. In addition to the particular risk of HIV, young adults are at high risk of contracting other sexually transmitted diseases and infections. Since 2013, there have been significant and sustained increases in the number of STD infections in the United States (CDC, 2018b). Nearly half of the approximately 20 million STDs occurring annually in the United States affect individuals aged 15 to 24 (CDC, 2017; Satterwhite et al., 2013).

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., 2018). [Volume I](#), available at the beginning of June, provides more detailed and complete findings on the same population (Miech et al., 2018). [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 surveys of representative samples of students from each high school graduating class (Schulenberg et al., 2018). *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 including the present one.

References

- Centers for Disease Control and Prevention (CDC). (2018a). *HIV in the United States: At a Glance*. Retrieved from <http://www.cdc.gov/hiv/statistics/overview/ataglance.html>
- Centers for Disease Control and Prevention (CDC). (2018b). Press Release: New CDC Analysis Shows Steep and Sustained Increases in STDs in Recent Years. Retrieved from <https://www.cdc.gov/nchhstp/newsroom/2018/press-release-2018-std-prevention-conference.html>
- Centers for Disease Control and Prevention (CDC). (2017). *STDs in Adolescents and Young Adults*. Retrieved from <https://www.cdc.gov/std/stats16/adolescents.htm>
- Johnston, L.D., Miech, R.A., O'Malley, P.M., Bachman, J.G., Schulenberg, J.E., & Patrick, M.E. (2018). *Monitoring the Future national survey results on drug use, 1975-2017: Overview, key findings on adolescent drug use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2017.pdf>
- Miech, R.A., Johnston, L.D., O'Malley, P.M., Bachman, J.G., Schulenberg, J.E., & Patrick, M.E. (2018). *Monitoring the Future national survey results on drug use, 1975-2017. Volume I: Secondary school students*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. http://monitoringthefuture.org/pubs/monographs/mtf-vol1_2017.pdf
- Satterwhite, C.L., Torrone, E., Meites, E., Dunne, E.F., Mahajan, R., Ocfemia, M.C., Su, J., Xu F., & Weinstock, H. (2013). Sexually transmitted infections among US women and men: prevalence and incidence estimates, 2008. *Sexually Transmitted Diseases*, 40(3), 187-193.
- Schulenberg, J.E., Johnston, L.D., O'Malley, P.M., Bachman, J.G., Miech, R.A. & Patrick, M.E. (2018). *Monitoring the Future national survey results on drug use, 1975-2017: Volume II, College students and adults ages 19-55*. Ann Arbor: Institute for Social Research, The University of Michigan. http://www.monitoringthefuture.org/pubs/monographs/mtf-vol2_2017.pdf
- World Health Organization. (2018). *Global Health Observatory (GHO) Data: HIV/AIDS*. Retrieved from <http://www.who.int/gho/hiv/en/>

Chapter 2

BACKGROUND

HIV/AIDS remains an important and ongoing threat to public health. Behaviors of the general population, especially among young adults, are an important part of the problem. Questions about known risk and protective behaviors (i.e., needle sharing, multiple sex partners, men having sex with men, condom use, testing for HIV) were added to MTF in 2004.

This monograph reports levels of these behaviors among three age bands: young adults 21–30 years old, adults 35 years old, and those 40 years old; it also reports on the degree to which they intersect. In Chapters 9 and 10 we examine the time trends in these HIV/AIDS-related risk and protective behaviors (e.g., multiple sex partners, condom use) among respondents 21–40 years old. Over the years, we have found that the risk and protective behaviors were relatively stable early in the interval from 2004 to 2015, and at far from optimal levels. We had previously written that stability in these behaviors helped to explain the CDC finding that the reported incidence of new HIV cases was level from 1991 to 2014 (CDC, 2008; CDC, 2015a; CDC, 2015b; CDC, 2015c) with an estimated 50,000 new HIV infections per year, and with new diagnoses recently increasing among young adults (CDC, 2015c; CDC, 2015d). More recently, however, we are beginning to see some changes in some of the risk and protective factors that we track, as will be documented in this monograph.

The CDC more recently issued revised analyses of the trends, estimating that there actually has been a 12% decline in new HIV infections between 2010 and 2015 (CDC, 2018a). This is a limited improvement over a six year period, but nonetheless an important one. The improvement has been greater among certain subgroups such as females, African Americans, and heterosexuals. However, new HIV infections were found to increase among other groups, particularly those aged 25–34 (CDC, 2018a).

The National HIV/AIDS Strategy (White House Office of National AIDS Policy, 2015) lists widespread testing and linkage to care as one of its four key areas of critical focus. Being tested for HIV/AIDS and securing the results have been shown to be protective behaviors for individuals testing positive as well as others (HIV.Gov, 2018). Obtaining testing results for those testing positive can enable (1) earlier treatment to reduce the progression of the disease and the likelihood of dying from it; and (2) reduced exposure of others to the disease by abstaining from sexual contact, using condoms, and not sharing needles. Obtaining results for those not testing positive is also protective, because it helps provide an opportunity for re-evaluation of current risks and prevention strategies (HIV.gov, 2018).

Importantly, the CDC attributes the improvement to the number of people who know they are HIV positive and have their infection under control, making them less likely to spread the disease. This has been due largely to the use of antiretroviral medications which “dramatically reduce a person’s risk of transmitting the virus to others” (CDC, 2017, p.1). Also, they mention the use of PrEP, a pre-exposure prophylaxis for which the CDC issued interim clinical guidelines in 2012. It is a pill that, when taken daily by someone without HIV, can reduce their risk of infection by more than 90%.

Despite these improvements, attributable largely to medical advances, there remains a need for the continued monitoring of the other known risk and protective behaviors in the general population. Several national studies provide important epidemiological data regarding HIV/AIDS, as is described in the Appendix to this volume; but none duplicate all of the contributions of MTF to understanding the epidemic. Thus, MTF is an important component of the nation's efforts to monitor and understand HIV/AIDS-related risk and protective behaviors in the general population.

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, including 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 in other age groups (Anderson & Dahlberg, 1992; Gavin et al., 2009; Lefkowitz & Gillen, 2006). Another major risk behavior is men having unprotected sex with men (CDC, 2018a).

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, 2013). 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 transmitting HIV to others. Many individuals do not know that they are infected, especially young people; it is estimated that 51% of adolescents and young adults who have HIV do not know that they are infected (CDC, 2018b). 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 low in the United States; recent estimates indicate 17% of contraceptive users combine two or more methods (Sonfield, 2017). Condom use is an important way to prevent HIV and other STDs among sexually active individuals, and is a clear focus of HIV prevention efforts.

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 on the prevalence of risk and protective behaviors 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.

References

Anderson, J.E., & Dahlberg, L.L. (1992). High-risk sexual behavior in the general population: Results from a national survey, 1988–1990. *Sexually Transmitted Diseases*, 19(6), 320–325.

Centers for Disease Control and Prevention (CDC). (2008). *HIV Surveillance Report. Volume 20: Diagnoses of HIV infection and AIDS in the United States and dependent areas, 2008*. Atlanta: U.S. Department of Health and Human Services. Retrieved from <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2008-vol-20.pdf>

Centers for Disease Control and Prevention (CDC). (2010). *Use of contraception in the United States: 1982–2008*. Data from the National Survey of Family Growth. Vital and Health Statistics, Series 23, #29. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20939159>

Centers for Disease Control and Prevention (CDC). (2011). *Condom Effectiveness*. Retrieved from <http://www.cdc.gov/condomeffectiveness/latex.htm>

Centers for Disease Control and Prevention (CDC). (2015a). *HIV in the United States: At a glance*. Atlanta, GA: U. S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/hiv/statistics/basics/ataglance.html>.

Centers for Disease Control and Prevention (CDC). (2015b). *HIV Incidence*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/hiv/statistics/surveillance/incidence.html>.

Centers for Disease Control and Prevention (CDC). (2015c). *HIV Surveillance Report. Volume 26: Diagnoses of HIV infection in the United States and dependent areas, 2014*. Atlanta, GA: Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-us.pdf>.

Centers for Disease Control and Prevention (CDC). (2015d). *Youth risk behavior surveillance, United States, 2015*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/healthyouth/data/yrbs/index.htm>.

Centers for Disease Control and Prevention (CDC). (2017). *New HIV infections drop 18 percent in six years*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <https://www.cdc.gov/nchhstp/newsroom/2017/croi-hiv-incidence-press-release.html>.

Centers for Disease Control and Prevention (CDC). (2018a). Estimated HIV incidence and prevalence in the United States, 2010–2015. *HIV Surveillance Supplemental Report* 2018; 23 (No. 1). Retrieved from <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-23-1.pdf>.

Centers for Disease Control and Prevention. (2018b). *HIV in the United States: At a Glance*. Retrieved from <http://www.cdc.gov/hiv/statistics/overview/ataglance.html>

Fauci, A.S., & Folkers, G.K. (2012). Toward an AIDS-free generation. *JAMA*, 308(4), 343–344. doi: [10.1001/jama.2012.8142](https://doi.org/10.1001/jama.2012.8142)

Gardner, E.M., McLees, M.P., Steiner, J.F., del Rio, C., & Burman, W.J. (2011). The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention and HIV infection. *Clinical Infectious Diseases*, 52, 793–800. doi: [10.1093/cid/ciq243](https://doi.org/10.1093/cid/ciq243)

Gavin, L., MacKay, A.P., Brown, K., Harrier, S., Ventura, S.J., Kann, L., et al. (2009). Sexual and reproductive health of persons aged 10–24 years—United States, 2002–2007. *Morbidity and Mortality Weekly Report*, 58(SS-6), 1–60.

HIV.gov. (2018). HIV Testing Activities. Retrieved from <https://www.hiv.gov/federal-response/federal-activities-agencies/hiv-testing-activities>

Lefkowitz, E.S., & Gillen, M.M. (2006). Sex is just a normal part of life: Sexuality in emerging adulthood. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 235–255). Washington, DC: American Psychological Association.

Patrick, M.E., O'Malley, P.M., Johnston, L.D., Terry-McElrath, Y.T., & Schulenberg, J.E. (2012). HIV/AIDS risk behaviors and substance use by young adults in the United States. *Prevention Science*, 13, 532–538. doi: [10.1007/s11121-012-0279-0](https://doi.org/10.1007/s11121-012-0279-0)

Sonfield, A. (2017). Why family planning policy and practice must guarantee a true choice of contraceptive methods. *Guttmacher Policy Review*, 20:103–107.

Steinbrook, R.S. (2013). Controlling HIV/AIDS: The obstacles and opportunities ahead. *Archives of Internal Medicine*, 173(1), 11-12. doi: [10.1001/2013.jamainternmed.874](https://doi.org/10.1001/2013.jamainternmed.874)

White House Office of National AIDS Policy. (2015). *National HIV/AIDS Strategy for the United States: Updated to 2020*. Washington, DC: White House Office of National AIDS Policy. Retrieved from <https://files.hiv.gov/s3fs-public/nhas-update.pdf>

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 needle sharing) and indirectly (through engaging in risky sexual and other behaviors).

The MTF research design is described in detail in [Volume I](#) (Miech et al., 2018), [Volume II](#) (Schulenberg et al., 2018), 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 2,450 participants from each class selected in a stratified random procedure for follow-up. The 2,450 are randomly split into two half samples of 1,225 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, and currently continuing up to age 60 this year, but reporting through age 55 here. 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 the follow-up samples with a higher probability (by a factor of 3.0) than the remaining 12th graders. Those over-sampled include high school seniors 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 the analyses presented in this volume were drawn from participants in the MTF follow-up surveys of 21- to 30-year-olds in 2004–2017 (representing graduates from the high school classes of 1992–2014); 35-year-olds in 2008–2017 (representing graduates from the classes of 1991–2000); and 40-year-olds in 2010–2017 (representing graduates from the classes of 1988–1995).

The present monograph reports findings from respondents of modal ages 21 to 30, 35, and 40. For those ages 21 to 30, there are fourteen years of data (collected in 2003 through 2017; weighted $N = 29,906$ observations), but there are fewer *individuals*, because most provided two or more observations ($N=10,322$ individuals, as is discussed below). For those age 35 there are ten years of data (collected in 2008 through 2017; weighted $N = 8,541$ observations *and* individuals). For

those age 40 there are eight years of data (collected in 2010 through 2017; weighted $N = 6,851$ 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, randomly distributed, 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. Each individual selected for the young adult follow-up surveys receives a form of the questionnaire matching the one he or she completed in 12th grade; much of the content is the same, 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 the sensitive items on sexual practices 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 the respondent “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 condom use in the prior 12 months.² The exact questions measuring these different variables are included in the tables in this monograph.

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 no 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.

² In earlier surveys 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.

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 in order to request their participation. No answers to the questionnaire are obtained by telephone; responses are obtained only by mail. Beginning with 2018 data collections, we include the option of web-based surveys with the young adult panel respondents.

Panel Retention

We summarize 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 (e.g., Booker et al., 2011; Brook et al., 2009; Galea & Tracy, 2007; McCabe & West, 2015; McGuigan et al., 1997). In addition, survey response rates in general have been declining in recent decades (e.g., Dillman et al., 2009; Groves, 2006; Groves et al., 2002; Massey & Tourangeau, 2013; 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 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 and web surveys as our best cost-effective options. One disadvantage of data

collection by mail or web surveys 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 face-to-face interviewing. There are 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. We are working to increase response rates (or at least stem the general response rate erosion mentioned below) based on results from an experiment in which we offered 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. The early results look promising (Patrick et al., 2018). In an extension of that experiment, we have optimized the web surveys for mobile devices such as smart phones, which may be more convenient for responding for certain groups, and starting with 2018 data collections, we are now using web-based surveys for a subsample of panel respondents.

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 2013 to 2017, the response rate in the first follow-up (corresponding to one to two years past high school) averaged 420%, and for the sixth follow-up (corresponding to 11–12 years past high school) response rates averaged 40% of the originally selected panels. (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 levels among American high school graduates at various ages. 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 1978–2008, among all respondents who had never used marijuana by 12th grade, an average of 74% 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 (67%). 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, 60%

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 64%, 57%, and 51%, respectively.

Thus, even among those who were active heavy users of marijuana in high school, response rates at the fourth follow-up were only 13 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); this survey 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 NSDUH data from 2014 (Center for Behavioral Health Statistics, 2015), 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 (Miech et al., 2018; Schulenberg et al., 2018).

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 non-respondents, 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; Galea & Tracey, 2007; 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 very similar across groups who remain in the longitudinal study and those who do not (Jager et al., 2013; Merline et al., 2008; 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 7% 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, 35-year-olds, and 40-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 added, and panel retention rates tend to change very slowly, we believe that the trend estimates changed only modestly since the questions on HIV/AIDS risk and protective factors were—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 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 non-sensitive 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 2017 combined. Having multiple years of data is valuable because they can be combined to increase the precision of low-prevalence estimates (in particular, for the intersection of some behaviors). Because the intersection of some of the behaviors is of particular importance, we report the bivariate associations among them, though the low numbers in some cases still limit the conclusions that can be reached. Over time the case counts continue to grow and allow more detailed analyses.

Because individuals are surveyed every two years, some individuals complete multiple questionnaires across the years, and thus we draw a distinction between the number of observations and the number of unique individuals surveyed. For estimates based on one or two years of data, the number observations is equivalent to the number of individuals surveyed. However, for estimates based on all years combined, the number of unique individuals is lower than the number of observations. Thus, for estimates using data from 2004 through 2017, a single individual can contribute up to five waves of data containing information of relevance to these analyses. The total number of weighted observations of young adults for 2004 through 2017 is 29,906, but the total number of unique individuals is only a little more than one-third of that number at 10,322. *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

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 91.9% by 2016. U.S. Census (various years). Current population reports, Series P-20, various numbers. Washington, DC: U.S. Government Printing Office

observations and individuals *are* equivalent because each individual contributes only one observation at a given age.

It should be noted that we also examine the data for each of the fourteen years (2004–2017) separately to look for signs of change in prevalence levels, and find only limited 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, ten years of data have been collected—2008 through 2017 (weighted $N = 8,541$), and for those of modal age 40 there are eight years of data (2010–2017; weighted $N = 6,851$). Because an individual respondent can contribute only one observation at each of these ages, the number of observations and the number of observations 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 (Schulenberg et al., 2018) 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 when they were in 12th grade. This permits a *post-stratification* 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, the measures of non-drug-using variables under consideration in this monograph (primarily related to sexual behavior) were not included in the 12th-grade surveys, so this form of post-stratification is unworkable. Instead, we have implemented a different post-stratification 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 the distributions observed in 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 pre-specified, 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 non-overlapping categories (or cells) of individuals that can be reweighted to adjust 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 such 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 account for multiple responses from individuals. Also, nominal significance levels are used with no correction for multiple tests. Thus, nominal levels may be 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.

References

- Bachman, J.G., Johnston, L.D., O'Malley, P.M., Schulenberg, J.E., & Miech, R.A. (2015). *The Monitoring the Future project after four decades: Design and procedures* (Monitoring the Future Occasional Paper No. 82). Ann Arbor, MI: Institute for Social Research, University of Michigan. <http://monitoringthefuture.org/pubs/occpapers/mtf-occ82.pdf>
- Booker, C.L., Harding, S., & Benzeval, M. (2011). A systematic review of the effect of retention methods in population-based cohort studies. *BMC Public Health*, *11*, 249. [doi: 10.1186/1471-2458-11-249](https://doi.org/10.1186/1471-2458-11-249).
- Brook, J.S., Saar, N.S., Zhang, C., & Brook, D.W. (2009). Psychosocial antecedents and adverse health consequences related to substance use. *American Journal of Public Health*, *99*(3), 563-568. [doi: 10.2105/AJPH.2007.127225](https://doi.org/10.2105/AJPH.2007.127225).
- Center for Behavioral Health Statistics and Quality. (2015). *Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health* (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from <https://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf>
- Cohen, M.S., Chen, Y.Q., McCauley, M., Gamble, T., Hosseinipour, M.C., Kumarasamy, N., et al.; HPTN 052 Study Team. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*, *365*(6), 493–505. [doi: 10.1056/NEJMoa1105243](https://doi.org/10.1056/NEJMoa1105243)
- Cordray, S., & Polk, K. (1983). The implications of respondent loss in panel studies of deviant behavior. *Journal of Research in Crime and Delinquency*, *20*(2), 214–242. [doi: 10.1177/002242788302000205](https://doi.org/10.1177/002242788302000205)
- Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, mail, and mixed mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Galea, S., & Tracy, M. (2007). Participation rates in epidemiologic studies. *Annals of Epidemiology*, *17*(9), 643-653. [doi: 10.1016/j.annepidem.2007.03.013](https://doi.org/10.1016/j.annepidem.2007.03.013).
- Goudy, W.J. (1976). Nonresponse effects on relationships between variables. *Public Opinion Quarterly*, *40*, 360–369.
- Groves, R. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly*, *70*, 646–75. [doi: 10.1093/poq/nfl033](https://doi.org/10.1093/poq/nfl033)
- Groves, R.M., Dillman, D.A., Eltinge, J.L., & Little, R.J.A. (Eds.) (2002). *Survey nonresponse*. New York: Wiley.
- Groves, R., & Peytcheva, E. (2008). The impact of nonresponse rates on nonresponse bias: A meta-analysis. *Public Opinion Quarterly*, *72*, 167–89. [doi: 10.1093/poq/nfn011](https://doi.org/10.1093/poq/nfn011)

- Jager, J., Schulenberg, J.E., O'Malley, P.M., & Bachman, J.G. (2013). Historical variation in drug use trajectories across the transition to adulthood: The trend towards lower intercepts and steeper, ascending slopes. *Development and Psychopathology*, 25(2), 527–543. doi: [10.1017/S0954579412001228](https://doi.org/10.1017/S0954579412001228)
- Martikainen, P., Laaksonen, M., Piha, K., & Lallukka, T. (2007). Does survey non-response bias the association between occupational social class and health? *Scandinavian Journal of Public Health*, 35(2), 212–215. doi: [10.1080/14034940600996563](https://doi.org/10.1080/14034940600996563)
- Massey, D.S., & Tourangeau, R. (2013). The nonresponse challenge to surveys and statistics. *Annals of the American Academy of Political and Social Science*, 645, 1-236.
- McCabe, S.E., & West, B.T. (2015). Selective nonresponse bias in population-based survey estimates of drug use behaviors in the United States. *Social Psychiatry & Psychiatric Epidemiology*, 51(1), 141-153. doi: [10.1007/s00127-015-1122-2](https://doi.org/10.1007/s00127-015-1122-2).
- McGuigan, K.A., Ellickson, P.L., Hays, R.D., & Bell, R.M. (1997) Adjusting for attrition in school-based samples: Bias, precision, and cost trade-off of three methods. *Evaluation Review*, 21, 554–567.
- Merline, A.C., Jager, J., & Schulenberg, J.E. (2008). Adolescent risk factors for adult alcohol use and abuse: Stability and change of predictive value across early and middle adulthood. *Addiction*, 103(Suppl. 1), 84-99. doi: [10.1111/j.1360-0443.2008.02178.x](https://doi.org/10.1111/j.1360-0443.2008.02178.x).
- Miech, R.A., Johnston, L.D., O'Malley, P.M., Bachman, J.G., Schulenberg, J.E., & Patrick, M. E. (2018). *Monitoring the Future national survey results on drug use, 1975–2017, Volume 1: Secondary school students*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. http://monitoringthefuture.org/pubs/monographs/mtf-vol1_2017.pdf
- Nohr, E.A., & Olsen, J. (2013). Commentary: Epidemiologists have debated representativeness for more than 40 years — Has the time come to move on? *International Journal of Epidemiology*, 42, 1016–1017. doi: [10.1093/ije/dyt102](https://doi.org/10.1093/ije/dyt102)
- Patrick, M. E., Couper, M. P., Laetz, V. B., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Miech, R. A. (2018). A sequential mixed mode experiment in the U.S. national Monitoring the Future study. *Journal of Survey Statistics and Methodology*, 6(1), 72-97. dx.doi.org/10.1093/jssam/smx011
- Pew Research Center. (2012). Assessing the representativeness of public opinion surveys. Retrieved from <http://www.people-press.org/2012/05/15/assessing-the-representativeness-of-public-opinion-surveys>
- Peytchev, A. (2013). Consequences of survey nonresponse. *Annals of the American Academy of Political and Social Science*, 645(1), 88–111. doi: [10.1177/0002716212461748](https://doi.org/10.1177/0002716212461748)

Schulenberg, J.E., Bachman, J.G., O'Malley, P.M., & Johnston, L.D. (1994). High school educational success and subsequent substance use: A panel analysis following adolescents into young adulthood. *Journal of Health and Social Behavior*, 35, 45–62.

Schulenberg, J.E., Merline, A.C., Johnston, L.D., O'Malley, P.M., Bachman, J.G., & Laetz, V.B. (2005). Trajectories of marijuana use during the transition to adulthood: The big picture based on national panel data. *Journal of Drug Issues*, 35, 255–279. doi: [10.1177/002204260503500203](https://doi.org/10.1177/002204260503500203)

Schulenberg, J.E., Johnston, L.D., O'Malley, P.M., Bachman, J.G., Miech, R.A., & Patrick, M. E. (2018). *Monitoring the Future national survey results on drug use, 1975–2017. Volume II: College students and adults ages 19–55*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. http://monitoringthefuture.org/pubs/monographs/mtf-vol2_2017.pdf

Staff, J., Schulenberg, J.E., Maslowsky, J., Bachman, J.G., O'Malley, P.M., Maggs, J.L., & Johnston, L.D. (2010). Substance use changes and social role transitions: Proximal developmental effects on ongoing trajectories from late adolescence through early adulthood. *Development and Psychopathology*, 22 (Special issue: Developmental Cascades: Part 2), 917-932. doi: [10.1017/S0954579410000544](https://doi.org/10.1017/S0954579410000544)

Van Loon, A.J.M., Tjhuis, M., Picavet, H.S.J., Surtees, P.G., & Ormel, J. (2003). Survey non-response in the Netherlands: Effects on prevalence estimates and associations. *Annals of Epidemiology*, 13(2), 105–110. doi: [10.1016/S1047-2797\(02\)00257-0](https://doi.org/10.1016/S1047-2797(02)00257-0)

Wechsler, H., Lee, J.E., Kuo, M., Seibring, M., Nelson, T.F., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts: Findings from 4 Harvard School of Public Health College Alcohol Study surveys: 1993–2001. *Journal of American College Health*, 50, 203–217. doi: [10.1080/07448480209595713](https://doi.org/10.1080/07448480209595713)

Chapter 4

PREVALENCE/FREQUENCY OF FOUR RISK BEHAVIORS

In this chapter 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 4-1 and 4-2. The 'a' tables (i.e., 4-1a, 4-2a) provide the data for young adults aged 21 to 30 based on data from the 2004–2017 period. The 'b' tables provide the data for 35-year-olds based on data from 2008–2017. The 'c' tables provide the data for 40-year-olds based on data from 2010–2017. 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 2017 has a total weighted N of 29,906 observations. The sample of 35-year-old respondents from 2008 through 2017 has a total weighted N of 8,541, and for those of modal age 40 from 2010–2017, the total weighted N is 6,851. 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, the data from each individual are included only once, thus 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 others²): 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 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.

¹ Combining 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 combining the data across years. In Chapters 9 and 10, trends across years are shown.

² According to recent statistics from CDC (<http://www.cdc.gov/hiv/library/reports/surveillance/>), the estimated number of cases of new HIV infections in the U.S. in 2014 (44,073) by transmission category was as follows: 29,529 (67%) for MSM, 10,578 (24%) for heterosexual contact, 2,644 (6%) for injection drug use, 1,322 (3%) for both MSM and injection drug use, and 276 (< 1%) for other transmission routes including blood transfusion, hemophilia, and perinatal exposure.

- In the fourteen-year (2004–2017) combined samples of young adults aged 21–30, 1.5% report having ever used any drug by injection not under a doctor’s orders, and 0.5% reported doing so on 40 or more occasions (Table 4-1a). Thus, about 1 in every 67 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 are appreciable gender differences—2.2% of males vs. 0.9% of females indicate ever injecting a drug ($p<.001$), and the percentages saying they injected on 40 or more occasions are 0.7% for males and 0.3% for females ($p<.001$). The percentages of young adults who have injected drugs during the *past 12 months* without medical supervision are considerably smaller: 0.5% overall—1 in every 200 respondents—including 0.8% of males and 0.3% of females ($p<.001$). The percentages using 40 or more times in the past 12 months are 0.2% overall—0.3% for males and 0.1% for females
- Tables 4-1b and 4-1c provide data for the two older age groups included in this report, 35- and 40-year-olds, respectively. The lifetime prevalence of ever injecting drugs does not vary much with age: 1.5%, 1.7%, and 1.5% for 21-30, 35, and 40, respectively. Annual prevalence declines with age: 0.5%, 0.4%, and 0.3% for 21-30, 35, and 40, respectively. Males report higher levels than females. (The difference between the three age groups is confounded by the years of measurement and the class cohorts involved, which means that any differences across the three age groups could be due to factors other than just age.)

