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MONITORING *the* FUTURE

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ON DRUG USE
1975-2018

2018
Volume 2

College Students & Adults Ages 19–60

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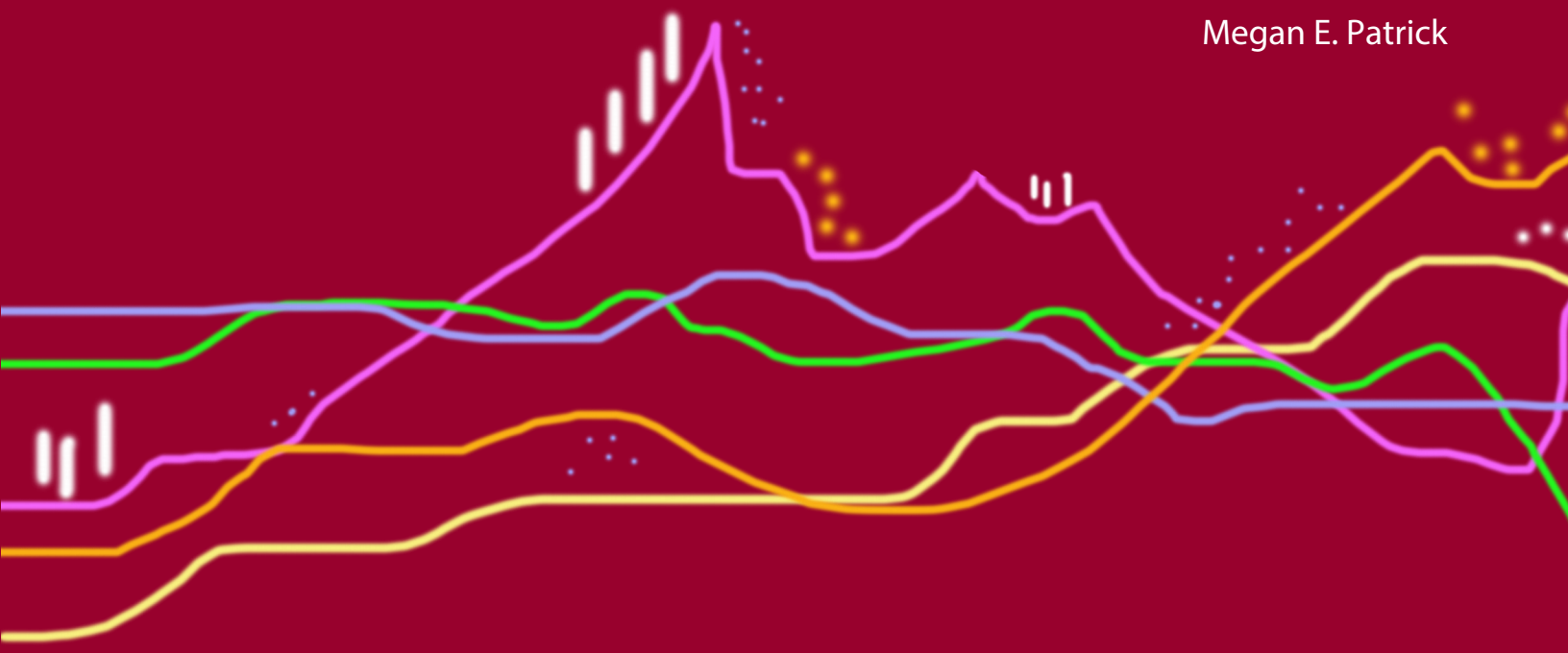

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MONITORING THE FUTURE

NATIONAL SURVEY RESULTS ON DRUG USE, 1975–2018

Volume II

College Students and Adults Ages 19-60

by

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The University of Michigan
Institute for Social Research

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The National Institute on Drug Abuse
National Institutes of Health

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Chapter 1

INTRODUCTION

The present volume presents new 2018 findings from the U.S. national Monitoring the Future (MTF) follow-up study concerning substance use among the nation's college students and adults from ages 19 through 60. We report 2018 prevalence estimates on numerous illicit and licit substances, examine how substance use differs across this age span, and show how substance use and related behaviors and attitudes have changed over the past four decades. MTF, now in its 45th year, is a research program conducted at the University of Michigan's Institute for Social Research under a series of investigator-initiated, competing research grants from the National Institute on Drug Abuse – one of the National Institutes of Health. The integrated MTF study comprises several ongoing series of annual surveys of nationally representative samples of 8th and 10th grade students (begun in 1991), 12th grade students (begun in 1975), and high school graduates followed into adulthood (begun in 1976).

We report the results of the repeated cross-sectional surveys of all high school graduating classes since 1976 as we follow them into their adult years (as discussed in Chapter 3, these cross-sections come from longitudinal data). Segments of the general adult population represented in these follow-up surveys include:

- U.S. college students,
- their age-peers who also are graduates from high school but not attending college, sometimes called the "forgotten half,"[1]
- all young adult high school graduates of modal ages 19 to 30 (or 19-28 for trend estimates), to whom we refer as the "young adult" sample, and
- high school graduates at the specific later modal ages of 35, 40, 45, 50, 55, and 60.

This volume emphasizes historical and developmental changes in substance use and related attitudes and beliefs occurring at these age strata.

The follow-up surveys have been conducted by mail and web[2] on representative subsamples of the previous participants from each high school senior class. This volume presents data from the 1977 through 2018 follow-up surveys of the graduating high school classes of 1976 through 2017, as these respondents have progressed into adulthood. The oldest MTF respondents, from the classes of 1976, have been surveyed through age 60 in 2018, 42 years after their graduation.

[1] Halperin S. *The forgotten half revisited: American youth and young families, 1988-2008.* Washington DC: American Youth Policy Forum; 1998.

[2] For 2018 data collections of 19-30 year olds, MTF began the transition from our typical mail-based surveys to web-based surveys. To test for survey mode differences, we randomly assigned half of the young adult respondents to the typical mail survey condition and half to the new web-push condition. In general, prevalence estimates did not vary significantly between the two conditions and thus the two are combined in a weighted average in this volume. Exceptions (that is, when estimates differ significantly between conditions) are noted. This is discussed in more detail in Chapter 3.

Other monographs in this series include the *Overview of Key Findings*,[3] which presents early results from the secondary school surveys; *Volume I*,[4] which provides an in-depth look at the secondary school survey results; and the *HIV/AIDS monograph*,[5] drawn from the follow-up surveys of 21- to 40-year-olds, which focuses on risk and protective behaviors related to the transmission of HIV/AIDS. This year's *Overview* and *Volume I* are currently available on the MTF website[6]; the next *HIV/AIDS monograph* will be published in mid-October, 2019.

In this volume, we first set the stage by providing a summary (in Chapter 2) of key findings from the integrated MTF study, including 8th , 10th, and 12th graders, college students, and young adults. Chapter 3 (which also is similar to Chapter 3 in *Volume I*) outlines the integrated study's design and procedures. Chapter 4 provides prevalence estimates, and Chapter 5 provides historical trends, for drug use for a number of age bands from age 18 through age 60. Chapter 6 concerns prevalence and trends in attitudes and beliefs about drug use for young adults. Chapter 7 covers the social context of drug use in terms of peer norms and use, as well as perceived availability of drugs. Chapters 8 and 9 provide prevalence estimates and historical trends, respectively, for college students and their same age peers. Chapter 10 (which also is Chapter 10 in *Volume I*) provides a summary of recent publications from the integrated MTF study.

SURVEYS OF YOUNG ADULTS AND ADULTS AGES 35, 40, 45, 50, 55, AND 60

The current young adult sample consists of representative samples from each graduating class from 2006 to 2017, all surveyed in 2018 and corresponding to modal ages 19 through 30. College students are included as part of this young adult sample. The MTF study design calls for annual follow-up surveys of each high school class cohort through modal age 30, based on high school seniors being assumed to be modal age 18. Each individual participates in a follow-up survey only every two years, but a representative sample of people in each individual's graduating class is obtained every year because each cohort's follow-up sample is split into two random samples that are surveyed in alternate years. Thus, participants at modal ages 19-30 are surveyed biennially. Subsequent surveys are conducted at five-year intervals starting at age 35. In 2018 the graduating classes of 2006-2017 received biennial young adult surveys, and the classes of 1976, 1981, 1986, 1991, 1996, and 2001 were sent the age-60, age-55, age-50, age-45, age-40, and age-35 questionnaires, respectively.

In this volume, we reweight respondent data to adjust for the effects of panel attrition on measures such as drug use, using post-stratification procedures described in Chapter 3 in the section on panel retention. We are less able to adjust for the absence of students who drop out of high school and who are not included in the original 12th grade sample. Because nearly all college students have completed high school, the omission of high school dropouts should have almost no effect on

[3] Johnston, L. D., O'Malley, P. M., Miech, R. A., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Overview, key findings on adolescent drug use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan.

[4] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975–2018: Volume I, Secondary school students*. Ann Arbor, MI: Institute for Social Research, The University of Michigan.

[5] 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, MI: Institute for Social Research, The University of Michigan.

[6] Please visit http://monitoringthefuture.org/pubs.html#monographs to access the full text of these monographs.

population estimates for the college students, but this omission does affect the estimates for entire age groups. Therefore, the reader is advised that the omission of about 7% to 15% of each cohort who have dropped out of high school likely means that drug use estimates given here for the various age bands are somewhat low for the age group as a whole. Fortunately, high school dropout rates continue to decline. US Census data indicate that dropout comprised approximately 15% of the class/age cohort through most of the life of the study, until about 2002. Since then, there has been a gradual decline, dropping to about 6% in 2018.[7] The proportional effect of missing dropouts may be greatest for use of dangerous drugs such as heroin, crack, and methamphetamine, as well as cigarettes – the latter being highly correlated with educational aspirations and attainment. Nevertheless, even with some underreporting of usage rates, the year-to-year *trends* observed should be little affected by the limitations in sample coverage.

For purposes beyond this volume, we note that studies on substance use and related factors that follow young people into middle adulthood are rare in the field. Monitoring the Future (MTF) provides for exceptionally useful analyses of adult substance use as well as many other behaviors and attitudes. These national data make possible (1) analyses aimed at differentiating period-, age- and cohort-related change; (2) analyses demonstrating long-term connections between use of various substances at various stages in life and many important potential outcomes (including eventual substance use disorders, adverse health outcomes, and functioning in work and family roles); (3) tracking substance use involvement and how such involvement is affected by transitions into and out of social roles and social contexts across the life course; and (4) identifying the individual and contextual factors in adolescence and early adulthood that are predictive of later substance use and substance use disorders. These and other topics are or will be covered in other publications by MTF.

SURVEYS OF COLLEGE STUDENTS AND NONCOLLEGE PEERS

As defined here, the college student population comprises all full-time students enrolled in a two- or four-year college one to four years after high school in March during the year of the survey. More is said about this sample definition in Chapter 3 on study design. Results on the *prevalence* of drug use in 2018 among college students and also among their noncollege peers are reported in Chapter 8, and results on *trends* in substance use among college students and their noncollege peers are reported in Chapter 9, covering the 38-year interval since 1980.

The MTF follow-up samples have provided excellent coverage of the U.S. college student population for more than three and a half decades (1980–2018). College students tend to be a difficult population to study at the national level for a variety of reasons. In the past, they were generally not well covered in household surveys, which tended to exclude dormitories, fraternities, and sororities. Further, institution-based samples of college students must be quite large in order to attain accurate national representation because of the great heterogeneity in universities, colleges, and community colleges, and in the types of student populations they serve. Obtaining good samples within many institutions also poses difficulties, because the cooperation of each institution must be obtained, as well as reasonable samples of the student body.

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

In contrast, MTF draws the college sample prospectively in the senior year of high school, so it has considerable advantages for generating a broadly representative sample of college students who emerge from each graduating cohort; moreover, it does so at very low cost. In addition, the "before, during, and after college" design permits examination of the many changes associated with the college experience. Finally, the MTF design also generates comparable panel data on high school graduates who are *not* attending college, an important segment of the young adult population not only in its own right, but also as a comparison group for college students. This is a particularly valuable and rare feature of this research design.

GENERAL PURPOSES OF THE RESEARCH

MTF's research purposes are extensive and are outlined here only briefly.[8] One major purpose is to serve an epidemiological social indicator function to accurately characterize the levels and trends in selected behaviors, attitudes, beliefs, and relevant social context conditions in the various populations covered. Social indicators can have important agenda-setting functions for society, drawing attention to new threats to public health and estimating the extent of those threats as well as determining where they are concentrated in the population. They are especially useful for gauging progress toward national goals and indicating the impacts of major historical events, including social trends and policy changes. Another purpose of the study is to develop knowledge that increases our understanding of how and why historical changes in these behaviors, attitudes, beliefs, and environmental conditions are taking place. Such work is usually considered to be social epidemiology. These two broad purposes are addressed in the current series of volumes.

Additional etiologic purposes of MTF include helping to discover risk and protective factors for, and consequences of, drug use; indicating what types of young people are at greatest risk for developing various patterns of drug abuse; gaining a better understanding of the belief and attitude orientations associated with various patterns of drug use; and monitoring how all of these are shifting over historical time and across the life course. MTF data permit the investigation of the immediate and more general aspects of the social environment that are associated with drug use and abuse, and permit the assessment of how drug use is affected by major transitions into and out of social roles and contexts (such as military service, civilian employment, college, unemployment, marriage, pregnancy, parenthood, divorce, remarriage). MTF examines the life course of various drug-using behaviors during the transition to adulthood and through middle adulthood, including progression to substance use disorder. This knowledge allows MTF to distinguish such age effects from cohort and period effects that influence drug use and associated attitudes, to discover the effects of legislation and changing regulations on various types of substance use, and to understand consequences of the changing connotations of drug use and changing patterns of multiple drug use among youth.

We believe that differentiating among age, period, and cohort effects on use of various types of substances and associated attitudes and beliefs has been a particularly important contribution of the project. The MTF cohort-sequential research design is well suited to discern changes with age

[8] Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2016). *The objectives and theoretical foundation of the Monitoring the Future Study* (Monitoring the Future Occasional Paper No. 84). Ann Arbor, MI: Institute for Social Research, University of Michigan. See also 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.

common to all cohorts (age effects), differences among cohorts that tend to persist across time (cohort effects), and changes common to most or all ages in a given historical period (period effects).

Knowing which type of change is occurring is important for at least three reasons. First, it can help to discover what types of causes account for the change. For example, age effects are often explained by maturation as well as by social role and context transitions associated with age, as this study has demonstrated through several books, articles, and book chapters (as listed on MTF website). Such age effects, as we have shown, can vary historically, indicating the historical embeddedness of developmental course.[9,10] Second, the type of change can indicate when in the life course the causes may have had their impact; in the case of cohort effects, it may well have been in an earlier point in the life course than the age at which the change is actually documented. For example, we know from historical context and MTF data on age of initiation that the decline in cigarette smoking observed among 12th graders in the late 1970s actually reflected a cohort effect that emerged when those teens were younger, in the early 1970s, which was shortly after cigarette advertising was removed from radio and television. So, although we documented a cohort effect at 12th grade, its origins were most likely due to earlier changes in social context. The third reason that knowing the type of change is important is that it can help in predicting future change more accurately. For example, the study has shown that perceived risk often is a leading indicator of change and also that cohort effects help to predict forthcoming changes at later ages. Of course, predicting change is extremely valuable to the policy, prevention, and treatment communities. This volume documents some well-established age effects, some important cohort differences that emerged at various points across the past four decades, and past and recent period effects.

Another important purpose of MTF, related to but distinct from the ones described so far, is to study risk and risk-reducing behaviors associated with HIV/AIDS. This purpose is addressed in the monograph HIV/AIDS: Risk & protective behaviors among adults ages 21 to 40 in the U.S., 2004-2017[11] Beginning in 2004, MTF panel surveys have included questions on the prevalence and interconnectedness of risk and risk-reduction behaviors related to the spread of the human immunodeficiency virus (HIV) which causes acquired immunodeficiency syndrome (AIDS). The questions include drug involvement in general, injection drug use, needle sharing, number of sexual partners, gender(s) of those partners, use of condoms, getting tested for HIV/AIDS, and obtaining the results of such HIV tests.

Readers interested in publications dealing with any of topics mentioned above are invited to visit the MTF website at www.monitoringthefuture.org.

[9] 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 toward lower intercepts and steeper, ascending slopes. *Development and Psychopathology, 25*(2), 527-543.

[10] Jager, J., Keyes, K. M., & Schulenberg, J. E. (2015). Historical variation in young adult binge drinking trajectories and its link to historical variation in social roles and minimum legal drinking age. *Developmental Psychology, 51*(7): 962-974.

[11] 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, MI: Institute for Social Research, The University of Michigan.

Chapter 2

KEY FINDINGS
AN OVERVIEW AND INTEGRATION
ACROSS FIVE POPULATIONS

Monitoring the Future, having completed its 45th year of data collection, has become one of the nation's most relied-upon scientific sources of valid information on trends in use of licit and illicit psychoactive drugs by U.S. adolescents, college students, young adults, and adults up to age 60. For over four decades, the study has tracked and reported on the use of an ever-growing array of such substances in these populations of adolescents and adults.

The annual series of monographs, of which this is *Volume II*, is a primary mechanism through which the epidemiological findings from MTF are reported. Findings from the inception of the study in 1975 through 2018 are included – the results of 44 national in-school surveys and 42 national follow-up surveys.

MTF has conducted in-school surveys of nationally representative samples of (a) 12th grade students each year since 1975 and (b) 8th and 10th grade students each year since 1991. Annual findings for 8th, 10th, and 12th graders through 2018 are presented in *Volume I* (also see the 2019 *Overview* volume). Beginning with the class of 1976, the study has conducted follow-up mail surveys on representative subsamples of the respondents from each previously participating 12th grade class. These follow-up surveys now continue well into adulthood, currently up to age 60. Annual findings from these follow-up surveys are presented in this volume.

In this chapter, we summarize a number of important findings to provide the reader with an overview of the epidemiological results from the integrated MTF study that span modal ages 14 through 28, a key developmental period for the onset, peak use, and decline in the use of most substances. Because so many populations, drugs, and prevalence intervals are discussed here, a single integrative set of tables (Tables 2-1 through 2-4) shows the 1991–2018 trends for all drugs on five populations: 1) 8th grade students (modal age 14), 2) 10th grade students (modal age 16), 3) 12th grade students (modal age 18), 4) full-time college students modal ages 19–22, and 5) all young adults modal ages 19–28 who are high school graduates. (Note that the young adult group includes the college student population.)

Chapter 3 in this volume provides a summary of methods and procedures for secondary students, college students, and adults. As noted in that chapter (and discussed throughout this volume), for 2018 data collections of 19-30 year olds, MTF randomly assigned half to receive the typical mail survey protocol and half to be pushed to web-based surveys. In comparing the prevalence estimates between the two conditions reported in this current chapter for college students and for all young adults ages 19-28, there were very few significant differences between the two conditions (about 6% of the over 250 comparisons) and thus we combined estimates as a weighted average for 2018. Exceptions (i.e., when there are significant differences between the two conditions in 2018) are noted in Tables 2-1 through 2-4.

Volume I and the *Overview* volume provide more emphasis on the in-school epidemiological findings. In this current volume, we provide more emphasis on the epidemiological findings from young adults and college students, as well as from those at modal ages 35, 40, 45, 50, 55, and 60.

TRENDS IN DRUG USE – SUB-GROUP DIFFERENCES AND COHORT EFFECTS

Before considering the trends in specific drugs across the five sub-groups presented in Table 2-1, we first provide a brief summary of the rises and falls of substance use during the past quarter-century to illustrate the impact of attitudes in historical trends of use and how cohort effects work to sometimes shift developmental trends. We introduce terms that are used throughout this volume. Early in the 1990s, MTF reported an increase in use of several illicit drugs among secondary school students, and some important changes among the students in terms of certain key attitudes and beliefs related to drug use. In the volume reporting 1992 survey results, we noted the beginning of such reversals in both use and attitudes among 8th graders, the youngest respondents surveyed in this study, and also a reversal in attitudes among 12th graders. Specifically, the proportions seeing great risk in using drugs began to decline, as did the proportions saying they disapproved of use. As we suggested then, those reversals indeed presaged "an end to the improvements in the drug situation that the nation may be taking for granted."[1] The use of illicit drugs rose sharply in all three grade levels after 1992, in what we refer to as the "relapse phase" in the larger epidemic of illicit drug use, as negative attitudes and beliefs about drug use continued to erode. Likewise, the use of illicit drugs among college students and young adults overall (ages 19-28) began to increase in the early 1990s. This pattern continued into the mid-1990s for the five age groups, and beyond that for some drugs, especially prescription-type psychotherapeutics like narcotics, amphetamines, tranquilizers, and sedatives.

Then in 1997, for the first time in six years, the overall level of ***illicit drug*** use finally showed a decline among 8th graders. Although marijuana use continued to rise that year among 10th and 12th graders, their use of several other drugs leveled off, and relevant attitudes and beliefs also began to reverse in many cases. In 1998, illicit drug use continued a gradual decline among 8th graders and also started to decline at 10th and 12th grades. In 1999 and 2000, the decline continued for 8th graders, while use held fairly level among 10th and 12th graders. In 2002 and 2003, use by 8th and 10th graders decreased significantly, and use by 12th graders finally began to drop; declines then continued for all three grades in 2004 and for several years thereafter. But in 2008, illicit drug use increased once again among 8th and 12th graders, followed by some increase in 8th and 10th grades in 2009, signaling an end to the immediately preceding period of decline. In 2010, the overall level of illicit drug use increased for all grades, although the increase was significant only among 8th graders. In 2011, the increase continued among 10th and 12th graders and declined some at 8th grade. Among college students, use continued to rise until 1998, leveled through about 2004, and showed uneven change through about 2010; among young adults overall, it continued to rise gradually until about 2004, and then leveled through about 2010. Publicity around legalizing medical marijuana, and in some cases recreational use for adults, may have served to normalize use of marijuana, the most widely used of all illicit substances.

[1] Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1993). *National survey results on drug use from the Monitoring the Future study, 1975-1992. Volume I: Secondary school students*. (NIH Publication No. 93-3597). Rockville, MD: National Institute on Drug Abuse.

As shown in Figure 2-1, levels of overall illicit drug use among teens have shown a slight downward trend for several years through 2016. (2013 is an exception and shows a slight increase that resulted from an expansion of the question on amphetamines to include more current examples of these drugs.) During this time period, marijuana prevalence decreased at a slower rate than it has for other substances such as cigarettes and alcohol, perhaps due in part to the ongoing changes in state laws on medical and recreational marijuana use. In 2017 and 2018, we see some nonsignificant increases in overall illicit drug use among teens (especially 8th and 10th graders), due in part to increases in marijuana use and inhalants (as summarized below and described in detail in *Volume I*), suggesting a leveling of use if not a turnaround. Among college students and young adults overall (aged 19-28), there has been a slow but steady rise since 2010 in overall illicit drug use (see Figure 2-1), with consistent increases in marijuana use across this time period. Whether marijuana use (or other drug use) will continue to increase in coming years among young adults, as more states legalize recreational marijuana use, is a matter to be clarified with continued monitoring.

As will be illustrated below in the discussion of specific drugs, the increase in use of many drugs during the 1990s among secondary school students, combined with fairly level use among college students and young adults, resulted in some unusual reversals in prevalence levels by age (see Figure 2-1 and Table 2-2). In the early 1990s (the early years of what we have called the relapse phase of the epidemic), illicit drug use levels were higher in the college-age group than they were among secondary school students (especially 8th and 10th graders). This reflects a normative developmental trend showing that prevalence increases with age through adolescence into the early 20s. But by the late 1990s, the highest levels of active use (i.e., use within the prior year or prior 30 days) were found in the late secondary school years. In fact, in 1996 and 1997 both 10th and 12th graders actually had higher annual prevalence levels for illicit drug use (i.e., higher percentages reporting any use within the prior year) than either college students or all young adults. This changed somewhat after 2001 (with 10th graders annual prevalence becoming lower than that for college students), as the earlier, heavier-using cohorts of adolescents began to comprise the college student and young adult populations, while at the same time use among the incoming secondary school students was declining. In the past few years, a more typical normative developmental trend has returned, with annual prevalence increasing with age across adolescence and the early 20s.

As can be seen by the divergence of trends for the different age groups in what follows, something other than simple developmental or secular trends in drug use were taking place; important cohort differences were emerging such that all ages were not changing simultaneously and age differences were not constant across historical time. (A cohort refers to a group of people who were born in the same year [a birth cohort] or, in this case, are in the same graduating class [a class cohort]. A birth cohort and class cohort obviously are quite close but not identical. Developmental trends pertain to changes with age that tend to be constant across multiple cohorts. A secular trend is a trend across historical time that occurs simultaneously across multiple cohorts and multiple age groups.)

Regarding 2018 prevalence levels, we note that the typical developmental trend of substance use increasing with age through the early twenties remains in place. In 2018, the rank order by age group for annual prevalence of using ***any illicit drug*** was college students (45%), all 19- to 28 year

old young adults (43%), 12th graders (39%), 10th graders (30%), and 8th graders (13%) (see Figure 2-1 and Table 2-2). With respect to using ***any illicit drug other than marijuana*** in the past 12 months, prevalence rank-ordering was 19% for all 19- to 28 year olds, 18% for college students specifically, 12% for 12th graders, 10% for 10th graders, and 6% for 8th graders (see Table 2-2).

We turn now to summarize historical and developmental trends in the use of individual substances across the past quarter-century.

- From the early 1990s until 1997, ***marijuana*** use rose sharply among secondary school students, as did their use of a number of ***other illicit drugs***, though more gradually. As previously stated, we have called this period a "relapse phase" in the longer-term epidemic. An increase in marijuana use also began to occur among college students, largely reflecting "generational replacement" (i.e., a cohort effect), wherein earlier class cohorts were replaced in the college population by more recent ones who were more drug-experienced before they left high school. This resurgence in illicit drug use spread up the age spectrum in a reversal of the way the epidemic spread several decades earlier. In the 1960s, the epidemic began on the nation's college campuses, and then diffused downward in age to high school students and eventually to middle school students. This time the increases began in middle schools and radiated up the age spectrum. The graduating class cohorts in the middle and late 1990s carried with them the pattern of heavier drug use that emerged while they were in secondary school in the early 1990s.