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 drugs not under a doctor’s orders, just discussed, 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 proportions of 21- to 30-year-olds who say they have ever shared needles in this way during their lifetime are 0.5% overall—0.6% of males and 0.4% of females (Table 4-1a). As noted in the previous section, 1.5% of the full samples say they have ever injected a drug, so this indicates that a minority—but still 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 reported that they 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 reported having shared needles (0.4%/0.9%), compared to a little more than one-fourth of male injectors (0.6%/2.2%), 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 the 35- and 40-year-olds, compared to 0.5% among young adults (Tables 4-1b and 4-1c). This could be due to cohort-effects—lasting differences between class cohorts—different years of measurement, and/or to attrition from the panel. 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. (In fact, among the 35- and 40-year-olds, past year prevalence is below 0.5%.) It seems likely that the rates are an underestimate for the entire population in these age groups 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. An estimated 45 million Americans were between ages 20 and 29 in 2017 (US Census Bureau, 2018); just 0.5% of this group would be approximately 225,000 individuals.

- As was true for 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 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.)” All 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.³ Results are provided in Tables 4-2a, 4-2b, and 4-2c.

- Roughly one quarter (24%) of the sample of young adults aged 21 to 30 reported that they have had multiple (two or more) sex partners in the prior 12 months—26% of males and 22% of females (Table 4-2a).
- About one-sixth (16%) of 21- to 30-year-old respondents reported having *no* sex partners during the prior 12 months (i.e., sexual abstinence)—18% of males and 14% of females.
- The most common answer by far to this question was having one partner during the year (60% overall); a lower proportion of males (56%) than females (64%) gave this answer.
- While having even one sex partner is not without risk, the risk of acquiring or transmitting HIV rises with an increased number of partners. About 10% of young adults reported that they had a total of two partners during the past 12 months (9.2% of males and 9.9% of

³ The CDC reports that there is little to no risk of getting or transmitting HIV through oral sex. <https://www.cdc.gov/hiv/risk/oralsex.html>

females); 5.6% reported three partners (5.9% of males and 5.3% of females); and about one in eleven (8.7%) reported having four or more partners (11% of males and 6.6% of females). Very few reported having more than 20 partners in the prior 12 months (0.7% of males and 0.1% of females). *Overall, while males were slightly more likely to be abstinent than females, males were 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 4-2b and 4-2c) were substantially lower than they were among young adults. The proportion reporting having had more than one partner during the past 12 months was 24.0% among young adults (ages 21-30), 12.0% among 35-year-olds, and 10.6% among 40-year-olds. The proportions reporting four or more sex partners during the year fell from 8.7% among young adults to 4.2% among 35-year-olds and 3.4% 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 continued to be more likely than females to report multiple sex partners (14.0% vs. 10.3%, respectively at age 35, and 12.4% vs. 8.8% at age 40). They also remained more likely to report four or more partners in the prior year (6.1% vs. 2.5% at age 35, and 5.0% vs. 2.0% at age 40).

Men Having Sex with Men, and Sex across Both 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 are fairly limited in the two categories that involve sexual contact with partners of the same gender, as will be detailed below, so the reader is cautioned to pay particular attention to the numbers of observations for these groups (Tables 4-2a, 4-2b, and 4-2c). 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 4-2a, 4-2b, and 4-2c for the proportions in each of the three categories.) Recall that these findings are based on data combined across years.

- Of the young adult respondents reporting one or more sex partners in the prior 12 months (representing 84% of the total sample, 82% of all males, and 86% of all females), about 1 in 20 (5.4%) males indicated some sexual contact with other males during the last 12 months—4.5% saying that their partners were males exclusively and 0.9% saying that they had both male and female partners (Table 4-2a).

Note that because of the low prevalence for these behaviors, the weighted number of cases is limited: a total of 606 observations from male respondents who reported having sexual

contact with other males—505 observations of men having sex exclusively with other males and 101 observations of men having sex with both genders.

- Among young adult females, 4.5% reported having any female sex partners—2.5% indicated female partners exclusively and 2.0% indicated that their partners were of both genders—almost an even split, unlike the case for males (Table 4-2a). Thus bisexual behavior is more common among females in this population—about twice as common, in fact (2.0% vs. 0.9% for males), and having sex only with the same gender is about twice as common among men (4.5% vs. 2.5%).

Again, note that the numbers of reports available for study are limited: 601 reports of females having any sexual contact with other females, 334 reports of females having sexual contact exclusively with other females, and 267 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 males reported that their partners were exclusively female, and 96% of females indicated that their partners were exclusively male (Table 4-2a).
- As noted previously, males with same-gender sexual contact 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 were similar to those observed among 21- to 30-year-olds (3.7% and 3.8% respectively for 35- and 40-year-olds, compared to 4.5% among the young adults). The proportion of both 35- and 40-year-old males reporting sex with partners of both genders (0.7% and 0.7% respectively) was slightly lower than for the young adult males (0.9%)—a non-significant difference.

Among females, there was very little difference in the proportions reporting sex in the prior year exclusively with female partners among 35-year-olds (2.2%) and 40-year-olds (2.0%), compared with the young adults (2.5%). The proportion of females reporting having sex with partners of both genders was 0.9% and 1.1% in these two older age groups, respectively, compared to 2.0% among young adults. There appears to be some decline in the reporting of female-to-female and bisexual sex in the older groups.

References

Chandra, A., Billioux, V.G., & Copen, C.E. (January 19, 2012). *HIV risk-related behaviors in the United States household population aged 15–44 years: Data from the National Survey of Family Growth, 2002 and 2006–2010* (National Health Statistics Reports No.46). CDC, National Survey of Family Growth. Retrieved from <http://www.cdc.gov/nchs/data/nhsr/nhsr046.pdf>

Chandra, A., Mosher, W.D., Copen, C.E., & Sionean, C. (March 3, 2011). *Sexual behavior, sexual attraction, and sexual identity in the United States: Data from the National Survey of Family Growth, 2006–2008* (National Health Statistics Report, No.36). CDC, National Survey of Family Growth. Retrieved from <http://www.cdc.gov/nchs/data/nhsr/nhsr036.pdf>

US Census Bureau. (2018). Resident population of the United States by sex and age as of July 1, 2017 (in millions). Retrieved from <https://www.statista.com/statistics/241488/population-of-the-us-by-sex-and-age/>

TABLE 4-1a
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2017 ^a Combined

(Entries are percentages.)

	<u>Total</u>	<u>Male</u>	<u>Female</u>
<u>Lifetime Frequency of Injecting Drugs</u>			
<i>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.</i>			
0 Occasions	98.5	97.8	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	0.7	0.3
<i>Weighted N =</i>	29,341	13,715	15,625
<u>Annual Frequency of Injecting Drugs</u>			
<i>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.</i>			
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	0.3	0.1
<i>Weighted N =</i>	29,339	13,711	15,628
<u>Lifetime and Annual Needle Sharing</u>			
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>			
Yes, in the last 12 months	0.2	0.2	0.1
Yes, but not in the last 12 months	0.3	0.4	0.3
No, never	99.5	99.4	99.6
<i>Weighted N =</i>	29,097	13,599	15,498

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

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

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

TABLE 4-1b
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Age 35
in 2008–2017 ^a Combined
(Entries are percentages.)

<u>Lifetime Frequency of Injecting Drugs</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>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.</i>			
0 Occasions	98.3	97.5	99.0
1–2	0.7	0.8	0.5
3–5	0.1	0.2	0.1
6–9	0.1	0.2	*
10–19	0.2	0.4	0.1
20–39	0.1	0.2	*
40+ Occasions	0.5	0.7	0.3
<i>Weighted N =</i>	8,030	3,826	4,204
 <u>Annual Frequency of Injecting Drugs</u>			
<i>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.</i>			
0 Occasions	99.6	99.5	99.8
1–2	*	0.1	*
3–5	*	*	*
6–9	0.1	0.2	*
10–19	*	*	*
20–39	0.1	0.1	0.1
40+ Occasions	0.1	0.2	0.1
<i>Weighted N =</i>	8,034	3,829	4,206
 <u>Lifetime and Annual Needle Sharing</u>			
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>			
Yes, in the last 12 months	*	*	0.1
Yes, but not in the last 12 months	0.3	0.4	0.2
No, never	99.6	99.5	99.7
<i>Weighted N =</i>	8,023	3,824	4,198

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

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

^aIn 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 4-1c
Injection Drug Use and Needle Sharing
Total and by Gender
among Respondents of Modal Age 40
in 2010–2017^a Combined
(Entries are percentages.)

<u>Lifetime Frequency of Injecting Drugs</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>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.</i>			
0 Occasions	98.5	97.8	99.2
1–2	0.6	0.8	0.4
3–5	0.2	0.3	0.1
6–9	0.2	0.3	0.1
10–19	0.1	0.2	*
20–39	0.1	0.1	*
40+ Occasions	0.4	0.6	0.2
<i>Weighted N =</i>	6,808	3,293	3,516

<u>Annual Frequency of Injecting Drugs</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>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.</i>			
0 Occasions	99.7	99.5	99.9
1–2	0.1	0.1	*
3–5	*	*	*
6–9	*	*	*
10–19	*	0.1	*
20–39	*	0.1	*
40+ Occasions	0.1	0.2	0.1
<i>Weighted N =</i>	6,811	3,294	3,517

<u>Lifetime and Annual Needle Sharing</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>			
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
<i>Weighted N =</i>	6,796	3,291	3,504

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 4-2a
Number of Sex Partners and Gender of Sex Partners
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2017 ^a Combined

(Entries are percentages.)

<u>Number of Partners in Last 12 Months</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>			
None	15.9	18.0	14.1
One	60.1	55.7	64.0
Two	9.6	9.2	9.9
Three	5.6	5.9	5.3
Four	3.6	4.0	3.3
5–10	4.0	5.3	2.9
11–20	0.7	1.2	0.3
21–100	0.3	0.5	0.1
More than 100	0.1	0.2	*
<i>Weighted N =</i>	29,279	13,683	15,596

Gender of Partners in Last 12 Months ^b

During the LAST 12 MONTHS, have your sex partner or partners been ...

Exclusively male?	54.0	4.5	95.5
Both male and female?	1.5	0.9	2.0
Exclusively female?	44.5	94.5	2.5
<i>Weighted N =</i>	24,584	11,213	13,371

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

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 4-2b
Number of Sex Partners and Gender of Sex Partners
Total and by Gender
among Respondents of Modal Age 35
in 2008–2017 ^a Combined
(Entries are percentages.)

Number of Partners in Last 12 Months	Total	Male	Female
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>			
None	9.4	9.4	9.4
One	78.6	76.6	80.3
Two	5.0	4.8	5.1
Three	2.8	3.0	2.6
Four	1.7	2.3	1.1
5–10	1.8	2.5	1.1
11–20	0.5	0.8	0.2
21–100	0.2	0.4	0.1
More	*	0.1	*
<i>Weighted N =</i>	<i>8,001</i>	<i>3,811</i>	<i>4,190</i>
Gender of Partners in Last 12 Months ^b			
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>			
Exclusively male?	52.4	3.7	96.9
Both male and female?	0.8	0.7	0.9
Exclusively female?	46.8	95.6	2.2
<i>Weighted N =</i>	<i>7,212</i>	<i>3,446</i>	<i>3,766</i>

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

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

^aIn 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 4-2c
Number of Sex Partners and Gender of Sex Partners
Total and by Gender
among Respondents of Modal Age 40
in 2010–2017 ^a Combined
(Entries are percentages.)

Number of Partners in Last 12 Months	Total	Male	Female
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>			
None	10.5	9.5	11.5
One	78.9	78.1	79.7
Two	4.8	4.6	5.0
Three	2.3	2.8	1.9
Four	1.2	1.5	1.0
5–10	1.5	2.3	0.8
11–20	0.3	0.5	0.2
21–100	0.3	0.6	*
More than 100	0.1	0.1	*
<i>Weighted N =</i>	<i>6,787</i>	<i>3,285</i>	<i>3,502</i>
Gender of Partners in Last 12 Months ^b			
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>			
Exclusively male?	51.3	3.8	96.8
Both male and female?	0.9	0.7	1.1
Exclusively female?	47.8	95.5	2.0
<i>Weighted N =</i>	<i>6,040</i>	<i>2,958</i>	<i>3,083</i>

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bPercentages 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 pair-wise 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 5-1a provides information on young adults' (age 21–30) 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 females, exclusively with males, or with both males and females; and women who had sex exclusively with males, exclusively with females, or with both males and females. As noted earlier, the limited numbers of cases in the groups reporting same-gender or both-gender sexual contact make any results somewhat tentative. See Tables 5-1a, 5-1b, and 5-1c 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 5-1a).
- Young adult males who report having exclusively male partners have the same lifetime prevalence of *injection drug use* as males having exclusively female partners (2.4%) and an annual prevalence that is only slightly higher at 1.2% vs. 0.8% (Table 5-1a). However, they have a significantly higher lifetime and annual prevalence of *needle sharing* (1.3% vs. 0.4% lifetime [$p < .01$]; 0.8% vs. 0.1% annual [$p < .001$]). So, among young adult males there is some compounding of these two types of risk—needle sharing and men having sex with men.
- 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 (3.3% vs. 0.8% for lifetime [$p < .001$], and 0.7% vs 0.2% for annual [ns]). More importantly, their lifetime prevalence of *needle sharing* is also significantly higher (2.4% vs. 0.3% [$p < .001$]). Interestingly, there is no significant 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.
- 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 5-1b and 5-1c), a situation that will be remedied in future years as more young cohorts in the study reach ages 35 and 40.

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 5-2a). 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 0.3%, 0.3%, and 0.5%, respectively, whereas those reporting five or more partners have a prevalence of 3.0%. Although the association holds for both males and females, it is much stronger for males: 6.4% 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 5-2b and 5-2c) 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 largely to males. Females report little injecting in the prior 12 months and in their lifetime.
- Among the young adults, the dangerous practice of sharing needles relates positively to the number of sex partners; prior-12-month sharing was 0.1% or less among those who had two or fewer partners in the prior 12 months, and 0.9% among those reporting five or more partners in that period (Table 5-2a, 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 lower levels of reported needle sharing among the age 35 and 40 respondents (Tables 5-2b and 5-2c), but lifetime needle sharing rates have some positive association with number of sex partners in the prior 12 months. Among the 35-year-olds those reporting three or more partners in the prior 12 months are most likely to have ever shared needles. Among 40-year-olds, it is difficult to say with any certainty, given the limitations of sample sizes; but it appears that males with three or more partners are also the ones most likely to share needles. There is no association for females at age 40. Insofar as needle sharing is associated with number of sex partners in the previous 12 months, it appears that the needle sharing occurred in previous years, not the most recent one.

Number of Sex Partners by Gender of Sex Partners

- We examined the number of sex partners reported by the genders of those partners (Table 5-3a). Among sexually active young adult males, of those who had sex exclusively with other males during the prior 12 months ($N = 510$ observations), about half (53%) 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. About one-fifth (22%) 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 of the two groups having

more than ten sex partners during the year were 10.2% vs. 1.7%, respectively. *Thus, although their proportion of the total population is small, and these particular findings are thus based on a limited 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 a large number of sex partners—are positively correlated, as others also have found (Ashenhurst et al., 2017; CDC, 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 ($N = 125$ and 112 observations, respectively; see Tables 5-3b and 5-3c). 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 70%, but among both 35- and 40-year-olds it is 87% and 88%, respectively, no doubt reflecting in part the larger proportion of the two older age groups who are married to women.
- Among sexually active young adult females who had sex exclusively with other females during the year ($N = 328$), 75% reported having only one partner, indicating a considerably higher level of monogamy than among males having sex exclusively with other males. This rate of monogamy is about the same (76%) as it is among females who had male partners exclusively. Again, these estimates are only suggestive, given the limited sample sizes involved. *However, the results suggest 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 or females who have sex with males, based on the number of sex partners they have as well as on the relatively lower risks associated with female-to-female sex.*
- There were insufficient numbers of 35- and 40-year-old females reporting same sex partners to provide reliable estimates (Tables 5-3b and 5-3c).
- Individuals who have sex partners of both genders carry the risk of spreading HIV across genders, making their behavior of particular importance. The numbers of cases collected to date are limited; young adult weighted $Ns = 273$ observations for females and 104 for males reporting sex 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 377 cases that report partners of both genders, the proportions reporting five or more sex partners appear to be quite high for both genders—40% for males and 29% for females (Table 5-3a).
- 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 5-3b and 5-3c).

References

Ashenurst, J.R., Wilhite, E.R., Harden, K.P., & Fromme, K. (2017). [Number of sexual partners and relationship status are associated with unprotected sex across emerging adulthood](#). *Archives of Sexual Behavior*, 46, 419-432.

Centers for Disease Control and Prevention (CDC). (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.

TABLE 5-1a
Injection Drug Use and Needle Sharing
by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Ages 21–30 in 2004–2017^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
<u>Lifetime Frequency of Injecting Drugs</u>						
<i>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.</i>						
0 Occasions	97.6	97.6	87.6	99.2	96.7	93.8
1–2	0.6	0.5	1.9	0.3	1.0	2.3
3–5	0.3	0.9	1.3	0.1	1.2	1.1
6–9	0.2	0.3	2.7	0.1	*	0.6
10–19	0.3	0.1	*	0.1	*	0.4
20–39	0.2	0.1	1.1	*	*	*
40+ Occasions	0.7	0.5	5.3	0.3	1.1	1.9
<i>Weighted N =</i>	10,555	505	102	12,721	328	273
<u>Annual Frequency of Injecting Drugs</u>						
<i>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.</i>						
0 Occasions	99.2	98.8	89.4	99.8	99.3	96.5
1–2	0.1	0.5	2.5	*	*	1.6
3–5	0.1	0.3	0.7	*	0.1	0.3
6–9	0.1	*	2.3	*	*	*
10–19	0.1	*	1.1	*	0.3	0.1
20–39	0.1	*	0.9	*	*	0.1
40+ Occasions	0.3	0.4	2.9	0.1	0.3	1.3
<i>Weighted N =</i>	10,559	505	102	12,724	328	273
<u>Lifetime and Annual Needle Sharing</u>						
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>						
Yes, in the last 12 months	0.1	0.8	3.0	0.1	0.3	1.5
Yes, but not in the last 12 months	0.3	0.5	3.1	0.2	2.1	1.5
No, never	99.5	98.7	93.9	99.7	97.6	97.0
<i>Weighted N =</i>	10,474	504	97	12,627	328	272

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

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

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

TABLE 5-1b
Injection Drug Use and Needle Sharing
by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017^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
<u>Lifetime Frequency of Injecting Drugs</u>						
<i>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.</i>						
0 Occasions	97.5	99.3	†	99.1	†	†
1–2	0.8	0.3	†	0.4	†	†
3–5	0.2	*	†	0.1	†	†
6–9	0.2	*	†	*	†	†
10–19	0.4	0.4	†	0.1	†	†
20–39	0.2	*	†	*	†	†
40+ Occasions	0.7	*	†	0.2	†	†
<i>Weighted N =</i>	3,284	127	24	3,636	83	33
<u>Annual Frequency of Injecting Drugs</u>						
<i>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.</i>						
0 Occasions	99.5	99.6	†	99.7	†	†
1–2	*	*	†	*	†	†
3–5	0.1	*	†	*	†	†
6–9	0.1	0.4	†	*	†	†
10–19	*	*	†	*	†	†
20–39	0.1	*	†	*	†	†
40+ Occasions	0.1	*	†	0.1	†	†
<i>Weighted N =</i>	3,286	127	24	3,637	83	33
<u>Lifetime and Annual Needle Sharing</u>						
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>						
Yes, in the last 12 months	*	*	†	0.1	†	†
Yes, but not in the last 12 months	0.3	0.3	†	0.2	†	†
No, never	99.6	99.7	†	99.7	†	†
<i>Weighted N =</i>	3,281	127	24	3,632	82	33

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%.

^aIn 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 5-1c
Injection Drug Use and Needle Sharing
by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^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						
<i>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.</i>						
0 Occasions	97.9	95.3	†	99.1	†	†
1–2	0.7	3.1	†	0.4	†	†
3–5	0.2	0.3	†	0.1	†	†
6–9	0.3	0.8	†	0.1	†	†
10–19	0.2	*	†	*	†	†
20–39	0.1	*	†	*	†	†
40+ Occasions	0.5	0.6	†	0.2	†	†
<i>Weighted N =</i>	2,807	112	20	2,975	63	35
Annual Frequency of Injecting Drugs						
<i>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.</i>						
0 Occasions	99.6	98.9	†	99.9	†	†
1–2	0.1	0.8	†	*	†	†
3–5	*	0.3	†	*	†	†
6–9	*	*	†	*	†	†
10–19	0.1	*	†	*	†	†
20–39	0.1	*	†	*	†	†
40+ Occasions	0.2	*	†	0.1	†	†
<i>Weighted N =</i>	2,809	112	20	2,976	63	35
Lifetime and Annual Needle Sharing						
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>						
Yes, in the last 12 months	*	*	†	*	†	†
Yes, but not in the last 12 months	0.4	0.8	†	0.2	†	†
No, never	99.6	99.2	†	99.8	†	†
<i>Weighted N =</i>	2,807	111	20	2,966	63	35

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%.

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 5-2a
Injection Drug Use and Needle Sharing
by Number of Sex Partners in Last 12 Months
among Respondents of Modal Ages 21–30 in 2004–2017^a Combined
(Entries are percentages.)

	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
Lifetime Frequency of Injecting Drugs					
<i>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.</i>					
Total					
0 Occasions	99.4	98.8	98.2	97.0	94.9
1+ Occasions	0.6	1.2	1.8	3.0	5.1
<i>Weighted N =</i>	4,643	17,540	2,790	2,691	1,492
Male					
0 Occasions	99.0	98.3	97.6	95.6	93.6
1+ Occasions	1.0	1.7	2.4	4.4	6.4
<i>Weighted N =</i>	2,451	7,598	1,249	1,346	974
Female					
0 Occasions	99.8	99.2	98.7	98.5	97.5
1+ Occasions	0.2	0.8	1.3	1.5	2.5
<i>Weighted N =</i>	2,192	9,943	1,541	1,344	518
Annual Frequency of Injecting Drugs					
<i>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.</i>					
Total					
0 Occasions	99.7	99.7	99.5	98.7	97.0
1+ Occasions	0.3	0.3	0.5	1.3	3.0
<i>Weighted N =</i>	4,636	17,544	2,790	2,692	1,492
Male					
0 Occasions	99.7	99.6	99.5	98.0	96.2
1+ Occasions	0.3	0.4	0.5	2.0	3.8
<i>Weighted N =</i>	2,444	7,600	1,248	1,347	973
Female					
0 Occasions	99.8	99.9	99.5	99.4	98.5
1+ Occasions	0.2	0.1	0.5	0.6	1.5
<i>Weighted N =</i>	2,192	9,944	1,542	1,344	518
Lifetime and Annual Needle Sharing					
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>					
Total					
Yes, in the last 12 months	0.1	0.1	0.1	0.5	0.9
Yes, but not in the last 12 months	0.3	0.2	0.4	0.8	0.4
No, never	99.6	99.7	99.5	98.7	98.6
<i>Weighted N =</i>	4,592	17,418	2,766	2,667	1,478
Male					
Yes, in the last 12 months	0.1	0.1	*	0.6	1.0
Yes, but not in the last 12 months	0.5	0.2	0.4	1.0	0.3
No, never	99.3	99.7	99.6	98.4	98.6
<i>Weighted N =</i>	2,425	7,550	1,231	1,336	962
Female					
Yes, in the last 12 months	0.1	0.1	0.1	0.4	0.7
Yes, but not in the last 12 months	*	0.2	0.5	0.5	0.6
No, never	99.9	99.7	99.4	99.1	98.7
<i>Weighted N =</i>	2,167	9,868	1,535	1,331	516

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

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

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

TABLE 5-2b
Injection Drug Use and Needle Sharing
by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017^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					
<i>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.</i>					
Total					
0 Occasions	98.6	98.6	97.4	95.2	95.6
1+ Occasions	1.4	1.4	2.6	4.8	4.4
<i>Weighted N =</i>	752	6,262	397	358	205
Males					
0 Occasions	97.5	98.0	96.2	94.1	94.4
1+ Occasions	2.5	2.0	3.8	5.9	5.6
<i>Weighted N =</i>	357	2,909	184	202	146
Females					
0 Occasions	99.6	99.1	98.5	96.7	98.5
1+ Occasions	0.4	0.9	1.5	3.3	1.5
<i>Weighted N =</i>	394	3,353	213	157	59
Annual Frequency of Injecting Drugs					
<i>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.</i>					
Total					
0 Occasions	99.6	99.8	98.4	98.4	98.9
1+ Occasions	0.4	0.2	1.6	1.6	1.1
<i>Weighted N =</i>	752	6,266	397	358	205
Males					
0 Occasions	99.1	99.7	97.3	98.5	98.6
1+ Occasions	0.9	0.3	2.7	1.5	1.4
<i>Weighted N =</i>	357	2,911	184	202	146
Females					
0 Occasions	100.0	99.8	99.4	98.2	99.6
1+ Occasions	*	0.2	0.6	1.8	0.4
<i>Weighted N =</i>	394	3,355	213	157	59
Lifetime and Annual Needle Sharing					
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>					
Total					
Yes, in the last 12 months	*	*	*	0.2	*
Yes, but not in the last 12 months	0.2	0.3	0.2	1.2	1.3
No, never	99.8	99.7	99.8	98.7	98.7
<i>Weighted N =</i>	750	6,257	397	357	205
Males					
Yes, in the last 12 months	*	*	*	0.3	*
Yes, but not in the last 12 months	0.3	0.3	*	1.9	1.7
No, never	99.7	99.7	100.0	97.8	98.3
<i>Weighted N =</i>	358	2,908	183	202	146
Females					
Yes, in the last 12 months	*	0.1	*	*	*
Yes, but not in the last 12 months	0.1	0.2	0.4	0.3	0.5
No, never	99.9	99.7	99.6	99.7	99.5
<i>Weighted N =</i>	392	3,350	214	155	59

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

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

^aIn 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 5-2c
Injection Drug Use and Needle Sharing
by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^a Combined
(Entries are percentages.)

	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
<u>Lifetime Frequency of Injecting Drugs</u>					
<i>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.</i>					
<u>Total</u>					
0 Occasions	98.2	98.7	99.2	96.1	95.3
1+ Occasions	1.8	1.3	0.8	3.9	4.7
	<i>Weighted N =</i>	713	5,332	325	239
<u>Males</u>					
0 Occasions	96.7	98.1	98.5	95.0	93.9
1+ Occasions	3.3	1.9	1.5	5.0	6.1
	<i>Weighted N =</i>	313	2,549	151	140
<u>Females</u>					
0 Occasions	99.3	99.1	99.9	97.7	100.0
1+ Occasions	0.7	0.9	0.1	2.3	*
	<i>Weighted N =</i>	400	2,783	174	99
<u>Annual Frequency of Injecting Drugs</u>					
<i>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.</i>					
<u>Total</u>					
0 Occasions	99.6	99.8	99.6	99.1	97.7
1+ Occasions	0.4	0.2	0.4	0.9	2.3
	<i>Weighted N =</i>	713	5,334	325	239
<u>Males</u>					
0 Occasions	99.5	99.7	99.0	99.3	97.0
1+ Occasions	0.5	0.3	1.0	0.7	3.0
	<i>Weighted N =</i>	313	2,551	151	140
<u>Females</u>					
0 Occasions	99.7	99.9	100.0	98.7	100.0
1+ Occasions	0.3	0.1	*	1.3	*
	<i>Weighted N =</i>	400	2,783	174	99
<u>Lifetime and Annual Needle Sharing</u>					
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>					
<u>Total</u>					
Yes, in the last 12 months	*	*	*	*	*
Yes, but not in the last 12 months	0.3	0.3	0.2	1.1	0.9
No, never	99.7	99.7	99.8	98.9	99.1
	<i>Weighted N =</i>	711	5,330	323	238
<u>Males</u>					
Yes, in the last 12 months	. *	. *	. *	. *	. *
Yes, but not in the last 12 months	0.1	0.4	0.3	1.7	1.2
No, never	99.9	99.6	99.7	98.3	98.8
	<i>Weighted N =</i>	312	2,556	149	140
<u>Females</u>					
Yes, in the last 12 months	. *	. *	. *	. *	. *
Yes, but not in the last 12 months	0.4	0.2	*	0.3	*
No, never	99.6	99.8	100.0	99.7	100.0
	<i>Weighted N =</i>	399	2,773	174	99

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

TABLE 5-3a
Number of Sex Partners by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Ages 21–30 in 2004–2017 ^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						
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>						
None	—	—	—	—	—	—
One	69.5	47.2	9.4	76.0	74.8	5.1
Two	11.1	12.0	15.8	11.3	11.8	25.1
Three	7.0	10.3	13.5	5.8	7.8	23.2
Four	4.6	8.7	21.6	3.6	2.9	18.0
5–10	6.1	11.6	24.3	2.9	2.4	22.4
11–20	1.1	6.3	8.4	0.3	*	4.8
21 or more partners	0.6	3.9	7.0	0.1	0.3	1.4
<i>Weighted N =</i>	10,561	510	104	12,741	328	273

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

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

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

TABLE 5-3b
Number of Sex Partners by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017 ^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						
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>						
None	—	—	†	—	†	†
One	86.7	46.0	†	89.5	†	†
Two	5.2	6.1	†	5.4	†	†
Three	2.9	7.7	†	2.5	†	†
Four	2.3	7.7	†	1.1	†	†
5–10	2.0	24.1	†	1.2	†	†
11–20	0.6	4.4	†	0.2	†	†
21 or more partners	0.4	4.1	†	0.1	†	†
<i>Weighted N =</i>	3,281	125	24	3,648	82	33

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%.

^aIn 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 5-3c
Number of Sex Partners by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017 ^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						
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>						
None	—	—	†	—	†	†
One	88.3	49.8	†	91.0	†	†
Two	4.5	13.5	†	5.3	†	†
Three	2.9	7.8	†	2.0	†	†
Four	1.4	6.3	†	0.8	†	†
5–10	1.9	15.4	†	0.7	†	†
11–20	0.5	1.9	†	0.2	†	†
21 or more partners	0.4	5.2	†	*	†	†
<i>Weighted N =</i>	2,820	112	20	2,977	63	35

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%.

^aThe 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 (e.g., having multiple sex partners, sharing needles). Another is to use condoms during intercourse to protect 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 or alerting an ongoing partner to take preventive measures. We consider prevalence of these two protective behaviors (i.e., condom use and HIV testing) in three age groups: young adults (ages 21–30), 35-year-olds, and 40-year-olds.

Condom Use

Respondents who indicate that they have had one or more sex 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 (55%) of sexually active young adult respondents report that they “seldom” or “never” used condoms during the past 12 months—with 50% of males and 59% of females giving these answers (Table 6-1a). Indeed, a large proportion (41%) indicate that they did not use condoms at all during the past 12 months—36% of the sexually active males and 46% of the sexually active females. Higher rates of monogamy among females (documented in the previous chapter) may help to explain their lower rate of condom use; however, if their male partners are not monogamous, the risk to women increases, quite possibly without their awareness. Women having sex with other women are unlikely 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 21- to 30-year-olds shows that the prevalence of condom use declines steadily with age (Table 6-1d). Three quarters (75%) of 21- to 22-year-olds report some condom use in the last 12 months, compared to only 46% of 29- to 30-year-olds. And while 45% of the 21- to 22-year-old group report using condoms “most times” or “always,” only 22% of 29- to 30-year-olds say that. One plausible explanation for these age-related declines in condom use is an increase with age in the proportions who are married, cohabiting, monogamous, and/or trying to conceive children; however, Table 6-1e shows that even among young adults who were not married at the time of the surveys, proportions reporting any condom use decline with age across the 20s by 17 percentage points (from 77% 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 50% of the married 21- to 22-year-olds reporting any condom use to 34% among married 29- to 30-year-olds) (Table 6-1f). 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 the young adults, with 61% of the 35-year-old males and 70% of the females saying that they never used condoms in the prior 12 months (Table 6-1b). And condom use is lower still among the sexually active 40-year-olds, with 72% of the males and 78% of the females saying that they never used condoms in the prior 12 months (Table 6-1c). Changes in marital and cohabiting status likely account for much of this change with age as well (see Tables 6-1b, and 6-1c).

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 may be found in Tables 6-2a, 6-2b, and 6-2c.

- 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 (Table 6-2a). Despite the fact that males are at considerably higher risk of contracting HIV (CDC, 2018), 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 6-2d). Summing across the surveys from 2004 to 2017 (see the far right hand column), 28% of 21- to 22-year-olds report some testing in their lifetime compared to 51% 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 (26% versus 16%, Table 6-2a).
- The great majority (93%) of those who have been tested receive the results of their most recent HIV/AIDS test, with little difference by gender.
- Among both 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 the lifetime rates, the rates of being tested in the past 12 months decline some with age (21% in ages 21-30, 17% at age 35, and 12% at age 40). (See Tables 6-2a, 6-2b, and 6-2c.) Again, the higher proportions of older respondents who are married or in a monogamous relationship no doubt contribute to their lower rates of getting tested, just as it helped to account for their lower use of condoms.

References

Centers for Disease Control and Prevention (CDC). (2018). *HIV in the United States: At a glance*. Retrieved from <https://www.cdc.gov/hiv/statistics/overview/ataglance.html>

TABLE 6-1a
Frequency of Condom Use
Total and by Gender and Marital Status
among Respondents of Modal Ages 21–30
in 2004–2017^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
<i>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.)</i>									
Never	41.1	35.9	45.5	60.9	57.5	63.4	31.7	26.5	36.3
Seldom	13.7	13.8	13.7	12.8	14.4	11.6	14.2	13.5	14.7
Sometimes	12.6	13.1	12.2	10.9	11.9	10.2	13.5	13.7	13.3
Most times	14.8	16.6	13.2	7.9	9.1	7.1	18.1	19.9	16.4
Always	17.8	20.6	15.4	7.5	7.2	7.8	22.7	26.5	19.3
<i>Weighted N =</i>	<i>24,388</i>	<i>11,147</i>	<i>13,241</i>	<i>7,846</i>	<i>3,374</i>	<i>4,472</i>	<i>16,416</i>	<i>7,718</i>	<i>8,698</i>

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6-1b
Frequency of Condom Use
Total and by Gender and Marital Status
among Respondents of Modal Age 35 in 2008–2017^a Combined
(Entries are percentages.)

Frequency of Condom Use in Last 12 Months^b <i>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.)</i>	Total Sample			Married			Not Married		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Never	65.8	61.4	69.8	74.4	70.8	77.6	45.2	38.8	51.0
Seldom	8.6	10.3	7.0	7.0	8.5	5.5	12.4	14.4	10.5
Sometimes	8.0	9.0	7.1	6.6	7.8	5.6	11.3	11.9	10.7
Most times	8.0	9.2	7.0	5.5	6.4	4.7	14.0	15.8	12.5
Always	9.7	10.2	9.2	6.5	6.5	6.6	17.2	19.1	15.4
<i>Weighted N =</i>	<i>7,132</i>	<i>3,404</i>	<i>3,729</i>	<i>5,030</i>	<i>2,399</i>	<i>2,632</i>	<i>2,102</i>	<i>1,005</i>	<i>1,097</i>

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

^aIn 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6-1c
Frequency of Condom Use
Total and by Gender
among Respondents of Modal Age 40 in 2010–2017^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
<i>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.)</i>									
Never	74.9	72.2	77.5	81.4	79.3	83.5	53.3	48.4	57.8
Seldom	5.4	6.1	4.7	4.1	4.6	3.7	9.7	11.2	8.3
Sometimes	5.8	6.6	5.0	4.2	5.0	3.3	10.7	11.1	10.5
Most times	5.9	6.6	5.2	4.5	5.0	4.1	10.6	12.9	8.4
Always	8.0	8.5	7.6	5.7	6.0	5.4	15.7	16.4	15.1
<i>Weighted N =</i>	<i>6,002</i>	<i>2,936</i>	<i>3,066</i>	<i>4,499</i>	<i>2,206</i>	<i>2,293</i>	<i>1,356</i>	<i>656</i>	<i>700</i>

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 6-1d
Use of Condoms in Past Year by 2-Year Age Groups
among Young Adults 2004–2017^a Combined
(Entries are percentages.)

<u>Frequency of Condom Use in Last 12 Months</u>	<u>Age of Respondent</u>				
	<u>21–22</u>	<u>23–24</u>	<u>25–26</u>	<u>27–28</u>	<u>29–30</u>
Never	25.4	33.6	40.9	49.4	54.1
Seldom	14.6	15.3	13.9	13.1	11.9
Sometimes	14.8	12.7	12.9	11.5	11.4
Most times	19.4	17.4	15.1	11.9	10.7
Always	25.8	20.9	17.1	14.2	11.9
<i>Weighted N =</i>	4,495	4,871	4,866	5,006	5,149

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

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

TABLE 6-1e
Use of Condoms in Past Year by 2-Year Age Groups
among Respondents who Report NOT Being Married
among Young Adults 2004–2017^a Combined
(Entries are percentages.)

<u>Frequency of Condom Use in Last 12 Months</u>	<u>Age of Respondent</u>				
	<u>21–22</u>	<u>23–24</u>	<u>25–26</u>	<u>27–28</u>	<u>29–30</u>
Never	23.0	29.0	33.3	39.5	40.0
Seldom	14.4	15.5	13.7	13.4	12.9
Sometimes	14.7	13.0	13.8	12.1	13.1
Most times	20.4	18.9	17.9	15.3	15.8
Always	27.4	23.6	21.2	19.7	18.3
<i>Weighted N =</i>	4,102	3,985	3,308	2,725	2,297

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

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

TABLE 6-1f
Use of Condoms in Past Year by 2-Year Age Groups
among Respondents who Report Being Married
among Young Adults 2004–2017 ^a Combined
(Entries are percentages.)

<u>Frequency of Condom Use in Last 12 Months</u>	<u>Age of Respondent</u>				
	<u>21–22</u>	<u>23–24</u>	<u>25–26</u>	<u>27–28</u>	<u>29–30</u>
Never	50.1	54.7	57.3	61.5	65.6
Seldom	16.3	15.0	14.3	12.6	11.0
Sometimes	16.6	11.6	11.0	10.7	10.1
Most times	9.2	10.2	9.0	7.8	6.6
Always	7.9	8.5	8.4	7.4	6.7
<i>Weighted N =</i>	367	854	1,529	2,261	2,834

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

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

TABLE 6-2a
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Ages 21–30
in 2004–2017 ^a Combined
(Entries are percentages.)

<u>Test for HIV: Lifetime and Last 12 Months</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>			
Yes, in the last 12 months	21.0	15.9	25.5
Yes, but not in the last 12 months	21.6	18.7	24.1
No, never	57.3	65.4	50.3
<i>Weighted N =</i>	<i>29,436</i>	<i>13,771</i>	<i>15,665</i>
<u>Received HIV Test Results ^b</u>			
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>			
Yes	93.4	92.2	94.1
No	6.6	7.8	5.9
<i>Weighted N =</i>	<i>12,411</i>	<i>4,705</i>	<i>7,706</i>

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

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

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 6-2b
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Age 35
in 2008–2017 ^a Combined
(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	<u>Total</u>	<u>Male</u>	<u>Female</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>			
Yes, in the last 12 months	16.9	14.3	19.4
Yes, but not in the last 12 months	38.1	32.8	42.9
No, never	45.0	53.0	37.7
<i>Weighted N =</i>	<i>8,021</i>	<i>3,822</i>	<i>4,199</i>
Received HIV Test Results ^b			
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>			
Yes	94.7	92.4	96.3
No	5.3	7.6	3.7
<i>Weighted N =</i>	<i>4,340</i>	<i>1,768</i>	<i>2,572</i>

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

^aIn 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.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 6-2c
Test for HIV, Lifetime and Last 12 Months
Total and by Gender
among Respondents of Modal Age 40
in 2010–2017 ^a Combined

(Entries are percentages.)

Test for	Total	Male	Female
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>			
Yes, in the last 12 months	12.0	11.9	12.0
Yes, but not in the last 12 months	41.9	35.7	47.8
No, never	46.1	52.4	40.2
<i>Weighted N =</i>	6,794	3,287	3,507
Received HIV Test Results ^b			
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>			
Yes	94.0	91.9	95.5
No	6.0	8.1	4.5
<i>Weighted N =</i>	3,584	1,538	2,047

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 6-2d
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– 2017
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
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	23.5	21.1	28.9	28.3
Weighted N =	404	360	357	493	531	565	548	506	489	438	450	388	374	375	6,278
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	34.0	33.9	35.2	36.7
Weighted N =	392	373	354	475	490	477	473	495	508	466	453	375	379	375	6,084
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	44.7	41.0	38.7	42.6
Weighted N =	378	349	320	468	468	441	478	420	427	424	435	397	374	343	5,723
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	45.1	46.6	47.5	48.2
Weighted N =	343	366	344	468	467	436	449	414	429	397	372	361	376	398	5,619
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	49.0	58.5	48.7	51.3
Weighted N =	369	330	305	514	509	470	453	422	425	407	418	336	342	359	5,658

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

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

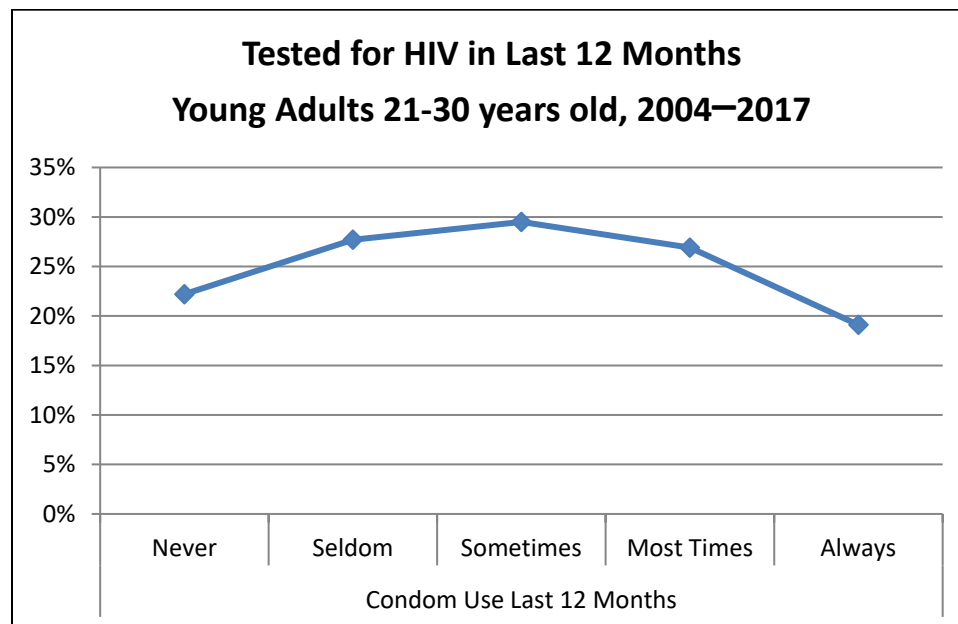
Chapter 7

INTERSECTION OF PROTECTIVE BEHAVIORS

To the extent that people who use one type of protection against HIV transmission are more (or less) likely to use another type, it is 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 in the three age groups including young adults (ages 21-30 year olds), 35 year olds, and 40 year olds.

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 7-1a); the association is slightly curvilinear among both male and female young adults (ages 21-30). 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 27%–30% 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 last 12 months (22%) than the middle groups, perhaps because many of them simply are not concerned about HIV and/or in a monogamous relationship attempting to conceive. 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 7-1b and 7-1c). The differences in testing as a function of how often sexually active respondents use condoms are fairly consistent with

those for the young adults. For example, among 35-year-olds who reported not using condoms at all in the past 12 months, 16% were tested in the past 12 months. That proportion rises to 23% among those who seldom use condoms and to 25% among those who sometimes use condoms; it then declines back to 23% 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), marriage is also negatively related to the prevalence of testing in the prior 12 months. A comparison of Tables 7-1d and 7-1e shows that indeed young adults who are married are somewhat less likely to have been 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 7-1d and 7-1e 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 receive the results of their tests. As Tables 7-1a, 7-1b, and 7-1c illustrate, nearly all respondents (93%–96%) receive their test results, regardless of how often they have used condoms in the last 12 months.

- In sum, there is little evidence that the two protective behaviors discussed here—condom use and getting tested for HIV—are positively correlated. Rather, the association is curvilinear; those least likely to get tested are those who never use condoms and those who always use condoms.

TABLE 7-1a
Test for HIV, Lifetime and Last 12 Months
by Frequency of Condom Use
among Respondents of Modal Ages 21–30 in 2004–2017^a Combined
(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Condom Use in Last 12 Months^b				
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Most Times</u>	<u>Always</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Total					
Yes, in the last 12 months	22.2	27.7	29.5	26.9	19.1
Yes, but not in the last 12 months	28.2	23.2	22.9	21.9	17.4
No, never	49.6	49.1	47.5	51.2	63.6
<i>Weighted N =</i>	<i>10,007</i>	<i>3,340</i>	<i>3,069</i>	<i>3,596</i>	<i>4,321</i>
Male					
Yes, in the last 12 months	15.6	19.8	22.0	21.5	17.2
Yes, but not in the last 12 months	24.2	21.7	21.8	20.8	15.0
No, never	60.2	58.5	56.2	57.7	67.8
<i>Weighted N =</i>	<i>3,991</i>	<i>1,535</i>	<i>1,458</i>	<i>1,852</i>	<i>2,286</i>
Female					
Yes, in the last 12 months	26.6	34.5	36.3	32.6	21.2
Yes, but not in the last 12 months	30.8	24.4	24.0	23.1	20.0
No, never	42.6	41.1	39.7	44.3	58.8
<i>Weighted N =</i>	<i>6,016</i>	<i>1,805</i>	<i>1,611</i>	<i>1,744</i>	<i>2,035</i>
Received HIV Test Results^c					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Total					
Yes	93.6	93.0	93.9	94.7	93.0
No	6.4	7.0	6.1	5.3	7.0
<i>Weighted N =</i>	<i>4,977</i>	<i>1,675</i>	<i>1,593</i>	<i>1,736</i>	<i>1,567</i>
Male					
Yes	92.6	92.1	91.8	93.4	92.9
No	7.4	7.9	8.2	6.6	7.1
<i>Weighted N =</i>	<i>1,573</i>	<i>623</i>	<i>625</i>	<i>770</i>	<i>733</i>
Female					
Yes	94.1	93.6	95.2	95.7	93.0
No	5.9	6.4	4.8	4.3	7.0
<i>Weighted N =</i>	<i>3,403</i>	<i>1,053</i>	<i>968</i>	<i>965</i>	<i>835</i>

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7-1b
Test for HIV, Lifetime and Last 12 Months
by Frequency of Condom Use
among Respondents of Modal Age 35 in 2008–2017^a Combined
(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Condom Use in Last 12 Months^b				
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Most Times</u>	<u>Always</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Total					
Yes, in the last 12 months	15.8	23.3	24.7	23.3	16.4
Yes, but not in the last 12 months	40.3	36.8	34.7	37.7	40.0
No, never	43.9	39.9	40.6	39.0	43.6
<i>Weighted N =</i>	4,712	609	576	579	690
Males					
Yes, in the last 12 months	12.4	18.4	22.0	20.0	14.6
Yes, but not in the last 12 months	34.6	31.3	32.7	34.9	37.5
No, never	53.0	50.3	45.3	45.0	48.0
<i>Weighted N =</i>	2,102	348	311	316	348
Females					
Yes, in the last 12 months	18.5	29.8	27.8	27.2	18.3
Yes, but not in the last 12 months	44.9	44.1	37.1	41.0	42.7
No, never	36.5	26.1	35.1	31.8	39.1
<i>Weighted N =</i>	2,610	261	265	263	342
Received HIV Test Results^c					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Total					
Yes	94.7	94.8	94.6	95.2	94.8
No	5.3	5.2	5.4	4.8	5.2
<i>Weighted N =</i>	2,608	359	338	351	388
Males					
Yes	91.7	91.9	93.4	93.6	95.2
No	8.3	8.1	6.6	6.4	4.8
<i>Weighted N =</i>	965	170	170	172	181
Females					
Yes	96.5	97.4	95.7	96.8	94.4
No	3.5	2.6	4.3	3.2	5.6
<i>Weighted N =</i>	1,643	189	168	179	207

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7-1c
Test for HIV, Lifetime and Last 12 Months
by Frequency of Condom Use
among Respondents of Modal Age 40 in 2010–2017^a Combined
(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Condom Use in Last 12 Months^b				
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Most Times</u>	<u>Always</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Total					
Yes, in the last 12 months	10.5	19.8	20.8	18.3	15.5
Yes, but not in the last 12 months	44.1	38.6	43.8	39.9	38.1
No, never	45.5	41.6	35.4	41.8	46.3
<i>Weighted N =</i>	4,484	323	346	351	479
Males					
Yes, in the last 12 months	10.3	22.6	20.1	15.7	18.1
Yes, but not in the last 12 months	38.0	34.2	35.1	35.3	29.2
No, never	51.7	43.2	44.8	49.0	52.7
<i>Weighted N =</i>	2,114	179	191	194	247
Females					
Yes, in the last 12 months	10.6	16.3	21.7	21.5	12.8
Yes, but not in the last 12 months	49.5	44.1	54.6	45.5	47.6
No, never	39.9	39.6	23.7	32.9	39.6
<i>Weighted N =</i>	2,370	144	154	158	232
Received HIV Test Results^c					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Total					
Yes	93.9	94.2	94.4	95.7	92.8
No	6.1	5.8	5.6	4.3	7.2
<i>Weighted N =</i>	2,396	186	218	201	254
Males					
Yes	91.7	94.6	94.3	92.2	88.5
No	8.3	5.4	5.7	7.8	11.5
<i>Weighted N =</i>	1,005	101	101	98	117
Females					
Yes	95.4	93.8	94.6	99.0	96.3
No	4.6	6.2	5.4	1.0	3.7
<i>Weighted N =</i>	1,391	85	117	102	138

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

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 7-1d
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 2004–2017 ^a Combined

(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Condom Use in Last 12 Months ^b				
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Most Times</u>	<u>Always</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Total					
Yes, in the last 12 months	24.7	31.3	31.9	29.4	20.5
Yes, but not in the last 12 months	26.6	22.1	22.0	20.8	16.1
No, never	48.8	46.6	46.1	49.9	63.4
<i>Weighted N =</i>	5,188	2,315	2,202	2,957	3,713
Male					
Yes, in the last 12 months	16.7	22.7	23.3	23.3	18.0
Yes, but not in the last 12 months	24.2	20.8	21.2	20.4	14.5
No, never	59.2	56.5	55.5	56.3	67.6
<i>Weighted N =</i>	2,036	1,039	1,053	1,535	2,037
Female					
Yes, in the last 12 months	29.8	38.4	39.7	35.9	23.7
Yes, but not in the last 12 months	28.2	23.1	22.8	21.1	18.1
No, never	42.0	38.5	37.5	43.0	58.2
<i>Weighted N =</i>	3,152	1,276	1,149	1,422	1,676

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

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

TABLE 7-1e
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 2004–2017^a Combined
(Entries are percentages.)

	Condom Use in Last 12 Months^b				
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Most Times</u>	<u>Always</u>
<u>Test for HIV: Lifetime and Last 12 Months</u>					
<i>Have you ever been tested for HIV/AIDS? (Do not</i>					
<u>Total</u>					
Yes, in the last 12 months	19.3	19.1	23.2	14.9	9.9
Yes, but not in the last 12 months	30.0	25.5	25.2	28.1	25.1
No, never	50.7	55.5	51.5	57.1	65.0
<i>Weighted N =</i>	4,766	1,003	854	623	586
<u>Male</u>					
Yes, in the last 12 months	14.5	13.2	18.0	12.4	9.9
Yes, but not in the last 12 months	24.3	22.7	23.5	23.1	20.3
No, never	61.2	64.1	58.5	64.5	69.8
<i>Weighted N =</i>	1,935	484	401	307	239
<u>Female</u>					
Yes, in the last 12 months	22.6	24.6	27.8	17.2	9.9
Yes, but not in the last 12 months	33.8	28.0	26.8	32.9	28.4
No, never	43.5	47.4	45.3	49.9	61.7
<i>Weighted N =</i>	2,831	519	453	316	347

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

^aIn 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 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 last 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 (ages 21-30), 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 8-1a). The *prevalence* of using a condom at least once in the last 12 months rises from 49% among those having only one partner to 77% for those having two partners, to 86% 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 8-1a).
- To the extent that consistent condom use is the goal, the results regarding *frequency* are less encouraging. As summarized in Chapter 6, 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 6-1a). It is encouraging, however, that this statistic rises considerably for both genders as the number of partners reported rises (Table 8-1a).
- As might be expected, many of the young adults not using condoms are respondents who had only one partner during the year (Table 8-1a). Among those reporting only one partner (and these comprise the great majority of all respondents), 51% said they did *not* use condoms at all in the last 12 months. In sum, use of condoms, which help prevent 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 52% 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 8-1b and 8-1c).
- 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, in an attempt to stem the spread of HIV/AIDS in this high-risk population. The numbers of such cases available for analysis so far are somewhat limited (among the 21- to 30-year olds, the weighted N is 500 men who report having sex with men exclusively; the case count of young adult males who report having sex with both genders is 104 at this point). Results suggest that the use of condoms in the last 12 months among men having sex exclusively with men (38% reporting “most times” or “always”) does not differ significantly from the use of condoms among men having sex exclusively with women (37% reporting “most times” or “always”). Similar proportions of both of these groups (39% and 36%, respectively, *n.s.*) report never using condoms (Table 8-2a). (The rate of condom use among men having sex exclusively with women is likely suppressed some by the proportion trying to conceive a child.) Thus, the higher degree of risk among young adult men who have sex exclusively with men is not reduced by more frequent use of condoms. Fortunately, among young adult males who have had sex with both genders in the last 12 months, there do appear to be higher prevalence (almost 80%) and higher frequency (52% saying “most times” or “always”) of condom use than are found in either of the other two groups of men. Assuming this finding of higher prevalence and frequency of condom use holds as we gather more cases in future years, it suggests that this group’s higher risk behavior is met with more compensatory protective behavior than average against the transmission of the disease, including across genders.
- By way of contrast, among 35- and 40-year-olds, the prevalence and frequency of condom use among men having sex exclusively with men *do* appear to be higher than among men the same age who have sex exclusively with women, although the case counts for men who have sex with men exclusively are still quite low in those two age groups (Tables 8-2b and 8-2c). Whether this difference is an age effect or a cohort effect is not known at this point.
- 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 (84%) vs. 45% of those having sex exclusively with men. Among women reporting having sex with both genders during the year, only 26% report no use of condoms in the past 12 months, and they report the highest frequency of using condoms “most times” or “always” of the three female groups, though still only 44% report using condoms that frequently.
- The case counts are still too small for 35- and 40-year-olds to make these comparisons among the three female respondent subgroups (Tables 8-2b and 8-2c).