  Increases during the 1990s in use of ***any illicit drug*** (including use of ***marijuana*** and use of ***other illicit drugs*** treated as a class) were substantially larger, in both proportional and absolute terms, in the three secondary school grades than in either the college or young adult populations. Among college students and young adults, the annual prevalence of use of any illicit drug held remarkably stable from 1991 through 1997, at the same time use rose appreciably among adolescents (see Figure 2-1). We predicted that, as generational replacement continued to occur, we would likely see some increase in use of illicit drugs by the young adults. As would be expected given their younger age range (19–22), the increase happened sooner and more sharply among the college students than among the young adults in general (age range 19–28). Peak levels (since 1990) in annual prevalence of any illicit drug were reached in 1996 among 8th graders (24%), in 1997 among 10th and 12th graders (39% and 42%, respectively), in 2001 among college students (38% before leveling for some years and increasing in recent years to a new peak of 45% in 2018), and in 2004 in the entire young adult segment (34% before leveling and increasing in recent years to a new peak of 43% in 2018). More recently, a different, more complex pattern of cohort effects has been operating. Specifically, since about 2010, there has been some divergence in the annual prevalence of any illicit drug across the five age groups, with declines among 8th and 10th graders, slight decline and leveling among 12th graders, and increases among college students and young adults (see Figure 2-1). However, in 2017 and 2018, we see what may be a leveling or turnaround in annual prevalence among secondary school students (with nonsignificant increases to 13% and 30% in 2018 for 8th and 10th graders, respectively, and a leveling for 12th graders to 39% in 2018); among college students, there has been some uneven continued increases to 45% in 2018 and a continued

increase among young adults to 43% in 2018. Divergences among the five age groups continue to expand, with college students continuing to have the highest annual prevalence.

Again, the earlier diverging trends across the different age strata clearly show that changes during the 1990s reflected the emergence of some important cohort effects rather than broad secular trends that would have appeared simultaneously in all of the age groups. From 1980 through 1992, the use of most drugs moved in parallel across most age groups, indicating that secular change was prevailing then, and in general use was declining.

- During the 1990s, in the "relapse period" in the drug epidemic, the annual prevalence of ***marijuana*** use tripled among 8th graders (from 6% in 1991 to 18% in 1996), more than doubled among 10th graders (from 15% in 1992 to 35% in 1997), and nearly doubled among 12th graders (from 22% in 1992 to 39% in 1997). Among college students and young adults overall, however, the increase in marijuana use was much more gradual, presumably due to a generational replacement effect. Annual prevalence of use rose by about one third for college students, from 27% in 1991 to 36% in 1998 and from 24% in 1991 to 28% in 1999 for young adults overall. Marijuana use began to decline for 8th graders after 1996 (18%) through 2007 (10%) and then did the same after 1997 among 10th and 12th graders (when it was 35% and 39%, respectively) through 2008 (24% and 32%, respectively); it was fairly level for college students from 1998 through 2003 (when it was between 34% and 36%) and then dropped and leveled through 2011 (between 30% and 33%); and for young adults overall, it remained level from 2000 through 2010 (between 28% and 29%). Then, after the mid-2000s, the secondary school students showed some increases, followed by decreases or leveling through 2018: 8th graders increased from 10% in 2007 to 14% in 2010, and then declined to 11% in 2018; 10th graders increased from 24% in 2008 to 30% in 2013, and then declined to 28% in 2018; and 12th graders increased from 32% in 2008 to 36% in 2011 and then was fairly level through 2018 (36%). College students increased from 33% in 2011 to 43% in 2018, and young adults increased from 29% in 2010 to 39% in 2018.

- ***Current daily marijuana use*** (defined as use on 20 or more occasions in the prior 30 days) rose substantially after 1992 in all five populations, reaching peak levels in a somewhat staggered fashion as that just described (see Table 2-4). Daily use began a slow decline after 1999 among 8th graders until 2007, after 2001 until 2009 among 10th graders, and after 2003 until 2010 among 12th graders, consistent with a cohort effect pattern. Use at all three grade levels was fairly level after 2004. In 2010, daily use at all three grade levels increased significantly and it increased further in grades 10 and 12 in 2011 and 2012, while holding steady in 8th grade. In 2014, the prevalence of daily marijuana use declined in all three grades, with a significant decline in 10th grade; these levels remained essentially unchanged through 2018. The 2018 daily prevalence levels in grades 8, 10, and 12, respectively, were 0.7%, 3.4%, and 5.8%. In other words, *in 2018 about one in every seventeen high school seniors was a daily or near-daily marijuana user.* College student and young adult prevalence of daily use showed an overall increase from 3.5% in 2007 to 5.8% in 2018 among college students and from 5.0% to 8.0% over that same interval among all young adults. That is, *in 2018 about one in every thirteen young adults aged 19-28 was a daily or near daily marijuana user.* The role of the many debates on legalizing marijuana for

medical use, the actual legalization for recreational use by adults in some states, and the experiences those states have with the new laws may well have an impact on present and future secular trends and possibly cohort effects in use.

- ***Synthetic marijuana*** contains synthetic versions of some of the cannabinoids found in marijuana sprayed onto herbal materials that are then sold in small packets under such brand names as Spice and K-2. They have been readily available as over-the-counter drugs on the Internet and in venues like head shops and gas stations. While many of the most widely used chemicals were scheduled by the Drug Enforcement Administration in March of 2011, making their sale no longer legal, purveyors of these products have skirted the restrictions by making small changes in the chemical composition of the cannabinoids used. Use of these products was first measured in MTF in 2011 (see Table 2-2). Annual prevalence was found to be 11.4%, 8.5%, and 7.4%, respectively, among 12th graders, college students, and young adults (8th and 10th graders were first asked about use of these drugs in 2012, and their annual prevalence levels were 4.4% and 8.8%, respectively). These relatively high prevalence levels made synthetic marijuana among the most widely used illicit drugs in 2011 and 2012. Use declined appreciably in 2013 and 2014 among all five populations, with most of the 1-year declines being significant. Efforts by the DEA and various states to make their sale illegal may well have had an impact. In 2018, prevalence was 1.6%, 2.9%, 3.5%, 1.6%, and 1.6%, respectively, across the five age groups from youngest to oldest, reflecting a leveling at a relatively low level for all age groups.

- Among 12th graders, the proportions using ***any illicit drug other than marijuana*** in the past twelve months rose from a low of 15% in 1992 to a high of 21% in 1999 (see Table 2-2); these levels were substantially below the 34% peak level reached two decades earlier, in 1981. All of the younger groups showed significant increases between 1992 and 1997, with use beginning to increase in 1992 among 8th graders, in 1993 among 10th and 12th graders, and in 1995 among college students – reflecting strong evidence of a cohort effect. Use peaked in 1996 among 8th and 10th graders, in 1997 among 12th graders, around 2004 for college students, and in 2008 for all young adults. Since 1996, the 8th graders have shown a gradual but considerable decline of more than one-half in their use of illicit drugs other than marijuana, treated as a class (13% annual prevalence in 1996 to 6.1% in 2018). The decline among 10th graders paused from 1998 to 2001 with a net decline of about a third in annual prevalence from 18% in 1996 to 11% in 2008; use leveled again for several years and then declined further in 2011. It stood at 9.6% in 2018. Twelfth-grade use also showed some decline beginning after 2001 (22%), dropping to 12% in 2018. College students so far have shown little change over the course of the survey and have hovered between 18% and 21% since 2013 (when the questions were last updated); annual prevalence in 2018 was 18%. Use among all young adults varied between 17% and 21% from 2003 to 2018; 2018 annual prevalence was 19%.

- Between 1989 and 1992, we noted an increase among 12th graders, college students, and young adults in their use of ***LSD***, a drug quite popular in the late 1960s and early 1970s. In 1992, the newly added populations (8th and 10th graders) were also showing an increase in LSD use; for several more years, modest increases persisted in all five populations. Use of LSD peaked in 1995 among college students and young adults and in 1996 among 8th,

10th, and 12th graders, after which LSD use gradually declined in all five populations until about 2005 (the relatively large declines for all age groups in 2001 corresponded to the closing of a major LSD lab that year by the Drug Enforcement Administration). Since 2006 through 2018, annual prevalence has remained at about 1% for 8th graders, ranged from 1.7% to 2.1% for 10th graders, and increased slightly but steadily for the three older age groups from 1.7% to 3.2% for 12th graders, from 1.4% to 4.1% among college students, and from 1.2% to 3.9% for young adults. Overall, the pattern for LSD use seems more consistent with secular change than a cohort effect. The different age groups moved in parallel for the most part, likely in response to historical events in the environment, including a sharp reduction in LSD availability after 2001.

- Questions about the use of ***MDMA***, which goes by the street names "ecstasy" and more recently "Molly," have been included in the follow-up surveys of college students and young adults since 1989; however, because of our concern about stimulating interest in an attractive-sounding and little-known drug, these questions were not added to the secondary school surveys until 1996. From 1989 to 1994, the annual prevalence levels tended to be quite low in the older age groups for which we had data, but in 1995, these levels increased – from 0.5% in 1994 to 2.4% in 1995 among college students, and from 0.7% to 1.6% over the same time span among young adults generally.

  When usage data were first gathered on secondary school students in 1996, the 10th and 12th graders actually showed higher levels of annual use (both 4.6%) than the college students (2.8%). MDMA use then fell steadily in all three grades between 1996 and 1998, though it did not fall in the older age groups (see Table 2-2). But between 1998 and 2001, use rose sharply in all five populations. In fact, annual prevalence more than doubled in that three-year period among 12th graders, college students, and young adults, and nearly doubled in the lower grades. In 2000, even the 8th graders showed a significant increase in use. Since the peak highs in 2001, annual MDMA use has declined overall, with a slight increase around 2010 that proved fleeting.

  In 2018, annual prevalence of MDMA (ecstasy, Molly) was 1.1%, 1.4%, 2.2%, 4.3%, and 3.9% among the five age groups, respectively. This annual prevalence remained level in 2017 among 8th, 10th, and 12th graders (after declining significantly in 2016), and declined significantly among college students and young adults. In 2018, there were no significant changes. These recent declines are based on measures that included "Molly" as an example street name of MDMA, measures that were introduced in the survey in 2014. (Molly is supposed to be a stronger form of MDMA than ecstasy.) Per our custom when introducing new question wording, in 2014 we included the newly worded question to a random half of the respondents and the other half served as a control with the old version of the MDMA question. All 2016 through 2018 MDMA questions include the "Molly" street name, and are compared to the 2014 and 2015 measures that also include the "Molly" wording. The declines in annual prevalence from 2014 through 2018 suggest that any new popularity to MDMA brought by its new branding as Molly appears to have been transitory.

  Use of MDMA (ecstasy and more recently Molly) has been moving fairly synchronously among all five populations since 1999 until recent years, which suggests there was a secular

trend (likely due to some changes in the social environment that affected everyone). An important change during this period was the increasing availability of information on the adverse effects of ecstasy use via stories in the popular media, dissemination of scientific evidence by the National Institute on Drug Abuse, and an anti-ecstasy media campaign by the Partnership for a Drug-Free America and the Office of National Drug Control Policy, initiated in 2002.

- Between 1982 and 1992, among 12th graders levels of ***amphetamine*** use in the past 12 months (other than use that was ordered by a physician) fell by nearly two thirds, from 20.3% to 7.1%. Levels among college students fell even more over the same interval, from 21.1% to 3.6%. During the relapse phase in the drug epidemic in the 1990s, annual amphetamine use increased by about half among 8th and 10th graders between 1991 and 1996, and also increased among 12th graders and college students between 1992 and 1996. After 1996, the age groups diverged. Among 8th and 10th graders, use dropped by over half from a high in 1996 (9.1% and 12.4%, respectively) through 2018 (3.7% and 5.7%). Annual use among 12th graders peaked in 2002 (11.1%) and dropped unevenly by half through 2018 (5.5%). In contrast, among college students levels of amphetamine use gradually increased from 1991 (3.9%) through 2012 (11.1%) and then showed uneven modest decline through 2018 (8.3%). It is possible more college students are using amphetamines to help their academic work. All young adults, who include the college students, showed less of an increase over the same interval, from 4.3% in 1991 to 7.5% in 2018. Since the late 1990s, there has been a greater difference between use among 8th graders and use by older students, suggesting that an age effect has emerged, possibly due to the older students becoming more likely to use amphetamines to aid their academic performance. ("To help me study" was the reason most endorsed by 12th graders for amphetamine use in 2018.)

- Use of the stimulant drug ***Ritalin*** outside of medical supervision showed a distinct increase around 1997 – with annual prevalence among 12th graders going from 0.1% in 1992 to 2.8% in 1997 – and then stayed level for a few years (see Appendix C, Table C-2[2] in *Volume I*). Because of its increasing importance, a differently structured question was introduced for Ritalin use in 2001 for grades 8, 10, and 12, and in 2002 for college students and young adults. This new question, which we prefer to the original, does not use a prior branching question and produced somewhat higher prevalence levels. Results from the new question suggest an ongoing decline in Ritalin use, with prevalence levels in 2018 being half or less than they were in 2001-2002 for all five population groups; annual prevalence rates in 2018 were 0.5%, 0.9%, 0.9%, 1.3%, and 1.5%, respectively.

- Another stimulant used in the treatment of the symptoms of attention deficit hyperactivity disorder (ADHD) is the amphetamine drug ***Adderall***. A new question on its nonmedical use was introduced in 2009; annual prevalence levels in 2009 through 2018 were higher than those for Ritalin in all five populations. This suggests that Adderall to some degree

[2] As discussed in Appendix C of *Volume I*, the absolute prevalence rates for Ritalin are probably higher than the statistics indicate, but the trend story is likely quite accurate. See Table 2-2 for more accurate estimates of the absolute annual prevalence rates in recent years; these estimates are based on a new question that does not require the respondent to indicate some amphetamine use before being branched to a question about Ritalin use.

replaced the use of Ritalin and may help to account for the declines [[that we have been observing]] for Ritalin. Since the drug was first tracked in 2009, annual prevalence of nonmedical use of Adderall has not shown much systematic change through 2018; it ranged between 9% and 11% for college students and 6% and 9% among young adults, which are fairly high levels. Among secondary students prevalence was 1-2% for 8th graders, 4-6% for 10th graders, and 5-8% for 12th graders.

- ***Methamphetamine*** questions were introduced in 1999 because of rising concern about use of this drug; but an overall *decline* in use has been observed among all five populations in the years since then. In 2018, annual use in all five populations was very low – below 2%. These substantial declines occurred during a period in which there were many media reports suggesting that methamphetamine use was a growing problem – an example of the importance of having accurate epidemiological data.

- Measures on the use of ***crystal methamphetamine*** or ***ice*** (a crystallized form of methamphetamine that can be smoked, much like crack) have been included in MTF since 1990. The use of crystal methamphetamine increased between the early and late 1990s among the three populations asked about their use: 12th graders, college students, and young adults. However, use never reached very high levels. The estimates are less stable than usual due to the relatively small samples asked about this drug, but it appears that among 12th graders crystal methamphetamine use held fairly steady from 1999 through 2005 (when it was 2.3%); since then it has declined by roughly three-fourths, to 0.6% in 2018. Use rose somewhat among college students and all young adults until 2005, before dropping substantially since then. After their peak levels were reached in 2005, college students and young adults generally showed substantial drops in annual prevalence to 1% or less by 2018 (see Table 2-2).

- ***Inhalants*** are defined as fumes or gases that are inhaled to get high, and they include common household substances such as glues, aerosols, butane, and solvents of various types. Among 12th graders, there was a long-term gradual increase in the use of inhalants (unadjusted for nitrite inhalants) from 1976 to 1987, followed by a leveling for a few years and then a further increase in the early 1990s. This troublesome increase in inhalant use also occurred among students in the lower grades, and was followed by a reversal in all three grades after 1995. After reaching a low point by 2002 or 2003 in grades 8, 10, and 12, use of inhalants increased some in all grades, but then declined in all grades. Inhalant use has been much lower among college students and young adults over the years, and it has declined steadily over the past two decades. In 2018, annual prevalence was at or near the lowest point in the history of the study for all five groups at 4.6%, 2.4%, 1.6%, 1.3%, and 0.8%, respectively (see Table 2-2). Note that this is the only substance class that consistently declines in use with age.

- ***Crack cocaine*** use spread rapidly from the early to mid-1980s. Still, among 12th graders, the use of crack remained relatively low during this period (3.9% annual prevalence in 1987). Clearly, crack had quickly attained a reputation as a dangerous drug, and by the time of our first measurement of perceived risk in 1987, it was seen as the most dangerous of all drugs. Annual prevalence dropped sharply in the next few years, reaching 1.5% by

1991, where it remained through 1993. Perceived risk began a long and substantial decline after 1990 – again serving as a driver and leading indicator of use. (The decline in perceived risk in this period may well reflect generational forgetting of the dangers of this drug.) Annual prevalence among 12th graders rose gradually after 1993, from 1.5% to 2.7% by 1999. It finally declined slightly in 2000 and then held level through 2007. Since then, some additional decline has occurred. In 2018, annual prevalence for crack cocaine among 12th graders was at 0.9%.

Among 8th and 10th graders, crack use rose gradually in the 1990s: from 0.7% in 1991 to 2.1% by 1998 among 8th graders, and from 0.9% in 1992 to 2.5% in 1998 among 10th graders. And, as just discussed, use among 12th graders peaked in 1999 at 2.7% and among young adults at 1.4%. Since those peak years, crack use has declined appreciably— by more than half among 8th, 10th, and 12th graders – yet it held fairly steady among college students and young adults, at least until 2007, when use among college students finally began to decline. The 2018 prevalence levels for this drug were relatively low – 1% or less in all five groups. Twelfth graders have typically had the highest prevalence. Annual crack prevalence among the college-bound has generally been considerably lower than among those not bound for college. Among 12th graders, the levels of use in 2018 were 0.6% for college-bound and 1.9% for noncollege-bound.

- Use of ***cocaine***[3] in general began to decline a year earlier than crack, probably because crack was still in the process of diffusing to new parts of the country, being still quite new. Between 1986 and 1987 the annual prevalence for cocaine dropped dramatically, by about one fifth in all three populations being studied at that time – 12th graders, college students, and young adults. The decline occurred when young people finally began to view experimental and occasional use – the type of use in which they thought they would be most likely to engage – as more dangerous. This change was probably influenced by the extensive media campaigns that began in the preceding year, but also almost surely by the highly publicized cocaine-related deaths in 1986 of sports stars Len Bias and Don Rogers. By 1992, the annual prevalence of cocaine use had fallen by about two thirds among the three populations for which long-term data are available (12th graders, college students, and young adults).

  During the resurgence of illicit drug use in the 1990s, however, cocaine use in all five populations increased once again, both beginning and ending in a staggered pattern by age, consistent with a cohort effect. Use rose among 8th graders from 1991 to 1998, among 10th and 12th graders from 1992 to 1999, among college students from 1994 to 2004, and among all young adults from 1996 through 2004. As with crack, all five populations showed some decline in cocaine use in 2008 through 2011 and a levelling over the next two years. Since then through 2018, cocaine use showed a slight decline among secondary students. For college students and young adults, annual prevalence has trended slightly upward since 2011.Annual prevalence levels in 2018 were 0.8%, 1.5%, 2.3%, 5.2%, and 6.0% for the five populations, respectively. For a few years (1996–1999), 12th graders had higher prevalence than did the young adults; but because of the staggered declines in use, young adults have had the highest prevalence in all years since then (see Table 2-2).

[3] Unless otherwise specified, all references to cocaine concern the use of cocaine in any form, including crack.

- Use of ***PCP*** (phencyclidine, also known as angel dust) is measured and reported only for 12th graders and young adults. Its use fell sharply among 12th graders between 1979 and 1982, from an annual prevalence of 7.0% to 2.2%. It reached a low point of 1.2% in 1988, rose some in the 1990s during the relapse period in the drug epidemic, reaching 2.6% by 1996, and since 2002 has hovered at about 1%. For young adults, annual prevalence has fluctuated between 0.1% and 0.7%.

- The annual prevalence of ***heroin*** use among 12th graders fell by half between 1975 (1.0%) and 1979 (0.5%), then stabilized for 15 years, through 1994. Heroin use was also stable in the early 1990s among the other four populations covered here (see Table 2-2). Then, in 1994 for 8th graders and in 1995 for all other groups, use suddenly increased, with prevalence doubling or tripling in one or two years for 12th graders, college students, and young adults, and then remaining at the new higher levels among all five populations for the rest of the decade. After the period 1999 to 2001, heroin use fell back to lower levels than were observed in the mid- to late-1990s. Most of that decline was in heroin use without a needle, which we believe was largely responsible for the increase in use in the first half of the 1990s. In sum, all age groups except for the young adults had annual levels of heroin use in 2018 that were well below recent peaks (by roughly one half to two thirds). Young adults have remained at high levels (0.3–0.6% in 2008–2017). Twelfth graders did show a significant increase to 0.7% annual prevalence in 2010 for heroin use with a needle, though there was no evidence of such an increase in any of the other four populations, which left us cautious about that finding. However, the 2011 prevalence provided some confirmation that an increase did occur – annual prevalence was at 0.6%, which, except for 2010, was higher than any level reported since 1995 when this question was first asked. There is little evidence of any ongoing trend at present – indeed, the 12th graders' annual prevalence for heroin use with a needle was 0.3% in 2018, suggesting that if there was an increase in use, it was short-lived. All five populations showed annual prevalence levels at 0.4% or less in 2018.

  Two factors very likely contributed to the upturn in heroin use in the 1990s. One is a long-term decline in the perceived risk of harm, probably due to generational forgetting, because it had been a long time since the country had experienced a heroin epidemic along with accompanying publicity about its casualties. The second factor, not unrelated to the first, is that in the 1990s the greatly increased purity of heroin allowed it to be used by means other than injection. This may have lowered an important psychological barrier for some potential users, making heroin use less aversive and risky in general, because avoiding injection reduces the likelihood of transmission of HIV, hepatitis, or other serious blood-borne diseases. The introduction of additional questions on heroin use in 1995 showed that significant proportions of past-year users in all five populations were indeed taking heroin by means other than injection at that point (see Table 2-2, and Chapter 4 here and in *Volume I* for details).

- The use of ***narcotics other than heroin*** outside of medical supervision is reported only for 12th graders and older populations because we believe that younger students are not accurately discriminating among the drugs that should be included or excluded from this

general class. Use declined gradually over most of the first half of the study in these three older groups. Twelfth graders had an annual prevalence in 1977 of 6.4%, which fell to 3.3% by 1992. But, after about 1992 or 1993, all of the older age groups showed continuing increases for a decade or more, through 2003 or 2004, before stabilizing. Updating the list of examples given in the question stem in 2002 (to include Vicodin and OxyContin) led to an increase in reported prevalence. After a considerable increase in use from 1992 through 2001, during the relapse phase of the general drug epidemic and going beyond it, the use of narcotics other than heroin remained relatively constant at high levels through 2010. Since 2012, levels of use have declined overall among 12th graders, college students, and young adults. In 2018, annual prevalence was 3.4%, 2.7%, and 3.4% among 12th graders, college students, and young adults, respectively; these levels reflect decreases from 2017, with the decrease being significant for 12th graders.

- In 2002, specific questions were added for the specific narcotic drugs ***Vicodin*** and ***OxyContin***. The observed prevalence levels suggest that these two drugs likely help to account for the upturn and declines in use of the general class of narcotics other than heroin. In 2003, Vicodin had attained surprisingly high prevalence levels in the five populations under study here – annual levels of 2.8% in 8th grade, 7.2% in 10th grade, 10.5% in 12th grade, 7.5% among college students, and 8.6% among young adults. In 2018, prevalence levels were down for all age groups and stood at 0.6%, 1.1%, 1.7%, 1.5%, and 2.4%, respectively.

  OxyContin started with lower annual prevalence levels than Vicodin across all age groups in 2002. Annual prevalence for OxyContin increased in 2003 with slight further increases and leveling through 2011. Since then its use has declined overall, although the decline has not been smooth. Prevalence levels in 2018 were 0.8%, 2.2%, 2.3%, 1.6%, and 1.9% for 8th, 10th, and 12th grades, college students, and young adults; given the highly addictive nature of this narcotic drug, these levels are not inconsequential.

- Annual prevalence of ***tranquilizer*** use among 12th graders saw a long and very substantial decline from 11% in 1977 to 2.8% in 1992. After 1992, use increased significantly among 12th graders as did most drugs, reaching 7.7% in 2002 (but the question was revised slightly in 2001 to include Xanax as an example of a tranquilizer, so a small portion of the increase may be an artifact). Since then, annual prevalence has dropped to 3.9% in 2018. Reported tranquilizer use also increased modestly among 8th graders, from 1.8% in 1991 to 3.3% in 1996, before declining to 2.6% in 1998. It remained between 2.4% and 2.8% until 2011, when it began a decline; it was at 2.0% in 2018. As with a number of other drugs, the downturn in use began considerably earlier among 8th graders compared to their older counterparts. Among 10th graders, annual prevalence remained stable between 1991 and 1994 at around 3.3%, and then increased significantly to 7.3% by 2001 (possibly including some artifact, as noted above). Since 2001, tranquilizer use has declined very gradually in all three grades. After a period of stability, college student use showed an increase between 1994 and 2003 (to 6.9%), more than tripling in that period. Since then there has been a gradual decline there as well, to 3.5% by 2018. For the entire young adult sample, after a long period of decline, annual prevalence more than doubled between 1997 and 2002 to 7.0%, with some overall decline thereafter to 4.0% in 2018. Thus, while there was a

considerable increase in use in all five populations, which reflected in part a cohort effect that first began in the early 1990s among 8th graders, that increase is clearly over and there has been some downward correction in recent years. Most of the reported tranquilizer use in recent years has involved ***Valium***, ***Xanax***, and more recently ***Klonopin*** (see Table C3 in Appendix C in *Volume I*).

- The long-term gradual decline in ***sedative*** (***barbiturate***) use among 12th graders, which had been observed since the start of the study in 1975, halted in 1992. (Data are not included here for 8th and 10th graders, again because we believe that these students have more problems with proper classification of the relevant drugs.) Use among 12th graders then rose considerably during the relapse phase in the drug epidemic, from 2.8% in 1992 to 6.7% by 2002 – but still well below the peak level of 10.7% in 1975; use has declined since 2005 (7.2%) through 2018 (2.7%). The 2018 annual prevalence of this class of drugs was highest among 12th graders (2.7%) as compared to young adults (2.5%) and college students (1.5%). Use among college students began to rise a few years later than it did among 12th graders, reaching a peak of 4.2% in 2004, again likely reflecting a cohort effect, and has declined since 2004 to 1.5% in 2018. Among young adults, sedative (barbiturate) use increased since the early 1990s, rising from 1.6% in 1992 to 4.4% in 2004. It stood at 2.5% in 2018, after declining some in recent years.

- In this summary of the illicit drugs just discussed, it is clear that use of most of the classes of ***psychotherapeutic drugs*** – sedatives (barbiturates), tranquilizers, and narcotics other than heroin – became a larger part of the nation's drug abuse problem over the years. While the rise in use appears to have halted, most prevalence levels remain relatively high. During much of the 1990s and into the 2000s, we saw a virtually uninterrupted increase among 12th graders, college students, and young adults in the use of all of these drugs, which had fallen from favor from the mid-1970s through the early 1990s. These drugs continued to rise, even after the increase in use of most illegal drugs ended in the late 1990s and began to reverse. All three of these classes of psychotherapeutic drugs have shown gradual declines since about 2008 among 12th graders, college students, and young adults

- To continue the summary of illicit drugs discussed above, four classes of illicitly used drugs – ***marijuana, amphetamines, cocaine***, and ***LSD*** – have an impact on appreciable proportions of young Americans in their late teens and 20s. In 2018, 12th graders showed annual prevalence levels for these drugs of 35.9%, 5.5%, 2.3%, and 3.2% respectively, reflecting declines in most of them, especially cocaine and LSD. Among college students in 2018, the comparable annual prevalence levels were 42.6%, 8.3%, 5.2%, and 4.1%; for all young adults the levels were 39.1%, 7.5%, 6.0%, and 3.9%. ***Narcotics other than heroin*** became quite important due to the long-term rise in use that began in the 1990s (followed by declines in recent years). These narcotics now have annual prevalence levels of only 2–3% among 12th graders, college students, and young adults. ***Tranquilizers*** also became more important due to a similar rise in use (followed by recent declines), with prevalence levels in 2018 of about 3–4% across the same three populations, as have ***sedatives*** (***barbiturates***), with levels of 2.7%, 1.5%, and 2.5%, respectively.