Frequency of Condom Use Related to Needle Sharing

- The association between needle sharing and condom use is not very clear, particularly given the small numbers of cases to date, even among the young adults (Table 8-3).
- 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 Sex Partners

- Among young adults, the prevalence of getting tested for HIV rises with the number of sex partners reported in the last 12 months (Table 8-4a). While only 6.1% 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 20% of those reporting one partner, 31% for those reporting two partners, and 40% 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 8-4a).
- In terms of protective behaviors, young adults at increased risk because of a higher number of sexual partners are more likely to get tested and receive the results of the HIV test. However, about two thirds of those reporting multiple partners did not have an HIV test in the last 12 months (Table 8-4a).
- Among 35-year-olds and 40-year-olds, the proportion getting tested also rises with the number of partners in the last 12 months (Tables 8-4b and 8-4c). Nearly half (48%) of 35-year-olds reporting five or more partners in the last 12 months got tested in that interval, while 42% of 40-year olds with five or more partners did so.

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 whether HIV testing was more prevalent among those men reporting sex exclusively with men in the past year (Table 8-5a). While the number of young adult cases of men who have sex exclusively with men is limited (508 weighted cases), the results are suggestive of increased vigilance in this population. Two thirds (66%) 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 (41%) said that they had been tested in the last 12 months. These lifetime and 12-month rates compare to 38% and 17%, respectively, among men who had female partners exclusively during the last 12 months. Hardly any (2%) of the males reporting relations exclusively with other men in the last 12 months said that they failed to get the results of their most recent test, versus 8% of those who had only female partners.
- Similar large differences appear among 35- and 40-year-old men (Table 8-5b & 8-5c), though the case counts are still somewhat limited.

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 last 12 months are also more likely to report getting tested for HIV during the last 12 months by a statistically significant amount than those who did not share needles during the last 12 months (Table 8-6).

Summary

To conclude the intersection of risk and protective behaviors, 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. 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 (using condoms and getting tested).

TABLE 8-1a
Condom Use by Number of Sex Partners in Last 12 Months
among Respondents of Modal Ages 21–30 in 2004–2017^a Combined

(Entries are percentages.)

Frequency of Condom Use in Last 12 Months^b	Number of Partners in Last 12 Months					
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>	
<i>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.)</i>						
Total						
Never	—	50.8	22.6	14.4	11.2	
Seldom	—	12.7	16.6	17.0	15.1	
Sometimes	—	10.1	16.5	19.2	22.3	
Most times	—	9.5	20.8	31.0	35.3	
Always	—	16.9	23.4	18.4	16.2	
	<i>Weighted N =</i>	—	17,368	2,770	2,685	1,494
Male						
Never	—	46.2	18.4	13.5	10.2	
Seldom	—	13.1	15.7	16.0	14.1	
Sometimes	—	10.9	14.8	18.0	21.6	
Most times	—	10.9	21.5	30.4	35.1	
Always	—	18.9	29.5	22.1	18.9	
	<i>Weighted N =</i>	—	7,533	1,244	1,350	977
Female						
Never	—	54.4	26.0	15.2	12.9	
Seldom	—	12.4	17.3	18.1	16.9	
Sometimes	—	9.6	17.9	20.5	23.6	
Most times	—	8.4	20.3	31.6	35.5	
Always	—	15.3	18.5	14.6	11.0	
	<i>Weighted N =</i>	—	9,834	1,526	1,335	517

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

Notes. '—' indicates not applicable.

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-1b
Condom Use by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017^a Combined
(Entries are percentages.)

Frequency of Condom Use in Last 12 Months^b <i>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.)</i>	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
Total					
Never	—	71.8	36.4	24.6	11.8
Seldom	—	7.3	14.9	13.7	22.4
Sometimes	—	6.8	14.8	15.6	16.9
Most times	—	5.5	16.2	28.0	34.8
Always	—	8.5	17.7	18.0	14.1
<i>Weighted N =</i>	—	6,212	396	356	204
Males					
Never	—	68.5	36.4	21.7	9.8
Seldom	—	8.7	15.8	15.0	24.6
Sometimes	—	7.9	14.7	14.5	16.6
Most times	—	6.5	11.7	28.5	32.4
Always	—	8.4	21.4	20.3	16.5
<i>Weighted N =</i>	—	2,894	183	200	145
Females					
Never	—	74.8	36.4	28.3	16.8
Seldom	—	6.1	14.2	12.0	16.9
Sometimes	—	5.9	14.9	17.1	17.5
Most times	—	4.6	20.0	27.5	40.7
Always	—	8.6	14.5	15.2	8.1
<i>Weighted N =</i>	—	3,318	214	156	59

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

Notes. '—' indicates not applicable.

^aIn 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-1c
Condom Use by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^a Combined
(Entries are percentages.)

Frequency of Condom Use in Last 12 Months^b <i>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.)</i>	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
Total					
Never	—	80.1	44.5	32.3	23.5
Seldom	—	4.2	14.5	17.5	9.8
Sometimes	—	4.2	12.2	22.0	21.0
Most times	—	4.2	13.0	16.8	31.7
Always	—	7.3	15.8	11.3	14.0
<i>Weighted N =</i>	—	5,280	325	239	147
Males					
Never	—	78.9	40.3	27.6	21.4
Seldom	—	4.5	16.7	18.9	10.8
Sometimes	—	4.9	10.1	22.7	19.6
Most times	—	4.5	14.2	16.1	31.7
Always	—	7.2	18.8	14.8	16.5
<i>Weighted N =</i>	—	2,526	151	140	113
Females					
Never	—	81.2	48.2	38.9	30.4
Seldom	—	3.8	12.5	15.7	6.5
Sometimes	—	3.6	14.1	21.2	25.6
Most times	—	4.0	12.0	17.9	31.9
Always	—	7.4	13.2	6.3	5.5
<i>Weighted N =</i>	—	2,753	174	99	34

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-2a
Condom Use by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Ages 21–30 in 2004–2017^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	36.0	38.7	20.8	45.0	84.1	26.3
Seldom	13.9	11.0	15.6	13.9	4.6	12.7
Sometimes	13.2	11.9	11.2	12.3	2.6	16.7
Most times	16.4	18.8	31.8	13.2	2.9	25.7
Always	20.6	19.6	20.5	15.6	5.8	18.6
<i>Weighted N =</i>	<i>10,516</i>	<i>500</i>	<i>104</i>	<i>12,644</i>	<i>308</i>	<i>271</i>

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

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

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-2b
Condom Use by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017^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
Never	62.5	40.9	†	69.9	†	†
Seldom	9.9	12.7	†	7.1	†	†
Sometimes	8.9	8.9	†	7.1	†	†
Most times	8.7	23.8	†	7.0	†	†
Always	10.0	13.8	†	9.0	†	†
<i>Weighted N =</i>	3,274	122	24	3,630	78	33

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.)

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

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

^aIn 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-2c
Condom Use by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^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
Never	73.3	53.6	†	77.4	†	†
Seldom	5.9	8.4	†	4.8	†	†
Sometimes	6.5	7.8	†	5.0	†	†
Most times	6.1	18.2	†	5.1	†	†
Always	8.2	12.0	†	7.5	†	†
<i>Weighted N =</i>	2,801	110	20	2,969	60	35

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

TABLE 8-3
Condom Use by Needle Sharing
among Respondents of Modal Ages 21–30 in 2004–2017^a Combined

(Entries are percentages.)

<u>Frequency of Condom Use in Last 12 Months^b</u>	Needle Sharing		
	<u>Yes, in Last 12 Months</u>	<u>Yes, but not in Last 12 Months</u>	<u>No, Never</u>
<i>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.)</i>			
Never	33.0	47.8	41.1
Seldom	33.5	24.8	13.7
Sometimes	13.4	10.4	12.6
Most times	19.4	11.2	14.8
Always	0.9	5.8	17.8
<i>Weighted N =</i>	<i>40</i>	<i>81</i>	<i>23,990</i>

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

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

^bThose respondents who report never having sex in the last 12 months are excluded from these percentages.

TABLE 8-4a
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 2004–2017 ^a Combined
(Entries are percentages.)

Test for HIV: Lifetime and Last 12 Months	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Yes, in the last 12 months	6.1	19.6	31.0	35.6	40.4
Yes, but not in the last 12 months	9.6	25.4	20.9	20.4	18.6
No, never	84.3	55.0	48.1	44.0	41.0
<i>Weighted N =</i>	4,624	17,555	2,794	2,699	1,497
Received HIV Test Results ^b					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Yes	90.0	93.6	92.0	93.5	96.2
No	10.0	6.4	8.0	6.5	3.8
<i>Weighted N =</i>	718	7,805	1,431	1,504	867

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

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

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-4b
Test for HIV, Lifetime and Last 12 Months
by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017 ^a Combined
(Entries are percentages.)

	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
Test for HIV: Lifetime and Last 12 Months					
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Yes, in the last 12 months	9.3	14.8	34.5	33.9	47.6
Yes, but not in the last 12 months	25.8	40.2	34.3	33.1	32.8
No, never	64.9	45.0	31.2	33.0	19.6
<i>Weighted N =</i>	746	6,271	398	357	203
Received HIV Test Results ^b					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Yes	93.7	94.7	95.7	96.7	92.8
No	6.3	5.3	4.3	3.3	7.2
<i>Weighted N =</i>	251	3,394	273	236	162

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

^aIn 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.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-4c
Test for HIV, Lifetime and Last 12 Months
by Number of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^a Combined

(Entries are percentages.)

	Number of Partners in Last 12 Months				
	<u>None</u>	<u>One</u>	<u>Two</u>	<u>Three or Four</u>	<u>Five or More</u>
Test for HIV: Lifetime and Last 12 Months					
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>					
Yes, in the last 12 months	7.3	9.9	25.5	34.0	41.3
Yes, but not in the last 12 months	34.0	43.2	45.8	42.1	32.4
No, never	58.7	46.9	28.8	23.9	26.3
<i>Weighted N =</i>	709	5,337	324	241	146
Received HIV Test Results^b					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>					
Yes	93.3	94.4	88.0	93.9	97.4
No	6.7	5.6	12.0	6.1	2.6
<i>Weighted N =</i>	287	2,777	224	181	104

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-5a
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 2004–2017^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						
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>						
Yes, in the last 12 months	17.0	41.4	35.8	28.3	23.8	48.6
Yes, but not in the last 12 months	20.9	24.9	17.3	26.4	23.7	24.3
No, never	62.1	33.7	46.9	45.2	52.5	27.1
<i>Weighted N =</i>	10,573	508	104	12,736	328	273
Received HIV Test Results^b						
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>						
Yes	92.3	97.9	82.5	94.2	92.3	95.7
No	7.7	2.1	17.5	5.8	7.7	4.3
<i>Weighted N =</i>	3,953	329	54	6,906	156	194

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

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

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-5b
Test for HIV, Lifetime and Last 12 Months
by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 35 in 2008–2017^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						
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>						
Yes, in the last 12 months	13.3	43.2	†	20.3	25.4	†
Yes, but not in the last 12 months	34.3	38.3	†	43.9	41.8	†
No, never	52.4	18.5	†	35.8	32.7	†
<i>Weighted N =</i>	3,287	127	24	3,640	83	33

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	92.2	97.6	†	96.3	98.1	†
No	7.8	2.4	†	3.7	1.9	†
<i>Weighted N =</i>	1,538	103	17	2,309	55	27

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%.

^aIn 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.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-5c
Test for HIV, Lifetime and Last 12 Months
by Gender of Sex Partners in Last 12 Months
among Respondents of Modal Age 40 in 2010–2017^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						
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>						
Yes, in the last 12 months	11.5	46.3	†	11.8	†	†
Yes, but not in the last 12 months	36.4	37.1	†	49.3	†	†
No, never	52.1	16.6	†	38.9	†	†
<i>Weighted N =</i>	2,812	112	20	2,974	63	35
Received HIV Test Results^b						
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>						
Yes	91.8	95.6	†	95.6	†	†
No	8.2	4.4	†	4.4	†	†
<i>Weighted N =</i>	1,323	93	15	1,775	38	27

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

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

^aThe HIV questions were added to the questionnaires for 40-year-olds beginning in 2010.

^bThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 8-6
Testing for HIV by Needle Sharing
among Respondents of Modal Ages 21–30 in 2004–2017 ^a Combined

(Entries are percentages.)

<u>Test for HIV: Lifetime and Last 12 Months</u>	Needle Sharing		
	Yes, in the last 12 months	Yes, but not in the last 12 months	No, never
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>			
Yes, in the last 12 months	36.4	40.9	21.0
Yes, but not in the last 12 months	22.3	38.4	21.6
No, never	41.4	20.8	57.4
<i>Weighted N =</i>	<i>44</i>	<i>95</i>	<i>28,811</i>

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

^aIn 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

There is considerable value in tracking trends in the prevalence of the various risk and protective behaviors related to the spread of HIV. Ongoing annual 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 some of the more rare behaviors like needle sharing and men having sex with men, continuing data collection is providing more in-depth consideration of these important subgroups and correlates. The 2017 MTF data collection is the thirteenth to include the set of questions on HIV risk and protective behaviors among young adults ages 21 to 30.¹

We now find some change in *some of the risk behaviors* under study from 2005 to 2017 among young adults ages 21–30 (Tables 9-1a, 9-2a, and top panels of Figures 9-1 through 9-5). Because 35- and 40-year olds have lower case counts in the study, their trend data are less stable. These points are elaborated below.

Injection drug use

- The prevalence of *past-year injection drug use* (Figure 9-2 and Table 9-1a) and *lifetime needle sharing* show little systematic change over the interval 2005–2017 among 21- to 30-year-olds, though among young adult males' *lifetime injection drug use* did show some evidence of a peak around 2008 (*past year injection drug use* did not, Figure 9-1). The prevalence of these behaviors has consistently been quite low in this population drawn from high school graduates. The *annual prevalence of injection drug use* has consistently been below 1.0% among males and 0.4% among females since 2005.
- Among 35- and 40-year-olds the trend lines are less smooth (Table 9-1b and the lower panels in Figures 9-1 to 9-3).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 drug use from 2.1% in 2011 to 3.8% in 2013 ($p < .05$) followed by a leveling through 2014 and then a decline back to 2.0% by 2017. They also showed an increase in the frequency of drug injection use, with the percent reporting using 20 or more times in their lifetime rising from 0.5% in 2012 to 1.6% in 2014 ($p < 0.05$) followed by a non-significant decline to 0.7% by 2017.

¹ 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 9-1 and 9-2, and (b) the results from the prior year. 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 9-2a and 9-2ab). 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 1,500 to 1,800 cases.

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 2017 (Figure 9-1, lower panel). Annual injection prevalence has been very low in these two age groups, but has generally been higher among males than among females (Figure 9-2, Tables 9-1b and 9-1c).

Needle sharing

- Among young adults the rates of *lifetime* needle sharing were consistently very low during the 2005 to 2017 interval, and were even lower among females in 2013 and 2014 (not statistically significant; Figure 9-3 and Table 9-1a). The past-year overall rates of needle sharing were quite flat across the entire interval, ranging from 0.1% to 0.2% for all young adults. Among young adult males, rates showed small, non-significant increases in 2013 and 2014, when *annual* prevalence was 0.3%; in all other years, annual prevalence was 0.1% or 0.2% (Table 9-1a).
- Among the 35- and 40-year-olds lifetime needle sharing has been well under 1.0% for both genders in all years, with none of the year-to-year changes reaching statistical significance.

Number of sex partners

- In Table 9-2a and Figure 9-5 young adult males show some decline over the interval 2005–2017 in the prevalence of having more than one sex partner in the prior year; the average rate for 2012–2015 of 25.2% is significantly lower than the earlier average rate of 27.5% for 2005–2011 ($p<.05$). In fact, the decline continued after 2015 and now the lowest observation for males is in 2017, at which point the rates for the two genders have crossed with 21.9% of males saying they had more than one partner in the prior 12 months compared with 22.9% of females. One reason for this change among males is that more of them indicate having no sex partners during the year, rising from a low of 14.4% in 2008 to a high of 23.1% in 2017 ($p<.001$).
- While the percent of young adult males reporting multiple sex partners has been declining, the percent of young adult females reporting multiple partners in the prior year may have risen slightly, from 20.8% in 2011 to 22.9% in 2017 (a nonsignificant difference, even when testing across multiple years as described above for young adult males). Interestingly, this has been occurring at much the same time that the percent of young adult females reporting *zero* partners has risen from 12.3% in 2005 to 16.1% in 2017 ($p<.001$) and 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 9-2a). The net effect of these changes since about 2011 is that the difference between the genders in the prevalence of having multiple sex partners has been eliminated, as can be seen most clearly in Figure 9-5. But there still remains a gender difference in having four or more partners (Table 9-2a). In 2017, 9.3% of the males reported having four or more partners in the prior 12 months compared to 7.6% of the females.
- Among 35-year-olds (Table 9-2b and Figure 9-5, lower panel) there is rather little evidence of systematic change in number of sex partners reported in the last 12 months. Each year,

over 75% of 35-year-old males and over 78% of the females report having only one partner in the prior year—higher proportions than among young adults. And in the eight years shown, only 10–13% of all 35-year-olds and under 11% of the 40-year-olds (in the six years shown) have indicated that they had multiple partners, compared with about 23% among the young adults. Thus, this risk factor clearly declines with age.

Same Gender sex partners

- The proportions of young adult male respondents reporting sex with partners of the same gender (including those reporting sex with both genders) during the prior year have been quite stable over time (Table 9-2a and Figure 9-6). Each year between 4.7% and 6.7% of the men indicated having sex with other men with no clear trending over time. Among women, between 3.6% and 6.0% indicated having sex with other women (although this behavior by women is not a risk behavior for HIV transmission). There has been a gradual, statistically significant increase since 2009 in the percentage of young adult women having sex exclusively with women, from 1.8% in 2009 to 3.1% in 2017 (Table 9-2a).
- Among 35-year-olds, compared to young adults, the rates of same-gender sex are slightly lower for males (between 3.2% and 5.0%) and females (between 2.3% and 4.2%). Figure 9-6 suggests that there has been little systematic change among 35-year-olds over the eight-year interval studied; and the same is true for the 40-year-olds over the six-year interval studied (Tables 9-2a and 9-2b, Figure 9-6).

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. One exception may be a possible increase in 2013 and 2014 in past-year needle sharing among young adult males (Figures 9-1 and 9-2). Men age 35 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, 2018).

With regard to the numbers of sex partners reported, there are some positive developments from the perspective of HIV/AIDS transmission risk. Males have shown a significant increase in the percent reporting having *no* sex partners in the past 12 months, with abstinence rising from 2008 (14.4%) through 2017 (23.1%). They have also shown a significant decline in the percent having multiple sex partners. Young adult females also showed a significant increase in abstinence over the same interval, but a more modest one, from 12.8% to 16.1%.

However, working against these improvements in the situation, a significantly increasing percent of young adult females report having *multiple* sex partners. In combination these changes have led to a reversal of gender differences in having multiple sex partners. Among young adult females there has been a significant rise in the prevalence of having multiple partners, whereas among young adult males there has been a significant decline; the net effect is an elimination and perhaps even a slight reversal of the gender gap on this risk factor. There remains a considerable gap in the prevalence of having four or more partners, however, with males more likely to report this many.

One important risk behavior for HIV/AIDS transmission is men having sex with other men. We do not see significant change in the prevalence of this behavior in any of the three age groups in the intervals under study. There has been a statistically significant increase in the reporting by women of having sex with other women, but that is not a risk behavior for the spread of the disease.

References

Centers for Disease Control and Prevention (CDC). (2018). *U.S. drug overdose deaths continue to rise; increase fueled by synthetic opioids*. Retrieved from <https://www.cdc.gov/media/releases/2018/p0329-drug-overdose-deaths.html>.

TABLE 9-1a
Trends^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Ages 21–30
(Entries are percentages.)

	Total													
Lifetime Frequency of Injecting Drugs	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>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.</i>														
0 Occasions	—	98.5	98.5	98.3	98.2	98.4	98.5	98.4	98.5	98.4	98.6	98.7	98.7	98.8
1–2	—	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.2	0.1	0.2	0.3
3–5	—	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6–9	—	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	*	0.1	0.2	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	0.1	0.1	0.1
20–39	—	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	*
40+ Occasions	—	0.4	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.6	0.7	0.6	0.4
<i>Weighted N =</i>	—	3,643	3,441	4,076	4,846	4,819	4,751	4,624	4,510	4,384	4,243	4,101	3,826	3,693
Annual Frequency of Injecting Drugs														
<i>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.</i>														
0 Occasions	—	99.5	99.6	99.6	99.5	99.5	99.5	99.5	99.5	99.4	99.4	99.4	99.5	99.5
1–2	—	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
3–5	—	*	0.1	*	*	0.1	0.2	0.1	0.1	*	0.1	0.1	0.1	0.1
6–9	—	*	0.1	0.1	0.2	0.1	*	*	0.1	0.1	0.1	0.1	*	*
10–19	—	0.1	0.1	0.1	0.1	*	*	0.1	0.1	*	*	*	*	*
20–39	—	*	*	*	0.1	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	0.3	0.2	0.2
<i>Weighted N =</i>	—	3,644	3,441	4,077	4,847	4,821	4,753	4,630	4,515	4,385	4,244	4,101	3,814	3,681
Lifetime and Annual Needle Sharing														
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>														
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	0.2	0.1	0.1
Yes, but not in the last 12 months	—	0.3	0.4	0.4	0.4	0.3	0.3	0.5	0.4	0.3	0.2	0.3	0.5	0.4
No, never	—	99.7	99.5	99.5	99.5	99.5	99.6	99.4	99.4	99.5	99.6	99.5	99.4	99.5
<i>Weighted N =</i>	—	3,610	3,387	4,032	4,813	4,783	4,716	4,587	4,475	4,349	4,214	4,066	3,786	3,670

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

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

^aData 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 9-1a (cont.)
Trends ^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Ages 21–30
(Entries are percentages.)

	Male													
Lifetime Frequency of Injecting Drugs	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>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.</i>														
0 Occasions	—	97.9	97.7	97.4	97.3	97.6	97.9	97.6	97.8	97.7	98.1	98.1	97.9	98.0
1–2	—	0.6	0.6	0.7	0.7	0.7	0.5	0.4	0.4	0.6	0.4	0.2	0.3	0.5
3–5	—	0.2	0.3	0.5	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.1	0.2	0.4
6–9	—	0.1	0.3	0.4	0.3	0.2	0.3	0.4	0.1	*	0.1	0.2	0.3	0.1
10–19	—	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2
20–39	—	0.2	0.2	0.3	0.4	0.3	0.1	0.3	0.3	0.2	0.1	0.2	0.2	0.1
40+ Occasions	—	0.5	0.5	0.4	0.4	0.5	0.6	0.8	0.9	0.9	0.9	1.1	1.0	0.7
Weighted N =	—	1,727	1,615	1,904	2,277	2,285	2,247	2,154	2,099	2,027	1,954	1,902	1,780	1,717
Annual Frequency of Injecting Drugs														
<i>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.</i>														
0 Occasions	—	99.2	99.3	99.2	99.3	99.3	99.2	99.2	99.2	99.1	99.1	99.1	99.2	99.1
1–2	—	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3
3–5	—	*	0.1	0.1	*	0.1	0.3	0.3	0.1	0.1	0.2	0.2	0.1	0.2
6–9	—	*	0.1	0.2	0.3	0.2	*	*	0.1	0.2	*	0.1	0.1	*
10–19	—	0.2	0.2	0.1	0.1	*	*	0.1	0.1	*	*	*	*	*
20–39	—	0.1	*	*	0.1	0.1	0.2	0.2	0.1	0.1	*	*	*	0.1
40+ Occasions	—	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.4	0.3
Weighted N =	—	1,727	1,615	1,905	2,277	2,285	2,249	2,156	2,101	2,027	1,954	1,902	1,771	1,707
Lifetime and Annual Needle Sharing														
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>														
Yes, in the last 12 months	—	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.2
Yes, but not in the last 12 months	—	0.3	0.4	0.3	0.4	0.3	0.4	0.6	0.5	0.4	0.2	0.5	0.6	0.4
No, never	—	99.6	99.4	99.4	99.5	99.5	99.5	99.3	99.4	99.4	99.4	99.4	99.3	99.3
Weighted N =	—	1,708	1,582	1,888	2,266	2,264	2,231	2,135	2,078	2,008	1,939	1,887	1,764	1,709

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

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

^aData 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 9-1a (cont.)
Trends^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Ages 21–30
(Entries are percentages.)

	Female													
<u>Lifetime Frequency of Injecting Drugs</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>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.</i>														
0 Occasions	—	99.1	99.2	99.0	99.1	99.1	99.0	99.0	99.1	99.0	99.1	99.2	99.4	99.4
1–2	—	0.3	0.5	0.5	0.3	0.3	0.4	0.4	0.4	0.3	0.1	0.1	0.2	0.2
3–5	—	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
6–9	—	*	*	*	*	*	0.1	0.1	*	*	0.1	0.1	*	0.1
10–19	—	*	*	0.1	0.1	0.1	*	*	*	0.2	0.2	*	*	*
20–39	—	*	*	*	0.1	0.1	*	*	*	*	*	0.1	*	*
40+ Occasions	—	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.2
<i>Weighted N =</i>	—	1,916	1,826	2,172	2,569	2,534	2,504	2,471	2,412	2,358	2,289	2,199	2,045	1,976
<u>Annual Frequency of Injecting Drugs</u>														
<i>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.</i>														
0 Occasions	—	99.7	99.9	99.8	99.7	99.7	99.7	99.8	99.7	99.6	99.6	99.7	99.8	99.9
1–2	—	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	*
3–5	—	*	*	*	*	*	*	*	*	*	*	0.1	*	*
6–9	—	*	*	*	*	*	*	*	*	0.1	0.1	*	*	*
10–19	—	*	*	*	*	*	*	*	*	*	*	*	*	*
20–39	—	*	*	*	*	0.1	0.1	*	*	*	0.1	0.1	0.1	*
40+ Occasions	—	0.2	0.1	*	0.1	0.1	0.1	0.1	0.1	0.2	0.1	*	0.1	0.1
<i>Weighted N =</i>	—	1,917	1,826	2,172	2,570	2,535	2,505	2,473	2,415	2,358	2,289	2,199	2,043	1,974
<u>Lifetime and Annual Needle Sharing</u>														
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>														
Yes, in the last 12 months	—	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1
Yes, but not in the last 12 months	—	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.3	0.3
No, never	—	99.7	99.6	99.6	99.5	99.6	99.6	99.5	99.5	99.7	99.8	99.6	99.5	99.6
<i>Weighted N =</i>	—	1,902	1,805	2,144	2,547	2,519	2,485	2,453	2,396	2,340	2,275	2,179	2,023	1,962

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

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

^aData 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 9-1b
Trends^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

	Total									
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Lifetime Frequency of Injecting Drugs</u>										
<i>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.</i>										
0 Occasions	—	98.7	98.4	98.5	98.4	97.6	97.8	98.3	98.2	98.5
1–2	—	0.8	0.8	0.5	0.6	0.8	0.6	0.7	0.6	0.4
3–5	—	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2
6–9	—	*	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1
10–19	—	*	0.1	0.3	0.3	0.3	0.3	0.2	0.2	0.3
20–39	—	0.1	0.1	0.1	*	0.2	0.2	0.1	0.1	0.1
40+ Occasions	—	0.2	0.4	0.4	0.4	0.6	0.7	0.6	0.6	0.5
<i>Weighted N =</i>	—	1,453	1,908	1,796	1,770	1,750	1,648	1,544	1,497	1,487
<u>Annual Frequency of Injecting Drugs</u>										
<i>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.</i>										
0 Occasions	—	99.8	99.6	99.6	99.7	99.5	99.3	99.6	99.6	99.7
1–2	—	0.1	0.1	0.1	*	*	*	*	*	0.1
3–5	—	*	*	*	*	0.1	0.1	*	*	*
6–9	—	*	0.1	0.2	0.2	0.1	0.2	*	*	*
10–19	—	*	*	*	*	0.0	0.1	*	*	*
20–39	—	*	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1
40+ Occasions	—	0.1	0.1	*	*	0.2	0.3	0.2	0.2	0.1
<i>Weighted N =</i>	—	1,453	1,909	1,797	1,772	1,753	1,649	1,544	1,497	1,487
<u>Lifetime and Annual Needle Sharing</u>										
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>										
Yes, in the last 12 months	—	*	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	0.3	0.4	0.5
No, never	—	99.9	99.7	99.6	99.6	99.6	99.6	99.6	99.6	99.5
<i>Weighted N =</i>	—	1,455	1,911	1,790	1,763	1,749	1,647	1,543	1,496	1,485

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

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

^aData 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 9-1b (cont.)
Trends^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

		Male									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<u>Lifetime Frequency of Injecting Drugs</u>											
<i>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.</i>											
0 Occasions		—	97.9	97.6	97.9	97.7	96.2	96.4	97.7	97.7	98.0
1–2		—	1.4	1.1	0.3	0.9	1.3	0.7	0.7	0.7	0.4
3–5		—	0.2	0.2	0.3	0.2	0.2	0.2	*	0.0	0.3
6–9		—	0.1	0.2	0.1	0.0	0.4	0.4	0.2	0.2	0.1
10–19		—	*	0.1	0.5	0.7	0.7	0.7	0.3	0.3	0.5
20–39		—	0.2	0.2	0.1	*	0.3	0.4	0.1	0.3	0.2
40+ Occasions		—	0.3	0.7	0.7	0.5	1.0	1.2	0.9	0.8	0.5
	Weighted N =	—	711	923	843	824	819	774	745	736	709
<u>Annual Frequency of Injecting Drugs</u>											
<i>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.</i>											
0 Occasions		—	99.7	99.4	99.1	99.6	99.2	98.9	99.5	99.6	99.8
1–2		—	0.1	0.1	0.1	*	*	*	*	0.1	0.1
3–5		—	*	*	*	*	0.2	0.2	*	*	*
6–9		—	*	0.2	0.5	0.4	0.2	0.3	0.1	*	*
10–19		—	*	*	*	*	0.1	0.1	*	*	*
20–39		—	*	0.1	0.1	*	*	*	0.1	0.2	0.1
40+ Occasions		—	0.1	0.2	0.1	*	0.2	0.5	0.3	0.1	*
	Weighted N =	—	711	923	843	825	821	775	745	736	709
<u>Lifetime and Annual Needle Sharing</u>											
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>											
Yes, in the last 12 months		—	*	*	*	*	*	0.0	0.1	0.1	*
Yes, but not in the last 12 months		—	0.1	0.3	0.7	0.7	0.4	0.4	0.3	0.6	0.7
No, never		—	99.9	99.7	99.3	99.3	99.5	99.6	99.6	99.4	99.3
	Weighted N =	—	711	924	841	822	818	773	746	734	709

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

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

^aData 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 9-1b (cont.)
Trends^a in Injection Drug Use and Needle Sharing
Total and by Gender among Respondents of Modal Age 35

(Entries are percentages.)

		Female									
		<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Lifetime Frequency of Injecting Drugs</u>											
<i>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.</i>											
0 Occasions		—	99.6	99.2	98.9	99.0	98.9	99.1	98.9	98.6	98.9
1–2		—	0.3	0.6	0.7	0.3	0.5	0.5	0.7	0.6	0.4
3–5		—	*	*	0.2	0.3	0.1	*	0.1	0.1	*
6–9		—	*	*	*	0.1	0.1	*	*	*	0.1
10–19		—	*	0.1	0.1	*	*	*	0.1	0.1	0.1
20–39		—	*	*	*	0.1	0.1	*	*	*	*
40+ Occasions		—	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.5	0.4
	<i>Weighted N =</i>	—	742	985	954	946	932	874	799	761	777
<u>Annual Frequency of Injecting Drugs</u>											
<i>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.</i>											
0 Occasions		—	99.9	99.8	99.9	99.9	99.7	99.7	99.7	99.6	99.6
1–2		—	*	*	*	*	*	*	*	*	0.1
3–5		—	*	0.1	0.1	*	*	*	*	*	0.1
6–9		—	*	*	*	*	*	*	*	*	*
10–19		—	*	*	*	*	*	*	0.1	0.1	*
20–39		—	*	*	*	0.1	0.1	0.1	0.1	0.1	0.1
40+ Occasions		—	0.1	0.1	*	*	0.1	0.2	0.2	0.3	0.1
	<i>Weighted N =</i>	—	743	986	954	947	932	874	799	761	777
<u>Lifetime and Annual Needle Sharing</u>											
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>											
Yes, in the last 12 months		—	0.1	0.1	0.1	*	*	0.1	0.1	*	*
Yes, but not in the last 12 months		—	*	0.1	0.1	0.1	0.3	0.4	0.3	0.2	0.3
No, never		—	99.9	99.8	99.8	99.9	99.7	99.6	99.6	99.7	99.7
	<i>Weighted N =</i>	—	744	987	949	941	931	874	798	762	776

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

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

^aData 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 9-1c
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						
	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
<u>Lifetime Frequency of Injecting Drugs</u>																					
<i>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.</i>																					
0 Occasions	98.7	98.5	98.3	98.4	98.5	98.7	98.4	98.1	97.9	97.7	97.9	97.7	97.7	97.5	99.3	99.1	99.0	98.9	99.2	99.5	99.1
1–2	0.7	0.5	0.5	0.8	0.7	0.3	0.5	0.9	0.6	0.5	0.8	1.0	0.6	0.7	0.4	0.4	0.5	0.8	0.4	0.1	0.4
3–5	0.2	0.3	0.3	0.1	0.0	0.2	0.2	0.2	0.5	0.5	0.2	0.0	0.3	0.4	0.2	0.1	0.1	0.1	0.0	0.1	0.1
6–9	0.2	0.1	0.0	0.0	0.1	0.2	0.4	0.4	0.1	0.1	0.1	0.2	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.1
10–19	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.4	0.1	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.0
20–39	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40+ Occasions	0.1	0.5	0.5	0.4	0.6	0.4	0.4	0.1	0.7	0.7	0.6	0.9	0.7	0.5	0.1	0.3	0.2	0.2	0.3	0.2	0.3
<i>Weighted N =</i>	1813	1719	1693	1752	1706	1575	1597	873	856	850	869	827	738	743	940	864	843	883	879	837	854
<u>Annual Frequency of Injecting Drugs</u>																					
<i>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.</i>																					
0 Occasions	99.9	99.8	99.7	99.7	99.6	99.7	99.6	99.8	99.6	99.4	99.5	99.4	99.5	99.6	100.0	100.0	100.0	99.9	99.9	99.9	99.7
1–2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3–5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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	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	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20–39	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40+ Occasions	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2
<i>Weighted N =</i>	1814	1720	1693	1752	1707	1577	1597	874	857	850	869	828	739	743	940	864	843	883	879	838	854
<u>Lifetime and Annual Needle Sharing</u>																					
<i>Have you ever taken such drugs using a needle that you knew (or suspected) had been used by someone else before you used it?</i>																					
Yes, in the last 12 months	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Yes, but not in the last 12 months	0.1	0.3	0.6	0.4	0.3	0.4	0.2	0.2	0.4	0.7	0.5	0.6	0.6	0.3	0.1	0.3	0.5	0.3	0.1	0.2	0.1
No, never	99.9	99.7	99.4	99.6	99.6	99.5	99.8	99.9	99.6	99.3	99.5	99.4	99.3	99.7	99.9	99.7	99.5	99.7	99.8	99.7	99.9
<i>Weighted N =</i>	1811	1718	1685	1747	1710	1573	1589	873	857	852	870	829	739	738	939	861	833	877	881	835	851

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

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

^aData presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

TABLE 9-2a
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													
Number of Partners in Last 12 Months	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>														
None	—	14.5	14.6	13.7	13.5	14.0	14.5	15.9	16.7	16.9	17.3	17.8	18.9	19.3
One	—	61.2	61.5	61.9	62.2	61.3	61.0	60.1	59.0	58.8	58.9	59.0	59.1	58.2
Two	—	10.1	9.3	9.5	9.5	9.2	9.9	10.0	9.7	9.9	9.9	9.8	8.6	8.3
Three	—	5.9	6.2	5.8	5.9	5.9	5.9	5.2	4.9	5.5	5.8	5.2	5.1	5.8
Four	—	3.2	3.4	4.0	4.1	4.0	3.3	3.5	4.0	3.9	3.8	3.7	3.3	3.1
5–10	—	3.9	4.1	4.2	4.0	4.3	4.4	4.2	4.4	4.1	3.7	3.7	3.5	3.8
11–20	—	0.9	0.7	0.6	0.7	0.8	0.5	0.7	0.9	0.7	0.4	0.5	0.9	1.0
21–100	—	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3
More than 100	—	0.1	0.2	0.1	0.1	0.2	0.2	0.1	*	0.1	0.1	*	0.1	0.1
<i>Weighted N =</i>	—	3,628	3,432	4,066	4,833	4,810	4,741	4,618	4,505	4,370	4,238	4,103	3,825	3,685
Gender of Partners in Last 12 Months^b														
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>														
Exclusively male?	—	53.4	54.0	54.0	53.4	52.8	52.9	54.0	54.7	55.1	55.1	54.3	54.3	54.7
Both male and female?	—	1.5	1.4	1.4	1.3	1.4	1.3	1.4	1.6	1.4	1.5	1.7	1.9	2.2
Exclusively female?	—	45.1	44.6	44.6	45.3	45.8	45.8	44.6	43.7	43.5	43.4	44.0	43.8	43.1
<i>Weighted N =</i>	—	3,103	2,935	3,504	4,171	4,129	4,049	3,881	3,748	3,631	3,500	3,369	3,100	2,966

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2a (cont.)
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.)

		Male													
Number of Partners in Last 12 Months		<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>															
None		—	16.9	16.6	14.7	14.4	14.6	15.3	17.5	19.4	19.8	20.2	20.6	22.3	23.1
One		—	56.3	56.2	57.0	58.6	57.7	56.4	55.0	54.3	54.1	54.0	54.3	55.2	55.0
Two		—	10.1	8.7	8.9	8.8	9.2	10.3	9.6	8.5	9.1	9.4	9.7	8.1	7.4
Three		—	6.1	7.5	7.2	6.4	6.0	6.3	5.9	5.1	5.4	6.3	5.4	4.6	5.2
Four		—	3.5	4.3	4.8	4.4	4.7	3.7	4.3	5.0	4.3	3.9	3.6	2.9	3.0
5–10		—	5.2	5.3	5.8	5.5	5.8	6.4	6.1	5.8	5.6	5.0	4.8	4.6	3.9
11–20		—	1.5	0.9	0.9	1.2	1.2	0.7	0.9	1.4	1.2	0.6	0.8	1.6	1.8
21–100		—	0.4	0.4	0.5	0.5	0.4	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.4
More than 100		—	0.1	0.2	0.1	0.2	0.3	0.3	0.2	*	0.1	0.1	0.1	0.2	0.2
	<i>Weighted N =</i>	—	1,720	1,611	1,902	2,270	2,277	2,238	2,147	2,093	2,019	1,956	1,908	1,782	1,709
Gender of Partners in Last 12 Months^b															
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>															
Exclusively male?		—	3.9	4.3	4.6	4.1	4.2	3.9	4.6	5.1	4.7	4.8	4.8	4.9	5.4
Both male and female?		—	1.0	0.8	1.0	0.9	0.8	0.8	0.7	0.9	0.8	0.9	1.0	1.0	1.3
Exclusively female?		—	95.0	94.9	94.4	95.0	94.9	95.3	94.8	94.0	94.6	94.3	94.3	94.0	93.4
	<i>Weighted N =</i>	—	1,432	1,344	1,616	1,944	1,950	1,897	1,773	1,689	1,617	1,555	1,511	1,380	1,315

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2a (cont.)
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.)

		Female													
Number of Partners in Last 12 Months		<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>															
None		—	12.3	12.8	12.7	12.8	13.5	13.8	14.6	14.4	14.4	14.8	15.4	15.9	16.1
One		—	65.6	66.1	66.2	65.3	64.6	65.2	64.6	63.1	62.8	63.0	63.0	62.6	61.0
Two		—	10.2	9.8	10.1	10.0	9.2	9.5	10.3	10.8	10.6	10.3	9.8	9.1	9.1
Three		—	5.6	5.1	4.5	5.4	5.8	5.5	4.6	4.7	5.7	5.4	5.1	5.6	6.2
Four		—	2.9	2.6	3.3	3.7	3.4	2.9	2.8	3.2	3.5	3.7	3.7	3.7	3.3
5–10		—	2.7	3.0	2.8	2.6	2.9	2.7	2.6	3.2	2.7	2.5	2.7	2.6	3.7
11–20		—	0.4	0.5	0.4	0.2	0.3	0.3	0.5	0.5	0.3	0.3	0.1	0.2	0.4
21–100		—	0.1	*	*	0.1	0.2	0.2	0.1	0.1	0.1	*	0.1	0.3	0.1
More than 100		—	0.1	0.1	*	*	*	*	*	*	*	*	*	0.1	0.1
	<i>Weighted N =</i>	—	1,908	1,821	2,163	2,563	2,532	2,503	2,471	2,412	2,350	2,282	2,195	2,044	1,977
Gender of Partners in Last 12 Months^b															
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>															
Exclusively male?		—	95.8	96.0	96.3	96.4	96.3	96.0	95.6	95.4	95.5	95.3	94.6	94.0	94.0
Both male and female?		—	1.9	1.9	1.7	1.7	1.9	1.8	2.0	2.2	2.0	2.0	2.2	2.5	2.9
Exclusively female?		—	2.3	2.1	2.0	1.9	1.8	2.2	2.4	2.4	2.5	2.7	3.2	3.5	3.1
	<i>Weighted N =</i>	—	1,672	1,590	1,888	2,226	2,180	2,153	2,108	2,059	2,014	1,945	1,858	1,720	1,651

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2b
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.)

<u>Number of Partners in Last 12 Months</u>	Total									
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>										
None	—	9.5	9.7	8.8	8.7	9.6	10.4	10.0	9.7	9.2
One	—	78.5	78.2	79.1	80.3	79.5	77.5	76.8	78.8	78.7
Two	—	4.9	5.1	4.4	4.3	5.0	5.2	5.5	5.1	5.1
Three	—	3.1	3.4	3.5	2.7	2.2	2.4	2.6	2.3	2.6
Four	—	1.6	1.6	2.0	2.1	1.6	1.5	1.8	1.6	1.4
5–10	—	1.6	1.3	1.5	1.4	1.6	2.3	2.3	1.4	2.1
11–20	—	0.5	0.3	0.3	0.3	0.3	0.4	0.7	0.7	0.7
21–100	—	0.2	0.3	0.3	0.4	0.2	0.2	0.3	0.2	0.2
More than 100	—	0.1	0.1	*	*	*	*	0.1	0.1	0.1
<i>Weighted N =</i>	—	1,449	1,902	1,784	1,763	1,748	1,645	1,535	1,489	1,485
<u>Gender of Partners in Last 12 Months ^b</u>										
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>										
Exclusively male?	—	51.7	52.2	53.8	53.3	51.8	52.8	52.0	50.7	52.4
Both male and female?	—	0.6	1.0	1.1	0.7	0.5	0.4	0.7	0.8	1.0
Exclusively female?	—	47.7	46.8	45.1	46.0	47.7	46.8	47.3	48.5	46.6
<i>Weighted N =</i>	—	1,307	1,701	1,611	1,605	1,578	1,469	1,374	1,338	1,343

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2b (cont.)
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.)

<u>Number of Partners in Last 12 Months</u>	Male									
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>										
None	—	9.9	9.8	9.6	8.5	8.4	9.6	9.2	9.6	10.1
One	—	76.4	77.0	76.0	78.9	79.6	75.3	75.1	76.7	75.8
Two	—	4.9	4.3	4.1	3.8	4.4	5.6	5.1	5.4	5.9
Three	—	2.9	4.0	4.0	2.9	2.6	2.7	2.5	2.2	2.5
Four	—	1.9	2.0	3.3	3.2	2.0	2.1	2.8	2.2	1.5
5–10	—	2.5	1.8	2.0	1.6	2.2	3.6	3.4	2.0	2.7
11–20	—	1.0	0.6	0.3	0.3	0.5	0.7	1.3	1.2	1.0
21–100	—	0.3	0.4	0.5	0.7	0.4	0.3	0.4	0.5	0.5
More than 100	—	0.2	0.1	0.1	0.1	*	*	0.1	0.2	0.1
<i>Weighted N =</i>	—	707	918	837	821	819	775	742	730	706
<u>Gender of Partners in Last 12 Months</u>^b										
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>										
Exclusively male?	—	3.5	3.3	3.7	3.8	2.9	3.7	4.3	3.7	4.2
Both male and female?	—	0.5	1.0	1.3	0.5	0.3	0.4	0.7	0.8	0.7
Exclusively female?	—	95.9	95.6	95.0	95.7	96.9	96.0	95.0	95.5	95.2
<i>Weighted N =</i>	—	634	818	753	754	752	700	671	660	636

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2b (cont.)
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.)

<u>Number of Partners in Last 12 Months</u>	Female									
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>										
None	—	9.1	9.5	8.1	8.8	10.6	11.2	10.8	9.8	8.4
One	—	80.5	79.4	81.8	81.4	79.5	79.4	78.4	80.9	81.4
Two	—	4.9	5.8	4.8	4.8	5.6	4.9	5.8	4.9	4.3
Three	—	3.2	2.8	3.0	2.4	1.8	2.2	2.7	2.3	2.6
Four	—	1.3	1.3	0.8	1.1	1.3	1.0	0.8	1.0	1.3
5–10	—	0.8	0.9	1.0	1.1	1.0	1.2	1.3	0.8	1.6
11–20	—	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.4
21–100	—	*	0.2	0.2	0.1	0.1	0.1	0.1	*	*
More than 100	—	*	*	*	*	*	*	*	*	*
<i>Weighted N =</i>	—	742	984	947	942	929	871	793	758	778
<u>Gender of Partners in Last 12 Months^b</u>										
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>										
Exclusively male?	—	97.0	97.6	97.7	97.1	96.4	97.4	97.5	96.5	95.8
Both male and female?	—	0.6	1.0	1.0	0.8	0.7	0.4	0.7	0.8	1.2
Exclusively female?	—	2.3	1.5	1.3	2.1	2.8	2.1	1.8	2.7	3.0
<i>Weighted N =</i>	—	673	882	858	851	825	769	703	678	707

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

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

^aData 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.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

TABLE 9-2c
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.)

Number of Partners in Last 12 Months	Total							Males							Females													
	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017							
<i>During the LAST 12 MONTHS, how many sex partners have you had? (This includes vaginal, oral, or anal sex.)</i>																												
None	11.1	11.1	9.9	9.4	10.2	10.8	11.0	9.7	9.0	8.4	8.2	9.3	10.7	10.8	12.4	13.2	11.5	10.6	11.0	10.8	11.1							
One	79.2	78.0	78.6	79.1	79.2	78.8	78.8	79.4	77.0	76.2	78.0	78.6	77.4	78.2	79.0	79.0	81.0	80.2	79.7	80.0	79.2							
Two	4.5	5.2	5.0	5.2	4.8	4.5	5.0	4.1	5.4	5.2	4.8	4.6	4.6	4.4	4.8	5.0	4.9	5.6	4.9	4.4	5.4							
Three	1.9	2.1	2.7	2.7	2.4	2.7	2.4	2.3	3.0	4.1	3.8	2.7	2.7	2.2	1.6	1.3	1.3	1.5	2.0	2.7	2.5							
Four	1.2	1.0	1.3	1.5	1.4	1.0	1.0	1.3	1.5	1.6	1.7	1.5	1.2	1.4	1.2	0.4	0.9	1.3	1.2	0.9	0.6							
5–10	1.4	1.7	1.6	1.6	1.6	1.4	1.4	2.2	2.6	2.8	2.4	2.3	1.9	1.8	0.6	0.8	0.5	0.7	1.0	0.9	1.0							
11–20	0.6	0.4	0.2	0.2	0.4	0.4	0.2	0.7	0.5	0.4	0.4	0.7	0.7	0.3	0.5	0.2	0.0	0.0	0.2	0.3	0.1							
21–100	0.2	0.3	0.4	0.3	0.1	0.3	0.5	0.3	0.5	0.9	0.6	0.2	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1							
More than 100	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
	<i>Weighted N =</i>							1,813	1,723	1,690	1,740	1,698	1,566	1,587	872	860	850	864	825	734	739	942	863	840	876	873	831	848
Gender of Partners in Last 12 Months^b																												
<i>During the LAST 12 MONTHS, have your sex partner or partners been ...</i>																												
Exclusively male?	52.1	49.6	49.2	50.0	51.1	53.0	52.6	4.7	4.1	3.8	3.7	3.3	3.5	3.2	97.6	97.5	96.8	96.7	97.0	96.9	95.8							
Both male and female?	0.7	0.8	0.7	0.8	1.2	1.1	1.2	0.1	0.8	1.0	0.5	1.2	1.2	0.5	1.2	0.7	0.4	1.0	1.1	1.1	1.8							
Exclusively female?	47.2	49.6	50.1	49.2	47.7	45.9	46.2	95.1	95.0	95.2	95.8	95.5	95.3	96.4	1.2	1.8	2.9	2.3	1.9	2.1	2.4							
	<i>Weighted N =</i>							1,601	1,525	1,515	1,566	1,513	1,391	1,411	784	782	775	786	741	654	658	817	743	741	780	772	738	754

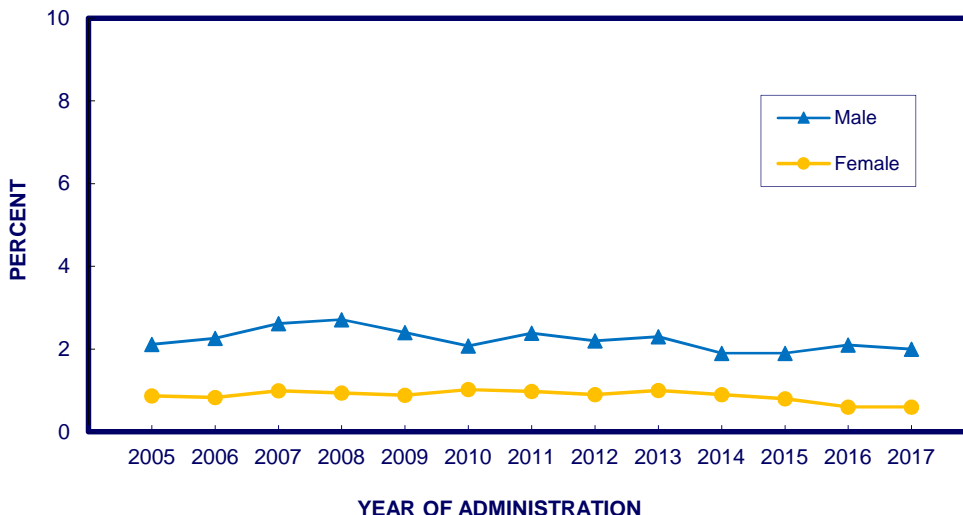
Source. The Monitoring the Future study, the University of Michigan.