- Several drugs have been added to MTF's coverage over the years, including ***ketamine***, ***GHB***, and ***Rohypnol***, which are so-called "club drugs" (in addition to LSD and MDMA [ecstasy, Molly]). In general, these drugs have low prevalence levels that have declined over the past several years among the five age groups. For that reason, GHB and ketamine were dropped from the 8th and 10th grade surveys in 2012 and GHB and Rohypnol from the young adult surveys in 2016. For 12th graders, the 2018 annual prevalence was 0.7% for ***ketamine*** and 0.3% for ***GHB***. Annual prevalence of ***Rohypnol*** was 0.3% for 8th graders, 0.3% for 10th graders and 0.7% for 12th graders in 2018. Annual prevalence of ketamine was 0.7%, 0.9%, and 0.9%, respectively, among 12th graders, college students, and young adults.

- ***Bath salts***, so-called because they are sold over the counter as apparently innocuous products like real bath salts but contain strong synthetic stimulants, were first included in the 2012 MTF survey, which we believe provided the first national survey data on their use. Fortunately, we found the annual prevalence in 2012 to be very low, at 0.8%, 0.6%, 1.3%, 0.3%, and 0.5%, respectively, among the five age groups. In 2018, the prevalence levels remain less than 1% in all five age groups.

- ***Salvia divinorum*** is a psychoactive plant that is legally available in most states; questions on salvia were added to the 12th grade and follow-up questionnaires in 2009 and were added to the 8th and 10th grade questionnaires in 2010. In 2011, the prevalence levels were 1.6% among 8th graders, 3.9% among 10th graders, 5.9% among 12th graders, 3.1% for college students, and 2.2% for all young adults (see Table 2-2). But by 2018, levels of salvia use had declined in all five populations, suggesting that the popularity of this drug has peaked. As of 2018, annual prevalence was less than 1% among all five age groups.

- ***Anabolic steroid*** use tends to be more common for males than females among secondary school students. In 2018, the annual prevalence levels for males in 8th, 10th, and 12th grades were 0.6%, 0.6%, and 1.5%, compared with 0.7%, 0.6%, and 0.4% for females (it may be that younger females are over-reporting steroid use due confusing corticosteroids, often prescribed for asthma and other common conditions, with anabolic steroids). Between 1991 and 1998, the overall annual prevalence levels were fairly stable among 8th and 10th graders, ranging between 0.9% and 1.2%. In 1999, however, use jumped from 1.2% to 1.7% in both grades. Almost all of that increase occurred among males, from 1.6% in 1998 to 2.5% in 1999 in 8th grade and from 1.9% to 2.8% in 10th grade. Thus, levels among males increased by about half in a single year, which corresponded in time to stories in the news media about the use of androstenedione, a steroid precursor, by baseball home-run king Mark McGwire. Since then, among all 8th graders, anabolic steroid use has declined by more than two thirds to 0.6% in 2018. Among 10th graders, use continued to increase, reaching 2.2% in 2002, suggesting a cohort effect, but then declined by more than two thirds to 0.6% by 2018. Among 12th graders, annual prevalence rose significantly to 2.4% in 2001, but then decreased to 1.1% by 2018. Use generally has been much lower among college students and young adults, with annual prevalence being below 1% between 1991 and 2018.

TRENDS IN ALCOHOL USE

- Several findings about ***alcohol*** use in these five sub-groups are noteworthy. First, despite the fact that it is illegal for virtually all secondary school students and many college students and young adults to purchase alcoholic beverages, they have had a substantial amount of experience with alcohol. As of 2018, alcohol has been tried by 24% of 8th graders, 43% of 10th graders, 59% of 12th graders, 77% of college students, and 85% of young adults (19 to 28 years old) (Table 2-1). Current use (use in past 30 days) is also widespread. Of particular importance, is the prevalence of ***five or more drinks in a row*** at least once in the prior two-week period (binge drinking), which in 2018 was reported by 4% of 8th graders, 9% of 10th graders, 14% of 12th graders, 28% of college students, and 31% of all young adults.

- As use of other illicit drugs decreased among 12th graders from the late 1970s to the early 1990s, alcohol use did not increase, although it was common to hear such a "displacement hypothesis" asserted. MTF findings demonstrate that the opposite seems to be true. After 1980, when illicit drug use was declining, the ***monthly prevalence of alcohol use*** among 12th graders also declined gradually, but substantially, from 72% in 1980 to 51% in 1992. ***Daily alcohol use*** declined by half over the same interval, from a peak of 6.9% in 1979 to 3.4% in 1992; the prevalence of drinking ***five or more drinks in a row*** during the prior two-week interval fell from 41% in 1983 to 28% in 1993 – nearly a one-third decline. When illicit drug use rose again in the 1990s relapse, alcohol use (particularly binge drinking of five more drinks in a row) rose as well – albeit not as sharply as marijuana use. In the late 1990s, as illicit drug use leveled in secondary schools and began a gradual decline, similar trends were observed for alcohol. Therefore, long-term evidence indicates that alcohol use moves much more in concert with illicit drug use than counter to it, at least up to the year 2007.

  However, since 2007 a new trend has emerged that is more consistent with the "displacement" hypothesis. From 2007 through 2018 alcohol use continued its long-term decline, reaching historic lows in the life of the study. Meanwhile, for most of this time period, marijuana use has stayed steady or increased for all age groups, consistent with the possibility that marijuana use has increasingly displaced alcohol use. For the past decade or so, trends in alcohol and marijuana use have been substantially diverging, suggesting that the historical relationship between these two drugs may be changing.

- Given that the physiological impacts of five drinks are greater for the typical young female versus the typical young male, it is not surprising that we have found substantial gender differences in the prevalence of ***five or more drinks in a row***; however, these differences have diminished somewhat in recent years. Among 12th graders, the levels of prevalence in 2018 were 12% for females versus 16% for males. This difference has diminished substantially since MTF began; in 1975 there was a 23-percentage-point difference, versus the 4-point difference in 2018. The proportions indicating in 2018 that they have ***been drunk*** in the prior 30 days were somewhat higher at 16% and 19% for females and males, respectively. As discussed in Chapters 4 and 5, the general pattern of heavy alcohol use being more common among men than women continues into young and middle adulthood;

likewise, the reduction of gender differences over the past few decades is evident among adults.

TRENDS IN CIGARETTE SMOKING

A number of very important findings about ***cigarette smoking*** among American adolescents and young adults have emerged during the life of the study, and we believe that one of the study's more important contributions to the long-term health of the nation has been to document and call public attention to these trends, particularly the upsurge in adolescent smoking in the early 1990s. Despite the demonstrated health risks associated with smoking, young people have continued to establish regular cigarette habits during late adolescence in sizable proportions, and, during the first half of the 1990s, in rapidly growing proportions. Even as cigarette smoking among adolescents reaches historic lows today, it remains at or near the top of all psychoactive substances used on a daily basis.

We note that, similar to the use patterns for illicit drugs, the trend for cigarette smoking evidenced a generational replacement effect during the 1990s in that college students showed a sharp increase in smoking beginning in 1995, as the heavier smoking cohorts of secondary school students from the early to mid-1990s entered college. This has been a more typical pattern of change for cigarettes, however, since differences in cigarette smoking levels among class cohorts tend to remain through the life course and also tend to account for much of the overall change in use observed at any given age.

- During most of the 1980s, when smoking levels were falling steadily among adults, we reported that smoking among adolescents was not declining. Then the situation went from bad to worse. Among 8th and 10th graders, levels of ***current (past 30-day) smoking*** increased by about half between 1991 (when their use was first measured) and 1996; among 12th graders, current smoking rose by nearly one third between 1992 and 1997. MTF played an important role in bringing these disturbing increases in adolescent smoking to public attention during those years, which was the historical period in which major social action was initiated in the White House, the Food & Drug Administration, the Congress, and eventually the state attorneys general, culminating in the 1998 Tobacco Master Settlement agreement between the tobacco industry and the states.

- Fortunately, there have been some important declines in current smoking since 1996 among 8th and 10th graders, and since 1997 among 12th graders. In fact, the declines have more than offset the increases observed earlier in the 1990s. In 2018, 2% of 8th graders (down from 14% in 1991 and 21% in 1996) reported smoking one or more cigarettes in the prior 30 days – a decline of nine-tenths from the 1996 peak level. Some 4% of 10th graders were current smokers in 2018 (down from 21% in 1991 and 30% in 1996), representing a drop of three quarters from the 1996 peak level. And among 2018 12th grade students 8% were current smokers (versus 28% in 1991 and 37% in 1997), representing a drop of more than two thirds from the 1997 peak. Monthly prevalence of use for all three grades is now at or near the lowest point in the history of the study, and significantly declined in 2018 for 12th grade students.

- Several of the important attitudinal changes that accompanied these declines in use ended some years ago (around 2007), leading us to conclude that further reductions in smoking levels will likely have to come from changes in the environment – for example, enacting such policies as tobacco tax increases, further reducing the places in which smoking is permitted, and providing effective quit-smoking programs. In 2009, federal taxes on tobacco products were in fact raised, which may well have contributed to the resumption of declines in use starting in 2011. Despite these very important improvements in the past decade and a half, about one in twelve (8%) young Americans are current smokers by the time they complete high school. Other research consistently shows that smoking levels are substantially higher among those who drop out before graduating, so the estimates here, based on high school seniors, are low for the age cohort as a whole (see Appendix A in *Volume I* for household comparison data from NSDUH).[4]

- Among college students, the peak level in current smoking (31%) was not reached until 1999, reflecting a cohort effect, after which it has declined to 7% in 2018, a decline of almost three-quarters. All young adults 19 to 28 years old have also shown a decline between 2001 (30%) and 2018 (12%), a decline of nearly two thirds and also indicative of a cohort effect working its way up the age range.

- There have been important gender differences in the trends in smoking. In the 1970s, 12th grade females caught up to and passed 12th grade males in levels of ***current smoking***. Both genders then showed a decline in use followed by a long, fairly level period, with use by females consistently higher, but with the gender difference diminishing. In the early 1990s, another crossover occurred among the 12th graders when levels rose more among males than females; thereafter, males have had consistently slightly higher levels of current smoking. In the lower grades, the genders have generally had similar smoking levels since their use was first measured in 1991.

- Among college students, females had a slightly higher probability of being daily smokers from 1980 through 1994 – although this long-standing gender difference was not seen among their age peers who were not in college. However, a crossover occurred between 1994 and 2001, with college males exceeding college females in daily smoking – an echo of the crossover among 12th graders in 1991. Between about 2001 and 2005 there was little consistent gender difference in smoking among college students, but since 2006, college males have usually had higher levels of daily smoking than college females (see Chapter 9).

NEW TRENDS IN VAPING

- MTF asked about ***e-cigarette*** use in 2014 and ***electronic vaporizer*** use in 2015 and 2016. We found that overall vaporizer use had higher 30-day prevalence than all types of tobacco products, including regular cigarettes, among 8th, 10th, and 12th graders; among college

[4] For comparison of recent household data from NDSUH, see Appendix A in Volume 1. For an analysis showing much higher smoking rates among 8th graders who later dropped out before completing high school, see Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). The education–drug use connection: How successes and failures in school relate to adolescent smoking, drug use, and delinquency. New York: Lawrence Erlbaum Associates/Taylor & Francis. See also Table A-1 in Appendix A of this volume.

students and young adults, vaporizer use was lower compared to use among 10th and 12th graders, as well as lower compared to cigarette use.

- In 2017, we expanded the vaping questions to get at specific substances being vaped including nicotine, marijuana, and just flavoring. Between 2017 and 2018, the 30-day prevalence of ***vaping nicotine*** increased dramatically for all five age groups: from 3.5% to 6.1% for 8th graders, from 8.2% to 16.1% for 10th graders, from 11.0% to 20.9% for 12th graders, from 6.1% to 15.5% for college students, and from 6.5% to 10.6% for all young adults. Each of the one-year increases was significant, with the increase for college students being greatest among the five age groups. In fact, *this one-year increase for college students in 30-day prevalence of vaping nicotine (from 6.1% in 2017 to 15.5% in 2018) is among the greatest one-year increases we have seen for any substance since MTF began over 40 years ago.* The 2018 levels are higher than 30-day prevalence for cigarette use among 8th, 10th, and 12th graders, and now among college students, but not and young adults (Table 2-3). Part of the reason for the popularity of vaporizers among teens is their low perceived risk: for the specific vaporizer device of an e-cigarette, less than 23% of students in all grades see a "great risk" in regular vaporizer use, one of the lowest levels of perceived risk measured in the survey. .

- The 30-day prevalence of ***vaping marijuana*** also increased between 2017 and 2018 for all age groups. It increased from 1.6% to 2.6% among 8th graders, from 4.3% to 7.0% among 10th graders, from 4.9% to 7.5% among 12th graders, from 5.2% to 10.9% among college students, and from 6.6% to 9.3% among young adults (Table 2-3). Each of these one-year increases was significant, and as with vaping nicotine the rise of vaping marijuana among college students is especially notable. In fact, *the doubling from 5.2% in 2017 to 10.9% in 2018 of 30-day prevalence of vaping marijuana among college students is among the largest one-year proportion increases for any substance since MTF began over 40 years ago.*

SUMMARY AND CONCLUSIONS

Over the past four decades, MTF has documented some good news, along with the worrisome news. From the late 1970s to the early 1990s – and again in the late 1990s – the use of a number of ***illicit drugs*** declined appreciably among 12th grade students, and declined even more among college students and young adults in the U.S. These substantial improvements – which seem largely explainable in terms of changes in attitudes about drug use, beliefs about the risks of drug use, and peer norms against drug use – have some extremely important policy implications. One clear implication is that these various substance-using behaviors among American young people are malleable – they can be changed. It has been done before. The second is that demand-side (rather than supply-side) factors appear to have been pivotal in bringing about most of those changes. The levels of ***marijuana*** availability, as reported by 12th graders, have held fairly steady at high levels throughout the life of the study. (Moreover, among students who abstained from marijuana use, as well as among those who quit, availability and price rank very low on their lists of reasons for *not* using marijuana.) And, in fact, the perceived availability of ***cocaine*** was actually rising during the beginning of the sharp decline in cocaine and crack use in the mid- to late-1980s, which occurred when the perceived risk associated with that drug rose sharply. (See Chapter 9 in *Volume I* for more examples and further discussion of this point.) However, improvements should

not be taken for granted. Relapse is always possible; indeed, just such a relapse in the longer-term epidemic occurred during the early to mid-1990s, as the country let down its guard on many fronts. (See Chapter 8 *in* *Volume I* for a more detailed discussion.)

Over the years, MTF has demonstrated that changes in perceived risk and disapproval have been important causes of change in the use of a number of drugs. These beliefs and attitudes are almost certainly influenced by the amount and nature of public attention paid to the drug issue in the historical period during which young people are growing up. A substantial decline in attention to this issue in the early 1990s very likely explains why the increases in perceived risk and disapproval among students ceased and began to backslide. News coverage of the drug issue plummeted between 1989 and 1993 (although it made a considerable comeback as surveys – including MTF – began to document that the nation's drug problem was worsening again), and the media's pro bono placement of ads from the Partnership for a Drug-Free America also fell considerably. (During that period, MTF 12th graders showed a steady decline in their recalled exposure to such ads, and in the judged impact of such ads on their own drug-taking behavior.[5])

Also, the deterioration in the drug abuse situation first began among our youngest cohorts – perhaps because as they were growing up they had not had the same opportunities for vicarious learning from the adverse drug experiences of people around them and people portrayed in the media – those we have called the "unfortunate role models." Clearly, there was a danger that, as the drug epidemic subsided in the 1980s and early 1990s, newer cohorts would have far less opportunity to learn through informal means about the dangers of drugs – that what we have called a generational forgetting of those risks would occur through a process of generational replacement of older, more drug-savvy cohorts with newer, more naive ones. *This suggests that as drug use subsides, as it did by the early 1990s, the nation must redouble its efforts to ensure that such naive cohorts learn these lessons about the dangers of drugs through more formal means – from schools, parents, and focused messages in the media, including social media for example – and that this more formalized prevention effort be institutionalized so that it will endure for the long term.*

Clearly, for the foreseeable future, American young people will be aware of the psychoactive potential of a host of drugs and will continue to have access to them – a situation quite different from the one that preceded the late 1960s. (Awareness and access are two necessary conditions for an epidemic.[6]) That means that each new generation of young people must learn the reasons that they should not use drugs. Otherwise, their natural curiosity and desire for new experiences will lead a great many to use.

One lesson evident from the changes of the past two decades is that the types of drugs most in favor can change substantially over time. The illegal drugs began to decline in use in the late 1990s, while prescription drugs, and even over-the-counter drugs, began to gain favor. Today a good many of the drugs having the highest prevalence levels among teens and young adults are of this type, including narcotic drugs other than heroin, despite their declines in use in the past few years.

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[5] Johnston, L. D. (2002, June 19). Written and oral testimony presented at hearings on the National Youth Anti-Drug Media Campaign, held by the Treasury and General Government Subcommittee on Appropriations of the U.S. Senate Appropriations Committee. Published in The Congressional Record.

[6] Johnston, L. D. (1991). Toward a theory of drug epidemics. In L. Donohew, H. E. Sypher, and W. J. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp.93-131). Hillsdale, NJ, Earlbaum.

Unfortunately, current conditions are well suited for a second relapse phase in drug use among youth and young adults in the U.S. Perceived risk for marijuana has fallen substantially in recent years as the recent string of states that have legalized recreational marijuana use for adults may have led some youth to believe the drug is safe and state-sanctioned.

Another lesson that derives from the MTF epidemiological data is that social influences that tend to reduce the *initiation* of substance use also have the potential to deter *continuation* by those who have already begun to use, particularly if they are not yet habitual users. Chapter 5 of *Volume I* shows how increased quitting rates have contributed importantly to downturns in the use of a number of drugs at different historical periods. The lesson is that primary prevention should not be the only goal of intervention programs; early-stage users may be persuaded to quit when their beliefs and attitudes regarding drugs are changed.

The following facts help to put into perspective the magnitude and variety of substance use problems that presently remain among young people in the U.S.:

- Nearly one fourth (23%) of today's 8th graders have tried an ***illicit drug*** (if inhalants are included as an illicit drug), and half (49%) of 12th graders have done so.

- By their late 20s, almost two in three (64%) of today's young adults have tried an ***illicit drug***, and more than one in three (36%) have tried some ***illicit drug other than marijuana***, usually in addition to marijuana. (These figures do not include inhalants.)

- ***Marijuana*** use has shown an important change in terms of a widening of age-group differences, with annual and 30-day prevalence generally leveling during the past several years for secondary school students but increasing for college students and young adults.

- One in every 17 12th graders (5.8%) in 2018 smoked ***marijuana daily***. Among young adults ages 19 to 28, the percentage is a little higher at one in every 13 (8.0%). Also among 12th graders in 2018, one in every eight (12%) has been a daily marijuana smoker at some time in their life for at least a month.

- About one in seven 12th graders (14%) had ***five or more drinks in a row*** (called binge drinking) on at least one occasion in just the two weeks prior to the survey, and we know that such behavior tends to increase among young adults one to four years past high school – that is, in the peak college years. Indeed, 28% of college students report such binge drinking. The study also has documented evidence of ***extreme binge drinking*** (also called high-intensity drinking) with 4.6% of 12th graders in 2018 indicating having had 10 or more drinks in a row, and 2.5% indicating 15 or more drinks in a row, in the prior two weeks (see Chapter 5 in *Volume I*). Among college students, about one in twenty report having 10 or more drinks in a row, and one in 33 report having 15 or more at least once in just the prior two weeks (further detail is provided in Chapter 9).

- Even with considerable declines in smoking among U.S. adolescents since the late 1990s, about one in twelve (8%) of 12th graders in 2018 currently smoke ***cigarettes***, and one in twenty-five (4%) is already a ***daily smoker***. In addition, we know from studying previous

cohorts that many smokers increase their levels of smoking within a year or so after they leave high school.

- American secondary school students and young adults show a level of involvement with ***illicit drugs*** that is among the highest in the world's industrialized nations.[7] Even by longer-term historical standards in the U.S., these levels remain extremely high, though in general they are not as high as in the peak years of the epidemic in the late 1970s. ***Binge drinking*** also remains widespread and troublesome, though it has been declining gradually over a long period and now is at or near historical lows among both teens and young adults. Of course, the continuing initiation to ***cigarette smoking*** of a fair-sized, albeit dramatically decreased, proportion of young people remains a matter of great public health concern.

- Vaping presents a new challenge. MTF first asked about vaping in 2015 with an expansion of questions in 2017. Between 2017 and 2018, ***vaping nicotine*** increased dramatically, with 30-day prevalence nearly doubling for all age groups, reaching 6.1%, 16.1%, 20.9%, 15.5%, and 10.6% across the five age groups, respectively. The increase was most dramatic for college students, increasing two-and-a-half times from 6.1% to 15.5% in the one-year period, among the greatest one-year increases evident for any substance over the past 40 years. The 2018 prevalence levels are greater than those for any other tobacco product including cigarettes among secondary and college students. This increasing trend in nicotine vaping, especially for secondary school students, has the potential for a resurgence of teen and young nicotine addiction, especially given that vaping among youth who have never smoked significantly predicts future smoking.[8]

- There were also significant increases between 2017 and 2018 for all five age groups in 30-day prevalence of ***vaping marijuana***, with the increase again being most dramatic for college students, doubling from 5.2% to 10.9%, among the highest proportional increases evident for any substance over the past 40 years.

- Of particular note, abuse of prescription drugs by teens and young adults has declined in recent years, a welcome development after prevalence had stayed stubbornly high throughout the first decade of the 2000s. Among 12th grade students annual prevalence of ***narcotics other than heroin*** has declined for seven years in a row and is now at the lowest levels since the late 1990s among college students. Annual use of ***sedatives (barbiturates)*** among 12th graders, college students, and young adults declined or leveled in 2018 to the lowest levels in 20 years, with annual prevalence now about half or less what it was in 2004-05 when it peaked for all three age groups. Annual use of ***tranquilizers*** is at or near the lowest levels since 2001 (when the question was last updated) in all five age groups.

[7] A published report from a series of international collaborative studies, modeled largely after MTF, provides comparative data from national school surveys of 15- to 16 year olds, conducted every four years beginning in 1995. The most recent reported survey was published in in 2016, covering surveys in 35 European countries. (The report also includes 2015 MTF data from 10th graders in the United States.) See Kraus, L., Guttormsson, U., Leifman, H., Arpa, S. et al. (2016). The 2015 ESPAD report: Results from the European School Survey Project on Alcohol and Other Drugs. The European Monitoring Centre for Drugs and Drug Addiction. .See also, Johnston, L. D. (2016, September 23). National press release, "Compared with Europe, American teens have high rates of illicit drug use." University of Michigan News Service, Ann Arbor. University of Michigan News Service, September 23, 2016.

[8] Miech, R. A., Patrick, M. E., O'Malley, P. M., & Johnston, L. D. (2017). E-cigarette use as a predictor of cigarette smoking: Results from a 1-year follow-up of a national sample of 12th grade students. *Tobacco Control*, *26*(e2), e106-e111.

The update to the question on ***amphetamines*** in 2013 makes long-term trends difficult to discern, although there is evidence of leveling and declines in all five age groups since then. Perceived risk tends to be relatively low for these prescription-type drugs, which we believe is a major reason why their use had been relatively high.

- We note the seemingly unending capacity of pharmacological experts and amateurs to discover new substances with abuse potential that can be used to alter mood and consciousness (e.g., bath salts and synthetic marijuana), and of young people to discover the abuse potential of existing products (such as ***Robitussin*** and plants like ***salvia***) and to rediscover older drugs (such as ***LSD*** and ***heroin***). While as a society we have made significant progress on a number of fronts in the fight against drug abuse, we must remain vigilant against the opening of new fronts, as well as the reemergence of trouble on older ones. In particular, we must guard against generational forgetting in our newest cohorts of adolescents due to a lack of public attention to the issue during the time that they are growing up.

- One of the dynamics that keeps the drug epidemic rolling is the emergence of new drugs whose hazards are little known. In 1999, we saw this happen with the drug ecstasy (***MDMA***). Other drugs like ***Rohypnol, ketamine, GHB***, and ***OxyContin*** appeared in the 1990s and were added to the list of drugs under study. Questions on use of ***salvia, Adderall, and Provigil*** were then added to the questionnaires. In 2011, we added ***synthetic marijuana***, which turned out to be the second most used illicit drug after natural marijuana, and in 2012 we added ***bath salts***. In 2014, we added questions on ***e-cigarettes***, and in 2015 we added questions on the more general category of "vaping," which we discovered has made rapid inroads among today's adolescents and young adults, leading us to ask new more detailed questions on vaping starting in 2017. The spread of such new drugs and drug devices (e.g. Juuls for vaping) appears to be facilitated and hastened today by young people's widespread use of web-based social networks. We expect to see a continuous flow of such new substances onto the national scene, and believe that the task of rapidly documenting their emergence, establishing any adverse consequences, and quickly demystifying them will remain an important means by which policymakers, researchers, and educators deal with the continuing threats posed by such drugs. We also anticipate that there will be rediscoveries of older substances, as occurred in recent years with respect to the various psychotherapeutic prescription drugs, including ***tranquilizers, sedatives (barbiturates),*** and ***narcotic drugs***.

Substance abuse is a public health concern that recurs, reinvents itself, and goes through relapse phases. We cannot eradicate it but we can contain it to the extent possible on an ongoing basis. Therefore, it is a problem that requires an ongoing, dynamic response – one that takes into account the continuing generational replacement of our youth, the generational forgetting of the dangers of drugs that can occur with that replacement, and the perpetual stream of new health-compromising substances that may appeal to teens, college students, and young adults in general.