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

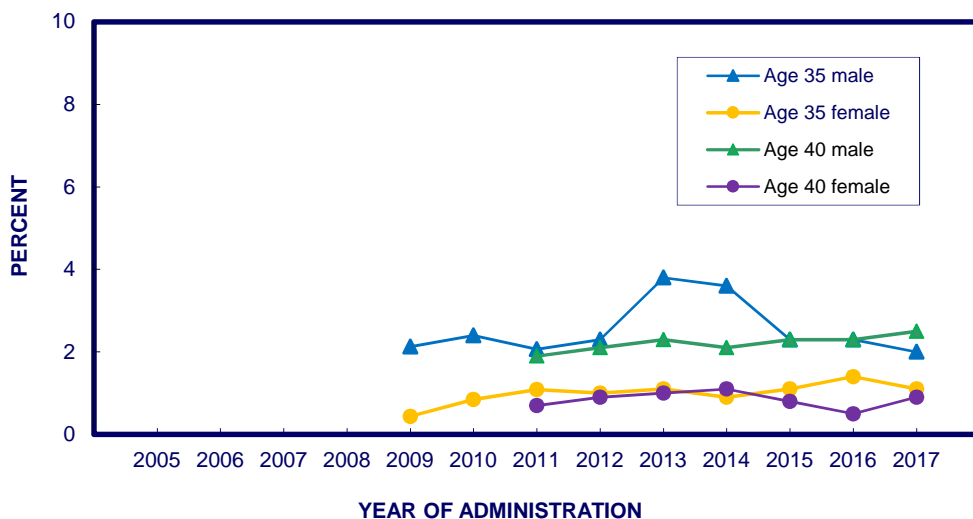
^aData presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

^bBased on those reporting sex with one or more partners during the past year. Those reporting no partners are omitted.

FIGURE 9-1
Trends (2-year average) in Lifetime Injection Drug Use
by Gender among Respondents of Modal Ages 21-30

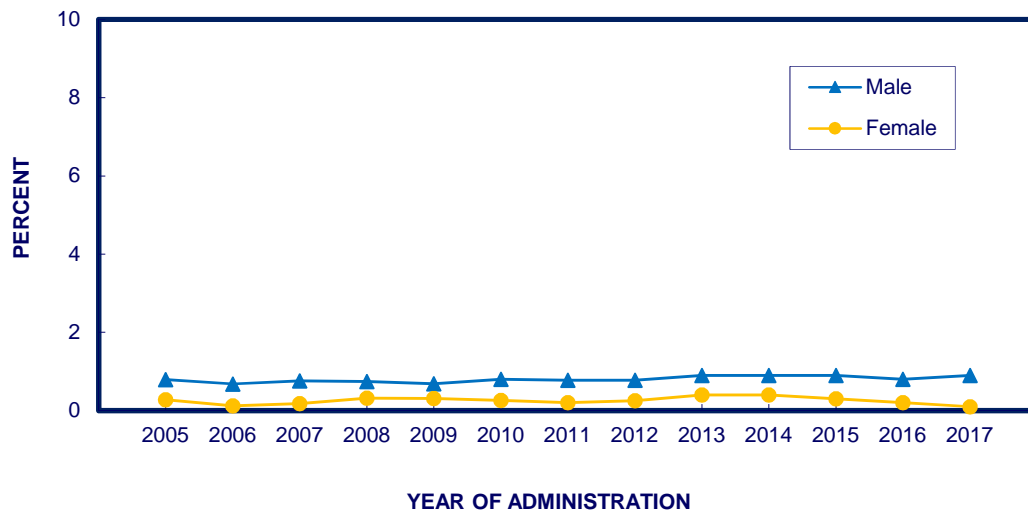


Trends (2-year average) in Lifetime Injection Drug Use
by Gender among Respondents of Modal Age 35/40

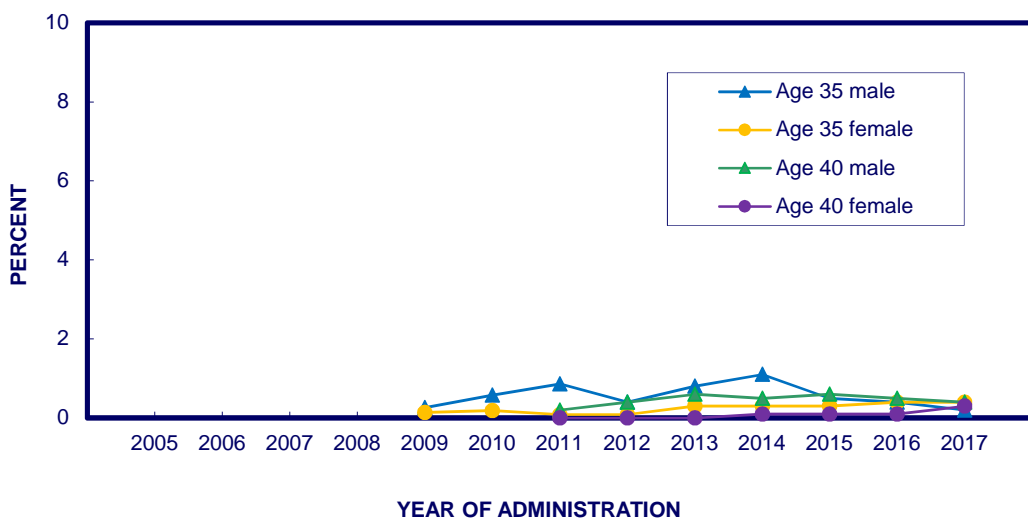


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-2
Trends (2-year average) in Annual Injection Drug Use
by Gender among Respondents of Modal Ages 21-30

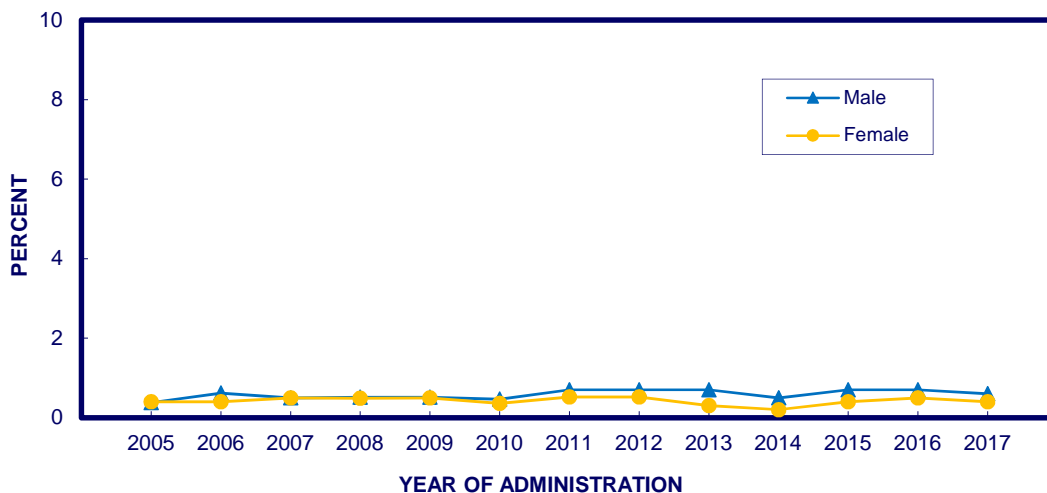


Trends (2-year average) in Annual Injection Drug Use
by Gender among Respondents of Modal Age 35/40

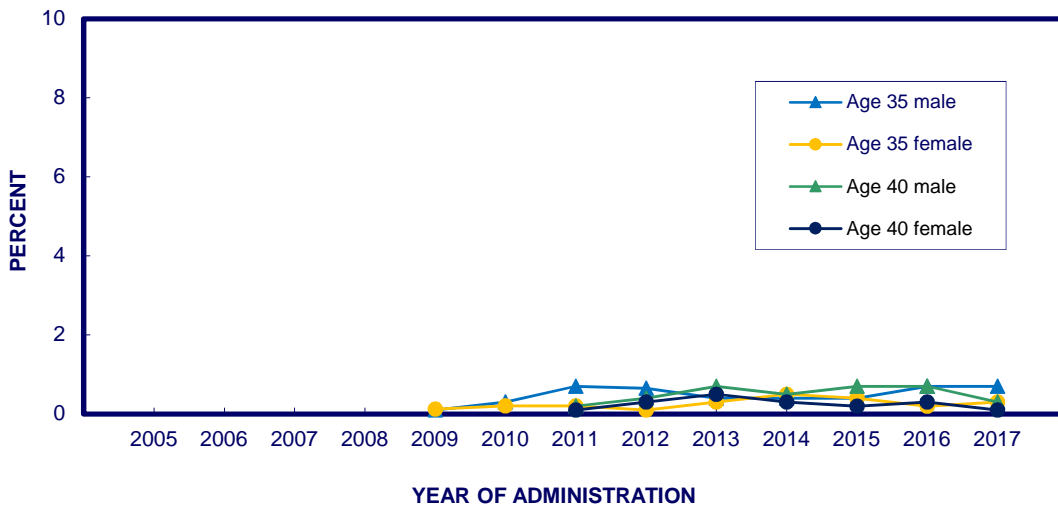


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-3
Trends (2-year average) in Lifetime Needle Sharing
by Gender among Respondents of Modal Ages 21-30

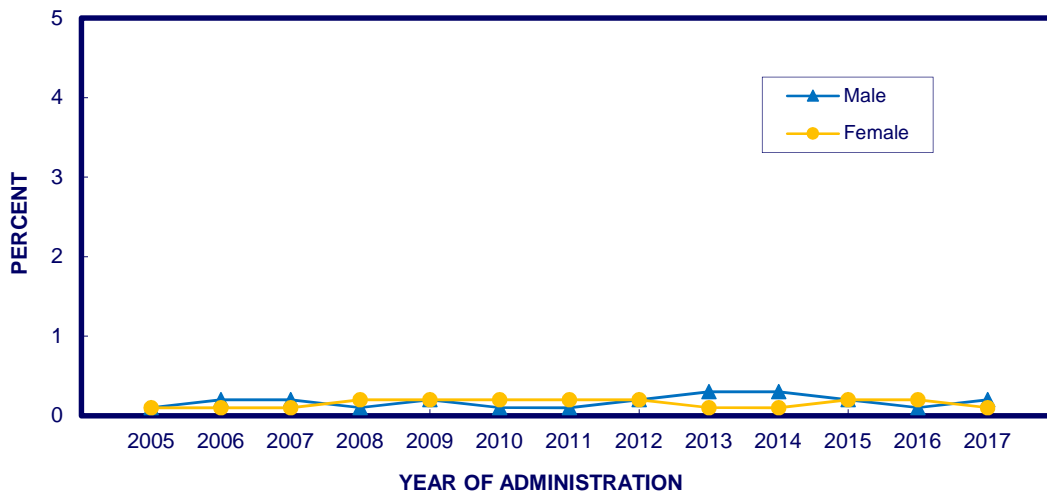


Trends (2-year average) in Lifetime Needle Sharing
by Gender among Respondents of Modal Age 35/40

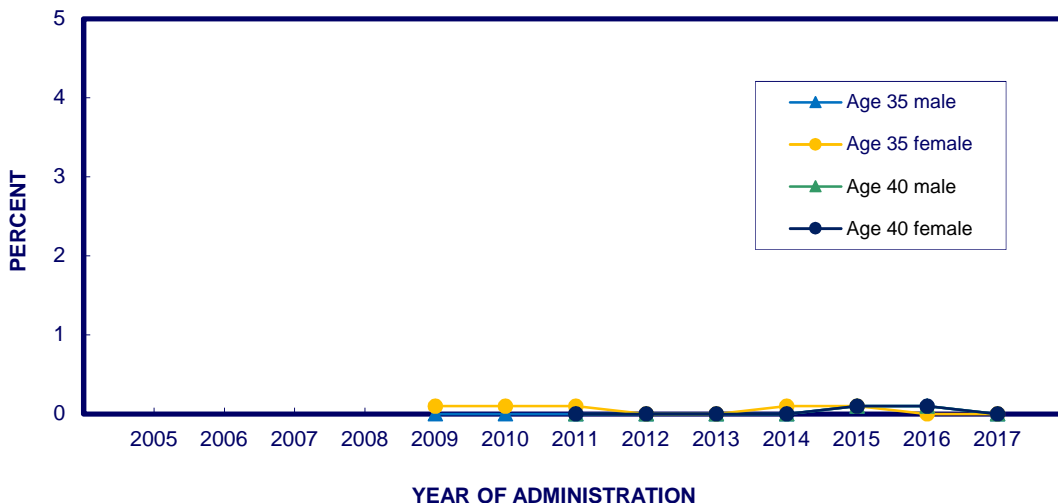


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-4
Trends (2-year average) in Annual Needle Sharing
by Gender among Respondents of Modal Ages 21-30

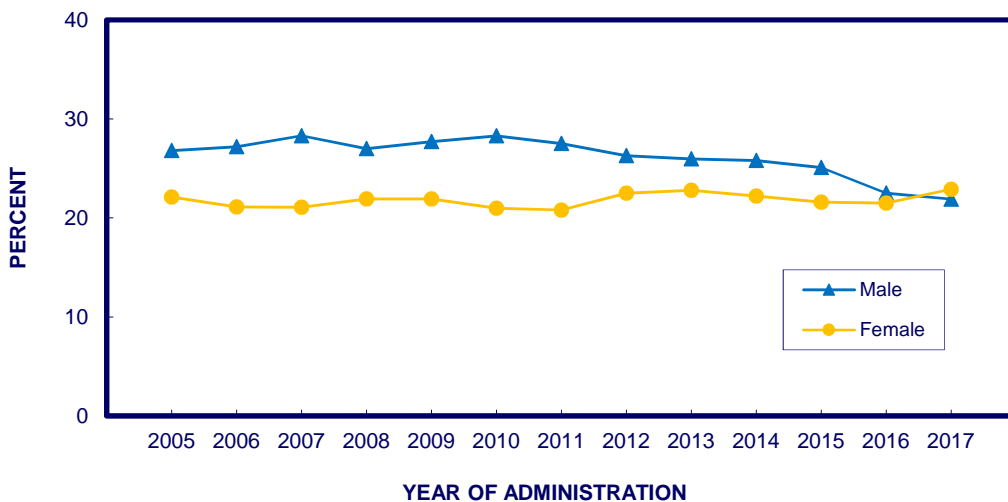


Trends (2-year average) in Annual Needle Sharing
by Gender among Respondents of Modal Age 35/40

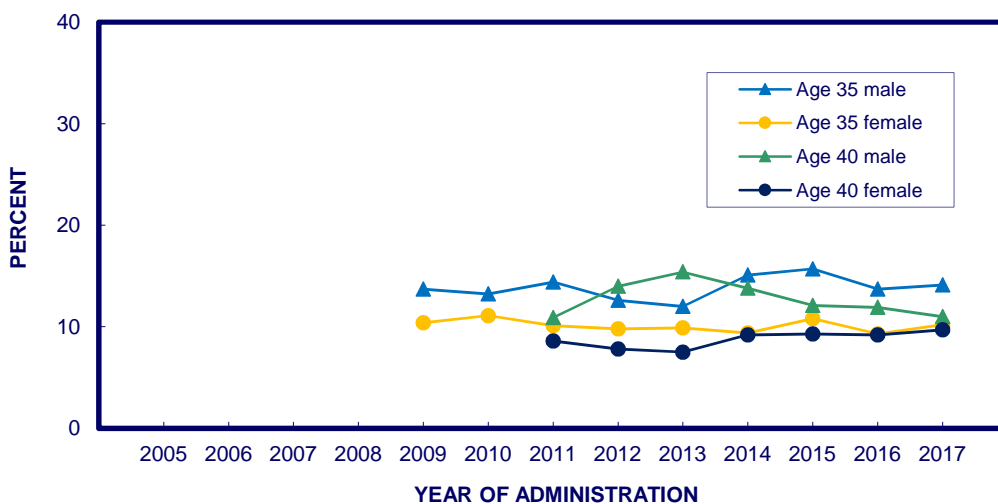


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-5
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

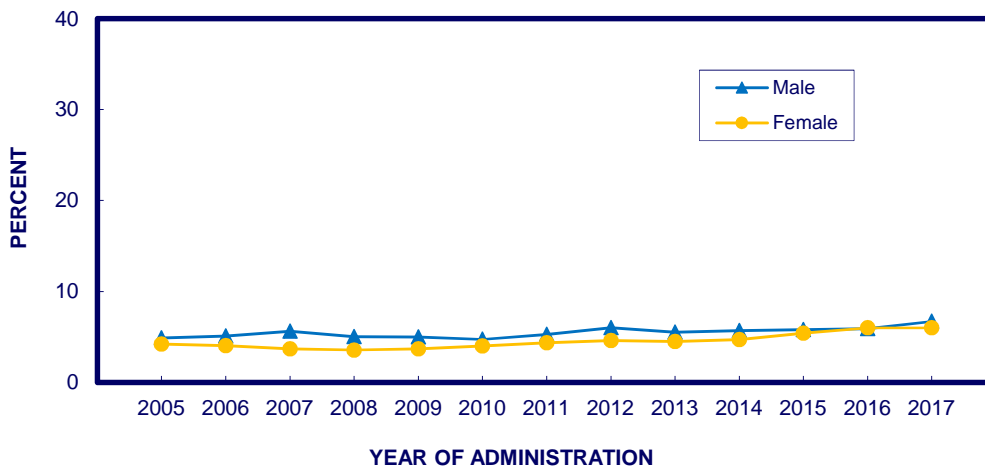


Trends (2-year average) in Having
More than One Sex Partner in the Last Year
by Gender ^a among Respondents of Modal Age 35/40

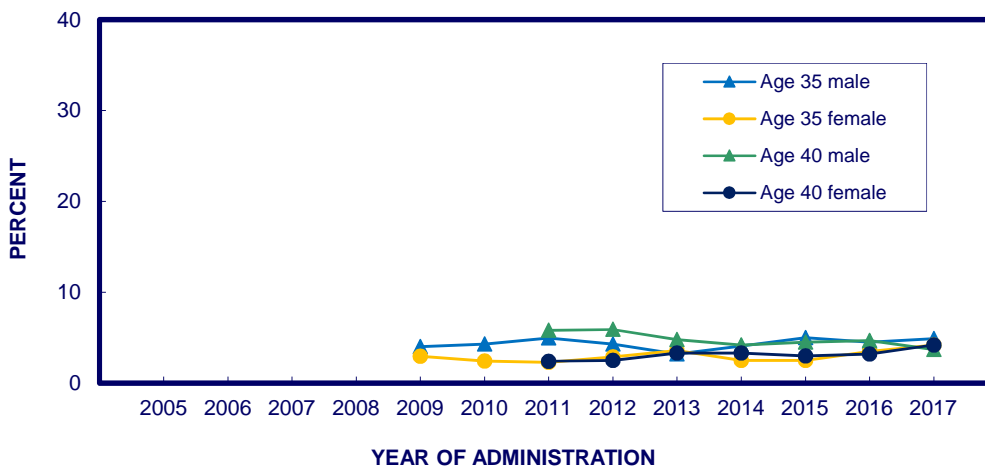


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 9-6
Trends (2-year average) in Having a
Sex Partner of the Same/Both Genders in the Last Year
by Gender ^a among Respondents of Modal Ages 21-30



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



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

^aBased 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

The behaviors that can help to protect against the spread of HIV have not shown a great deal of change in the 2005–2017 interval among young adults, but there has been some change.

Condom Use

Past-year prevalence of using *condoms* “most times or always” among young adults did not change much from 2005 to 2017 (Table 10-1a and Figure 10-1). 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 prevalence levels among males (ranging between 62% and 67%) considerably higher than among females (ranging between 50% and 58%). The only change in Figure 10-1 to reach statistical significance was the decline in annual prevalence in condom use among females from 2014–2017. Among 35- and 40-year-olds, there is little evidence of systematic change since they were added to the study (35-year-olds in 2009 and 40-year-olds in 2011). At age 35 males have been consistently more likely than females to report having used condoms in the past 12 months; that has not been the case among 40-year-olds, where there has been little gender difference.

Table 10-1d makes clear that the prevalence and frequency of using condoms declines with age across the young adult years. Averaged across the 2004–2017 surveys, it can be seen in the right hand column that 75% of the 21- to 22-year-olds reported they used a condom at least once in the past 12 months, but that the rate falls to 46% among those ages 29 to 30. And, in 2017 specifically, while 35% of the 21- to 22-year-olds said they have used condoms most times or always, that rate falls to 25% among the 29- to 30-year-olds, in considerable part due to the rising proportion who are married (as is documented in Tables 6-1e and 6-1f). Use of condoms declines further by age 35, and still further by age 40 (Tables 10-1b and 10-1c).

Getting Tested for HIV/AIDS

The *lifetime* prevalence of *getting tested* for HIV/AIDS has shown a small but significant decline ($p < .05$) among young adult females (50.2% in 2005; 47.7% in 2017, Table 10-1a), and a larger decline among young adult males (from 37.9% to 30.9%; $p < .05$, Table 10-1a). Despite some decline in lifetime testing, among females the prevalence of getting tested in the *past 12 months* was at 23.7% in 2005, but then rose gradually and somewhat unevenly, reaching 27.0% by 2017 ($p < .05$). Among males, the prevalence of getting tested in the *past 12 months* declined slightly between 2005 (16.7%) to 2017 (15.1%), n.s. *These different changes produced a widening gap between the genders in the prevalence of getting tested in the past 12 months, with females trending toward higher levels, especially through 2010, and becoming even more likely than males to get tested since then (Figure 10-2). The change in the gap is significant ($p < .001$).*

Since 2005 the percentages of young adults *receiving the test results* have been stable and very high (92%–94%) with females being very slightly higher than males prior to 2012, after which the small gender gap nearly disappeared (Table 10-1a and Figure 10-3).

Among 35-year-olds both genders showed some increase between 2012 and 2014 in the annual prevalence of getting tested; but both showed some decline between 2014 and 2016, followed by an increase among females only in 2017 (Figure 10-2). Females have consistently had higher rates of getting tested than males at age 35, as is true among the young adults, but there has been little difference between the genders among those age 40 (Figure 10-3). Both genders have shown a very slight increase in the high proportions who do receive the results—a positive development (Figure 10-3 and Table 10-1b).

Among 40-year-olds, 12-month prevalence of getting tested has been lower than among 35-year-olds, ranging between 8% and 13% from 2011 to 2017, with no significant gender differences (Table 10-1c, Figure 10-2). The rates of receiving the test results have been consistently high (93% to 96%) with females consistently slightly more likely than males to get test results (Table 10-1c, Figure 10-3).

Summary

It is clear that condom use is a protective behavior that occurs relatively infrequently among young and middle-aged adults. On average only about 55-60% of sexually active young adults indicate *any* use of condoms in the last 12 months—more males than females—and there has been little change in this practice since 2005 among young adult males. Young adult females have shown some gradual falloff in condom use, particularly in the past two years. It is clear that the use of condoms declines considerably between the ages of 21-22 to 29-30 and then declines further through age 40. Using condoms “most times” or “always” is substantially less likely to be reported, with an annual prevalence of about 30% to 33% of young adults giving these answers.

Only between 40% and 50% of all young adults report getting tested for HIV/AIDS at some time in their lives, with females being more likely than males to do so. The rate of getting tested in the prior year showed some increase among females between 2006 and 2010 and then a more gradual increase; the 2005-2017 increase, which was statistically significant, helped to open a somewhat greater difference between the genders among young adults. On the other hand, among 35-year-olds the gender difference appeared to diminish between 2012 and 2014 as both genders showed increasing proportions of testing, but with males rising faster. Failing to obtain the test results after being tested is rare, and thus seems not to be a serious problem.

As we have seen in the previous chapter, males have considerably higher risks of contracting HIV/AIDS, but they are somewhat less likely to adopt the protective behavior of getting tested for HIV/AIDS, leaving them even more vulnerable to being unaware that they have the disease. They are, however, more likely than females to report having used condoms, perhaps in part because more of them have a large number of sex partners.

Over the interval covered so far for young adults and the shorter intervals for 35- and 40-year-olds, we note a limited amount of systematic movement in these protective factors. The modest increase in getting tested observed among young adult females is probably the most positive development in terms of protective behaviors. The fact that nearly all people tested in any of these age groups do secure their test results is also encouraging.

TABLE 10-1a
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													
Frequency of Condom Use in Last 12 Months^b	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>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.)</i>														
Never	—	42.1	41.6	40.5	40.7	40.1	39.5	40.2	40.0	39.4	40.4	42.3	44.3	44.3
Seldom	—	13.7	13.2	13.6	13.1	13.3	14.0	14.4	14.4	14.6	14.3	13.7	12.6	12.8
Sometimes	—	12.4	13.3	13.5	13.0	13.0	13.0	12.2	12.6	12.8	12.4	11.9	11.9	12.4
Most times	—	15.5	15.2	15.2	15.0	14.4	14.0	14.6	15.3	14.8	14.5	14.6	14.3	14.3
Always	—	16.4	16.7	17.2	18.2	19.2	19.6	18.6	17.7	18.4	18.4	17.6	16.9	16.0
<i>Weighted N =</i>	—	3,076	2,905	3,476	4,151	4,096	4,009	3,847	3,719	3,600	3,472	3,347	3,077	2,946
Testing for HIV: Lifetime and Last 12 Months														
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>														
Yes, in the last 12 months	—	20.4	19.6	20.1	20.9	21.5	21.0	20.9	22.1	21.5	20.7	21.4	20.8	21.5
Yes, but not in the last 12 months	—	24.0	23.9	23.5	23.0	22.9	23.3	22.4	21.4	20.9	19.9	18.9	18.9	18.4
No, never	—	55.7	56.5	56.4	56.1	55.6	55.7	56.7	56.5	57.7	59.4	59.7	60.3	60.2
<i>Weighted N =</i>	—	3,664	3,459	4,098	4,872	4,835	4,774	4,647	4,520	4,399	4,255	4,099	3,820	3,695
Received HIV Test Results^c														
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>														
Yes	—	92.2	92.8	92.5	92.7	93.1	93.7	94.2	94.1	93.7	93.7	93.7	93.5	94.4
No	—	7.8	7.2	7.5	7.3	6.9	6.3	5.8	6.0	6.3	6.3	6.3	6.5	5.6
<i>Weighted N =</i>	—	1,610	1,486	1,764	2,117	2,125	2,088	1,982	1,937	1,836	1,707	1,631	1,507	1,463

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1a (cont.)
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.)

	Male													
Frequency of Condom Use in Last 12 Months^b	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>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.)</i>														
Never	—	37.0	36.4	35.8	36.1	35.2	36.1	36.2	34.7	33.0	34.6	36.8	38.0	37.7
Seldom	—	13.7	12.8	13.3	13.7	13.3	13.0	13.7	14.3	15.0	14.3	14.4	13.3	13.4
Sometimes	—	12.8	13.0	13.3	13.2	13.3	13.2	12.7	13.6	13.6	13.5	12.9	12.7	12.9
Most times	—	17.8	18.0	16.8	15.7	15.6	15.7	16.8	17.2	17.1	16.9	15.5	16.1	17.5
Always	—	18.8	19.9	20.7	21.3	22.6	22.1	20.7	20.3	21.3	20.7	20.4	20.0	18.6
<i>Weighted N =</i>	—	1,423	1,330	1,607	1,941	1,937	1,878	1,760	1,684	1,610	1,545	1,503	1,369	1,307
Testing for HIV: Lifetime and Last 12 Months														
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>														
Yes, in the last 12 months	—	16.7	16.0	16.0	16.4	16.4	15.0	15.3	17.1	16.3	15.0	15.8	14.3	15.1
Yes, but not in the last 12 months	—	21.2	20.8	21.2	20.9	20.3	20.2	19.1	18.9	17.5	16.1	15.8	15.4	15.8
No, never	—	62.2	63.2	62.8	62.7	63.3	64.8	65.6	64.0	66.3	68.9	68.4	70.3	69.1
<i>Weighted N =</i>	—	1,738	1,629	1,919	2,288	2,290	2,257	2,166	2,102	2,034	1,963	1,904	1,782	1,719
Received HIV Test Results^c														
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>														
Yes	—	89.8	91.2	92.2	91.9	91.4	91.5	92.6	93.5	92.9	93.8	93.5	92.7	93.1
No	—	10.2	8.8	7.8	8.1	8.6	8.6	7.4	6.5	7.1	6.2	6.5	7.3	6.9
<i>Weighted N =</i>	—	655	591	701	845	830	775	727	744	673	602	593	520	525

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1a (cont.)
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.)

	Female													
Frequency of Condom Use in Last 12 Months^b	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>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.)</i>														
Never	—	46.5	46.1	44.4	44.8	44.5	42.4	43.6	44.3	44.5	45.1	46.8	49.3	49.6
Seldom	—	13.7	13.5	13.7	12.6	13.2	14.9	15.0	14.5	14.3	14.2	13.2	12.1	12.4
Sometimes	—	12.0	13.5	13.7	12.8	12.8	12.8	11.8	11.7	12.1	11.6	11.0	11.3	12.1
Most times	—	13.5	12.9	13.9	14.3	13.4	12.5	12.8	13.8	13.0	12.6	13.8	12.9	11.9
Always	—	14.3	14.0	14.3	15.5	16.1	17.5	16.9	15.6	16.1	16.5	15.3	14.4	14.0
<i>Weighted N =</i>	—	1,653	1,574	1,869	2,210	2,159	2,131	2,087	2,035	1,990	1,927	1,844	1,708	1,639
Testing for HIV: Lifetime and Last 12 Months														
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>														
Yes, in the last 12 months	—	23.7	22.9	23.8	24.9	26.0	26.4	25.8	26.4	25.9	25.6	26.2	26.4	27.0
Yes, but not in the last 12 months	—	26.5	26.6	25.5	24.9	25.2	26.1	25.3	23.6	23.9	23.2	21.7	22.1	20.7
No, never	—	49.8	50.6	50.7	50.1	48.8	47.5	48.9	50.0	50.2	51.3	52.1	51.5	52.3
<i>Weighted N =</i>	—	1,927	1,830	2,179	2,584	2,545	2,517	2,480	2,418	2,364	2,292	2,194	2,038	1,976
Received HIV Test Results^c														
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>														
Yes	—	93.9	93.8	92.7	93.2	94.2	95.1	95.1	94.4	94.2	93.7	93.8	93.9	95.1
No	—	6.1	6.2	7.3	6.8	5.8	5.0	4.9	5.6	5.8	6.3	6.3	6.1	4.9
<i>Weighted N =</i>	—	955	895	1,063	1,273	1,295	1,312	1,255	1,193	1,163	1,105	1,037	987	938

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1b
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									
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Frequency of Condom Use in Last 12 Months^b</u>										
<i>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.)</i>										
Never	—	66.5	64.8	63.5	65.5	66.9	66.9	65.7	67.2	66.3
Seldom	—	8.0	8.6	8.4	9.2	8.9	7.6	8.2	7.7	8.9
Sometimes	—	8.6	9.3	9.1	7.6	7.8	7.9	7.4	7.3	7.0
Most times	—	6.9	8.0	9.2	9.1	8.2	7.9	7.6	7.3	8.2
Always	—	10.0	9.2	9.7	8.6	8.1	9.7	11.1	10.5	9.6
<i>Weighted N =</i>	—	1,306	1,702	1,605	1,595	1,570	1,462	1,375	1,333	1,327
<u>Testing for HIV: Lifetime and Last 12 Months</u>										
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>										
Yes, in the last 12 months	—	15.0	15.0	15.4	15.3	16.7	19.5	19.2	16.5	18.6
Yes, but not in the last 12 months	—	38.6	38.1	41.1	41.8	38.6	35.3	36.2	37.6	35.1
No, never	—	46.4	46.9	43.5	42.9	44.7	45.2	44.6	45.9	46.2
<i>Weighted N =</i>	—	1,452	1,903	1,787	1,767	1,752	1,651	1,546	1,496	1,485
<u>Received HIV Test Results^c</u>										
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>										
Yes	—	92.4	93.2	94.8	94.2	94.3	95.1	95.3	95.5	96.7
No	—	7.6	6.8	5.2	5.8	5.7	4.9	4.7	4.5	3.3
<i>Weighted N =</i>	—	764	1,000	996	991	948	883	844	800	788

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1b (cont.)
Trends^a in Frequency of Condom Use and Testing for HIV
Total and by Gender among Respondents of Modal Age 35
(Entries are percentages.)

	Male									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Frequency of Condom Use in Last 12 Months^b										
<i>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.)</i>										
Never	—	65.4	61.8	58.4	59.0	62.4	62.6	60.1	63.2	60.9
Seldom	—	7.4	8.6	10.3	12.6	10.9	8.9	11.1	9.8	11.1
Sometimes	—	8.9	10.2	11.2	9.1	8.6	8.8	7.8	7.8	8.6
Most times	—	8.0	9.4	11.0	11.1	9.3	8.8	8.8	8.6	8.5
Always	—	10.2	10.0	9.2	8.3	8.9	10.9	12.1	10.6	10.8
<i>Weighted N =</i>	—	637	823	747	745	749	698	675	657	625
Testing for HIV: Lifetime and Last 12 Months										
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>										
Yes, in the last 12 months	—	11.8	12.1	12.3	12.2	15.2	18.1	17.4	14.6	14.7
Yes, but not in the last 12 months	—	32.5	32.2	35.8	39.2	34.7	30.0	31.4	30.0	28.7
No, never	—	55.7	55.8	51.9	48.6	50.1	51.9	51.2	55.4	56.7
<i>Weighted N =</i>	—	707	918	840	825	820	775	748	736	708
Received HIV Test Results^c										
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>										
Yes	—	89.3	89.6	91.1	89.6	91.9	94.3	94.1	94.6	95.7
No	—	10.7	10.4	8.9	10.4	8.1	5.7	5.9	5.4	4.3
<i>Weighted N =</i>	—	310	402	397	415	400	364	358	323	304

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1b (cont.)
Trends^a in Frequency of Condom Use and Testing for HIV
Total and by Gender among Respondents of Modal Age 35
(Entries are percentages.)

		Female									
		<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Frequency of Condom Use in Last 12 Months^b</u>											
<i>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.)</i>											
Never		—	67.5	67.7	68.1	71.3	71.1	70.8	71.1	71.1	71.1
Seldom		—	8.6	8.6	6.8	6.3	7.1	6.5	5.5	5.7	6.9
Sometimes		—	8.3	8.5	7.3	6.2	7.1	7.0	6.9	6.8	5.6
Most times		—	5.9	6.7	7.6	7.3	7.2	7.2	6.4	6.1	7.9
Always		—	9.8	8.5	10.2	8.9	7.4	8.6	10.1	10.3	8.5
	<i>Weighted N =</i>	—	670	879	857	850	822	764	700	676	702
<u>Testing for HIV: Lifetime and Last 12 Months</u>											
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>											
Yes, in the last 12 months		—	18.1	17.7	18.1	18.0	18.0	20.7	20.9	18.3	22.3
Yes, but not in the last 12 months		—	44.3	43.7	45.9	44.1	42.0	39.9	40.7	45.0	41.1
No, never		—	37.6	38.6	36.1	37.9	40.0	39.4	38.3	36.7	36.7
	<i>Weighted N =</i>	—	745	985	947	942	932	876	798	760	777
<u>Received HIV Test Results^c</u>											
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>											
Yes		—	94.5	95.6	97.2	97.5	96.0	95.7	96.1	96.1	97.3
No		—	5.5	4.4	2.8	2.5	4.0	4.3	3.9	3.9	2.7
	<i>Weighted N =</i>	—	454	598	599	577	549	519	486	477	484

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

Notes. '—' indicates not applicable.

^aData 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.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

TABLE 10-1c
Trends^a in Frequency of Condom Use and Testing for HIV
Total and by Gender among Respondents of Modal Age 40
(Entries are percentages.)

Frequency of Condom Use in Last 12 Months ^b	Total							Males							Females						
	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
<i>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.)</i>																					
Never	74.7	74.7	74.1	73.5	74.9	76.0	76.0	72.1	72.9	70.3	69.9	73.3	74.6	73.4	77.2	76.5	78.0	77.1	76.4	77.3	78.3
Seldom	5.4	4.9	4.8	6.4	6.0	4.9	5.3	5.8	5.5	5.7	7.1	6.5	5.5	6.5	5.0	4.2	3.9	5.7	5.5	4.3	4.3
Sometimes	5.8	6.6	6.8	5.5	5.8	5.8	4.8	6.4	7.7	8.3	6.7	7.0	6.3	4.3	5.2	5.4	5.2	4.2	4.6	5.4	5.2
Most times	6.0	6.0	5.7	6.3	6.2	5.0	5.5	6.6	6.3	6.6	6.9	6.6	5.9	6.8	5.5	5.8	4.8	5.6	5.9	4.3	4.5
Always	8.1	7.9	8.6	8.3	7.1	8.2	8.4	9.1	7.6	9.1	9.4	6.6	7.7	9.2	7.2	8.1	8.1	7.3	7.6	8.7	7.7
	Weighted N = 1,593 1,523 1,504 1,553 1,508 1,387 1,397							782 781 767 778 741 654 646							810 742 737 775 768 733 751						
Testing for HIV: Lifetime and Last 12 Months																					
<i>Have you ever been tested for HIV/AIDS? (Do not include tests that you may have had when donating blood or blood plasma.)</i>																					
Yes, in the last 12 months	11.8	8.4	8.4	8.1	12.5	11.7	12.3	12.6	8.2	8.5	7.8	12.6	10.4	10.5	11.1	8.6	8.3	8.4	12.3	12.9	13.9
Yes, but not in the last 12 months	43.4	45.9	45.6	45.0	41.1	42.5	41.5	37.8	49.7	47.2	46.5	33.7	36.4	37.2	48.6	42.2	43.9	43.5	48.0	47.9	45.2
No, never	44.8	45.7	46.0	46.9	46.4	45.8	46.2	49.6	42.1	44.3	45.7	53.6	53.2	52.3	40.3	49.2	47.8	48.1	39.6	39.2	40.9
	Weighted N = 1,808 1,720 1,686 1,744 1,707 1,578 1,594							868 859 847 866 830 740 740							940 861 839 878 878 838 854						
Received HIV Test Results^c																					
<i>Did you receive the results of your most recent HIV/AIDS test? (We don't want to know your test results.)</i>																					
Yes	93.5	93.5	92.7	92.7	94.1	94.0	95.6	91.7	92.6	90.9	89.7	91.9	91.0	93.2	94.9	94.2	94.1	94.8	95.8	96.0	97.3
No	6.5	6.5	7.3	7.3	5.9	6.0	4.4	8.3	7.4	9.1	10.3	8.1	9.0	6.8	5.1	5.8	5.9	5.2	4.2	4.0	2.7
	Weighted N = 973 893 871 905 901 843 840							429 401 380 380 381 342 348							544 492 491 525 520 501 491						

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

Notes. '—' indicates not applicable.

^aData presented in this table are two-year moving averages. The 2011 data is 2010 and 2011 combined and so forth.

^bPercentages based on those reporting sex with one or more partners during the last 12 months. Those reporting no partners are omitted.

^cThose respondents who report never having been tested for HIV are excluded from these percentages.

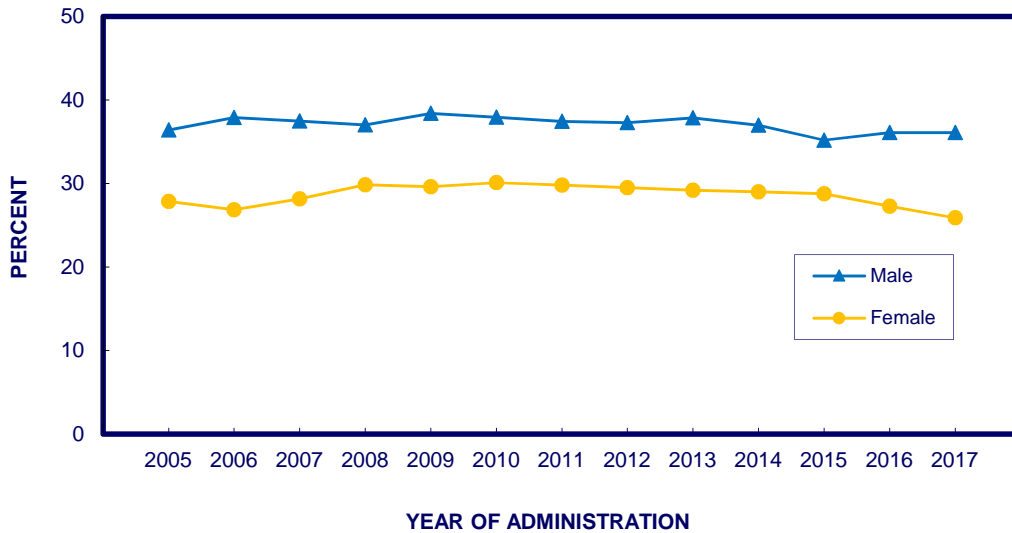
TABLE 10-1d
Use of Condoms in Past Year by 2-Year Age Groups^a
among Young Adults
(Entries are percentages.)

	Year of Administration														2004– 2017
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Age 21–22															
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	29.9	33.4	31.4	25.4
Seldom/Sometimes	32.5	30.7	29.8	28.7	28.7	28.7	29.0	30.6	31.0	29.5	29.6	27.1	23.8	33.5	29.4
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	43.0	42.8	35.1	45.2
<i>Weighted N =</i>	307	266	266	376	424	419	394	351	365	312	336	278	255	263	4,495
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	35.5	39.1	35.5	33.6
Seldom/Sometimes	28.8	30.8	28.8	29.0	31.7	24.7	27.2	28.5	29.8	27.4	22.4	27.3	29.0	29.5	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	37.2	31.9	35.0	38.3
<i>Weighted N =</i>	322	316	284	398	422	394	398	399	400	336	351	298	291	280	4,871
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	44.9	48.1	42.6	40.9
Seldom/Sometimes	23.5	27.1	29.2	27.8	21.6	29.4	30.5	26.3	28.5	27.8	29.9	26.6	22.5	23.9	26.9
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	28.5	29.4	33.6	32.3
<i>Weighted N =</i>	331	299	273	408	387	392	417	355	360	365	360	322	302	274	4,866
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	48.2	48.9	51.1	49.4
Seldom/Sometimes	27.1	19.8	24.2	25.6	22.9	28.4	26.1	24.0	25.2	25.4	24.9	23.8	23.7	21.8	24.5
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	28.0	27.4	27.1	26.0
<i>Weighted N =</i>	308	320	312	413	409	387	388	365	382	343	334	315	319	338	5,006
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	57.8	55.6	51.6	54.1
Seldom/Sometimes	21.4	19.4	25.8	23.1	23.1	24.6	21.9	22.0	24.7	26.7	25.9	19.6	22.9	23.9	23.3
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	22.6	21.5	24.5	22.6
<i>Weighted N =</i>	319	287	281	464	459	416	405	379	378	368	372	299	311	312	5,149

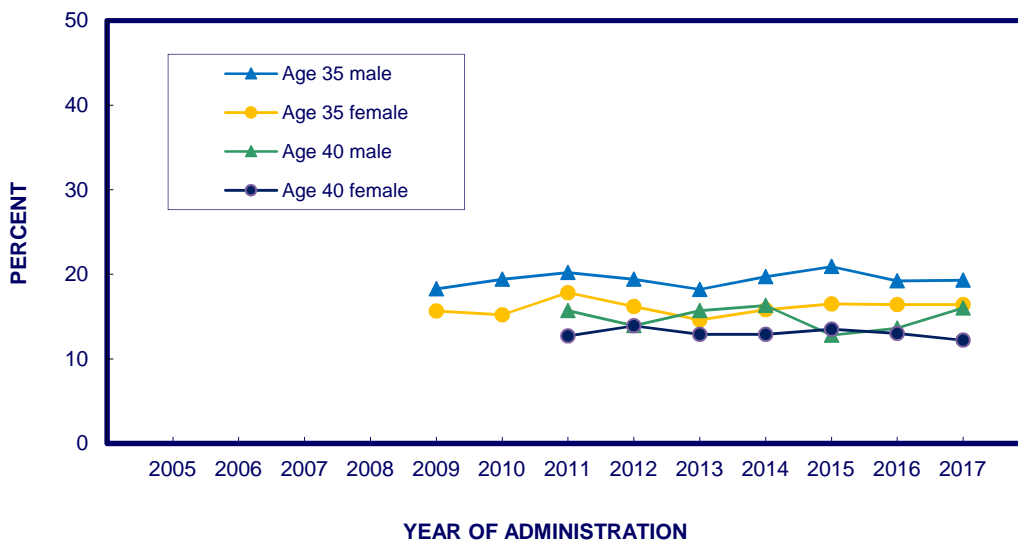
Source. The Monitoring the Future study, the University of Michigan.

^aIn 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 10-1
Trends (2-year average) in Annual Condom Use
by Gender ^a among Respondents of Modal Ages 21-30
 (most times or always)



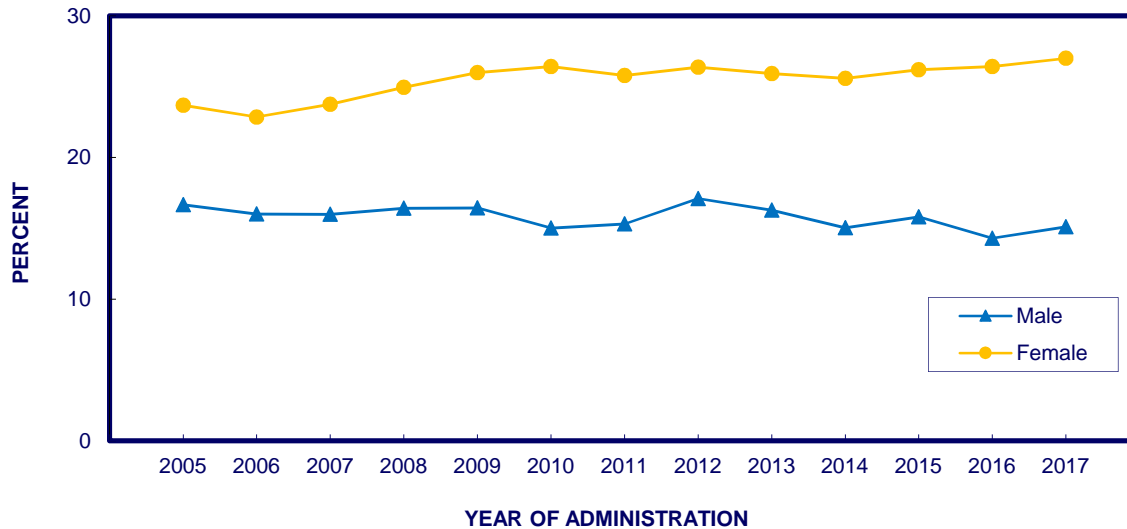
Trends (2-year average) in Annual Condom Use
by Gender ^a among Respondents of Modal Age 35/40
 (most times or always)



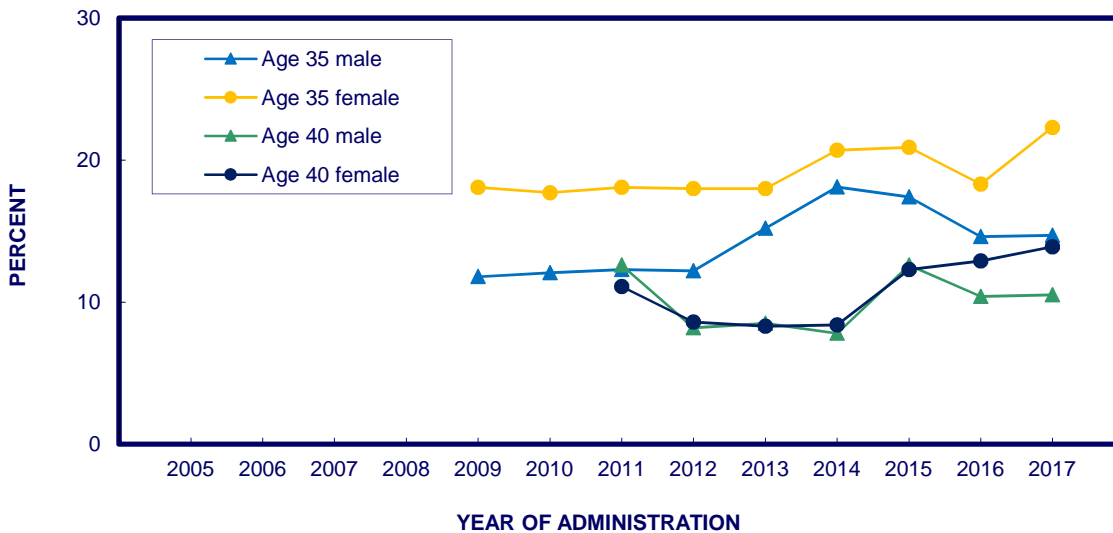
Source. The Monitoring the Future study, the University of Michigan.

^aBased on those reporting sexual activity with one or more partners during the past year. Those reporting no partners are omitted.

FIGURE 10-2
Trends (2-year average) in Having an
HIV/AIDS Test in the Past Year
by Gender among Respondents of Modal Ages 21-30

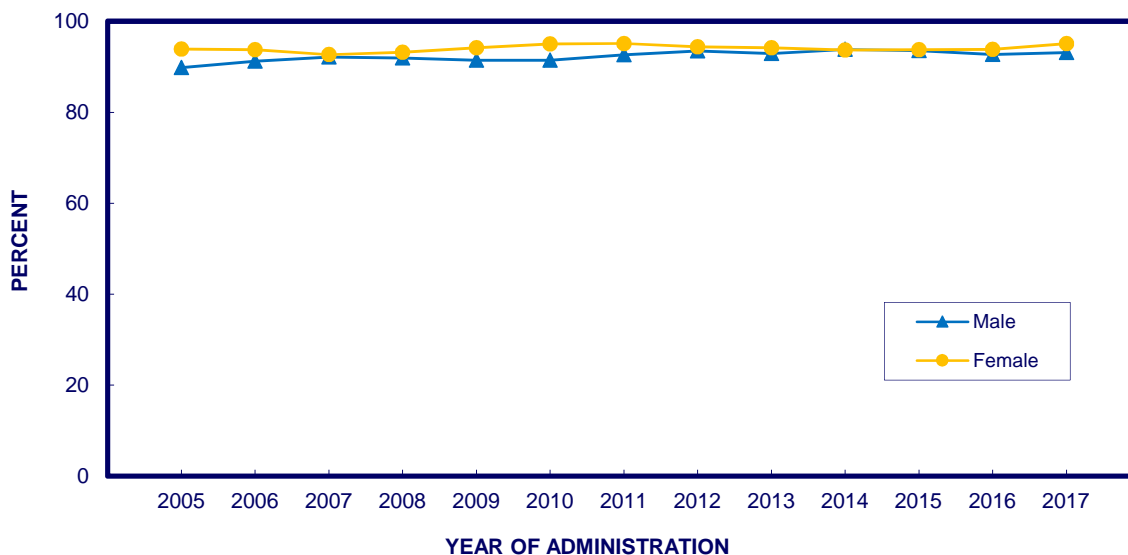


Trends (2-year average) in Having an
HIV/AIDS Test in the Past Year
by Gender among Respondents of Modal Age 35/40

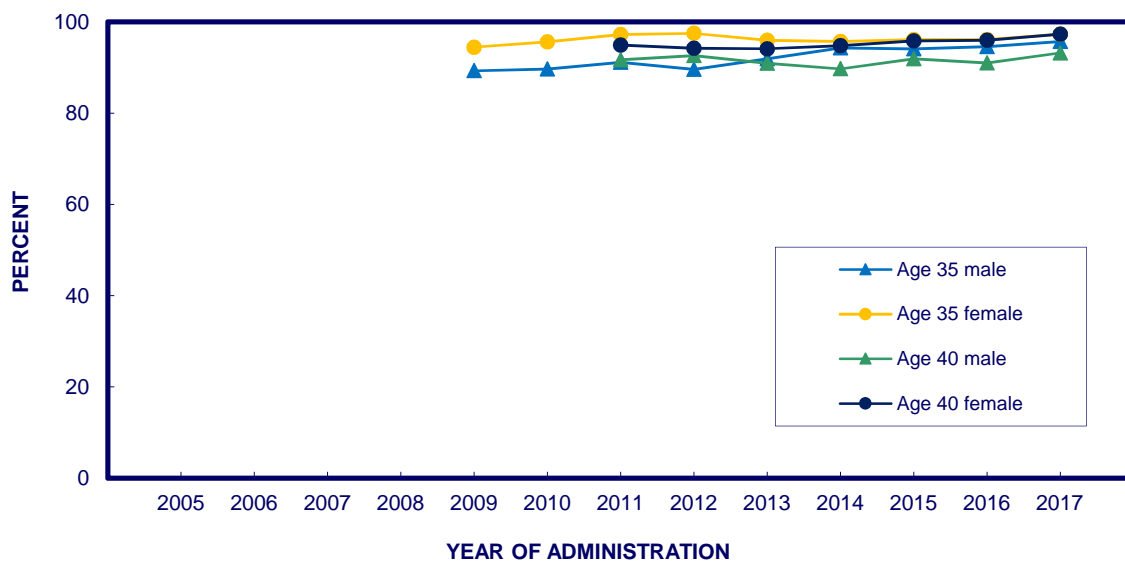


Source. The Monitoring the Future study, the University of Michigan.

FIGURE 10-3
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.

^aThose respondents who report never having been tested for HIV are excluded from these percentages.

Chapter 11

SUMMARY AND CONCLUSIONS

Risk behaviors for the spread of HIV/AIDS are all too prevalent among today's young adults. Sharing needles, engaging in sex with multiple partners, and having unprotected male-to-male sex are perhaps the most important ones.