TABLE 2-1
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any Illicit Drug [a]																													
8th Grade	18.7	20.6	22.5	25.7	28.5	31.2	29.4	29.0	28.3	26.8	26.8	24.5	22.8	21.5	21.4	20.9	19.0	19.6	19.9	21.4	20.1	18.5‡	21.1	20.3	20.5	17.2	18.2	18.7	+0.6
10th Grade	30.6	29.8	32.8	37.4	40.9	45.4	47.3	44.9	46.2	45.6	45.6	44.6	41.4	39.8	38.2	36.1	35.6	34.1	36.0	37.0	37.7	36.8‡	39.1	37.4	34.7	33.7	34.3	36.3	+2.0
12th Grade	44.1	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2	46.8	47.4	46.7	48.2	49.9	49.1‡	49.8	49.1	48.9	48.3	48.9	47.8	-1.1
College Students	50.4	48.8	45.9	45.5	45.5	47.4	49.0	52.9	53.2	53.7	53.6	51.8	53.9	52.2	52.3	50.6	50.5	49.5	51.4	49.1	49.2	50.5‡	53.3	52.4	53.4	54.4	55.4	55.5	+0.1
Young Adults	62.2	60.2	59.6	57.5	57.4	56.4	56.7	57.0	57.4	58.2	58.1	59.0	60.2	60.5	60.4	59.7	59.8	59.3	59.3	58.4	59.1	58.9‡	60.0	62.2	62.9	62.8	64.0	63.8	-0.2
Any Illicit Drug other than Marijuana [a,b]																													
8th Grade	14.3	15.6	16.8	17.5	18.8	19.2	17.7	16.9	16.3	15.8‡	17.0	13.7	13.6	12.2	12.1	12.2	11.1	11.2	10.4	10.6	9.8	8.7‡	10.4	10.0	10.3	8.9	9.3	9.8	+0.5
10th Grade	19.1	19.2	20.9	21.7	24.3	25.5	25.0	23.6	24.0	23.1‡	23.6	22.1	19.7	18.8	18.0	17.5	18.2	15.9	16.7	16.8	15.6	14.9‡	16.4	15.9	14.6	14.0	13.7	14.2	+0.5
12th Grade	26.9	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0‡	30.7	29.5	27.7	28.7	27.4	26.9	25.5	24.9	24.0	24.7	24.9	24.1‡	24.8	22.6	21.1	20.7	19.5	18.9	-0.6
College Students	25.8	26.1	24.3	22.0	24.5	22.7	24.4	24.8	25.5	25.8‡	26.3	26.9	27.6	28.0	26.5	26.3	25.3	22.6	25.6	24.8	24.3	23.8‡	28.3	29.0	26.4	26.5	26.1	27.1	+1.0
Young Adults	37.8	37.0	34.6	33.4	32.8	31.0	30.5	29.9	30.2	31.3‡	31.6	32.8	33.9	35.2	34.0	34.8	34.2	34.7	32.8	33.3	33.2	32.8‡	34.0	37.3	36.8	36.2	36.8	36.3	-0.5
Any Illicit Drug including Inhalants [a,c,d]																													
8th Grade	28.5	29.6	32.3	35.1	38.1	39.4	38.1	37.8	37.2	35.1	34.5	31.6	30.3	30.2	30.0	29.2	27.7	28.3	27.9	28.6	26.4	40.0‡	25.9	25.2	24.9	20.6	23.3	23.2	-0.1
10th Grade	36.1	36.2	38.7	42.7	45.9	49.8	50.9	49.3	49.9	49.3	48.8	47.7	44.9	43.1	42.1	40.1	39.8	38.7	40.0	40.6	40.8	25.1‡	41.6	40.4	37.2	35.9	37.0	38.7	+1.7
12th Grade	47.6	44.4	46.6	49.1	51.5	53.5	56.3	56.1	56.3	57.0	56.0	54.6	52.8	53.0	53.5	51.2	49.1	49.3	48.4	49.9	51.8	50.3‡	52.3	49.9	51.4	49.3	50.3	49.0	-1.3
College Students	52.0	50.3	49.1	47.0	47.0	49.1	50.7	55.4	54.4	54.6	53.1	52.3	54.1	52.9	53.9	53.3	52.5	51.0	51.1	50.0	49.7	52.0‡	53.3	51.8	52.0	52.6	53.3	55.5	+2.2
Young Adults	63.4	61.2	61.2	58.5	59.0	58.2	58.4	58.5	58.5	59.5	59.0	59.6	60.6	62.5	61.4	61.2	61.2	60.2	59.3	59.3	59.5	59.5‡	62.2	60.6	61.0	61.4	61.7	63.5	+1.8
Marijuana/Hashish																													
8th Grade	10.2	11.2	12.6	16.7	19.9	23.1	22.6	22.2	22.0	20.3	20.4	19.2	17.5	16.3	16.5	15.7	14.2	14.6	15.7	17.3	16.4	15.2	16.5	15.6	15.5	12.8	13.5	13.9	+0.4
10th Grade	23.4	21.4	24.4	30.4	34.1	39.8	42.3	39.6	40.9	40.3	40.1	38.7	36.4	35.1	34.1	31.8	31.0	29.9	32.3	33.4	34.5	33.8	35.8	33.7	31.1	29.7	30.7	32.6	+1.8
12th Grade	36.7	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3	41.8	42.6	42.0	43.8	45.5	45.2	45.5	44.4	44.7	44.5	45.0	43.6	-1.4
College Students	46.3	44.1	42.0	42.2	41.7	45.1	46.1	49.9	50.8	51.2	51.0	49.5	50.7	49.1	49.1	46.9	47.5	46.8	47.5	46.8	46.6	49.1	47.7	48.5	50.4	51.0	50.5	52.4	+1.9
Young Adults	58.6	56.4	55.9	53.7	53.6	53.4	53.8	54.4	54.6	55.1	55.7	56.8	57.2	57.4	57.0	56.7	56.7	55.9	56.0	55.9	56.3	56.5	57.1	57.5	58.5	58.7	60.1	60.1	0.0
Inhalants [c,d]																													
8th Grade	17.6	17.4	19.4	19.9	21.6	21.2	21.0	20.5	19.7	17.9	17.1	15.2	15.8	17.3	17.1	16.1	15.6	15.7	14.9	14.5	13.1	11.8	10.8	10.8	9.4	7.7	8.9	8.7	-0.2
10th Grade	15.7	16.6	17.5	18.0	19.0	19.3	18.3	18.3	17.0	16.6	15.2	13.5	12.7	12.4	13.1	13.3	13.6	12.8	12.3	12.0	10.1	9.9	8.7	8.7	7.2	6.6	6.1	6.5	+0.4
12th Grade	17.6	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1	10.5	9.9	9.5	9.0	8.1	7.9	6.9	6.5	5.7	5.0	4.9	4.4	-0.5
College Students	14.4	14.2	14.8	12.0	13.8	11.4	12.4	12.8	12.4	12.9	9.6	7.7	9.7	8.5	7.1	7.4	6.3	4.9	6.9	5.5	3.7	5.7	4.3	3.5	3.1	3.2	3.4	3.0	-0.4
Young Adults	13.4	13.5	14.1	13.2	14.5	14.1	14.1	14.2	14.2	14.3	12.8	12.4	12.2	11.6	10.3	10.9	9.1	9.5	8.9	7.9	7.2	7.2	6.5	6.7	6.4	6.3	5.2	5.6	+0.4

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Hallucinogens [b,f]																													
8th Grade	3.2	3.8	3.9	4.3	5.2	5.9	5.4	4.9	4.8	4.6‡	5.2	4.1	4.0	3.5	3.8	3.4	3.1	3.3	3.0	3.4	3.3	2.8	2.5	2.0	2.0	1.9	1.9	2.2	+0.3
10th Grade	6.1	6.4	6.8	8.1	9.3	10.5	10.5	9.8	9.7	8.9‡	8.9	7.8	6.9	6.4	5.8	6.1	6.4	5.5	6.1	6.1	6.0	5.2	5.4	5.0	4.6	4.4	4.2	3.9	-0.3
12th Grade	9.6	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0‡	14.7	12.0	10.6	9.7	8.8	8.3	8.4	8.7	7.4	8.6	8.3	7.5	7.6	6.3	6.4	6.7	6.7	6.6	-0.1
College Students	11.3	12.0	11.8	10.0	13.0	12.6	13.8	15.2	14.8	14.4‡	14.8	13.6	14.5	12.0	11.0	10.6	9.1	8.5	8.0	7.8	7.4	7.6	7.8	7.6	6.5	7.7	7.2	8.5	+1.3
Young Adults	15.7	15.7	15.4	15.4	16.1	16.4	16.8	17.4	18.0	18.4‡	18.3	19.6	19.7	19.3	17.6	17.2	16.0	14.8	14.2	13.9	13.0	12.2	12.4	11.9	11.7	12.2	12.9	14.3	+1.4
LSD [b]																													
8th Grade	2.7	3.2	3.5	3.7	4.4	5.1	4.7	4.1	4.1	3.9	3.4	2.5	2.1	1.8	1.9	1.6	1.6	1.9	1.7	1.8	1.7	1.3	1.4	1.1	1.3	1.2	1.3	1.4	+0.1
10th Grade	5.6	5.8	6.2	7.2	8.4	9.4	9.5	8.5	8.5	7.6	6.3	5.0	3.5	2.8	2.5	2.7	3.0	2.6	3.0	3.0	2.8	2.6	2.7	2.6	3.0	3.2	3.0	2.8	-0.2
12th Grade	8.8	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3	3.4	4.0	3.1	4.0	4.0	3.8	3.9	3.7	4.3	4.9	5.0	5.1	+0.1
College Students	9.6	10.6	10.6	9.2	11.5	10.8	11.7	13.1	12.7	11.8	12.2	8.6	8.7	5.6	3.7	3.5	3.3	4.3	3.3	4.0	3.7	3.1	4.4	4.5	4.8	5.1	5.3	6.9	+1.7
Young Adults	13.5	13.8	13.6	13.8	14.5	15.0	15.0	15.7	16.2	16.4	16.0	15.1	14.6	13.4	11.2	10.1	9.6	8.1	7.3	7.2	6.1	6.2	6.3	6.6	7.0	8.0	8.8	10.3	+1.5 s
Hallucinogens other than LSD [b]																													
8th Grade	1.4	1.7	1.7	2.2	2.5	3.0	2.6	2.5	2.4	2.3‡	3.9	3.3	3.2	3.0	3.3	2.8	2.6	2.5	2.4	2.7	2.8	2.3	1.9	1.5	1.2	1.3	1.2	1.5	+0.3
10th Grade	2.2	2.5	2.8	3.8	3.9	4.7	4.8	5.0	4.7	4.8‡	6.6	6.3	5.9	5.8	5.2	5.5	5.7	4.8	5.4	5.3	5.2	4.5	4.4	4.1	3.3	3.1	2.9	2.7	-0.2
12th Grade	3.7	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9‡	10.4	9.2	9.0	8.7	8.1	7.8	7.7	7.8	6.8	7.7	7.3	6.6	6.4	5.1	4.8	4.7	4.8	4.5	-0.3
College Students	6.0	5.7	5.4	4.4	6.5	6.5	7.5	8.7	8.8	8.2‡	10.7	11.0	12.8	10.1	10.6	10.1	8.5	8.2	7.8	7.1	6.9	7.2	6.8	6.8	5.1	6.6	5.0	5.0	0.0
Young Adults	8.4	8.0	7.6	7.4	7.8	7.9	8.5	9.4	9.3	9.9‡	12.0	15.0	16.4	15.6	15.4	14.9	14.1	13.0	13.0	12.6	12.1	11.1	11.4	10.8	10.4	10.6	10.6	11.1	+0.5
PCP [g]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	2.9	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2	2.1	1.8	1.7	1.8	2.3	1.6	1.3	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	3.1	2.0	1.9	2.0	2.2	1.9	2.4	2.7	2.3	2.3	3.1	2.5	3.0	2.7	2.0	2.4	2.1	2.2	1.6	1.6	1.7	1.1	1.4	0.6	1.2	1.9	0.3	1.3	+1.0 ~
Ecstasy (MDMA) [h]																													
8th Grade, original	—	—	—	—	—	3.4	3.2	2.7	2.7	4.3	5.2	4.3	3.2	2.8	2.8	2.5	2.3	2.4	2.2	3.3	2.6	2.0	1.8	1.4	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.4	2.3	1.7	1.5	1.6	+0.1
10th Grade, original	—	—	—	—	—	5.6	5.7	5.1	6.0	7.3	8.0	6.6	5.4	4.3	4.0	4.5	5.2	4.3	5.5	6.4	6.6	5.0	5.7	3.7	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.2	3.8	2.8	2.8	2.4	-0.3
12th Grade, original	—	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5	6.5	6.2	6.5	7.3	8.0	7.2	7.1	5.6	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.9	5.9	4.9	4.9	4.1	
College Students																													
Original	2.0	2.9	2.3	2.1	3.1	4.3	4.7	6.8	8.4	13.1	14.7	12.7	12.9	10.2	8.3	6.9	5.4	6.2	6.5	6.2	6.8	8.7	8.1	8.2	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1	8.9	8.4	5.3	7.6	+2.3
Young Adults																													
Original	3.2	3.9	3.8	3.8	4.5	5.2	5.1	7.2	7.1	11.6	13.0	14.6	15.3	16.0	14.9	14.4	13.1	13.1	11.5	12.3	11.3	11.4	11.6	11.4	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.5	12.9	12.5	12.6	12.2	-0.4

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Cocaine																													
8th Grade	2.3	2.9	2.9	3.6	4.2	4.5	4.4	4.6	4.7	4.5	4.3	3.6	3.6	3.4	3.7	3.4	3.1	3.0	2.6	2.6	2.2	1.9	1.7	1.8	1.6	1.4	1.3	1.4	+0.2
10th Grade	4.1	3.3	3.6	4.3	5.0	6.5	7.1	7.2	7.7	6.9	5.7	6.1	5.1	5.4	5.2	4.8	5.3	4.5	4.6	3.7	3.3	3.3	3.3	2.6	2.7	2.1	2.1	2.6	+0.5
12th Grade	7.8	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5	7.8	7.2	6.0	5.5	5.2	4.9	4.5	4.6	4.0	3.7	4.2	3.9	-0.3
College Students	9.4	7.9	6.3	5.0	5.5	5.0	5.6	8.1	8.4	9.1	8.6	8.2	9.2	9.5	8.8	7.7	8.5	7.2	8.1	6.6	5.5	5.2	5.1	6.2	6.1	5.3	6.5	7.5	+1.0
Young Adults	21.0	19.5	16.9	15.2	13.7	12.9	12.1	12.3	12.8	12.7	13.1	13.5	14.7	15.2	14.3	15.2	14.7	14.8	13.9	13.6	12.5	11.9	12.2	11.7	12.1	10.4	11.2	11.4	+0.2
Crack [i]																													
8th Grade	1.3	1.6	1.7	2.4	2.7	2.9	2.7	3.2	3.1	3.1	3.0	2.5	2.5	2.4	2.4	2.3	2.1	2.0	1.7	1.5	1.5	1.0	1.2	1.2	1.0	0.9	0.8	0.9	+0.1
10th Grade	1.7	1.5	1.8	2.1	2.8	3.3	3.6	3.9	4.0	3.7	3.1	3.6	2.7	2.6	2.5	2.2	2.3	2.0	2.1	1.8	1.6	1.4	1.5	1.0	1.1	0.8	0.8	1.0	+0.1
12th Grade	3.1	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5	3.2	2.8	2.4	2.4	1.9	2.1	1.8	1.8	1.7	1.4	1.7	1.5	-0.1
College Students	1.5	1.7	1.3	1.0	1.8	1.2	1.4	2.2	2.4	2.5	2.0	1.9	3.1	2.0	1.7	2.3	1.3	1.4	1.0	1.2	0.8	0.7	0.7	1.4	0.5	0.4	0.6	0.6	0.0
Young Adults	4.8	5.1	4.3	4.4	3.8	3.9	3.6	3.8	4.3	4.6	4.7	4.3	4.7	4.2	4.1	4.4	3.9	4.3	3.3	3.6	2.9	2.7	2.6	2.1	1.8	1.2	1.2	1.5	+0.3
Cocaine other than Crack [j]																													
8th Grade	2.0	2.4	2.4	3.0	3.4	3.8	3.5	3.7	3.8	3.5	3.3	2.8	2.7	2.6	2.9	2.7	2.6	2.4	2.1	2.1	1.8	1.6	1.4	1.4	1.3	1.1	1.0	1.2	+0.1
10th Grade	3.8	3.0	3.3	3.8	4.4	5.5	6.1	6.4	6.8	6.0	5.0	5.2	4.5	4.8	4.6	4.3	4.8	4.0	4.1	3.4	3.0	3.0	2.9	2.2	2.3	1.9	1.9	2.4	+0.5
12th Grade	7.0	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9	6.8	6.5	5.3	5.1	4.9	4.4	4.2	4.1	3.4	3.3	3.5	3.3	-0.2
College Students	9.0	7.6	6.3	4.6	5.2	4.6	5.0	7.4	7.8	8.1	8.3	8.6	8.5	9.3	8.1	6.2	8.0	7.1	7.9	6.7	5.4	5.1	5.2	6.2	6.4	6.5	6.1	6.7	+0.6
Young Adults	19.8	18.4	15.1	13.9	12.4	11.9	11.3	11.5	11.8	11.7	12.1	12.8	13.5	14.4	13.3	14.4	14.0	13.9	13.5	13.1	12.2	11.8	11.8	11.6	11.8	11.9	12.6	12.2	-0.4
Heroin [k,l]																													
8th Grade	1.2	1.4	1.4	2.0	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	1.3	1.3	1.2	0.8	1.0	0.9	0.5	0.5	0.7	0.6	-0.1
10th Grade	1.2	1.2	1.3	1.5	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	1.5	1.3	1.2	1.1	1.0	0.9	0.7	0.6	0.4	0.4	-0.1
12th Grade	0.9	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	1.2	1.6	1.4	1.1	1.0	1.0	0.8	0.7	0.7	0.8	+0.1
College Students	0.5	0.5	0.6	0.1	0.6	0.7	0.9	1.7	0.9	1.7	1.2	1.0	1.0	0.9	0.5	0.7	0.5	0.7	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.5	0.1	0.1	+0.1
Young Adults	0.9	0.9	0.9	0.8	1.1	1.3	1.3	1.6	1.7	1.8	2.0	1.8	1.9	1.9	1.7	1.9	1.6	1.9	1.6	1.8	1.7	1.6	1.6	1.4	1.6	1.6	1.4	1.4	0.0
With a Needle [l]																													
8th Grade	—	—	—	—	1.5	1.6	1.3	1.4	1.6	1.1	1.2	1.0	1.0	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.6	0.6	0.8	0.3	0.3	0.4	0.4	0.0
10th Grade	—	—	—	—	1.0	1.1	1.1	1.2	1.3	1.0	0.8	1.0	0.9	0.8	0.8	0.9	0.9	0.7	0.9	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.3	0.2	-0.1
12th Grade	—	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.9	0.8	0.7	0.7	0.6	1.1	0.9	0.7	0.7	0.8	0.6	0.5	0.4	0.5	0.0
College Students	—	—	—	—	0.4	0.1	0.2	0.5	0.8	0.7	0.2	0.3	0.1	0.1	0.3	0.3	0.1	0.0	0.1	0.1	0.3	0.2	0.1	0.0	0.3	0.0	0.0	0.2	+0.2
Young Adults	—	—	—	—	0.4	0.4	0.3	0.4	0.6	0.4	0.6	0.4	0.5	0.4	0.6	0.6	0.5	0.5	0.5	0.8	0.7	0.5	1.0	0.7	0.7	0.7	0.8	0.4	-0.4
Without a Needle [l]																													
8th Grade	—	—	—	—	1.5	1.6	1.4	1.5	1.4	1.3	1.1	1.0	1.1	1.0	0.9	0.9	0.7	0.9	0.8	0.7	0.7	0.5	0.5	0.4	0.3	0.4	0.5	0.3	-0.1
10th Grade	—	—	—	—	1.1	1.7	1.7	1.7	1.6	1.7	1.3	1.3	1.0	1.1	1.1	1.0	1.1	0.8	1.0	0.9	0.8	0.8	0.7	0.5	0.4	0.3	0.3	0.2	-0.1
12th Grade	—	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1	1.4	1.1	0.9	1.4	1.3	0.8	0.9	0.7	0.7	0.6	0.4	0.6	+0.1
College Students	—	—	—	—	0.5	1.0	1.2	2.1	1.0	2.5	1.3	1.2	1.1	1.0	0.3	0.8	0.4	0.7	0.4	0.4	0.4	0.5	0.8	0.1	0.4	0.2	0.1	0.2	0.0
Young Adults	—	—	—	—	0.9	1.3	1.5	1.7	1.9	2.1	2.1	1.8	2.2	2.1	1.8	2.4	1.9	2.1	1.9	1.8	1.6	1.7	1.8	1.2	1.8	1.5	1.5	1.3	-0.1

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Narcotics other than Heroin [m,n,ll]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.6	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9‡	13.5	13.2	13.5	12.8	13.4	13.1	13.2	13.2	13.0	13.0	12.2	11.1	9.5	8.4	7.8	6.8	6.0	-0.8
College Students	7.3	7.3	6.2	5.1	7.2	5.7	8.2	8.7	8.7	8.9	11.0‡	12.2	14.2	13.8	14.4	14.6	14.1	12.4	14.0	12.2	12.4	10.3	10.8	9.9	6.6	7.4	6.8	6.6	-0.2
Young Adults	9.3	8.9	8.1	8.2	9.0	8.3	9.2	9.1	9.5	10.0	11.5‡	13.9	16.8	17.6	17.8	18.7	18.8	19.5	18.5	19.0	18.2	17.6	17.4	16.3	15.0	14.3	13.4	12.3	-1.2
Amphetamines [m,o]																													
8th Grade	10.5	10.8	11.8	12.3	13.1	13.5	12.3	11.3	10.7	9.9	10.2	8.7	8.4	7.5	7.4	7.3	6.5	6.8	6.0	5.7	5.2	4.5‡	6.9	6.7	6.8	5.7	5.7	5.9	+0.3
10th Grade	13.2	13.1	14.9	15.1	17.4	17.7	17.0	16.0	15.7	15.7	16.0	14.9	13.1	11.9	11.1	11.2	11.1	9.0	10.3	10.6	9.0	8.9‡	11.2	10.6	9.7	8.8	8.2	8.6	+0.4
12th Grade	15.4	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4	11.4	10.5	9.9	11.1	12.2	12.0‡	13.8	12.1	10.8	10.0	9.2	8.6	-0.6
College Students	13.0	10.5	10.1	9.2	10.7	9.5	10.6	10.6	11.9	12.3	12.4	11.9	12.3	12.7	12.3	10.7	11.2	9.1	11.8	12.1	13.4	14.4‡	16.1	15.0	13.9	13.6	12.6	13.2	+0.5
Young Adults	22.4	20.2	18.7	17.1	16.6	15.3	14.6	14.3	14.1	15.0	15.0	14.8	15.2	15.9	14.6	15.6	15.3	14.6	14.9	16.1	16.5	17.4‡	18.8	18.7	18.8	18.7	18.2	18.4	+0.3
Methamphetamine [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	4.5	4.2	4.4	3.5	3.9	2.5	3.1	2.7	1.8	2.3	1.6	1.8	1.3	1.3	1.4	1.0	0.8	0.6	0.7	0.7	0.0
10th Grade	—	—	—	—	—	—	—	—	7.3	6.9	6.4	6.1	5.2	5.3	4.1	3.2	2.8	2.4	2.8	2.5	2.1	1.8	1.6	1.4	1.3	0.7	0.9	0.8	-0.1
12th Grade	—	—	—	—	—	—	—	—	8.2	7.9	6.9	6.7	6.2	6.2	4.5	4.4	3.0	2.8	2.4	2.3	2.1	1.7	1.5	1.9	1.0	1.2	1.1	0.7	-0.4
College Students	—	—	—	—	—	—	—	—	7.1	5.1	5.3	5.0	5.8	5.2	4.1	2.9	1.9	1.9	1.0	1.1	0.6	0.3	0.9	0.7	0.8	0.6	0.6	1.0	+0.4
Young Adults	—	—	—	—	—	—	—	—	8.8	9.3	9.0	9.1	8.9	9.0	8.3	7.3	6.7	6.3	4.7	4.3	3.2	3.5	3.1	2.3	2.4	2.2	2.6	2.7	+0.1
Crystal Methamphetamine (Ice) [q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.3	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4	3.4	2.8	2.1	1.8	2.1	1.7	2.0	1.3	1.2	1.4	1.5	1.1	-0.3
College Students	1.3	0.6	1.6	1.3	1.0	0.8	1.6	2.2	2.8	1.3	2.3	2.0	2.9	2.2	2.4	1.7	1.3	1.1	0.7	0.8	0.2	0.6	0.0	0.3	0.3	0.6	0.4	0.8	+0.4
Young Adults	2.9	2.2	2.7	2.5	2.1	3.1	2.5	3.4	3.3	3.9	4.0	4.1	4.7	4.7	4.4	4.7	3.7	3.6	3.4	2.8	3.1	2.6	2.8	1.7	2.2	1.8	1.8	1.3	-0.5
Sedatives (Barbiturates) [m,r]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.2	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8‡	9.9	10.5	10.2	9.3	8.5	8.2	7.5	7.0	6.9	7.5	6.8	5.9	5.2	4.5	4.2	-0.3
College Students	3.5	3.8	3.5	3.2	4.0	4.6	5.2	5.7	6.7	6.9	6.0	5.9	5.7	7.2	8.5	6.3	5.9	6.4	6.0	5.3	3.6	3.5‡	5.4	5.9	4.4	3.3	3.9	3.3	-0.6
Young Adults	8.2	7.4	6.5	6.4	6.7	6.6	6.5	6.9	7.4	8.1	7.8	8.0	8.7	9.7	10.0	9.5	9.8	10.6	9.5	8.6	7.9	7.2‡	9.5	9.0	8.3	7.4	6.4	7.3	+0.8

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Tranquilizers [b,m]																													
8th Grade	3.8	4.1	4.4	4.6	4.5	5.3	4.8	4.6	4.4	4.4‡	5.0	4.3	4.4	4.0	4.1	4.3	3.9	3.9	3.9	4.4	3.4	3.0	2.9	2.9	3.0	3.0	3.4	3.5	+0.1
10th Grade	5.8	5.9	5.7	5.4	6.0	7.1	7.3	7.8	7.9	8.0‡	9.2	8.8	7.8	7.3	7.1	7.2	7.4	6.8	7.0	7.3	6.8	6.3	5.5	5.8	5.8	6.1	6.0	6.0	0.0
12th Grade	7.2	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9‡	10.3	11.4	10.2	10.6	9.9	10.3	9.5	8.9	9.3	8.5	8.7	8.5	7.7	7.4	6.9	7.6	7.5	6.6	-0.9
College Students	6.8	6.9	6.3	4.4	5.4	5.3	6.9	7.7	8.2	8.8‡	9.7	10.7	11.0	10.6	11.9	10.0	9.1	8.6	9.2	8.1	7.1	6.4	7.8	6.9	7.8	6.5	6.7	7.4	+0.7
Young Adults	11.8	11.3	10.5	9.9	9.7	9.3	8.6	9.6	9.6	10.5‡	11.9	13.4	13.8	14.9	14.5	15.0	14.5	15.8	13.8	14.3	13.8	13.3	13.2	12.5	12.8	12.4	12.4	11.4	-1.0
Any Prescription Drug [o,t]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.0	23.9	22.2	21.5	20.9	21.6	21.7	21.2‡	22.2	19.9	18.3	18.0	16.5	15.5	-0.9
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol [u]																													
8th Grade	—	—	—	—	—	1.5	1.1	1.4	1.3	1.0	1.1	0.8	1.0	1.0	1.1	1.0	1.0	0.7	0.7	0.9	2.0	1.0	0.7	0.6	0.8	0.9	0.6	0.7	+0.1
10th Grade	—	—	—	—	—	1.5	1.7	2.0	1.8	1.3	1.5	1.3	1.0	1.2	1.0	0.8	1.3	0.9	0.7	1.4	1.2	0.8	1.1	1.0	0.5	1.0	0.7	0.5	-0.2
12th Grade	—	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol [v]																													
Any Use																													
8th Grade	70.1	69.3‡	55.7	55.8	54.5	55.3	53.8	52.5	52.1	51.7	50.5	47.0	45.6	43.9	41.0	40.5	38.9	38.9	36.6	35.8	33.1	29.5	27.8	26.8	26.1	22.8	23.1	23.5	+0.4
10th Grade	83.8	82.3‡	71.6	71.1	70.5	71.8	72.0	69.8	70.6	71.4	70.1	66.9	66.0	64.2	63.2	61.5	61.7	58.3	59.1	58.2	56.0	54.0	52.1	49.3	47.1	43.4	42.2	43.0	+0.8
12th Grade	88.0	87.5‡	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7	72.2	71.9	72.3	71.0	70.0	69.4	68.2	66.0	64.0	61.2	61.5	58.5	-3.0 s
College Students	93.6	91.8	89.3	88.2	88.5	88.4	87.3	88.5	88.0	86.6	86.1	86.0	86.2	84.6	86.6	84.7	83.1	85.3	82.6	82.3	80.5	81.0	78.0	79.4	81.4	81.3	79.1	77.4	-1.7
Young Adults	94.1	93.4	92.1	91.2	91.6	91.2	90.7	90.6	90.2	90.7	89.9	90.2	89.3	89.4	89.1	88.9	87.9	88.4	87.9	87.5	87.4	86.5	86.2	86.3	85.7	85.9	85.2	85.0	-0.2
Been Drunk [w]																													
8th Grade	26.7	26.8	26.4	25.9	25.3	26.8	25.2	24.8	24.8	25.1	23.4	21.3	20.3	19.9	19.5	19.5	17.9	18.0	17.4	16.3	14.8	12.8	12.2	10.8	10.9	8.6	9.2	9.2	0.0
10th Grade	50.0	47.7	47.9	47.2	46.9	48.5	49.4	46.7	48.9	49.3	48.2	44.0	42.4	42.3	42.1	41.4	41.2	37.2	38.6	36.9	35.9	34.6	33.5	30.2	28.6	26.0	25.1	26.2	+1.2
12th Grade	65.4	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4	55.1	54.7	56.5	54.1	51.0	54.2	52.3	49.8	46.7	46.3	45.3	42.9	-2.4
College Students	79.6	76.8	76.4	74.4	76.6	76.2	77.0	76.8	75.1	74.7	76.1	75.1	74.9	73.4	72.9	73.1	71.6	72.5	69.1	70.5	67.9	70.0	66.5	68.8	68.6	66.7	64.8	66.8	+2.0
Young Adults	82.9	81.1	81.4	80.7	82.1	80.7	81.4	79.8	81.6	80.4	81.1	81.2	80.9	80.1	79.9	80.9	80.1	80.1	78.2	79.0	78.9	78.9	77.4	78.3	76.4	75.2	75.4	76.2	+0.8

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Flavored Alcoholic Beverages [g,p,rrr]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	37.9	35.5	35.5	34.0	32.8	29.4	30.0	27.0	23.5	21.9	19.2	19.3	16.3	16.0	18.0	+2.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.8	58.1	55.7	53.5	51.4	51.3	48.4	46.7	44.9	42.3	38.7	33.3	34.8	35.9	+1.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	71.0	73.6	69.9	68.4	65.5	67.4	62.6	62.4	60.5	58.9	57.5	55.6	53.6	51.2	50.4	-0.9
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	79.0	84.5	80.9	80.6	78.6	78.1	77.4	76.7	76.6	67.5	72.7	74.8	76.1	72.4	71.0	-1.4
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	83.2	84.6	84.4	84.0	82.6	83.5	81.4	82.2	82.4	80.9	80.6	81.0	79.9	79.2	80.9	+1.7
Cigarettes																													
Any Use																													
8th Grade	44.0	45.2	45.3	46.1	46.4	49.2	47.3	45.7	44.1	40.5	36.6	31.4	28.4	27.9	25.9	24.6	22.1	20.5	20.1	20.0	18.4	15.5	14.8	13.5	13.3	9.8	9.4	9.1	-0.3
10th Grade	55.1	53.5	56.3	56.9	57.6	61.2	60.2	57.7	57.6	55.1	52.8	47.4	43.0	40.7	38.9	36.1	34.6	31.7	32.7	33.0	30.4	27.7	25.7	22.6	19.9	17.5	15.9	16.0	0.0
12th Grade	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1	46.2	44.7	43.6	42.2	40.0	39.5	38.1	34.4	31.1	28.3	26.6	23.8	-2.8 s
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco [x]																													
8th Grade	22.2	20.7	18.7	19.9	20.0	20.4	16.8	15.0	14.4	12.8	11.7	11.2	11.3	11.0	10.1	10.2	9.1	9.8	9.6	9.9	9.7	8.1	7.9	8.0	8.6	6.9	6.2	6.4	+0.1
10th Grade	28.2	26.6	28.1	29.2	27.6	27.4	26.3	22.7	20.4	19.1	19.5	16.9	14.6	13.8	14.5	15.0	15.1	12.2	15.2	16.8	15.6	15.4	14.0	13.6	12.3	10.2	9.1	10.0	+0.9
12th Grade	—	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2	15.1	15.6	16.3	17.6	16.9	17.4	17.2	15.1	13.2	14.2	11.0	10.1	-0.9
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping [jj,kk,nn]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.7	17.5‡	18.5	21.5	+3.0 s
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	29.0‡	30.9	36.9	+6.0 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35.5	33.8‡	35.8	42.5	+6.7 ss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.0	26.8‡	36.0	39.9	3.9
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.3	26.9‡	34.3	37.0	2.7
Vaping Nicotine [jj,oo]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	13.5	+2.9 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	28.6	+7.2 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.0	34.0	+9.0 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5	32.4	+9.9 ss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.8	27.5	+2.7

(Table continued on next page.)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Vaping Marijuana [jj]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	5.5	+1.5 s
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.8	14.2	+4.4 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	15.6	+3.8 ss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	23.8	9.5 ss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.2	21.6	4.4 ss
Vaping Just Flavoring [jj,pp]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.0	19.4	+2.4
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.5	31.7	+4.3 ss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.7	34.1	+3.4
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.7	27.1	0.4
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	22.1	0.7
Steroids [y,z]																													
8th Grade	1.9	1.7	1.6	2.0	2.0	1.8	1.8	2.3	2.7	3.0	2.8	2.5	2.5	1.9	1.7	1.6	1.5	1.4	1.3	1.1	1.2	1.2	1.1	1.0	1.0	0.9	1.1	1.1	0.0
10th Grade	1.8	1.7	1.7	1.8	2.0	1.8	2.0	2.0	2.7	3.5	3.5	3.5	3.0	2.4	2.0	1.8	1.8	1.4	1.3	1.6	1.4	1.3	1.3	1.4	1.2	1.3	1.1	1.2	+0.1
12th Grade	2.1	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7	2.2	2.2	2.2	2.0	1.8	1.8	2.1	1.9	2.3	1.6	1.6	1.6	-0.1
College Students	1.4	1.7	1.9	0.5	0.8	0.6	1.6	0.9	1.3	0.6	1.5	1.2	1.2	1.6	1.0	1.9	0.6	1.6	1.3	0.7	1.1	0.4	0.8	0.9	0.6	0.8	1.2	0.3	-0.9
Young Adults	1.7	1.9	1.5	1.3	1.5	1.5	1.4	1.4	1.9	1.4	1.4	1.6	1.8	1.9	1.8	1.8	1.7	1.8	1.8	1.7	1.3	1.7	1.2	1.7	1.6	1.4	1.4	1.0	-0.4
Previously surveyed drugs that have been dropped																													
Nitrites [e]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.6	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2	1.2	0.6	1.1	—	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	1.4	1.2	1.3	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [m,s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.3	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2	1.0	0.8	0.7	0.4	0.6	0.8	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

See footnotes following Table 2-4

TABLE 2-2
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any Illicit Drug [a]																													
8th Grade	11.3	12.9	15.1	18.5	21.4	23.6	22.1	21.0	20.5	19.5	19.5	17.7	16.1	15.2	15.5	14.8	13.2	14.1	14.5	16.0	14.7	13.4‡	15.2	14.6	14.8	12.0	12.9	13.4	+0.5
10th Grade	21.4	20.4	24.7	30.0	33.3	37.5	38.5	35.0	35.9	36.4	37.2	34.8	32.0	31.1	29.8	28.7	28.1	26.9	29.4	30.2	31.1	30.1‡	32.1	29.9	27.9	26.8	27.8	29.9	+2.1
12th Grade	29.4	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	36.5	38.3	40.0	39.7‡	40.1	38.7	38.6	38.3	39.9	38.8	-1.1
College Students	29.2	30.6	30.6	31.4	33.5	34.2	34.1	37.8	36.9	36.1	37.9	37.0	36.5	36.2	36.6	33.9	35.0	35.2	36.0	35.0	36.3	37.3‡	40.5	38.6	41.4	42.8	42.4	45.2	+2.7
Young Adults	27.0	28.3	28.4	28.4	29.8	29.2	29.2	29.9	30.3	30.8	32.1	32.4	33.0	33.7	32.8	32.1	32.5	33.8	33.3	33.2	34.7	34.0‡	36.7	37.5	39.2	39.7	41.2	42.8	+1.6
Any Illicit Drug other than Marijuana [a,b]																													
8th Grade	8.4	9.3	10.4	11.3	12.6	13.1	11.8	11.0	10.5	10.2‡	10.8	8.8	8.8	7.9	8.1	7.7	7.0	7.4	7.0	7.1	6.4	5.5‡	6.3	6.4	6.3	5.4	5.8	6.1	+0.3
10th Grade	12.2	12.3	13.9	15.2	17.5	18.4	18.2	16.6	16.7	16.7‡	17.9	15.7	13.8	13.5	12.9	12.7	13.1	11.3	12.2	12.1	11.2	10.8‡	11.2	11.2	10.5	9.8	9.4	9.6	+0.2
12th Grade	16.2	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4‡	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	17.0	17.3	17.6	17.0‡	17.8	15.9	15.2	14.3	13.3	12.4	-0.9
College Students	13.2	13.1	12.5	12.2	15.9	12.8	15.8	14.0	15.4	15.6‡	16.4	16.6	17.9	18.6	18.5	18.1	17.3	15.3	16.9	17.1	16.8	17.1‡	19.3	20.8	18.5	19.7	18.1	18.0	-0.1
Young Adults	14.3	14.1	13.0	13.0	13.8	13.2	13.6	13.2	13.7	14.9‡	15.4	16.3	18.1	18.8	18.5	18.4	18.1	18.9	17.4	18.5	17.6	17.2‡	18.1	21.2	19.5	19.9	20.1	19.0	-1.1
Any Illicit Drug including Inhalants [a,c,d]																													
8th Grade	16.7	18.2	21.1	24.2	27.1	28.7	27.2	26.2	25.3	24.0	23.9	21.4	20.4	20.2	20.4	19.7	18.0	19.0	18.8	20.3	18.2	17.0‡	17.6	16.8	17.0	13.5	15.8	16.0	+0.2
10th Grade	23.9	23.5	27.4	32.5	35.6	39.6	40.3	37.1	37.7	38.0	38.7	36.1	33.5	32.9	31.7	30.7	30.2	28.8	31.2	31.8	32.5	31.5‡	33.2	31.0	28.9	27.7	29.1	31.0	+2.0
12th Grade	31.2	28.8	32.5	37.6	40.2	41.9	43.3	42.4	42.8	42.5	42.6	42.1	40.5	39.1	40.3	38.0	37.0	37.3	37.6	39.2	41.5	40.2‡	42.3	39.2	40.2	38.7	41.2	40.2	-1.0
College Students	29.8	31.1	31.7	31.9	33.7	35.1	35.5	39.1	37.4	37.0	38.2	37.7	36.0	35.9	37.9	35.5	36.8	35.7	35.0	34.5	36.5	36.9‡	40.1	36.3	40.7	40.3	42.4	46.1	+3.7
Young Adults	27.8	29.2	28.9	29.2	30.4	30.2	30.1	30.6	30.6	31.2	33.2	32.4	32.7	34.9	32.8	32.6	33.2	33.5	33.1	33.3	34.2	34.2‡	38.3	35.3	37.3	38.2	40.7	42.4	+1.7
Marijuana/Hashish																													
8th Grade	6.2	7.2	9.2	13.0	15.8	18.3	17.7	16.9	16.5	15.6	15.4	14.6	12.8	11.8	12.2	11.7	10.3	10.9	11.8	13.7	12.5	11.4	12.7	11.7	11.8	9.4	10.1	10.5	+0.3
10th Grade	16.5	15.2	19.2	25.2	28.7	33.6	34.8	31.1	32.1	32.2	32.7	30.3	28.2	27.5	26.6	25.2	24.6	23.9	26.7	27.5	28.8	28.0	29.8	27.3	25.4	23.9	25.5	27.5	+2.0
12th Grade	23.9	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	32.8	34.8	36.4	36.4	36.4	35.1	34.9	35.6	37.1	35.9	-1.2
College Students	26.5	27.7	27.9	29.3	31.2	33.1	31.6	35.9	35.2	34.0	35.6	34.7	33.7	33.3	33.3	30.2	31.8	32.3	32.8	32.7	33.2	34.9	35.5	34.4	37.9	39.3	38.3	42.6	+4.3
Young Adults	23.8	25.2	25.1	25.5	26.5	27.0	26.8	27.4	27.6	27.9	29.2	29.3	29.0	29.2	28.2	27.7	28.5	28.6	29.3	28.7	31.0	30.2	32.2	31.6	34.0	35.3	37.5	39.1	+1.6
Synthetic Marijuana [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	4.0	3.3	3.1	2.7	2.0	1.6	-0.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.8	7.4	5.4	4.3	3.3	2.7	2.9	+0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.4	11.3	7.9	5.8	5.2	3.5	3.7	3.5	-0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.5	5.3	2.3	0.9	1.5	1.3	0.5	1.6	+1.1
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.4	5.3	3.2	1.3	1.5	1.0	0.9	1.6	+0.6

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Inhalants [c,d]																													
8th Grade	9.0	9.5	11.0	11.7	12.8	12.2	11.8	11.1	10.3	9.4	9.1	7.7	8.7	9.6	9.5	9.1	8.3	8.9	8.1	8.1	7.0	6.2	5.2	5.3	4.6	3.8	4.7	4.6	-0.1
10th Grade	7.1	7.5	8.4	9.1	9.6	9.5	8.7	8.0	7.2	7.3	6.6	5.8	5.4	5.9	6.0	6.5	6.6	5.9	6.1	5.7	4.5	4.1	3.5	3.3	2.9	2.4	2.3	2.4	+0.1
12th Grade	6.6	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	3.4	3.6	3.2	2.9	2.5	1.9	1.9	1.7	1.5	1.6	+0.1
College Students	3.5	3.1	3.8	3.0	3.9	3.6	4.1	3.0	3.2	2.9	2.8	2.0	1.8	2.7	1.8	1.5	1.5	1.1	1.2	1.7	0.9	1.5	0.5	1.3	0.6	0.2	1.7	1.3	-0.5
Young Adults	2.0	1.9	2.1	2.1	2.4	2.2	2.3	2.1	2.3	2.1	1.7	1.6	1.4	1.7	1.3	1.3	0.8	1.4	0.9	1.2	0.8	1.1	0.5	1.1	0.9	0.9	0.7	0.8	0.0
Hallucinogens [b,f]																													
8th Grade	1.9	2.5	2.6	2.7	3.6	4.1	3.7	3.4	2.9	2.8‡	3.4	2.6	2.6	2.2	2.4	2.1	1.9	2.1	1.9	2.2	2.2	1.6	1.6	1.3	1.3	1.2	1.1	1.4	+0.2
10th Grade	4.0	4.3	4.7	5.8	7.2	7.8	7.6	6.9	6.9	6.1‡	6.2	4.7	4.1	4.1	4.0	4.1	4.4	3.9	4.1	4.2	4.1	3.5	3.4	3.3	3.1	2.9	2.8	2.7	-0.1
12th Grade	5.8	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1‡	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	4.7	5.5	5.2	4.8	4.5	4.0	4.2	4.3	4.4	4.3	-0.2
College Students	6.3	6.8	6.0	6.2	8.2	6.9	7.7	7.2	7.8	6.7‡	7.5	6.3	7.4	5.9	5.0	5.6	4.9	5.1	4.7	4.9	4.1	4.5	4.5	4.0	4.3	4.5	4.1	5.1	+1.1
Young Adults	4.5	5.0	4.5	4.8	5.6	5.6	5.9	5.2	5.4	5.4‡	5.4	4.7	5.2	4.7	4.5	4.1	3.8	3.8	3.9	4.2	3.7	3.6	3.9	4.1	4.2	4.6	4.8	5.6	+0.8
LSD [b]																													
8th Grade	1.7	2.1	2.3	2.4	3.2	3.5	3.2	2.8	2.4	2.4	2.2	1.5	1.3	1.1	1.2	0.9	1.1	1.3	1.1	1.2	1.1	0.8	1.0	0.7	0.9	0.8	0.9	0.9	+0.1
10th Grade	3.7	4.0	4.2	5.2	6.5	6.9	6.7	5.9	6.0	5.1	4.1	2.6	1.7	1.6	1.5	1.7	1.9	1.8	1.9	1.9	1.8	1.7	1.7	1.9	2.0	2.1	2.1	2.0	-0.1
12th Grade	5.2	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	1.9	2.6	2.7	2.4	2.2	2.5	2.9	3.0	3.3	3.2	-0.2
College Students	5.1	5.7	5.1	5.2	6.9	5.2	5.0	4.4	5.4	4.3	4.0	2.1	1.4	1.2	0.7	1.4	1.3	2.6	2.0	2.1	2.0	1.9	2.6	2.2	3.0	3.1	2.8	4.1	+1.3
Young Adults	3.8	4.3	3.8	4.0	4.6	4.5	4.4	3.5	4.0	3.7	3.4	1.8	1.2	0.9	0.8	1.2	1.1	1.4	1.7	1.5	1.7	1.6	2.0	2.2	2.6	3.1	3.4	3.9	+0.6
Hallucinogens other than LSD [b]																													
8th Grade	0.7	1.1	1.0	1.3	1.7	2.0	1.8	1.6	1.5	1.4‡	2.4	2.1	2.1	1.9	2.0	1.8	1.6	1.6	1.5	1.8	1.8	1.3	1.2	1.0	0.8	0.8	0.7	0.9	+0.2
10th Grade	1.3	1.4	1.9	2.4	2.8	3.3	3.3	3.4	3.2	3.1‡	4.3	4.0	3.6	3.7	3.5	3.7	3.8	3.3	3.5	3.5	3.5	3.0	2.7	2.6	1.9	2.0	1.8	1.7	-0.1
12th Grade	2.0	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4‡	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0	4.2	4.8	4.3	4.0	3.7	3.0	2.9	2.7	2.9	2.7	-0.2
College Students	3.1	2.6	2.7	2.8	4.0	4.1	4.9	4.4	4.5	4.4‡	5.5	5.8	7.1	5.6	5.0	5.4	4.7	4.4	4.1	4.4	3.4	3.9	3.7	3.2	3.0	3.4	2.5	2.4	-0.1
Young Adults	1.7	1.9	1.9	2.0	2.5	2.8	3.1	3.0	3.0	3.4‡	3.5	4.0	4.9	4.5	4.2	3.8	3.6	3.4	3.3	3.7	3.2	2.9	3.2	3.1	3.0	3.0	3.0	3.3	+0.3
PCP [g]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7	0.9	1.1	1.0	1.0	1.3	0.9	0.7	0.8	1.4	1.3	1.0	1.1	+0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.3	0.3	0.2	0.3	0.3	0.2	0.5	0.6	0.6	0.3	0.6	0.3	0.3	0.1	0.6	0.2	0.3	0.4	0.1	0.2	0.3	*	0.2	0.1	0.0	0.4	0.1	0.7	+0.6

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Ecstasy (MDMA) [h]																													
8th Grade, original	—	—	—	—	—	2.3	2.3	1.8	1.7	3.1	3.5	2.9	2.1	1.7	1.7	1.4	1.5	1.7	1.3	2.4	1.7	1.1	1.1	0.9	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.4	1.0	0.9	1.1	+0.2
10th Grade, original	—	—	—	—	—	4.6	3.9	3.3	4.4	5.4	6.2	4.9	3.0	2.4	2.6	2.8	3.5	2.9	3.7	4.7	4.5	3.0	3.6	2.3	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.8	2.4	1.8	1.7	1.4	-0.3
12th Grade, original	—	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	4.3	4.5	5.3	3.8	4.0	3.6	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.0	3.6	2.7	2.6	2.2	-0.4
College Students																													
Original	0.9	2.0	0.8	0.5	2.4	2.8	2.4	3.9	5.5	9.1	9.2	6.8	4.4	2.2	2.9	2.6	2.2	3.7	3.1	4.3	4.2	5.8	5.3	5.0	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.9	4.2	4.7	2.5	4.3	+1.8
Young Adults																													
Original	0.8	1.0	0.8	0.7	1.6	1.7	2.1	2.9	3.6	7.2	7.5	6.2	4.5	3.5	3.0	3.0	2.5	3.3	3.1	3.5	3.6	4.1	4.2	4.8	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.1	4.4	5.1	3.6	3.9	+0.3
Salvia [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.7	1.6	1.4	1.2	0.6	0.7	0.9	0.4	0.6	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.7	3.9	2.5	2.3	1.8	1.2	0.9	0.9	0.7	-0.2
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.7	5.5	5.9	4.4	3.4	1.8	1.9	1.8	1.5	0.9	-0.6
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.8	3.5	3.1	1.5	1.0	1.1	0.4	0.7	0.3	0.9	+0.5
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	3.6	2.2	1.4	0.9	1.2	0.6	0.8	0.5	0.7	+0.1
Cocaine																													
8th Grade	1.1	1.5	1.7	2.1	2.6	3.0	2.8	3.1	2.7	2.6	2.5	2.3	2.2	2.0	2.2	2.0	2.0	1.8	1.6	1.6	1.4	1.2	1.0	1.0	0.9	0.8	0.8	0.8	0.0
10th Grade	2.2	1.9	2.1	2.8	3.5	4.2	4.7	4.7	4.9	4.4	3.6	4.0	3.3	3.7	3.5	3.2	3.4	3.0	2.7	2.2	1.9	2.0	1.9	1.5	1.8	1.3	1.4	1.5	+0.2
12th Grade	3.5	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	3.4	2.9	2.9	2.7	2.6	2.6	2.5	2.3	2.7	2.3	-0.4
College Students	3.6	3.0	2.7	2.0	3.6	2.9	3.4	4.6	4.6	4.8	4.7	4.8	5.4	6.6	5.7	5.1	5.4	4.4	4.2	3.5	3.3	3.1	2.7	4.4	4.3	4.0	4.8	5.2	+0.5
Young Adults	6.2	5.7	4.7	4.3	4.4	4.1	4.7	4.9	5.4	5.4	5.8	5.8	6.6	7.1	6.9	6.6	6.2	6.0	5.2	4.7	4.7	4.1	3.9	5.0	5.7	4.9	5.3	6.0	+0.8
Crack [i]																													
8th Grade	0.7	0.9	1.0	1.3	1.6	1.8	1.7	2.1	1.8	1.8	1.7	1.6	1.6	1.3	1.4	1.3	1.3	1.1	1.1	1.0	0.9	0.6	0.6	0.7	0.5	0.5	0.5	0.4	-0.1
10th Grade	0.9	0.9	1.1	1.4	1.8	2.1	2.2	2.5	2.4	2.2	1.8	2.3	1.6	1.7	1.7	1.3	1.3	1.3	1.2	1.0	0.9	0.8	0.8	0.5	0.7	0.4	0.6	0.6	0.0
12th Grade	1.5	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6	1.3	1.4	1.0	1.2	1.1	1.1	1.1	0.8	1.0	0.9	-0.1
College Students	0.5	0.4	0.6	0.5	1.1	0.6	0.4	1.0	0.9	0.9	0.9	0.4	1.3	1.3	0.8	1.0	0.6	0.5	0.3	0.4	0.3	0.3	0.3	0.8	0.2	0.0	0.2	0.4	+0.2
Young Adults	1.2	1.4	1.3	1.1	1.1	1.1	1.0	1.1	1.4	1.2	1.3	1.0	1.0	1.3	1.2	1.1	1.0	0.9	0.7	0.5	0.6	0.5	0.3	0.4	0.4	0.0	0.2	0.2	0.0