Based on our 2004 through 2017 national surveys *combined*, about one quarter (24.0%) of young adults aged 21 to 30 indicated having more than one sex partner in the prior 12 months (26.3% of males and 21.9% of females). However, trend data show that previously observed differences between males and females on this statistic have been virtually eliminated by 2017 (21.9% for males vs. 22.9% for females) as having multiple sex partners has declined significantly among young adult males. However, males are still somewhat more likely than females to report having four or more partners (9.3% of males, 7.6% of females, and 8.3% overall). Some 5.2% said they had five or more partners (6.3% of males and 4.3% of females). Thus young adult men on average are still at higher risk than young adult women based on number of sex partners they have, but the gender difference has narrowed as the proportion of males having more than one partner has declined considerably along with a significantly increasing abstention rate. The percent of young adult males indicating they had no sex partners in the prior 12 months rose from 14.4% in 2008 to 23.1% in 2017 ($p < .001$). Females also have shown an increase in abstention in the prior 12 months, albeit a smaller one, from 12.3% in 2005 to 16.1% in 2017 ($p < .001$). These reductions in the number of sex partners are important changes in a risk factor for HIV/AIDS.

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 already higher risk. Among sexually active male respondents in 2017 almost one in twenty (4.5%) indicated having had sex exclusively with male partners in the prior 12 months (and another 0.9% indicated having sex with both genders); slightly over half of them reported having multiple male partners, including 21% of them reporting five or more male partners. Among 35- and 40-year-old men slightly lower proportions had sex exclusively with men in the prior year (4.2% and 3.2%, respectively) and another 0.7% and 0.5% respectively had sex with both genders. Men in these older age groups who have sex with men are also more likely to have multiple sex partners during the year. Among 35-year-olds who had sex exclusively with men in the prior year 54% had multiple partners, and among 40-year-olds 50% did—much higher rates than among men the same age who have exclusively female partners. So, these two risk factors—men having sex with men and having multiple sex partners—combine to create even higher risk than either alone.

While young adult men who have sex exclusively with men use condoms about as frequently as men who have sex exclusively with women; the differences are small and not statistically significant—38% 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 actually 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 condoms “most times” or “always.” So, there is some evidence in these two older age groups of compensatory protective behavior for the heightened risk involved in men having sex with men.

Among all young adults the protective behavior of using condoms 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 some compensatory protective behavior here, as well, associated with the increased risk derived from having more sex partners, but certainly not enough to fully offset that added risk.

Some 41% 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 further compensatory protective 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 risky sexual contact, using condoms if they do have sex, and avoiding sharing needles with others if they are drug injectors. Their partners can also be alerted to use pre-exposure prophylaxis (PrEP) because they are at heightened risk (CDC, 2018). Interestingly, condom use and HIV testing—two risk-reduction behaviors—do not seem to correlate with each other.

Only about 0.5%, or one in every 200, of 21- to 30-year-old respondents surveyed in 2004–2017 (combined) admitted to ever sharing needles in their lifetime—0.2% in the prior 12 months. Importantly, one-third of young adults who ever injected drugs (1.5%) reported having ever shared needles (0.5%). Of those injecting drugs in just the prior 12 months (0.5%) nearly half (0.2%) indicated that they shared needles in that time interval. 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 we underestimate the size of this group.

Of those few respondents in the samples who have ever shared needles, about 40% indicate having been tested for HIV in the prior 12 months—roughly twice the rate among all young adults who have never shared needles—indicating some compensatory protective behavior for this serious risk behavior. Those who have shared needles, however, carry increased risk from being more likely than others to have multiple sex partners and from having a lower prevalence of condom use than those who have not shared needles, thus increasing the risk that they acquire HIV and/or transmit it to others.

Findings reported here for young adults are based on the fourteen annual data collections 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 for relatively rare behaviors or

especially for the intersection of rare behaviors. Nevertheless, 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 twelve-year interval suggests that only limited change is taking place in the general population of young adults who have completed high school. One of the changes large enough to reach 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. To illustrate, the percent of young adult males who had *never* been tested for HIV rose from 62% in 2005 to 69% in 2017. On the other hand, rates of past-year young adult female testing appear to have risen gradually and significantly from 2005 (23.7%) through 2017 (27.0%), and that combined with the reduction in testing by males during that period has resulted in a larger gender difference in recent years (Figure 10-2; the increase in the gap is significant: $p < .001$). Thus, in 2017, 27% of young adult females reported getting tested in the prior 12 months compared to 15% of young adult males; this is despite the fact that the males are at considerably higher risk of contracting HIV. Among the 35- and 40-year-olds, there is some evidence of an increase in recent years among both males and females in the prevalence of getting tested, but the changes do not reach statistical significance (see Figure 10-2).

One positive development is that the proportion of all young adults who fail to secure their test results started out quite low at about 8% among those tested in 2004—the beginning year for this study—and became still lower (about 6% of those tested) by 2011 by a statistically significant amount. It remained at 6% in 2017.

The data from 35- and 40-year-olds present a less clear picture due to the smaller samples and shorter time intervals covered so far. Consistent with what we know about the opioid epidemic, the only trends that were statistically significant were an increase among 35-year-old males in their lifetime injection drug use between 2011 and 2013, as well as in the frequency of their injection drug use, with the percent reporting using on 20 or more occasions in their lifetime rising from 0.5% in 2012 to 1.6% in 2014 ($p < .05$). They also showed some increase in needle sharing from 2009 to 2011, followed by a leveling; and there appeared to be some upward drift in needle sharing from 2011 to 2013 among 35-year-old females and 40-year-old males and females, though not a significant one.¹

As we have argued in the context of drug abuse, there is always a danger of *generational forgetting*—that through generational replacement combined with reduced attention to the topic in media and with fewer casualties, 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 likely 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

¹ It should be noted that we have not been able to make separate 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 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 annual samples.

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 the risk of reduced perceptions of the dangers of AIDS for incoming cohorts of young adults. This underscores the importance of continued education and prevention efforts.

Although great progress has been made in HIV risk reduction in recent decades, in large part through medical advances, the MTF results show that there has been only limited progress over the past decade in key behaviors in the population related to acquiring HIV/AIDS, and thus, there is little room for complacency.² 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 HIV prevention.

² A number of efforts are still being made, of course, to further improve biomedical approaches to the prevention of HIV (*HIV.gov*, 2018).

References

Centers for Disease Control and Prevention (CDC). (2018). *HIV in the United States: At a glance*. Retrieved from <http://www.cdc.gov/hiv/statistics/overview/ataglance.html>

Centers for Disease Control and Prevention (CDC). (March, 2018). *PrEP 101*. Retrieved from <https://www.cdc.gov/hiv/pdf/library/factsheets/prep101-consumer-info.pdf>

Crum, N.F., Riffenburgh, R.H., Wegner, S., Agan, B.K., Tasker, S.A., Spooner, K.M., Armstrong, A.W., Fraser, S., & Wallace, M.R. (2006). Comparisons of causes of death and mortality rates among HIV-infected persons: Analysis of the pre-, early, and late HAART (highly active antiretroviral therapy) eras. *Journal of Acquired Immune Deficiency Syndromes* 41(2), 194-200. <https://www.ncbi.nlm.nih.gov/pubmed/16394852>

HIV.gov. (July, 2018). *CDC's Eugene McCray discusses HIV prevention advances from AIDS 2018* (video). Retrieved from <https://www.hiv.gov/blog/cdc-s-eugene-mccray-discusses-hiv-prevention-advances-aids-2018-video>

APPENDIX

OTHER RELEVANT STUDIES OF THE GENERAL POPULATION

Seven other studies that generate information on risk and protective behaviors on national samples of the U.S. general 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 2008/2009, and (most recently) 2016–18 (Carolina Population Center, 2018; 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. A wide range of analyses focusing on risk behaviors for HIV and other sexually-transmitted infections have been published with Add Health data (for a listing of publications, see <https://www.cpc.unc.edu/projects/addhealth/publications>). These studies provide important data based on the six adjacent class cohorts included in Add Health; however, MTF continually adds cohorts and can thus track historical trends for fixed age groups and also for many cohorts over time. For more information on Add Health, see <https://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. non-institutionalized 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 re-interviewed in 2008 and 2010; National Opinion Research Center, 2018). Most items on sexual risk and protective factors were added to the GSS starting in 1988, and the survey now includes 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 lifetime and past 30-day use). 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). GSS data are collected in a face-to-face interview context: paper-and-pencil questionnaires were used through 2000; collection via computer-assisted personal interviewing (CAPI) has been used since 2002. As part of the CAPI format, the respondent is handed the interviewer’s laptop computer to self-complete the more sensitive sections using computer-assisted self-interviewing (CASI). 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. HIV/AIDS publications from the GSS have reported on sexual risk behaviors (e.g., Anderson, 2003; Anderson et al., 2003; Choi et

al., 1994; Johnen et al., 1995; Twenge et al., 2017), HIV testing (e.g., Oraka et al., 2018; Pitasi et al., 2018), and HIV diagnoses rates (Jones et al., 2018). 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 both cross-sectional and longitudinal data that look at the intersection of these behaviors with other HIV/AIDS risk and protective factors. For more information about GSS, see <http://www.norc.org/Research/Projects/Pages/general-social-survey.aspx>.

National Epidemiological Survey on Alcohol and Related Conditions (NESARC). During 2001-2002, [NESARC](#) surveyed a nationally representative sample of approximately 43,000 U.S. civilian, noninstitutionalized adults aged 18 and older (Hasin & Grant, 2016). The initial participants were surveyed again in 2004-2005 through NESARC-II. Most recently, a new large-scale nationally representative sample was surveyed in 2012-2013 through NESARC-III (Grant et al., 2015). Data collection involved face-to-face computer-assisted personal interviewing (CAPI). The NESARC studies examine detailed measures of alcohol, drug, and psychiatric disorders; sex risk behaviors; substance use (including injection drug use); and HIV diagnosis and testing. Publications using NESARC data have addressed prevalence and correlates of HIV testing (Blanco et al., 2018) and associations between a range of psychological and substance use/disorder measures and risk behaviors associated with HIV (e.g., Lopes et al., 2012; O’Leary et al., 2006; Reisner et al., 2011; Sareen et al., 2009; Thompson et al., 2014). While NESARC provides detailed data in these areas, the survey is time-limited, and has involved only one 3-year longitudinal component. MTF provides an important broad-based range of risk and protective factors using a continued cohort-sequential longitudinal design, with potentially higher perceived privacy due to not utilizing in-person interviewing. For more information on NESARC, see <https://www.niaaa.nih.gov/research/nesarc-iii>.

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, 2017). 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, a major focus is on measures related to substance use, including injection drug use (IDU). Published findings utilizing NSDUH data related to IDU have reported national IDU prevalence levels, demographic and geographic variation in such use, and correlates of risky injection practices (Novak & Kral, 2011; Ropelewski et al., 2011; 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 (e.g., SAMHSA, 2010). However, data on participation in high-risk sexual behaviors are not collected, which distinguishes MTF from NSDUH. 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/respweb/homepage.cfm>.

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, 2017a). Data on number and type of sexual partners and behaviors (including 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 (ACASI) at NHANES mobile examination centers. With ACASI, the interviewer is unaware of the highly sensitive questions as they are asked or of 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). Studies using NHANES data have focused on HIV testing (Guo & Sims, 2017) and prevalence (McQuillan et al., 2006), as well as characteristics of sub-groups at high risk for sexually-transmitted diseases (e.g., Esie et al., 2018; Martinez et al., 2017; Xu et al., 2010). NHANES is the only national survey that collects and tests blood samples from participants aged 18–49 for the HIV antibody (CDC, 2016b). A longitudinal component of NHANES is underway that follows up a sub-sample of participants in the 2007-2014 continuous NHANES surveys (CDC 2017b). MTF includes a broader range of substance use measures, including needle sharing, and is able to utilize on-going panel data to examine individual change over time in HIV/AIDS risk and protective behaviors. For more information on NHANES, see <https://www.cdc.gov/nchs/nhanes/index.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 periodic national fertility study of U.S. females. In 2002, 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), with a target of approximately 5,000 interviews among individuals ages 15-44 per year. The NSFG gathers detailed data on sexual risk behaviors of many kinds, including number of sex partners and condom use, heterosexual anal and oral sex, sexual health risks and formal sex education, and homosexual sex (CDC, 2016a). The NSFG contains some items on substance use, including injection drug use and needle sharing; it also asks about testing and diagnoses of sexually transmitted diseases including HIV. The most sensitive questions are asked using ACASI in order to provide respondents with a high level of privacy. Published NSFG data have addressing HIV risk and protective factors including condom use (Nasrullah et al., 2017), number of sex partners (Harper et al., 2017) and sexual behaviors (Copen et al., 2016). Longitudinal panel data are not collected on NSFG respondents. MTF uses self-administered, mailed questionnaires, which should also provide respondents with a high level of privacy similar to that in ACASI and thus provide similarly valid data (Brener et al., 2006). Further, the longitudinal component of the MTF study has allowed for examination of HIV/AIDS risk and protective behaviors from age 21 through 40 among all U.S. high school graduating cohorts since 2004. Further, MTF is capable of correcting for the recanting of earlier reported drug using behaviors (Johnston & O'Malley, 1997; Johnston et al., 2015). For more information on NSFG, see <https://www.cdc.gov/nchs/nsfg/index.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., 2013). The number of respondents averages around 15,000 per survey (Brenner et al., 2013). Several HIV/AIDS-related risk behaviors have been measured since its inception in 1991, including substance use and sexual activity. 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 (CDC, 2018a). YRBS data have been used to examine trends over time in such behaviors (CDC, 2018b; Harper et al., 2018), as well as how substance use and sexual risk behaviors interrelate (Dunn & Yanness, 2018; Santelli et al., 2009; Springer et al., 2007). The work of MTF complements that of the YRBS coverage of 14- through 18-year olds by covering respondents ages 21 to 40, a highly relevant age group for the spread of HIV/AIDS. MTF 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 on YRBS, see <https://www.cdc.gov/healthyouth/data/yrbs/index.htm>.

Key Distinctions among the Studies

A review of these seven 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 18 or 19; GSS does not broadly examine substance use behaviors; NSDUH does not cover high-risk sexual behaviors; Add Health covers only six class-cohorts; NESARC is not a yearly survey; NSDUH, NSFG, and YRBS do not gather longitudinal panel data on their respondents, and NHANES has only recently introduced a longitudinal follow-up component. Further, most of these studies do not include 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 general 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. MTF findings thus stand to make important contributions to our understanding of this major health problem and our ability to deal with it effectively.

References

- Anderson, J.E. (2003). [Condom use and HIV risk among U.S. adults](#). *American Journal of Public Health*, 6, 912–914.
- Anderson, J.E., Santelli, J., & Mugalla, C. (2003). [Changes in HIV-related preventive behavior in the U.S. population: Data from national surveys 1987–2002](#). *Epidemiology and Social Science*, 10, 195–202.
- Blanco, C., Wall, M.M., Compton, W.M., Kahana, S., Feng, T., Saha, T., Elliott, J.C., Hall, H.I., & Grant, B.F. (2018). [Prevalence and correlates of HIV testing and HIV-positive status in the US: Results from the National Epidemiological Survey on Alcohol and Related Conditions III \(NESARC-III\)](#). *Journal of Psychiatric Research*, 105, 1-8.
- Brener, N.D., Eaton, D.K., Kann, L., Grunbaum, J.A., Gross, L.A., Kyle, T.M., & Ross, J.G. (2006). [The association of survey setting and mode with self-reported health risk behaviors among high school students](#). *Public Opinion Quarterly*, 70 (3), 354–374.
- Brener, N.D., Kann, L., Shanklin, S., Kinchen, S., Eaton, D.K., Hawkins, J., & Flint, K.H. (2013). [Methodology of the Youth Risk Behavior Surveillance System—2013](#). *Morbidity and Mortality Weekly Report*, 62(1), 1-18.
- Carolina Population Center. (2018). *Add Health: The national longitudinal study of adolescent to adult health*. Chapel Hill, NC, University of North Carolina. Retrieved from <http://www.cpc.unc.edu/projects/addhealth>.
- Centers for Disease Control and Prevention (CDC). (2018a). *YRBSS: Questionnaires*. Retrieved from <https://www.cdc.gov/healthyouth/data/yrbs/questionnaires.htm>.
- Centers for Disease Control and Prevention (CDC). (2018b). *Youth Risk Behavior Survey data summary and trends report: 2007-2017*. Retrieved from <https://www.cdc.gov/healthyouth/data/yrbs/pdf/trendsreport.pdf>.
- Centers for Disease Control and Prevention (CDC). (2017a). *About the National Health and Nutrition Examination Survey*. Retrieved from http://www.cdc.gov/nchs/nhanes/about_nhanes.htm.
- Centers for Disease Control and Prevention (CDC). (2017b). *National Health and Nutrition Examination Survey (NHANES) Longitudinal Study*. Retrieved from <https://www.cdc.gov/nchs/nhanes-ls/index.htm>.
- Centers for Disease Control and Prevention (CDC). (2016a). *2013-2015 NSFG: Questionnaires*. Retrieved from https://www.cdc.gov/nchs/nsfg/nsfg_2013_2015_puf.htm.
- Centers for Disease Control and Prevention (CDC). (2016b). *National Health and Nutrition Examination Survey: 1999-2016 survey content brochure*. Retrieved from https://www.cdc.gov/nchs/data/nhanes/survey_content_99_16.pdf

Choi, K.-H., Catania, J.A., & Dolcini, M.M. (1994). [Extramarital sex and HIV risk behavior among U.S. adults: Results from the National AIDS Behavioral Survey](#). *American Journal of Public Health*, 12, 2003–2007.

Copen, C. E., Chandra, A., & Febo-Vazquez, I. (2016). [Sexual behavior, sexual attraction, and sexual orientation among adults aged 18-44 in the United States: Data from the 2011-2013 National Survey of Family Growth](#). *National Health Statistics Reports*, 88, 1-14.

Davis, J.A., & Smith, T.W. (2007). *General social surveys, 1972–2008*. Storrs, CT: The Roper Center for Public Opinion Research, University of Connecticut.

Dunn, M.S., & Yannessa, J.F. (2018). [Non-medical use of prescription drugs and sexual risk behaviors among depressed adolescents](#). *Journal of Adolescent and Family Health*, 9(1), Article 6.

Esie, P., Kang, J., Flagg, E., Hong, J., Chen, T., & Bernstein, K. (2018). [Men who have sex with men—Identification criteria and characteristics from the National Health and Nutrition Examination Survey, 1999 to 2014](#). *Sexually Transmitted Diseases*, 45(5), 337-342.

Grant, B.F., Chu, A., Sigman, R., Amsbary, M., Kali, J., Sugawara, Y., Jiao, R., Ren, W., & Goldstein, R. (2015) *National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC- III) Source and Accuracy Statement*. Retrieved from https://www.niaaa.nih.gov/sites/default/files/NESARC_Final_Report_FINAL_1_8_15.pdf.

Guo, Y., & Sims, O.T. (2017). [Assessment of recent HIV testing among older adults in the United States](#). *Social Work in Health Care*, 56(9), 855-864.

Harper, C.R., Dittus, P.J., Leichliter, J.S., & Aral, S.O. (2017). [Changes in the distribution of sex partners in the United States: 2002 to 2011-2013](#). *Sexually Transmitted Diseases*, 44(2), 96-100.

Harper, C.R., Steiner, R.J., Lowry, jR., Hufstetler, S., & Dittus, P.J. (2018). [Variability in condom use trends by sexual risk behaviors: Findings from the 2003-2015 National Youth Risk Behavior Surveys](#). *Sexually Transmitted Diseases*, 45(6), 400-405.

Harris, K.M., Halpern, C.T., Entzel, P., Tabor, J., Bearman, P.S., & Udry, J.R. (2008). *The National Longitudinal Study of Adolescent Health: Research design*. Retrieved from <http://www.cpc.unc.edu/projects/addhealth/design>.

Hasin, D.S., & Grant, B.F. (2016). [The National Epidemiologic Survey on Alcohol and Related Conditions \(NESARC\) waves 1 and 2: Review and summary of findings](#). *Social Psychiatry and Psychiatric Epidemiology*, 50(11), 1609–1640.

Johnen, E.C., Bernard, H.R., & Killworth, P.D. (1995). [A social network approach to corroborating the number of AIDS/HIV+ victims in the U.S.](#) *Social Networks*, 7, 167–187.

Johnston, L.D., & O'Malley, P.M. (1997). The recanting of earlier reported drug use by young adults. In L. Harrison & A. Hughes (Eds.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (NIDA Research Monograph 167, pp. 59-80.) Rockville, MD: National Institute on Drug Abuse. Retrieved from https://archives.drugabuse.gov/sites/default/files/monograph167_0.pdf

Johnston, L.D., O'Malley, P.M., Bachman, J.G., Schulenberg, J.E. & Miech, R.A. (2015). *Monitoring the Future national survey results on drug use, 1975–2014. Volume II: College students and adults ages 19–55*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. Retrieved from http://monitoringthefuture.org/pubs/monographs/mtf-vol2_2014.pdf.

Jones, J., Grey, J.A., Purcell, D.W., Bernstein, K.T., Sullivan, P.S., & Rosenberg, E.S. (2018). [Estimating prevalent diagnoses and rates of new diagnoses of HIV at the state level by age group among men who have sex with men in the United States](#). *Open Forum Infectious Diseases*, 5(6), ofyf124.

Lepkowski, J.M., Mosher, W.D., Davis, K.E., Groves, R.M., van Hoewyk, J., & Willem, J. (2006). [National Survey of Family Growth, Cycle 6: Sample design, weighting, imputation, and variance estimation](#). *Vital and Health Statistics*, 2(142), 1–82.

Lopes, M., Olfson, M., Rabkin, J., Hasin, D.S, Alegria, A.A., Lin, K.H., Grant, B.F., & Blanco, C. (2012). [Gender, HIV status, and psychiatric disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions](#). *Journal of Clinical Psychiatry*, 73(3), 384–391

Martinez, O., Lee, J.H., Bandiera, F., Santamaria, E.K., Levine, E.C., & Operario, D. (2017). [Sexual and behavioral health disparities among sexual minority Hispanics/Latinos: Findings from the National Health and Nutrition Examination Survey, 2001-2014](#). *American Journal of Preventive Medicine*, 53(2), 225-231.

McQuillan, G.M., Kruszon-Moran, D., Kottiri, B., Kamimoto, L.A., Lam, L., Cowart, M.F., Hubbard, M., & Spira, T.J. (2006). [Prevalence of HIV in the US household population: The national Health and Nutrition Examination Surveys, 1988-2002](#). *Journal of Acquired Immune Deficiency Syndromes*, 41(5), 651-656.

Nasrullah M., Oraka, E., Chavez, P.R., Johnston, C.H., & DiNenno, E. (2017). [Factors associated with condom use among sexually active US adults, National Survey of Family Growth, 2006-2010 and 2011-2013](#). *Journal of Sexual Medicine*, 14(4), 541-550.

National Opinion Research Center. (2018). *General Social Surveys, 1972-2016: Cumulative Codebook*. Retrieved from http://gss.norc.org/documents/codebook/GSS_Codebook_intro.pdf

Novak, S.P., & Kral, A.H. (2011). [Comparing injection and non-injection routes of administration for heroin, methamphetamine, and cocaine uses in the United States](#). *Journal of Addictive Diseases*, 30(3), 248-257.

O'Leary, A., Broadwell, S.D., Yao, P., & Hasin, D. (2006). [Major depression, alcohol and drug use disorders do not appear to account for the sexually transmitted disease and HIV epidemics in the Southern United States](#). *Sexually Transmitted Diseases*, 33(7), S70-S77.

Oraka, E., Mason, S., & Xia M. (2018). [Too old to test? Prevalence and correlates of HIV testing among sexually active older adults](#). *Journal of Gerontological Social Work*, 61(4), 460-470.

Pitasi, M.A., Delaney, K.P., Oraka, E., Bradley, H., Nidenno, E.A., Brooks, J.T., & Prejean, J. (2018). [Interval since last HIV test for men and women with recent risk for HIV infection—United States, 2006-2016](#). *Morbidity and Mortality Weekly Report*, 67(24), 677-681.

Reisner, S.L., Falb, K.L., Mimiaga, M.J. (2011). [Early life traumatic stressors and the mediating role of PTSD in incident HIV infection among US men, comparisons by sexual orientation and race/ethnicity: results from the NESARC, 2004-2005](#). *Journal of Acquired Immune Deficiency Syndrome*, 57(4), 340–350

Ropelewski, L.R., Mancha, B.E., Hulbert, A., Rudolph, A.E. & Martins, S.S. (2011). [Correlates of risky injection practices among past-year injection drug users among the US general population](#). *Drug and Alcohol Dependence*, 116(-13), 64-71.

Santelli, J., Carter, M., Orr, M., & Dittus, P. (2009). [Trends in sexual risk behaviors, by nonsexual risk behavior involvement, U.S. high school students, 1991–2007](#). *Journal of Adolescent Health*, 44(4), 372–379.

Sareen, J., Pagura, J., & Grant, B. (2009). [Is intimate partner violence associated with HIV infection among women in the United States?](#) *General Hospital Psychiatry*, 31(3), 274-278.

Springer, A.E., Peters, R.J., Shegog, R., White, D.L., & Kelder, S.H. (2007). [Methamphetamine use and sexual risk behaviors in U.S. high school students: Findings from a national risk behavior survey](#). *Prevention Science*, 8(2), 103–113.

Substance Abuse and Mental Health Services Administration (SAMHSA). (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/sites/default/files/NSDUH-MethodSummDefs-2016/NSDUH-MethodSummDefs-2016.htm>

Substance Abuse and Mental Health Services Administration (SAMHSA). (2010). *The NSDUH Report: HIV/AIDS and substance use*. Rockville, MD. Retrieved from <https://www.samhsa.gov/sites/default/files/hiv-aids-and-substance-use.pdf>

Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Applied Studies. (July 19, 2007). *The NSDUH Report: Demographic and geographic variations in injection drug use*. Rockville, MD. Retrieved from <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/idu2k7/IDU.htm>

Thompson R.G., Eaton, N.R., Hu, M.-C., Grant, B.F., & Hasin, D.S. (2014). [Regularly drinking alcohol before sex in the United States: Effects of relationship status and alcohol use disorders.](#) *Drug and Alcohol Dependence*, 141, 167-170.

Twenge, J.M., Sherman, R.A., & Wells, B.E. (2017). [Sexual inactivity during young adulthood is more common among U.S. millennials and iGen: Age, period, and cohort effects on having no sexual partners after age 18.](#) *Archives of Sexual Behavior*, 46(2), 433-440.

Xu, F., Sternberg, M.R., & Markowitz, L.E. (2010). [Men who have sex with men in the United States: Demographic and behavioral characteristics and prevalence of HIV and HSV-2 infection: Results from National Health and Nutrition Examination Survey 2001-2006.](#) *Sexually Transmitted Diseases*, 37(6), 399-405.



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2018