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Cocaine other than Crack [j]																													
8th Grade	1.0	1.2	1.3	1.7	2.1	2.5	2.2	2.4	2.3	1.9	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.4	1.3	1.3	1.1	1.0	0.8	0.8	0.8	0.6	0.6	0.7	0.0
10th Grade	2.1	1.7	1.8	2.4	3.0	3.5	4.1	4.0	4.4	3.8	3.0	3.4	2.8	3.3	3.0	2.9	3.1	2.6	2.3	1.9	1.7	1.8	1.6	1.3	1.5	1.1	1.2	1.4	+0.2
12th Grade	3.2	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	3.0	2.6	2.6	2.4	2.4	2.4	2.1	2.0	2.3	2.0	-0.4
College Students	3.2	2.4	2.5	1.8	3.3	2.3	3.0	4.2	4.2	4.1	4.1	5.0	5.1	6.3	5.0	3.8	5.3	4.2	4.2	4.0	3.0	3.0	2.8	4.1	4.2	4.7	4.4	4.6	+0.2
Young Adults	5.4	5.1	3.9	3.6	3.9	3.8	4.3	4.5	4.8	4.8	5.3	5.6	6.1	6.4	6.3	5.9	5.6	5.5	5.0	4.8	4.3	4.0	3.7	4.8	5.4	5.9	5.9	6.2	+0.3
Heroin [k,l]																													
8th Grade	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.7	0.8	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.0
10th Grade	0.5	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.6	0.6	0.5	0.5	0.3	0.2	0.2	-0.1
12th Grade	0.4	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	0.7	0.9	0.8	0.6	0.6	0.6	0.5	0.3	0.4	0.4	0.0
College Students	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.6	0.2	0.5	0.4	0.1	0.2	0.4	0.3	0.3	0.2	0.3	0.4	0.2	0.1	0.1	0.3	0.0	0.1	0.2	0.0	0.0	0.0
Young Adults	0.1	0.2	0.2	0.1	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.2	0.4	0.3	0.4	0.4	0.3	0.5	0.6	0.5	0.5	0.5	0.6	0.4	0.5	0.4	0.4	0.3	-0.1
With a Needle [l]																													
8th Grade	—	—	—	—	0.9	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.5	0.6	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.2	0.0
10th Grade	—	—	—	—	0.6	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.4	0.2	0.3	0.2	0.1	-0.1
12th Grade	—	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.7	0.6	0.4	0.4	0.5	0.3	0.3	0.2	0.3	+0.1
College Students	—	—	—	—	0.1	*	0.1	0.2	0.1	0.1	0.1	*	0.1	0.1	0.3	0.3	*	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.1	0.0	0.2	0.1	-0.2
Young Adults	—	—	—	—	0.1	0.1	0.1	0.1	0.1	*	0.3	*	*	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.1	-0.2
Without a Needle [l]																													
8th Grade	—	—	—	—	0.8	1.0	0.8	0.8	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.0
10th Grade	—	—	—	—	0.8	0.9	1.1	1.0	1.1	1.1	0.7	0.8	0.5	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.0
12th Grade	—	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	0.6	0.8	0.7	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.0
College Students	—	—	—	—	0.0	0.8	0.4	0.9	0.3	0.8	0.6	0.2	0.1	0.6	0.2	0.3	0.2	0.3	0.1	0.3	0.2	0.1	0.5	0.1	0.0	0.0	0.3	0.1	-0.2
Young Adults	—	—	—	—	0.3	0.4	0.4	0.7	0.6	0.5	0.9	0.2	0.4	0.3	0.4	0.5	0.3	0.4	0.6	0.4	0.2	0.4	0.7	0.3	0.5	0.4	0.3	0.1	-0.2
Narcotics other than Heroin [m,n]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.5	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7‡	9.4	9.3	9.5	9.0	9.0	9.2	9.1	9.2	8.7	8.7	7.9	7.1	6.1	5.4	4.8	4.2	3.4	-0.8 s
College Students	2.7	2.7	2.5	2.4	3.8	3.1	4.2	4.2	4.3	4.5	5.7‡	7.4	8.7	8.2	8.4	8.8	7.7	6.5	7.6	7.2	6.2	5.4	5.4	4.8	3.3	3.8	3.1	2.7	-0.4
Young Adults	2.5	2.5	2.2	2.5	3.0	2.9	3.3	3.4	3.8	4.1	5.0‡	7.1	8.5	9.0	8.7	9.1	8.7	9.1	8.4	9.0	7.9	7.3	7.0	6.3	5.2	5.2	4.0	3.4	-0.7

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
OxyContin [m,p,aa,bb]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	1.3	1.7	1.7	1.8	2.6	1.8	2.1	2.0	2.1	1.8	1.6	2.0	1.0	0.8	0.9	0.8	0.8	-0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.5	3.2	3.8	3.9	3.6	5.1	4.6	3.9	3.0	3.4	3.0	2.6	2.1	2.2	2.2	0.0
12th Grade	—	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3	5.2	4.7	4.9	5.1	4.9	4.3	3.6	3.3	3.7	3.4	2.7	2.3	-0.4
College Students	—	—	—	—	—	—	—	—	—	—	—	1.5	2.2	2.5	2.1	3.0	2.8	3.6	5.0	2.3	2.4	1.2	2.3	1.3	1.5	1.9	1.7	1.6	-0.2
Young Adults	—	—	—	—	—	—	—	—	—	—	—	1.9	2.6	3.1	3.1	3.1	2.9	3.9	5.2	3.2	2.8	2.3	2.8	2.5	2.5	2.1	1.9	1.9	-0.1
Vicodin [m,p,aa,bb]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	2.5	2.8	2.5	2.6	3.0	2.7	2.9	2.5	2.7	2.1	1.3	1.4	1.0	0.9	0.8	0.7	0.6	-0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	6.9	7.2	6.2	5.9	7.0	7.2	6.7	8.1	7.7	5.9	4.4	4.6	3.4	2.5	1.7	1.5	1.1	-0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	9.7	8.0	8.1	7.5	5.3	4.8	4.4	2.9	2.0	1.7	-0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	6.9	7.5	7.4	9.6	7.6	6.7	6.7	8.4	4.9	5.8	3.8	4.4	2.8	1.6	1.3	1.1	1.5	+0.4
Young Adults	—	—	—	—	—	—	—	—	—	—	—	8.2	8.6	8.9	9.3	9.1	8.9	9.1	8.9	7.8	7.1	6.3	6.2	4.8	3.8	2.7	2.7	2.4	-0.2
Amphetamines [m,o]																													
8th Grade	6.2	6.5	7.2	7.9	8.7	9.1	8.1	7.2	6.9	6.5	6.7	5.5	5.5	4.9	4.9	4.7	4.2	4.5	4.1	3.9	3.5	2.9‡	4.2	4.3	4.1	3.5	3.5	3.7	+0.2
10th Grade	8.2	8.2	9.6	10.2	11.9	12.4	12.1	10.7	10.4	11.1	11.7	10.7	9.0	8.5	7.8	7.9	8.0	6.4	7.1	7.6	6.6	6.5‡	7.9	7.6	6.8	6.1	5.6	5.7	0.0
12th Grade	8.2	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	6.6	7.4	8.2	7.9‡	9.2	8.1	7.7	6.7	5.9	5.5	-0.4
College Students	3.9	3.6	4.2	4.2	5.4	4.2	5.7	5.1	5.8	6.6	7.2	7.0	7.1	7.0	6.7	6.0	6.9	5.7	7.5	9.0	9.3	11.1‡	9.6	10.1	9.7	9.8	8.6	8.3	-0.2
Young Adults	4.3	4.1	4.0	4.5	4.6	4.2	4.6	4.5	4.7	5.4	5.8	5.9	5.8	6.2	5.1	5.6	5.6	5.3	6.0	7.1	7.2	7.8‡	7.5	8.0	7.9	7.2	7.8	7.5	-0.3
Ritalin [m,p,q,bb]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	2.9	2.8	2.6	2.5	2.4	2.6	2.1	1.6	1.8	1.5	1.3	0.7	1.1	0.9	0.6	0.8	0.4	0.5	+0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	4.8	4.8	4.1	3.4	3.4	3.6	2.8	2.9	3.6	2.7	2.6	1.9	1.8	1.8	1.6	1.2	0.8	0.9	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4	3.8	3.4	2.1	2.7	2.6	2.6	2.3	1.8	2.0	1.2	1.3	0.9	-0.4
College Students	—	—	—	—	—	—	—	—	—	—	—	5.7	4.7	4.7	4.2	3.9	3.7	3.2	1.7	1.9	2.3	1.8	3.6	1.6	2.0	2.4	1.4	1.3	-0.2
Young Adults	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9	2.7	2.5	2.6	2.4	2.4	1.7	1.7	1.5	1.6	2.0	1.6	1.8	1.2	1.2	1.5	+0.3
Adderall [m,p,q,bb]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	2.3	1.7	1.7	1.8	1.3	1.0	1.5	1.3	1.8	+0.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.7	5.3	4.6	4.5	4.4	4.6	5.2	4.2	4.0	4.1	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.4	6.5	6.5	7.6	7.4	6.8	7.5	6.2	5.5	4.6	-1.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.2	9.0	9.8	9.0	10.7	9.6	10.7	9.9	9.4	11.0	+1.6
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.8	7.0	6.6	7.4	7.0	7.8	7.7	7.2	8.3	9.1	+0.7

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Methamphetamine [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	3.2	2.5	2.8	2.2	2.5	1.5	1.8	1.8	1.1	1.2	1.0	1.2	0.8	1.0	1.0	0.6	0.5	0.4	0.5	0.4	-0.1
10th Grade	—	—	—	—	—	—	—	—	4.6	4.0	3.7	3.9	3.3	3.0	2.9	1.8	1.6	1.5	1.6	1.6	1.4	1.0	1.0	0.8	0.8	0.4	0.4	0.4	0.0
12th Grade	—	—	—	—	—	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5	1.7	1.2	1.2	1.0	1.4	1.1	0.9	1.0	0.6	0.6	0.6	0.5	-0.1
College Students	—	—	—	—	—	—	—	—	3.3	1.6	2.4	1.2	2.6	2.9	1.7	1.2	0.4	0.5	0.3	0.4	0.2	0.0	0.4	0.1	0.5	0.0	0.4	0.4	-0.1
Young Adults	—	—	—	—	—	—	—	—	2.8	2.5	2.8	2.5	2.7	2.8	2.4	1.9	1.5	1.0	0.9	0.7	0.5	1.0	0.6	0.5	0.7	0.4	0.6	1.2	+0.5
Crystal Methamphetamine (Ice) [q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9	1.6	1.1	0.9	0.9	1.2	0.8	1.1	0.8	0.5	0.8	0.8	0.6	-0.2
College Students	0.1	0.2	0.7	0.8	1.1	0.3	0.8	1.0	0.5	0.5	0.6	0.8	0.9	1.1	1.4	0.6	0.7	0.1	0.1	0.5	0.1	0.6	0.0	0.0	0.0	0.0	0.4	0.0	-0.4
Young Adults	0.3	0.4	0.8	0.9	1.2	0.9	0.9	1.1	0.9	1.2	1.1	1.4	1.3	1.5	1.6	1.1	1.1	0.8	0.8	0.5	0.5	0.6	0.8	0.3	0.5	0.1	0.7	0.4	-0.3
Bath Salts (Synthetic stimulants) [p,q,qq]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	1.0	0.5	0.4	0.9	0.5	0.9	+0.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.6	0.9	0.9	0.7	0.8	0.4	0.5	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	0.9	0.9	1.0	0.8	0.6	0.6	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.1	0.2	0.1	0.0	0.2	0.0	-0.2
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	0.4	0.4	0.3	0.3	0.4	0.3	-0.1
Sedatives (Barbiturates) [m,r]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.4	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0‡	6.5	7.2	6.6	6.2	5.8	5.2	4.8	4.3	4.5	4.8	4.3	3.6	3.0	2.9	2.7	-0.3
College Students	1.2	1.4	1.5	1.2	2.0	2.3	3.0	2.5	3.2	3.7	3.8	3.7	4.1	4.2	3.9	3.4	3.6	3.7	3.1	2.5	1.7	2.2‡	2.7	3.1	2.3	2.1	1.9	1.5	-0.4
Young Adults	1.8	1.6	1.9	1.8	2.1	2.2	2.4	2.5	2.8	3.4	3.7	3.9	3.9	4.4	4.2	3.9	4.2	4.7	3.8	3.3	3.2	2.7‡	3.4	3.2	2.7	2.6	2.2	2.5	+0.3
Tranquilizers [b,m]																													
8th Grade	1.8	2.0	2.1	2.4	2.7	3.3	2.9	2.6	2.5	2.6‡	2.8	2.6	2.7	2.5	2.8	2.6	2.4	2.4	2.6	2.8	2.0	1.8	1.8	1.7	1.7	1.7	2.0	2.0	+0.1
10th Grade	3.2	3.5	3.3	3.3	4.0	4.6	4.9	5.1	5.4	5.6‡	7.3	6.3	5.3	5.1	4.8	5.2	5.3	4.6	5.0	5.1	4.5	4.3	3.7	3.9	3.9	4.1	4.1	3.9	-0.2
12th Grade	3.6	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7‡	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	6.3	5.6	5.6	5.3	4.6	4.7	4.7	4.9	4.7	3.9	-0.8 s
College Students	2.4	2.9	2.4	1.8	2.9	2.8	3.8	3.9	3.8	4.2‡	5.1	6.7	6.9	6.7	6.4	5.8	5.5	5.0	5.4	4.9	4.2	3.4	4.4	3.5	4.3	4.9	3.6	3.5	-0.1
Young Adults	3.5	3.4	3.1	2.9	3.4	3.2	3.1	3.8	3.7	4.6‡	5.5	7.0	6.8	7.4	6.7	6.5	7.1	6.8	6.4	6.3	5.9	5.3	5.4	4.8	5.0	5.0	4.7	4.0	-0.7

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any Prescription Drug [o,t]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.1	16.8	15.8	15.4	14.4	15.0	15.2	14.8‡	15.9	13.9	12.9	12.0	10.9	9.9	-1.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Over-the-counter Cough/Cold Medicines [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.2	4.0	3.6	3.8	3.2	2.7	3.0	2.9	2.0	1.6	2.6	2.1	2.8	+0.7
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	5.4	5.3	6.0	5.1	5.5	4.7	4.3	3.7	3.3	3.0	3.6	3.3	-0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	5.8	5.5	5.9	6.6	5.3	5.6	5.0	4.1	4.6	4.0	3.2	3.4	+0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol [u]																													
8th Grade	—	—	—	—	—	1.0	0.8	0.8	0.5	0.5	0.7	0.3	0.5	0.6	0.7	0.5	0.7	0.5	0.4	0.5	0.8	0.4	0.4	0.3	0.3	0.5	0.4	0.3	-0.1
10th Grade	—	—	—	—	—	1.1	1.3	1.2	1.0	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.7	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.2	0.5	0.3	0.3	0.0
12th Grade	—	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9‡	1.6	1.3	1.6	1.2	1.1	1.0	1.3	1.0	1.5	1.3	1.5	0.9	0.7	1.0	1.1	0.8	0.7	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	0.7	0.4	0.3	0.1	0.2	0.1	0.3	0.0	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	0.3	0.5	0.1	0.1	0.2	0.3	0.2	0.1	—	—	—	—	—	—	—	—	—	—
GHB [p,cc]																													
8th Grade	—	—	—	—	—	—	—	—	—	1.2	1.1	0.8	0.9	0.7	0.5	0.8	0.7	1.1	0.7	0.6	0.6	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	1.1	1.0	1.4	1.4	0.8	0.8	0.7	0.6	0.5	1.0	0.6	0.5	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1	0.9	1.2	1.1	1.4	1.4	1.4	1.0	1.0	0.7	0.9	0.4	0.3	-0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	0.6	0.3	0.7	0.4	*	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.2	0.0	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	0.8	0.6	0.5	0.3	0.2	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	—	—	—	—
Ketamine [p,dd,rr]																													
8th Grade	—	—	—	—	—	—	—	—	—	1.6	1.3	1.3	1.1	0.9	0.6	0.9	1.0	1.2	1.0	1.0	0.8	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	2.1	2.1	2.2	1.9	1.3	1.0	1.0	0.8	1.0	1.3	1.1	1.2	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4	1.3	1.5	1.7	1.6	1.7	1.5	1.4	1.5	1.4	1.2	1.2	0.7	-0.4
College Students	—	—	—	—	—	—	—	—	—	—	—	1.3	1.0	1.5	0.5	0.9	0.2	0.4	0.1	0.7	0.6	0.4	0.9	0.1	0.6	0.5	0.3	0.9	+0.6
Young Adults	—	—	—	—	—	—	—	—	—	—	—	1.2	0.9	0.6	0.5	0.5	0.3	0.4	0.5	0.8	0.5	0.8	0.5	0.4	0.7	0.7	0.5	0.9	+0.4

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Alcohol [v]																													
Any Use																													
8th Grade	54.0	53.7‡	45.4	46.8	45.3	46.5	45.5	43.7	43.5	43.1	41.9	38.7	37.2	36.7	33.9	33.6	31.8	32.1	30.3	29.3	26.9	23.6	22.1	20.8	21.0	17.6	18.2	18.7	+0.5
10th Grade	72.3	70.2‡	63.4	63.9	63.5	65.0	65.2	62.7	63.7	65.3	63.5	60.0	59.3	58.2	56.7	55.8	56.3	52.5	52.8	52.1	49.8	48.5	47.1	44.0	41.9	38.3	37.7	37.8	+0.1
12th Grade	77.7	76.8‡	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5	66.4	65.5	66.2	65.2	63.5	63.5	62.0	60.2	58.2	55.6	55.7	53.3	-2.4
College Students	88.3	86.9	85.1	82.7	83.2	82.9	82.4	84.6	83.6	83.2	83.0	82.9	81.7	81.2	83.0	82.1	80.9	82.1	79.4	78.6	77.4	79.2	75.6	76.1	79.0	78.9	75.8	74.6	-1.2
Young Adults	86.9	86.2	85.3	83.7	84.7	84.0	84.3	84.0	84.1	84.0	84.3	84.9	83.3	84.4	83.8	84.4	84.0	83.6	83.8	82.7	83.5	82.5	82.5	82.3	81.2	82.1	81.2	81.6	+0.4
Been Drunk [w]																													
8th Grade	17.5	18.3	18.2	18.2	18.4	19.8	18.4	17.9	18.5	18.5	16.6	15.0	14.5	14.5	14.1	13.9	12.6	12.7	12.2	11.5	10.5	8.6	8.4	7.3	7.7	5.7	6.4	6.5	+0.1
10th Grade	40.1	37.0	37.8	38.0	38.5	40.1	40.7	38.3	40.9	41.6	39.9	35.4	34.7	35.1	34.2	34.5	34.4	30.0	31.2	29.9	28.8	28.2	27.1	24.6	23.4	20.5	20.4	20.9	+0.5
12th Grade	52.7	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9	46.1	45.6	47.0	44.0	42.2	45.0	43.5	41.4	37.7	37.3	35.6	33.9	-1.7
College Students	69.1	67.3	65.6	63.1	62.1	64.2	66.8	67.0	65.4	64.7	68.8	66.0	64.7	67.1	64.2	66.2	64.8	66.8	61.5	63.8	60.1	61.5	57.9	60.5	61.6	60.7	58.0	59.2	+1.2
Young Adults	62.0	60.9	61.1	58.8	61.6	59.9	63.2	59.6	63.2	60.6	63.1	61.8	62.9	63.8	63.5	65.7	65.8	66.0	65.5	64.8	64.0	64.6	63.1	63.5	61.2	61.0	60.9	62.6	+1.7
Flavored Alcoholic Beverages [g,p,ee]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	30.4	27.9	26.8	26.0	25.0	22.2	21.9	19.2	17.0	15.7	13.4	13.4	11.2	10.8	12.1	+1.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	49.7	48.5	48.8	45.9	43.4	41.5	41.0	38.3	37.8	35.6	33.2	31.4	26.1	28.3	28.8	+0.5
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	55.2	55.8	58.4	54.7	53.6	51.8	53.4	47.9	47.0	44.4	44.2	43.6	42.8	40.0	39.6	38.4	-1.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	63.2	67.0	63.5	62.6	65.0	66.1	60.3	63.0	58.1	57.6	64.2	64.5	68.5	60.3	58.4	-1.9
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	62.7	58.4	58.5	58.9	58.3	57.0	52.0	56.3	54.8	54.1	55.4	57.3	57.8	54.8	57.1	+2.3
Alcoholic Beverages containing Caffeine [p,w,ss]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8‡	10.9	10.2	9.5	8.4	6.5	5.6	6.0	+0.4
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5‡	19.7	16.9	14.3	12.8	10.6	9.9	9.8	-0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.4‡	26.4	23.5	20.0	18.3	17.0	16.9	14.7	-2.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.6‡	33.8	39.1	32.8	34.1	29.4	31.3	27.4	-3.9
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.1‡	36.7	36.9	35.0	33.5	29.6	31.8	29.9	-1.9
Cigarettes																													
Any Use																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
College Students	35.6	37.3	38.8	37.6	39.3	41.4	43.6	44.3	44.5	41.3	39.0	38.3	35.2	36.7	36.0	30.9	30.7	30.0	29.9	28.1	25.8	23.4	23.2	22.6	20.1	18.7	16.7	15.5	-1.3
Young Adults	37.7	37.9	37.8	38.3	38.8	40.3	41.8	41.6	41.1	40.9	41.1	39.1	38.6	39.0	39.1	36.9	36.2	35.0	33.9	33.0	31.5	29.8	29.8	27.0	26.2	23.4	23.9	22.5	-1.4

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Tobacco using a Hookah [s,ss,tt]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.1	18.5	18.3	21.4	22.9	19.8	13.0	10.1	7.8	-2.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.9	25.7	26.1	32.7	23.4	16.9	10.0	11.4	+1.4
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.1	19.1	20.4	23.3	19.2	14.8	12.2	13.3	+1.2
Small Cigars [s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.1	19.5	19.9	20.4	18.9	15.9	15.6	13.3	9.2	-4.1 ss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.6	20.3	19.0	24.2	19.6	17.6	14.0	15.6	+1.6
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.2	18.0	18.4	18.6	17.9	15.5	16.0	15.9	-0.1
Dissolvable Tobacco [p,s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.0	1.1	1.1	0.9	0.7	0.6	0.6	-0.1
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	1.2	1.3	1.1	0.9	0.6	1.1	+0.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.6	1.9	1.1	1.4	1.1	1.4	1.3	-0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0	0.3	0.2	0.5	1.1	0.3	0.7	0.0	-0.7
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.6	0.3	0.5	0.4	0.5	0.8	0.4	-0.4
Snus [p,s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.4	2.0	2.2	1.9	2.2	1.1	1.3	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	5.2	4.5	4.0	3.0	2.6	3.1	+0.5
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.9	7.9	7.7	5.8	5.8	5.8	4.2	4.7	+0.6
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.5	4.7	4.8	5.0	5.8	3.3	4.3	1.0	-3.3
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	5.7	4.8	4.8	4.8	3.6	4.6	3.8	-0.8
Any Vaping [jj,uu,vv]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.3	17.6	+4.3 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.9	32.3	+8.5 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.8	37.3	+9.4 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.5	32.4	+8.9 s
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.0	27.3	+4.3 s

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Vaping Nicotine [jj,ww,xx]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.5	10.9	+3.4 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15.8	24.7	+8.9 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8	29.7	+10.9 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	25.6	+12.6 sss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	18.2	+3.8 s
Vaping Marijuana [jj,yy]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	4.4	+1.3 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1	12.4	+4.2 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.5	13.1	+3.6 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.7	20.2	+9.4 ss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.6	15.6	+3.1 s
Vaping Just Flavoring [jj]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	15.1	+3.2 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.3	24.7	+5.4 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.6	25.7	+5.2 ss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	14.0	+0.9
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.9	9.9	0.0
Steroids [y,z]																													
8th Grade	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4	1.1	1.1	0.9	0.8	0.9	0.8	0.5	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.0
10th Grade	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7	1.5	1.3	1.2	1.1	0.9	0.8	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	-0.1
12th Grade	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	1.5	1.5	1.2	1.3	1.5	1.5	1.7	1.0	1.1	1.1	+0.1
College Students	0.6	0.2	0.9	0.2	0.4	0.2	0.7	0.2	0.9	0.1	0.6	0.5	0.3	0.6	0.5	0.8	0.6	0.1	0.7	0.3	0.2	0.3	0.8	0.5	0.3	0.0	0.6	0.0	-0.6
Young Adults	0.5	0.4	0.3	0.4	0.5	0.3	0.5	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.3	0.7	0.4	0.7	0.8	0.2	0.4	0.5	0.7	0.5	0.4	0.3	0.4	+0.1
Previously surveyed drugs that have been dropped																													
Nitrites [e]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.9	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5	0.8	0.6	0.9	—	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.2	0.1	0.4	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 2-2 (cont.)
Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Provigil [m,q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8	1.3	1.5	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.0	0.2	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	0.5	0.3	—	—	—	—	—	—	—	—
Methaqualone [m,s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8	0.5	0.5	0.6	0.3	0.3	0.4	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bidis [p,ff]																													
8th Grade	—	—	—	—	—	—	—	—	—	3.9	2.7	2.7	2.0	1.7	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	6.4	4.9	3.1	2.8	2.1	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3	1.7	1.9	1.5	1.4	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kreteks [p,ff]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	2.6	2.6	2.0	1.9	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	6.0	4.9	3.8	3.7	2.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2	6.8	6.8	5.5	4.6	2.9	3.0	1.6	1.6	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

See footnotes following Table 2-4.

TABLE 2-3
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any Illicit Drug [a]																													
8th Grade	5.7	6.8	8.4	10.9	12.4	14.6	12.9	12.1	12.2	11.9	11.7	10.4	9.7	8.4	8.5	8.1	7.4	7.6	8.1	9.5	8.5	7.7‡	8.7	8.3	8.1	6.9	7.0	7.3	+0.3
10th Grade	11.6	11.0	14.0	18.5	20.2	23.2	23.0	21.5	22.1	22.5	22.7	20.8	19.5	18.3	17.3	16.8	16.9	15.8	17.8	18.5	19.2	18.6‡	19.2	18.5	16.5	15.9	17.2	18.3	+1.0
12th Grade	16.4	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5	21.9	22.3	23.3	23.8	25.2	25.2‡	25.2	23.7	23.6	24.4	24.9	24.0	-0.9
College Students	15.2	16.1	15.1	16.0	19.1	17.6	19.2	19.7	21.6	21.5	21.9	21.5	21.4	21.2	19.5	19.2	19.3	18.9	20.7	19.2	21.4	22.3‡	22.8	22.7	23.4	24.3	23.3	26.3	+3.0
Young Adults	15.1	14.8	14.9	15.3	15.8	15.8	16.4	16.1	17.1	18.1	18.8	18.9	19.9	19.1	18.6	18.5	18.9	19.3	19.8	18.9	20.6	19.9‡	21.6	22.3	23.2	23.5	24.7	25.9	+1.1
Any Illicit Drug other than Marijuana [a,b]																													
8th Grade	3.8	4.7	5.3	5.6	6.5	6.9	6.0	5.5	5.5	5.6‡	5.5	4.7	4.7	4.1	4.1	3.8	3.6	3.8	3.5	3.5	3.4	2.6‡	3.6	3.3	3.1	2.7	2.7	3.0	+0.3
10th Grade	5.5	5.7	6.5	7.1	8.9	8.9	8.8	8.6	8.6	8.5‡	8.7	8.1	6.9	6.9	6.4	6.3	6.9	5.3	5.7	5.8	5.4	5.0‡	4.9	5.6	4.9	4.4	4.5	4.2	-0.3
12th Grade	7.1	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4‡	11.0	11.3	10.4	10.8	10.3	9.8	9.5	9.3	8.6	8.6	8.9	8.4‡	8.2	7.7	7.6	6.9	6.3	6.0	-0.3
College Students	4.3	4.6	5.4	4.6	6.3	4.5	6.8	6.1	6.4	6.9‡	7.5	7.8	8.2	9.1	8.2	8.2	8.1	7.3	8.4	8.1	8.2	7.8‡	8.8	10.0	9.2	8.4	7.0	7.6	+0.6
Young Adults	5.4	5.5	4.9	5.3	5.7	4.7	5.5	5.5	6.0	6.4‡	7.0	7.7	8.3	8.5	8.2	8.1	8.6	8.9	8.5	8.6	8.4	7.8‡	8.3	9.9	8.7	9.2	8.7	8.0	-0.6
Any Illicit Drug including Inhalants [a,c,d]																													
8th Grade	8.8	10.0	12.0	14.3	16.1	17.5	16.0	14.9	15.1	14.4	14.0	12.6	12.1	11.2	11.2	10.9	10.1	10.4	10.6	11.7	10.5	9.5‡	10.0	9.5	9.3	7.9	8.6	8.3	-0.4
10th Grade	13.1	12.6	15.5	20.0	21.6	24.5	24.1	22.5	23.1	23.6	23.6	21.7	20.5	19.3	18.4	17.7	18.1	16.8	18.8	19.4	20.1	19.3‡	20.0	19.1	17.1	16.4	18.0	18.7	+0.8
12th Grade	17.8	15.5	19.3	23.0	24.8	25.5	26.9	26.6	26.4	26.4	26.5	25.9	24.6	23.3	24.2	22.1	22.8	22.8	24.1	24.5	26.2	25.2‡	26.5	24.3	24.7	24.6	25.7	25.0	-0.6
College Students	15.1	16.5	15.7	16.4	19.6	18.0	19.6	21.0	21.8	22.6	21.9	21.9	21.6	21.7	19.0	19.7	18.1	18.9	21.3	20.5	20.6	20.0‡	23.5	21.1	23.3	24.1	23.4	26.9	+3.6
Young Adults	15.4	15.3	15.1	16.1	16.1	16.4	16.9	16.7	17.4	18.8	19.2	19.5	20.1	19.6	18.0	18.4	19.1	19.3	20.3	19.6	20.3	19.1‡	23.5	20.9	22.7	23.2	24.4	25.9	+1.5
Marijuana/Hashish [zz]																													
8th Grade	3.2	3.7	5.1	7.8	9.1	11.3	10.2	9.7	9.7	9.1	9.2	8.3	7.5	6.4	6.6	6.5	5.7	5.8	6.5	8.0	7.2	6.5	7.0	6.5	6.5	5.4	5.5	5.6	+0.1
10th Grade	8.7	8.1	10.9	15.8	17.2	20.4	20.5	18.7	19.4	19.7	19.8	17.8	17.0	15.9	15.2	14.2	14.2	13.8	15.9	16.7	17.6	17.0	18.0	16.6	14.8	14.0	15.7	16.7	+0.9
12th Grade	13.8	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3	18.8	19.4	20.6	21.4	22.6	22.9	22.7	21.2	21.3	22.5	22.9	22.2	-0.7
College Students	14.1	14.6	14.2	15.1	18.6	17.5	17.7	18.6	20.7	20.0	20.2	19.7	19.3	18.9	17.1	16.7	16.8	17.0	18.5	17.5	19.4	20.5	20.6	20.8	21.1	22.2	21.2	24.7	+3.5
Young Adults	13.5	13.3	13.4	14.1	14.0	15.1	15.0	14.9	15.6	16.1	16.7	16.9	17.3	16.5	15.8	15.7	16.0	16.0	17.0	16.1	18.3	17.7	19.0	19.2	20.1	21.6	23.0	24.1	+1.1
Inhalants [c,d]																													
8th Grade	4.4	4.7	5.4	5.6	6.1	5.8	5.6	4.8	5.0	4.5	4.0	3.8	4.1	4.5	4.2	4.1	3.9	4.1	3.8	3.6	3.2	2.7	2.3	2.2	2.0	1.8	2.1	1.8	-0.4
10th Grade	2.7	2.7	3.3	3.6	3.5	3.3	3.0	2.9	2.6	2.6	2.4	2.4	2.2	2.4	2.2	2.3	2.5	2.1	2.2	2.0	1.7	1.4	1.3	1.1	1.2	1.0	1.1	1.0	-0.1
12th Grade	2.4	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5	1.2	1.4	1.2	1.4	1.0	0.9	1.0	0.7	0.7	0.8	0.8	0.7	-0.2
College Students	0.9	1.1	1.3	0.6	1.6	0.8	0.8	0.6	1.5	0.9	0.4	0.7	0.4	0.4	0.3	0.4	0.1	0.4	0.1	0.5	0.3	0.2	0.1	0.3	0.2	0.0	0.9	0.2	-0.7
Young Adults	0.5	0.6	0.7	0.5	0.7	0.5	0.5	0.7	0.8	0.5	0.4	0.5	0.3	0.3	0.2	0.3	0.2	0.4	0.2	0.1	0.1	0.3	0.1	0.3	0.2	0.3	0.4	0.3	-0.1

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Hallucinogens [b,f]																													
8th Grade	0.8	1.1	1.2	1.3	1.7	1.9	1.8	1.4	1.3	1.2‡	1.6	1.2	1.2	1.0	1.1	0.9	1.0	0.9	0.9	1.0	1.0	0.6	0.8	0.5	0.6	0.6	0.5	0.6	+0.1
10th Grade	1.6	1.8	1.9	2.4	3.3	2.8	3.3	3.2	2.9	2.3‡	2.1	1.6	1.5	1.6	1.5	1.5	1.7	1.3	1.4	1.6	1.4	1.2	1.1	1.2	0.9	0.9	1.1	0.8	-0.3
12th Grade	2.2	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6‡	3.3	2.3	1.8	1.9	1.9	1.5	1.7	2.2	1.6	1.9	1.6	1.6	1.4	1.5	1.6	1.4	1.6	1.4	-0.1
College Students	1.2	2.3	2.5	2.1	3.3	1.9	2.1	2.1	2.0	1.4‡	1.8	1.2	1.8	1.3	1.2	0.9	1.3	1.7	1.0	1.4	1.2	1.1	1.0	1.0	1.4	0.8	1.2	1.1	-0.1
Young Adults	1.1	1.5	1.2	1.4	1.7	1.2	1.5	1.4	1.3	1.2‡	1.2	0.9	1.2	0.9	0.8	0.7	0.9	0.9	0.8	1.0	0.9	0.6	1.0	0.9	1.1	0.8	0.9	1.2	+0.3
LSD [b]																													
8th Grade	0.6	0.9	1.0	1.1	1.4	1.5	1.5	1.1	1.1	1.0	1.0	0.7	0.6	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.3	0.5	0.3	0.4	0.4	0.3	0.4	+0.1
10th Grade	1.5	1.6	1.6	2.0	3.0	2.4	2.8	2.7	2.3	1.6	1.5	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.5	0.7	0.7	0.5	0.6	0.6	0.6	0.7	0.8	0.5	-0.3 s
12th Grade	1.9	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6	0.6	1.1	0.5	0.8	0.8	0.8	0.8	1.0	1.1	1.0	1.2	1.0	-0.2
College Students	0.8	1.8	1.6	1.8	2.5	0.9	1.1	1.5	1.2	0.9	1.0	0.2	0.2	0.2	0.1	0.3	0.3	0.8	0.3	0.7	0.5	0.4	0.4	0.5	0.7	0.4	0.8	1.0	+0.1
Young Adults	0.8	1.1	0.8	1.1	1.3	0.7	0.9	1.0	0.8	0.8	0.7	0.3	0.2	0.1	0.1	0.2	0.2	0.4	0.2	0.4	0.3	0.3	0.4	0.4	0.7	0.6	0.6	0.8	+0.2
Hallucinogens other than LSD [b]																													
8th Grade	0.3	0.4	0.5	0.7	0.8	0.9	0.7	0.7	0.6	0.6‡	1.1	1.0	1.0	0.8	0.9	0.7	0.7	0.7	0.7	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.4	+0.1
10th Grade	0.4	0.5	0.7	1.0	1.0	1.0	1.2	1.4	1.2	1.2‡	1.4	1.4	1.2	1.4	1.3	1.3	1.4	1.0	1.1	1.2	1.1	0.9	0.8	0.8	0.6	0.5	0.6	0.5	-0.1
12th Grade	0.7	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7‡	1.9	2.0	1.5	1.7	1.6	1.3	1.4	1.6	1.4	1.5	1.2	1.3	1.0	1.0	0.9	0.7	1.0	0.9	-0.1
College Students	0.6	0.7	1.1	0.8	1.6	1.2	1.2	0.7	1.2	0.8‡	0.8	1.1	1.7	1.2	1.1	0.7	1.1	1.3	0.8	1.2	0.8	0.7	0.8	0.7	0.9	0.5	0.6	0.4	-0.2
Young Adults	0.3	0.5	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.7‡	0.6	0.8	1.2	0.9	0.8	0.6	0.8	0.7	0.7	0.8	0.6	0.4	0.7	0.6	0.5	0.3	0.6	0.6	+0.1
PCP [g]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4	0.5	0.6	0.5	0.8	0.8	0.5	0.4	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.1	0.2	0.2	0.1	*	0.1	0.1	0.2	0.2	*	*	0.1	0.1	0.1	*	*	*	0.1	*	0.0	0.1	0.0	0.2	0.1	0.0	0.1	0.1	0.4	+0.3
Ecstasy (MDMA) [h]																													
8th Grade, original	—	—	—	—	—	1.0	1.0	0.9	0.8	1.4	1.8	1.4	0.7	0.8	0.6	0.7	0.6	0.8	0.6	1.1	0.6	0.5	0.5	0.4	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.7	0.5	0.3	0.4	0.4	+0.1
10th Grade, original	—	—	—	—	—	1.8	1.3	1.3	1.8	2.6	2.6	1.8	1.1	0.8	1.0	1.2	1.2	1.1	1.3	1.9	1.6	1.0	1.2	0.8	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1	0.9	0.5	0.5	0.4	-0.1
12th Grade, original	—	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3	1.6	1.8	1.8	1.4	2.3	0.9	1.5	1.4	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.1	0.9	0.9	0.5	-0.4 s
College Students																													
Original	0.2	0.4	0.3	0.2	0.7	0.7	0.8	0.8	2.1	2.5	1.5	0.7	1.0	0.7	0.8	0.6	0.4	0.6	0.5	1.0	0.7	1.4	0.8	1.4	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.0	0.7	1.0	0.5	1.3	+0.8
Young Adults																													
Original	0.1	0.3	0.3	0.2	0.4	0.3	0.6	0.8	1.3	1.9	1.8	1.3	0.8	0.6	0.6	0.7	0.5	0.6	0.6	0.8	0.7	1.0	1.1	1.3	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.4	0.8	1.3	0.8	1.1	+0.3

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Cocaine																													
8th Grade	0.5	0.7	0.7	1.0	1.2	1.3	1.1	1.4	1.3	1.2	1.2	1.1	0.9	0.9	1.0	1.0	0.9	0.8	0.8	0.6	0.8	0.5	0.5	0.5	0.5	0.3	0.4	0.3	-0.1
10th Grade	0.7	0.7	0.9	1.2	1.7	1.7	2.0	2.1	1.8	1.8	1.3	1.6	1.3	1.7	1.5	1.5	1.3	1.2	0.9	0.9	0.7	0.8	0.8	0.6	0.8	0.4	0.5	0.6	+0.1
12th Grade	1.4	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5	2.0	1.9	1.3	1.3	1.1	1.1	1.1	1.0	1.1	0.9	1.2	1.1	0.0
College Students	1.0	1.0	0.7	0.6	0.7	0.8	1.6	1.6	1.2	1.4	1.9	1.6	1.9	2.4	1.8	1.8	1.7	1.2	1.3	1.0	1.2	1.1	0.9	1.8	1.5	1.4	1.3	2.2	+0.9
Young Adults	2.0	1.8	1.4	1.3	1.5	1.2	1.6	1.7	1.9	1.7	2.2	2.2	2.4	2.2	2.2	2.3	2.1	1.9	1.8	1.4	1.5	1.3	1.5	1.8	1.7	1.8	1.9	2.1	+0.2
Crack [i]																													
8th Grade	0.3	0.5	0.4	0.7	0.7	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.2	-0.1
10th Grade	0.3	0.4	0.5	0.6	0.9	0.8	0.9	1.1	0.8	0.9	0.7	1.0	0.7	0.8	0.7	0.7	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.3	-0.1
12th Grade	0.7	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9	0.9	0.8	0.6	0.7	0.5	0.6	0.6	0.7	0.6	0.5	0.6	0.5	-0.1
College Students	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.1	0.3	0.4	0.4	0.1	*	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.2	+0.2
Young Adults	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.2	+0.1
Cocaine other than Crack [j]																													
8th Grade	0.5	0.5	0.6	0.9	1.0	1.0	0.8	1.0	1.1	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.5	0.6	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.0
10th Grade	0.6	0.6	0.7	1.0	1.4	1.3	1.6	1.8	1.6	1.6	1.2	1.3	1.1	1.5	1.3	1.3	1.1	1.0	0.8	0.7	0.6	0.7	0.7	0.5	0.7	0.3	0.4	0.5	+0.2
12th Grade	1.2	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4	1.7	1.7	1.1	1.1	1.0	1.0	0.9	0.9	1.1	0.6	1.1	1.0	-0.1
College Students	1.0	0.9	0.6	0.3	0.8	0.6	1.3	1.5	1.0	0.9	1.5	1.4	1.9	2.2	1.8	1.3	1.6	1.1	1.2	1.0	1.2	1.3	0.9	1.8	1.4	1.7	1.1	1.9	+0.9
Young Adults	1.8	1.7	1.1	1.0	1.3	1.1	1.5	1.5	1.6	1.5	1.8	2.0	2.1	2.1	1.9	1.9	2.0	1.7	1.6	1.5	1.4	1.3	1.3	1.8	1.6	2.0	1.9	2.3	+0.4
Heroin [k,l]																													
8th Grade	0.3	0.4	0.4	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.1	0.2	0.2	0.1	-0.1
10th Grade	0.2	0.2	0.3	0.4	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.0
12th Grade	0.2	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.2	-0.1
College Students	0.1	*	*	*	0.1	*	0.2	0.1	0.1	0.2	0.1	*	*	0.1	0.1	0.2	0.1	*	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.0
Young Adults	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	*	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	-0.1
With a Needle [l]																													
8th Grade	—	—	—	—	0.4	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	-0.1
10th Grade	—	—	—	—	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.0
12th Grade	—	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	+0.0
College Students	—	—	—	—	*	*	0.1	*	0.1	0.1	*	*	0.1	0.1	0.1	0.1	*	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Young Adults	—	—	—	—	*	*	0.1	*	0.1	*	0.2	*	*	0.1	0.1	0.1	*	*	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.0

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Without a Needle [l]																													
8th Grade	—	—	—	—	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	-0.1
10th Grade	—	—	—	—	0.3	0.3	0.4	0.5	0.5	0.4	0.2	0.4	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0
12th Grade	—	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3	0.4	0.2	0.3	0.4	0.4	0.2	0.2	0.4	0.3	0.1	0.2	0.1	0.0
College Students	—	—	—	—	*	0.1	0.2	0.2	0.3	0.4	0.3	*	*	0.3	*	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.2	0.0	-0.1
Young Adults	—	—	—	—	0.1	*	0.1	0.2	0.2	0.2	0.4	*	0.1	0.1	0.1	0.3	0.2	*	0.3	0.1	0.1	0.1	0.4	0.1	0.2	0.3	0.2	0.0	-0.1
Narcotics other than Heroin [m,n]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0‡	4.0	4.1	4.3	3.9	3.8	3.8	3.8	4.1	3.6	3.6	3.0	2.8	2.2	2.1	1.7	1.6	1.1	-0.5 ss
College Students	0.6	1.0	0.7	0.4	1.2	0.7	1.3	1.1	1.0	1.7	1.7‡	3.2	2.3	3.0	3.1	3.1	2.2	2.3	2.7	2.3	2.1	2.2	1.5	1.2	1.3	1.1	0.7	1.0	+0.3
Young Adults	0.6	0.7	0.7	0.6	0.9	0.7	0.9	0.9	1.2	1.4	1.7‡	2.9	2.9	3.0	3.5	3.2	3.4	3.6	3.2	3.4	2.9	2.7	2.6	2.1	1.8	1.9	1.1	0.9	-0.2
Amphetamines [m,o]																													
8th Grade	2.6	3.3	3.6	3.6	4.2	4.6	3.8	3.3	3.4	3.4	3.2	2.8	2.7	2.3	2.3	2.1	2.0	2.2	1.9	1.8	1.8	1.3‡	2.3	2.1	1.9	1.7	1.7	1.8	+0.1
10th Grade	3.3	3.6	4.3	4.5	5.3	5.5	5.1	5.1	5.0	5.4	5.6	5.2	4.3	4.0	3.7	3.5	4.0	2.8	3.3	3.3	3.1	2.8‡	3.3	3.7	3.1	2.7	2.5	2.4	0.0
12th Grade	3.2	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7	3.7	2.9	3.0	3.3	3.7	3.3‡	4.2	3.8	3.2	3.0	2.6	2.4	-0.2
College Students	1.0	1.1	1.5	1.5	2.2	0.9	2.1	1.7	2.3	2.9	3.3	3.0	3.1	3.2	2.9	2.5	3.1	2.8	3.4	4.1	4.5	4.6‡	5.0	4.8	4.2	3.8	3.6	2.9	-0.8
Young Adults	1.5	1.5	1.5	1.7	1.7	1.5	1.7	1.7	1.9	2.3	2.4	2.5	2.5	2.4	2.1	2.2	2.3	2.2	2.5	2.9	3.0	3.2‡	3.0	3.5	3.1	2.9	3.1	2.7	-0.4
Methamphetamine [p,q]																													
8th Grade	—	—	—	—	—	—	—	—	1.1	0.8	1.3	1.1	1.2	0.6	0.7	0.6	0.6	0.7	0.5	0.7	0.4	0.5	0.4	0.2	0.3	0.3	0.2	0.1	-0.1
10th Grade	—	—	—	—	—	—	—	—	1.8	2.0	1.5	1.8	1.4	1.3	1.1	0.7	0.4	0.7	0.6	0.7	0.5	0.6	0.4	0.3	0.3	0.2	0.1	0.1	0.0
12th Grade	—	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.0
College Students	—	—	—	—	—	—	—	—	1.2	0.2	0.5	0.2	0.6	0.2	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.4	+0.4
Young Adults	—	—	—	—	—	—	—	—	0.8	0.7	1.0	1.0	0.7	0.6	0.7	0.5	0.6	0.3	0.3	0.2	0.3	0.4	0.2	0.3	0.0	0.2	0.2	0.0	-0.2
Crystal Methamphetamine (Ice) [q]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.6	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7	0.6	0.6	0.5	0.6	0.6	0.4	0.8	0.4	0.3	0.4	0.5	0.4	-0.1
College Students	*	*	0.3	0.5	0.3	0.1	0.2	0.3	*	*	0.1	*	0.3	0.1	0.2	*	0.1	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	-0.4
Young Adults	*	0.1	0.3	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.1	0.4	0.3	-0.1

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Sedatives (Barbiturates) [m,r]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9‡	2.9	3.3	3.0	2.7	2.8	2.5	2.2	1.8	2.0	2.2	2.0	1.7	1.5	1.4	1.2	-0.2
College Students	0.3	0.7	0.4	0.4	0.5	0.8	1.2	1.1	1.1	1.1	1.5	1.7	1.7	1.5	1.3	1.3	1.4	1.4	1.2	0.6	0.8	0.8‡	0.9	0.7	1.0	0.9	0.5	0.5	0.0
Young Adults	0.5	0.5	0.6	0.6	0.8	0.8	0.9	0.9	1.1	1.3	1.7	1.5	1.5	1.8	1.7	1.5	1.6	1.9	1.2	1.1	1.1	1.1‡	1.2	1.0	0.9	1.1	0.6	0.9	+0.3
Tranquilizers [b,m]																													
8th Grade	0.8	0.8	0.9	1.1	1.2	1.5	1.2	1.2	1.1	1.4‡	1.2	1.2	1.4	1.2	1.3	1.3	1.1	1.2	1.2	1.2	1.0	0.8	0.9	0.8	0.8	0.8	0.7	0.9	+0.1
10th Grade	1.2	1.5	1.1	1.5	1.7	1.7	2.2	2.2	2.2	2.5‡	2.9	2.9	2.4	2.3	2.3	2.4	2.6	1.9	2.0	2.2	1.9	1.7	1.6	1.6	1.7	1.5	1.5	1.3	-0.2
12th Grade	1.4	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6‡	2.9	3.3	2.8	3.1	2.9	2.7	2.6	2.6	2.7	2.5	2.3	2.1	2.0	2.1	2.0	1.9	2.0	1.3	-0.7 ss
College Students	0.6	0.6	0.4	0.4	0.5	0.7	1.2	1.3	1.1	2.0‡	1.5	3.0	2.8	2.7	2.2	2.1	1.8	1.6	2.2	1.3	1.6	1.1	1.2	1.7	1.6	1.8	0.9	1.1	+0.2
Young Adults	0.9	1.0	1.0	0.8	1.1	0.7	1.1	1.2	1.3	1.8‡	2.1	2.8	2.4	2.7	2.6	2.3	2.8	2.7	2.8	2.2	2.3	1.9	1.9	1.9	1.7	1.9	1.4	1.3	-0.1
Any Prescription Drug [o,t]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.6	8.1	7.8	7.2	7.3	6.9	7.2	7.0‡	7.1	6.4	5.9	5.4	4.9	4.2	-0.6
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol [u]																													
8th Grade	—	—	—	—	—	0.5	0.3	0.4	0.3	0.3	0.4	0.2	0.1	0.2	0.2	0.4	0.3	0.1	0.2	0.2	0.6	0.1	0.1	0.2	0.1	0.2	0.1	0.3	+0.1
10th Grade	—	—	—	—	—	0.5	0.5	0.4	0.5	0.4	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.4	0.1	0.3	0.0	0.1	0.0
12th Grade	—	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol [v]																													
Any Use																													
8th Grade	25.1	26.1‡	24.3	25.5	24.6	26.2	24.5	23.0	24.0	22.4	21.5	19.6	19.7	18.6	17.1	17.2	15.9	15.9	14.9	13.8	12.7	11.0	10.2	9.0	9.7	7.3	8.0	8.2	+0.2
10th Grade	42.8	39.9‡	38.2	39.2	38.8	40.4	40.1	38.8	40.0	41.0	39.0	35.4	35.4	35.2	33.2	33.8	33.4	28.8	30.4	28.9	27.2	27.6	25.7	23.5	21.5	19.9	19.7	18.6	-1.1
12th Grade	54.0	51.3‡	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	43.5	41.2	40.0	41.5	39.2	37.4	35.3	33.2	33.2	30.2	-3.0 s
College Students	74.7	71.4	70.1	67.8	67.5	67.0	65.8	68.1	69.6	67.4	67.0	68.9	66.2	67.7	67.9	65.4	66.6	69.0	65.8	65.0	63.5	67.7	63.1	63.1	63.2	63.2	62.0	59.6	-2.4
Young Adults	70.6	69.0	68.3	67.7	68.1	66.7	67.5	66.9	68.2	66.8	67.0	68.3	67.0	68.4	68.6	68.7	69.5	68.9	69.4	68.4	68.8	69.5	68.7	68.4	66.9	68.4	67.1	66.0	-1.2

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Been Drunk [w,aaa]																													
8th Grade	7.6	7.5	7.8	8.7	8.3	9.6	8.2	8.4	9.4	8.3	7.7	6.7	6.7	6.2	6.0	6.2	5.5	5.4	5.4	5.0	4.4	3.6	3.5	2.7	3.1	1.8	2.2	2.1	-0.2
10th Grade	20.5	18.1	19.8	20.3	20.8	21.3	22.4	21.1	22.5	23.5	21.9	18.3	18.2	18.5	17.6	18.8	18.1	14.4	15.5	14.7	13.7	14.5	12.8	11.2	10.3	9.0	8.9	8.4	-0.5
12th Grade	31.6	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	27.4	26.8	25.0	28.1	26.0	23.5	20.6	20.4	19.1	17.5	-1.6
College Students	45.0	45.0	43.8	42.8	37.9	40.3	46.4	44.3	44.6	43.9	44.7	44.4	40.4	47.4	43.1	47.6	46.8	45.3	42.4	43.6	39.9	40.1	40.2	42.6	38.4	40.8	34.8	37.8	+3.0
Young Adults	35.4	35.6	34.2	34.3	33.0	33.2	35.6	34.2	37.7	35.7	36.8	37.1	37.8	39.0	39.0	42.1	41.4	40.7	40.5	39.4	39.5	39.1	37.7	39.3	34.2	36.6	36.1	35.9	-0.1
Flavored Alcoholic Beverages [g,p]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	14.6	12.9	13.1	12.2	10.2	9.5	9.4	8.6	7.6	6.3	5.7	5.5	4.0	4.4	4.9	+0.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	25.1	23.1	24.7	21.8	20.2	19.0	19.4	15.8	16.3	15.5	14.0	12.8	11.0	12.9	11.8	-1.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	31.1	30.5	29.3	29.1	27.4	27.4	24.1	23.1	21.8	21.0	19.9	20.8	18.3	20.2	18.1	-2.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	34.1	30.9	26.2	27.5	35.8	32.3	31.5	29.5	31.3	29.1	32.9	30.5	33.5	36.7	30.9	-5.8
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	29.5	27.6	24.9	25.9	26.7	24.4	24.5	23.8	26.1	25.4	26.9	24.7	28.8	27.6	29.4	+1.8
Cigarettes																													
Any Use																													
8th Grade	14.3	15.5	16.7	18.6	19.1	21.0	19.4	19.1	17.5	14.6	12.2	10.7	10.2	9.2	9.3	8.7	7.1	6.8	6.5	7.1	6.1	4.9	4.5	4.0	3.6	2.6	1.9	2.2	+0.3
10th Grade	20.8	21.5	24.7	25.4	27.9	30.4	29.8	27.6	25.7	23.9	21.3	17.7	16.7	16.0	14.9	14.5	14.0	12.3	13.1	13.6	11.8	10.8	9.1	7.2	6.3	4.9	5.0	4.2	-0.8
12th Grade	28.3	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	20.1	19.2	18.7	17.1	16.3	13.6	11.4	10.5	9.7	7.6	-2.0 ss
College Students	23.2	23.5	24.5	23.5	26.8	27.9	28.3	30.0	30.6	28.2	25.7	26.7	22.5	24.3	23.8	19.2	19.9	17.9	17.9	16.4	15.2	12.5	14.0	12.9	11.3	8.9	8.0	6.8	-1.2
Young Adults	28.2	28.3	28.0	28.0	29.2	30.1	29.9	30.9	30.3	30.1	30.2	29.2	28.4	29.2	28.6	27.0	26.2	24.6	23.3	22.4	21.3	19.7	20.0	17.5	16.6	14.2	15.3	12.3	-3.0 sss
Smokeless Tobacco [x]																													
8th Grade	6.9	7.0	6.6	7.7	7.1	7.1	5.5	4.8	4.5	4.2	4.0	3.3	4.1	4.1	3.3	3.7	3.2	3.5	3.7	4.1	3.5	2.8	2.8	3.0	3.2	2.5	1.7	2.1	+0.3
10th Grade	10.0	9.6	10.4	10.5	9.7	8.6	8.9	7.5	6.5	6.1	6.9	6.1	5.3	4.9	5.6	5.7	6.1	5.0	6.5	7.5	6.6	6.4	6.4	5.3	4.9	3.5	3.8	3.9	+0.1
12th Grade	—	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	8.4	8.5	8.3	7.9	8.1	8.4	6.1	6.6	4.9	4.2	-0.8
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping [jj,kk]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.0	6.2‡	6.6	10.4	+3.7 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	11.0‡	13.1	21.7	+8.5 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.3	12.5‡	16.6	26.7	+9.9 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.8	6.9‡	11.3	21.3	+10.0 sss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	6.0‡	11.9	17.1	+5.2 sss

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Vaping Nicotine [jj]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	6.1	+2.6 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.2	16.1	+7.9 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.0	20.9	+10.0 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	15.5	+9.4 sss
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.5	10.6	+4.0 sss
Vaping Marijuana [jj,bbb]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	2.6	+1.0 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	7.0	+2.7 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.9	7.5	+2.5 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.2	10.9	+5.7 s
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.6	9.3	+2.7 s
Vaping Just Flavoring [jj]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	8.1	+2.8 sss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	13.1	+4.0 sss
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.7	13.5	+3.8 sss
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.8	+0.6
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3	4.2	+0.9
Tobacco using a Hookah [s,hh]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8	2.5	1.6	-0.9 s
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	3.0	2.4	-0.7
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	5.0	4.4	-0.6
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.2	4.6	6.2	+1.7
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	4.2	4.5	+0.3
Large Cigars [ii]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.4	1.5	1.5	1.7	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.9	3.4	2.3	2.6	2.8	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.4	7.0	6.5	5.6	5.2	-0.3
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.4	4.9	4.4	1.7	3.7	+2.1
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.6	5.9	3.9	3.5	3.3	-0.2
Flavored Little Cigars [ii]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1	4.1	2.8	2.6	2.6	0.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	6.1	4.9	4.0	5.3	+1.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.9	11.4	9.5	10.1	8.9	-1.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.8	5.6	5.6	4.9	5.6	+0.7
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	6.9	4.8	5.5	5.9	0.4

(Table continued on next page.)

TABLE 2-3 (cont.)
Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Regular Little Cigars [ii]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.5	3.3	1.9	1.6	1.6	0.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	3.8	3.0	3.0	3.1	+0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.0	7.8	6.1	6.6	5.8	-0.7
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.6	4.1	3.6	1.7	1.4	-0.3
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.8	3.8	3.6	2.8	3.7	+0.9
Steroids [y,z]																													
8th Grade	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5	0.7	0.8	0.7	0.8	0.7	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.0
10th Grade	0.6	0.6	0.5	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.9	1.0	0.8	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	+0.1
12th Grade	0.8	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1	1.0	1.0	1.0	1.1	0.7	0.9	1.0	0.9	1.0	0.7	0.8	0.8	+0.0
College Students	0.3	0.2	0.2	0.2	0.1	*	0.2	0.2	0.4	*	0.3	*	0.1	*	*	*	0.1	*	0.2	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.3	0.0	-0.3
Young Adults	0.2	0.1	*	0.1	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.4	0.2	0.3	0.5	0.2	0.1	0.1	0.3	0.1	0.2	0.2	0.3	+0.1
Previously surveyed drugs that have been dropped																													
Nitrites [e]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.4	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.6	—	—	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	*	0.1	0.2	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [m,s]																													
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.2	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.2	0.3	0.2	0.2	0.3	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

See footnotes following Table 2-4.

TABLE 2-4

Trends in 30-Day Prevalence of Daily Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Marijuana/Hashish Daily [gg]																													
8th Grade	0.2	0.2	0.4	0.7	0.8	1.5	1.1	1.1	1.4	1.3	1.3	1.2	1.0	0.8	1.0	1.0	0.8	0.9	1.0	1.2	1.3	1.1	1.1	1.0	1.1	0.7	0.8	0.7	0.0
10th Grade	0.8	0.8	1.0	2.2	2.8	3.5	3.7	3.6	3.8	3.8	4.5	3.9	3.6	3.2	3.1	2.8	2.8	2.7	2.8	3.3	3.6	3.5	4.0	3.4	3.0	2.5	2.9	3.4	+0.5
12th Grade	2.0	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0	5.1	5.4	5.2	6.1	6.6	6.5	6.5	5.8	6.0	6.0	5.9	5.8	-0.2
College Students	1.8	1.6	1.9	1.8	3.7	2.8	3.7	4.0	4.0	4.6	4.5	4.1	4.7	4.5	4.0	4.3	3.5	3.9	4.9	4.4	4.7	4.8	5.1	5.9	4.6	4.9	4.4	5.8	+1.4
Young Adults	2.3	2.3	2.4	2.8	3.3	3.3	3.8	3.7	4.4	4.2	5.0	4.5	5.3	5.0	4.9	5.0	5.0	5.1	5.4	5.3	6.1	5.6	6.2	6.9	6.8	7.6	7.8	8.0	+0.1
Alcohol [v,gg]																													
Any Daily Use																													
8th Grade	0.5	0.6‡	1.0	1.0	0.7	1.0	0.8	0.9	1.0	0.8	0.9	0.7	0.8	0.6	0.5	0.5	0.6	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.0
10th Grade	1.3	1.2‡	1.8	1.7	1.7	1.6	1.7	1.9	1.9	1.8	1.9	1.8	1.5	1.3	1.3	1.4	1.4	1.0	1.1	1.1	0.8	1.0	0.9	0.8	0.5	0.5	0.6	0.5	-0.1
12th Grade	3.6	3.4‡	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0	3.1	2.8	2.5	2.7	2.1	2.5	2.2	1.9	1.9	1.3	1.6	1.2	-0.4 s
College Students	4.1	3.7	3.9	3.7	3.0	3.2	4.5	3.9	4.5	3.6	4.7	5.0	4.3	3.7	4.6	4.8	4.3	4.0	4.3	3.6	3.8	3.9	3.6	4.3	3.1	4.3	2.2	2.3	+0.2
Young Adults	4.9	4.5	4.5	3.9	3.9	4.0	4.6	4.0	4.8	4.1	4.4	4.7	5.1	4.5	5.2	5.4	5.6	5.3	5.3	4.6	5.2	5.5	5.1	5.0	4.7	5.4	5.0	4.3	-0.7
Been Drunk Daily [w,gg]																													
8th Grade	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10th Grade	0.2	0.3	0.4	0.4	0.6	0.4	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.1	0.1	0.2	0.2	0.0
12th Grade	0.9	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6	1.3	1.4	1.1	1.6	1.3	1.5	1.3	1.1	0.8	0.8	1.1	0.7	-0.4
College Students	0.5	0.2	0.3	0.8	0.5	0.1	1.3	0.8	1.0	0.7	0.5	0.8	1.1	0.8	0.5	0.6	0.7	0.5	0.7	0.3	1.3	0.4	0.5	0.4	0.7	0.4	0.0	0.6	+0.6
Young Adults	0.5	0.4	0.4	0.5	0.3	0.4	0.9	0.5	0.9	0.5	0.4	0.6	0.8	0.7	0.5	0.6	0.6	0.5	1.0	0.7	0.7	0.4	0.5	0.6	0.4	0.3	0.3	0.5	+0.1
5+ Drinks in a Row in Last 2 Weeks																													
8th Grade	10.9	11.3	11.3	12.1	12.3	13.3	12.3	11.5	13.1	11.7	11.0	10.3	9.8	9.4	8.4	8.7	8.3	8.1	7.8	7.2	6.4	5.1	5.1	4.1	4.6	3.4	3.7	3.7	0.0
10th Grade	21.0	19.1	21.0	21.9	22.0	22.8	23.1	22.4	23.5	24.1	22.8	20.3	20.0	19.9	19.0	19.9	19.6	16.0	17.5	16.3	14.7	15.6	13.7	12.6	10.9	9.7	9.8	8.7	-1.1
12th Grade	29.8	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	25.2	23.2	21.6	23.7	22.1	19.4	17.2	15.5	16.6	13.8	-2.8 ss
College Students	42.8	41.4	40.2	40.2	38.6	38.3	40.7	38.9	40.0	39.3	40.9	40.1	38.5	41.7	40.1	40.2	41.1	40.0	36.9	37.0	36.1	37.4	35.2	35.4	31.9	32.4	32.7	28.4	-4.3 s
Young Adults	34.7	34.2	34.4	33.7	32.6	33.6	34.4	34.1	35.8	34.7	35.9	35.9	35.8	37.1	37.0	37.6	37.8	37.9	36.7	35.9	36.5	35.5	35.1	33.5	31.9	32.3	31.8	31.2	-0.6
Cigarettes																													
Any Daily Use																													
8th Grade	7.2	7.0	8.3	8.8	9.3	10.4	9.0	8.8	8.1	7.4	5.5	5.1	4.5	4.4	4.0	4.0	3.0	3.1	2.7	2.9	2.4	1.9	1.8	1.4	1.3	0.9	0.6	0.8	+0.3
10th Grade	12.6	12.3	14.2	14.6	16.3	18.3	18.0	15.8	15.9	14.0	12.2	10.1	8.9	8.3	7.5	7.6	7.2	5.9	6.3	6.6	5.5	5.0	4.4	3.2	3.0	1.9	2.2	1.8	-0.4
12th Grade	18.5	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	11.2	10.7	10.3	9.3	8.5	6.7	5.5	4.8	4.2	3.6	-0.6
College Students	13.8	14.1	15.2	13.2	15.8	15.9	15.2	18.0	19.3	17.8	15.0	15.9	13.8	13.8	12.4	9.2	9.3	9.2	8.0	7.6	7.3	5.2	5.6	5.2	4.2	2.6	2.0	1.9	-0.1
Young Adults	21.7	20.9	20.8	20.7	21.2	21.8	20.6	21.9	21.5	21.8	21.2	21.2	20.3	20.8	19.6	18.6	17.3	16.7	15.0	14.8	13.8	12.8	12.1	10.7	9.7	8.2	8.8	7.0	-1.8 ss

(Table continued on next page.)

TABLE 2-4 (cont.)
Trends in 30-Day Prevalence of Daily Use of Various Drugs for 8th, 10th, and 12th Graders, College Students, and Young Adults (Ages 19–28)

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
1/2 Pack+/Day																													
8th Grade	3.1	2.9	3.5	3.6	3.4	4.3	3.5	3.6	3.3	2.8	2.3	2.1	1.8	1.7	1.7	1.5	1.1	1.2	1.0	0.9	0.7	0.6	0.7	0.5	0.4	0.3	0.2	0.3	+0.1
10th Grade	6.5	6.0	7.0	7.6	8.3	9.4	8.6	7.9	7.6	6.2	5.5	4.4	4.1	3.3	3.1	3.3	2.7	2.0	2.4	2.4	1.9	1.5	1.5	1.2	1.0	0.6	0.7	0.7	0.0
12th Grade	10.7	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4	5.0	4.7	4.3	4.0	3.4	2.6	2.1	1.8	1.7	1.5	-0.2
College Students	8.0	8.9	8.9	8.0	10.2	8.4	9.1	11.3	11.0	10.1	7.8	7.9	7.6	6.8	6.7	4.9	4.3	4.3	3.8	3.9	2.5	2.4	2.4	2.4	1.4	1.7	0.2	0.5	+0.3
Young Adults	16.0	15.7	15.5	15.3	15.7	15.3	14.6	15.6	15.1	15.1	14.6	14.2	13.9	13.5	12.5	11.9	11.1	10.2	9.3	9.3	7.5	7.6	7.0	6.6	5.7	4.9	4.7	3.8	-0.9
Smokeless Tobacco Daily [x]																													
8th Grade	1.6	1.8	1.5	1.9	1.2	1.5	1.0	1.0	0.9	0.9	1.2	0.8	0.8	1.0	0.7	0.7	0.8	0.8	0.8	0.9	0.8	0.5	0.5	0.5	0.8	0.6	0.4	0.3	-0.1
10th Grade	3.3	3.0	3.3	3.0	2.7	2.2	2.2	2.2	1.5	1.9	2.2	1.7	1.8	1.6	1.9	1.7	1.6	1.4	1.9	2.5	1.7	2.0	1.9	1.8	1.6	1.0	0.6	1.0	+0.4
12th Grade	—	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	2.9	3.1	3.1	3.2	3.0	3.4	2.9	2.7	2.0	1.6	-0.4
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

See footnotes on the next page.

Footnotes for Tables 2-1 through 2-4

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. ' — ' indicates data not available." * ' indicates less than 0.05% but greater than 0%. ' ‡ ' indicates that the question changed the following year. See relevant footnote for that drug. See relevant figure to assess the impact of the wording changes. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

Approximate Weighted *N*s	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
8th Graders	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000
10th Graders	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400
12th Graders	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600
College Students	1,410	1,490	1,490	1,410	1,450	1,450	1,480	1,440	1,440	1,350	1,340	1,260	1,270	1,400
Young Adults	6,600	6,800	6,700	6,500	6,400	6,300	6,400	6,200	6,000	5,700	5,800	5,300	5,300	5,700

Approximate Weighted *N*s	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
8th Graders	16,800	16,500	16,100	15,700	15,000	15,300	16,000	14,600	14,600	14,600	14,400	16,900	15,300	14,000
10th Graders	16,200	16,200	16,100	15,100	15,900	15,200	14,900	12,900	12,900	13,000	15,600	14,700	13,500	14,300
12th Graders	14,700	14,200	14,500	14,000	13,700	14,400	14,100	12,600	12,600	12,400	12,900	11,800	12,600	13,300
College Students	1,400	1,300	1,300	1,300	1,300	1,300	1,200	1,200	1,100	1,000	1,000	900	900	900
Young Adults	5,400	5,100	4,800	4,900	4,900	4,900	4,600	4,600	4,400	4,200	4,000	3,700	3,600	3,600

[a]For 12th graders, college students, and young adults only: Use of any illicit drug includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers). Due to changes in the amphetamines questions 2013 data for any illicit drug and any illicit drug other than marijuana are based on half the *N* indicated. For any illicit drug including inhalants, 8th and 10th grades, college students, and young adults are based on one half the N indicated for 2013; 12th graders are based on one sixth of *N* indicated in 2013.

[b]In 2001 the question text was changed on half of the questionnaire forms for each age group. Other psychedelics was changed to other hallucinogens and shrooms was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. For 8th, 10th, and 12th graders only: The 2001 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2002 the remaining forms were changed to the new wording. The data are based on all forms beginning in 2002. Data for any illicit drug other than marijuana and data for hallucinogens are also affected by these changes and have been handled in a parallel manner. Beginning in 2014 LSD and hallucinogens other than LSD based on five of six forms;*N* is five sixths of *N* indicated. Hallucinogens was also effected by this change.

[c]For 12th graders, college students, and young adults only: Data based on five of six forms in 1991–1998; *N* is five sixths of *N* indicated. Data based on three of six forms beginning in 1999; *N* is three sixths of *N* indicated.

[d]Inhalants are unadjusted for underreporting of amyl and butyl nitrites.

[e]For 12th graders and young adults only: Data based on one of six forms; *N* is one sixth of *N* indicated. Questions about nitrite use were dropped from the young adult questionnaires in 1995 and from the 12th-grade questionnaires in 2010.

[f]Hallucinogens are unadjusted for underreporting of PCP.

[g]For 12th graders, college students, and young adults only: Data based on one of six forms; *N* is one sixth of *N* indicated. For 12th graders only: In 2011 the flavored alcoholic beverage question text was changed. Skyy Blue and Zima were removed from the list of examples. An examination of the data did not show any effect from the wording change. In 2014 the PCP triplet was dropped from one form and replaced with a single annual use question in a different form.

(Footnotes continued on next page.)

Footnotes for Tables 2-1 through 2-4 (cont.)

[h]For 8th and 10th graders only: Data based on one of two forms in 1996; *N* is one half of *N* indicated. Data based on one third of *N* indicated in 1997–2001 due to changes in the questionnaire forms. Data based on two of four forms beginning in 2002; *N* is one half of *N* indicated. For 12th graders only: Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated. Data based on two of six forms beginning in 2002; *N* is two sixths of *N* indicated. For college students and young adults only: Data based on two of six forms in 1991–2001; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2002; *N* is three sixths of *N* indicated. For all levels: In 2014 a revised question on use of ecstasy (MDMA) including "Molly" was added to one form at each level. The 2013 and 2014 "Original wording" data reported here are for only the questionnaires using the original question wording. The 2014 and 2015 data reported here are for only the questionnaires using the "Revised wording" which includes "Molly." For 8th and 10th grades the "Original wording" data are based on two of four forms in 2013 and 2014, *N* is one half of *N* indicated; the "Revised wording" data are based on one of four forms in 2014, *N* is one third of *N* indicated and based on three of four forms beginning in 2015, *N* is five sixths of *N* indicated. For 12th grade the "Original wording" data are based on two of six forms in 2013 and 2014, *N* is two sixths of *N* indicated; the "Revised wording" data are based on one of four forms in 2014, *N* is one sixth of *N* indicated and based on three of six forms beginning in 2015, *N* is three sixths of *N* indicated. For college students and young adults the "Original wording" data are based on three of six forms in 2013 and 2014, *N* is three sixths of *N* indicated; the "Revised wording" data are based on one of six forms in 2014, *N* is one sixth of *N* indicated and based on four of six forms beginning in 2015, *N* is four sixths of *N* indicated.

[i]For college students and young adults only: Data based on five of six forms beginning in 2002; *N* is five sixths of *N* indicated.

[j]For 12th graders only: Data based on four of six forms; *N* is four sixths of *N* indicated. For college students and young adults only: Data based on four of six forms; *N* is four sixths of *N* indicated.

[k]In 1995, the heroin question was changed in one of two forms for 8th and 10th graders, in three of six forms for 12th graders, and in two of six forms for college students and young adults. Separate questions were asked for use with and without injection. In 1996, the heroin question was changed in all remaining 8th- and 10th-grade forms. Data presented here represent the combined data from all forms. For 8th and 10th graders only: Beginning in 2015 data based on three of four four forms; *N* is two thirds of *N* indicated.

[l]For 8th and 10th graders only: Data based on one of two forms in 1995; *N* is one half of *N* indicated. Data based on all forms beginning in 1996. For 12th graders only: Data based on three of six forms; *N* is three sixths of *N* indicated. For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated.

[m]Only drug use not under a doctor's orders is included here.

[n]For 12th graders, college students, and young adults only: In 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2003, the remaining forms were changed to the new wording. The data are based on all forms beginning in 2003. In 2013 the list of examples was changed on one form: MS Contin, Roxycodone, Hydrocodone (Lortab, Lorcet, Norco), Suboxone, Tylox, and Tramadol were added to the list. An examination of the data did not show any affect from the wording change.

[o]For 8th, 10th, and 12th graders: In 2009, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. In 2010 the remaining forms were changed in a like manner. In 2011 the question text was changed slightly in one form; bennies, Benzedrine and Methadrine were dropped from the list of examples. An examination of the data did not show any effect from the wording change. In 2013 the question wording was changed slightly in two of the 8th and 10th grade questionnaires and in three of the 12th grade questionnaires. The new wording in 2013 asked "On how many occasions (if any) have taken amphetamines or other prescription stimulant drugs…" In contrast, the old wording did not include the text highlighted in red. Results in 2013 indicated higher prevalence in questionnaires with the new wording as compared to the old wording; it was proportionally 61% higher in 8th grade, 34% higher in 10th grade, and 21% higher in 12th grade. 2013 data are based on the changed forms only; for 8th, 10th, and 12th graders *N* is one half of *N* indicated. In 2014 all questionnaires included the new, updated wording.

[p]For 8th and 10th graders only: Data based on one of four forms; *N* is one third of *N* indicated. In 2011 the flavored alcoholic beverage question text was changed. Skyy Blue and Zima were removed from the list of examples. An examination of the data did not show any effect from the wording change.

[q]For 12th graders only: Data based on two of six forms; *N* is two sixths of *N* indicated. Provigil was dropped from the study in 2012. For college students and young adults only: Beginning in 2009 Salvia data based on one of six forms; *N* is one sixth of *N* indicated. Data based on two of six forms in 2010, 2011, and from 2017 forward; N is two sixths of *N* indicated. Data based on three of six forms from 2012-2016; *N* is three sixths of *N* indicated. For Synthetic Marijuana data based on two of six forms in 2011; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2012; *N* is three sixths of *N* indicated. For Bath Salts data based on three of six forms; *N* is three sixths of *N* indicated.

(Footnotes continued on next page.)

Footnotes for Tables 2-1 through 2-4 (cont.)

[r]For 12th graders only: In 2004 the question text was changed in half of the questionnaire forms. Barbiturates was changed to sedatives, including barbiturates. Goofballs, yellows, reds, blues, and rainbows were deleted from the list of examples; Phenobarbital, Tuinal, Nembutal, and Seconal were added. An examination of the data did not show any effect from the wording change. In 2005 the remaining forms were changed in a like manner. In 2013 the question text was changed in all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. In one form the list of examples was also changed: Tuinal was dropped from the list and Dalmane, Restoril, Halcion, Intermezzo, and Zolpimist were added. An examination of the data did not show any effect from the wording change. In 2013 the college student and young adult questionnaires were changed in a like manner. An examination of the data showed an affect from the wording change. For this reason 2012 and 2013 data are not comparable.

[s]For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated. Methaqualone was dropped from the study in 2013. For college students and young adults only: Data based on three of six forms from 2011-2013.*N* is three sixths of *N* indicated. Beginning in 2014, data based on 2 of 6 forms.*N* is two sixths of *N* indicated.

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

[u]For 8th and 10th graders only: Data based on one of two forms in 1996; *N* is one half of *N* indicated. Data based on three of four forms in 1997–1998; *N* is two thirds of *N* indicated. Data based on two of four forms in 1999–2001; *N* is one third of *N* indicated. Data based on one of four forms beginning in 2002; *N* is one sixth of *N* indicated. For 12th graders only: Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated. Data based on two of six forms in 2002–2009; *N* is two sixths of *N* indicated. Data for 2001 and 2002 are not comparable due to changes in the questionnaire forms. Data based on one of six forms beginning in 2010; *N* is one sixth of *N* indicated. For college students and young adults only: Data based on two of six forms;*N* is two sixths of *N* indicated.

[v]For 8th, 10th, and 12th graders only: In 1993, the question text was changed slightly in half of the forms to indicate that a drink meant more than just a few sips. The 1993 data are based on the changed forms only; *N* is one half of *N* indicated for these groups. In 1994 the remaining forms were changed to the new wording. The data are based on all forms beginning in 1994. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005. For college students and young adults: The revision of the question text resulted in rather little change in the reported prevalence of use. The data for all forms are used to provide the most reliable estimate of change.

[w]For all grades: In 2012 the alcoholic beverage containing caffeine (like Four Loko or Joose) question text was changed to alcoholic beverage mixed with an energy drink (like Red Bull). The data in 2011 and 2012 are not comparable due to this question change. For 12th graders only: Data based on two of six forms;*N* is two sixths of *N* indicated. For college students and young adults only: been drunk data based on three of six forms;*N* is three sixths of *N* indicated. Alcoholic beverages containing caffeine data based on two of six forms; *N* is two sixths of *N* indicated.

[x]For 8th and 10th graders only: Data based on one of two forms for 1991–1996 and on two of four forms beginning in 1997; *N* is one half of *N* indicated. For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated. For 8th, 10th, and 12th graders only: Snus and dissolvable tobacco were added to the list of examples in 2011. An examination of the data did not show any effect from the wording change. For college students and young adults only: Questions about smokeless tobacco use were dropped from the analyses in 1989.

[y]For 8th and 10th graders only: In 2006, the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2007 the remaining forms were changed in a like manner. In 2008 the question text was changed slightly in half of the questionnaire forms An examination of the data did not show any effect from the wording change. In 2009 the remaining forms were changed in a like manner. For 12th graders only: Data based on two of six forms in 1991–2005; *N* is two sixths of *N* indicated. In 2006 a slightly altered version of the question was added to a third form. An examination of the data did not show any effect from the wording change. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated. In 2007 the remaining forms were changed in a like manner. In 2008 the question text was changed slightly in two of the questionnaire forms. An examination of the data did not show any effect from the wording change. In 2009 the remaining form was changed in a like manner.

[z]For college students and young adults only: Data based on two of six forms in 1990-2009; *N* is two sixths of *N* indicated. In 2008, the question text was changed slightly.

[aa]For 12th graders only: Data based on two of six forms in 2002–2005; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated.

[bb]For college students and young adults only: Data based on two of six forms through 2009; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2010; *N* is three sixths of *N* indicated.

(Footnotes continued on next page.)

Footnotes for Tables 2-1 through 2-4 (cont.)

[cc]For 12th graders only: Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms in 2001; *N* is three sixths of *N* indicated. Data based on one of six forms beginning in 2002; *N* is one sixth of *N* indicated. For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2010; *N* is three sixths of *N* indicated. Data based on two of six forms beginning in 2012; *N* is two sixths of *N* indicated.

[dd]For 12th graders only: Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms in 2001–2009; *N* is three sixths of *N* indicated. Data based on two of six forms beginning in 2010; *N* is two sixths of *N* indicated. For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2010; *N* is three sixths of *N* indicated.

[ee]For 12th graders only: The 2003 flavored alcoholic beverage data were created by adjusting the 2004 data to reflect the observed 2003 to 2004 change in a slightly different version of the flavored alcoholic beverage question. In 2004 the original question was revised to include wine coolers among the examples—a change that had very little effect on the observed prevalence-of-use rate.

[ff]For 12th graders only: Data based on two of six forms in 2000–2008; *N* is two sixths of *N* indicated. Beginning in 2009 data based on one of six forms; *N* is one sixth of *N* indicated.

[gg]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes and smokeless tobacco, for which actual daily use is measured, and for 5+ drinks, for which the prevalence of having five or more drinks in a row in the last two weeks is measured.

[hh]For 8th and 10th graders only: Data based on two of four forms. *N* is one third of *N* indicated. For 12th graders only: Data based on four of six forms; *N* is four sixths of *N* indicated. For college students and young adults only: Data based on one of six forms; *N* is one sixth of *N* indicated.

[ii]For 8th and 10th graders only: Data based on two of four forms; *N* is one third of *N* indicated. For 12th graders only: Data based on two of six forms; *N* is two sixths of *N* indicated. For college students and young adults only: Data based on one of six forms; *N* is one sixth of *N* indicated.

[jj]For 8th and 10th graders only: Data based on one of four forms; *N* is one third of *N* indicated. For 12th graders only: Data based on two of six forms. *N* is two sixths of *N* indicated. For college students and young adults only: Data based on one of six forms; *N* is one sixth of *N* indicated.

[kk]In 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions

[ll]For the estimate of lifetime Narcotics other than Heroin for young adults in 2018, there was a significant difference (p<.01) between the typical mail mode (13.9%) and new web-push mode (10.9%) of administration.

[mm]For the estimate of lifetime Flavored Alcoholic Beverages for young adults in 2018, there was a significant difference (p<.01) between the typical mail mode (76.4%) and new web-push mode (85.5%) of administration.

[nn]For the estimate of lifetime Any Vaping for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (33.4%) and new web-push mode (40.4%) of administration.

[oo]For the estimate of lifetime Vaping Nicotine for young adults in 2018, there was a significant difference (p<.01) between the typical mail mode (23.8%) and new web-push mode (30.9%) of administration.

[pp]For the estimate of lifetime Vaping Just Flavoring for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (19.4%) and new web-push mode (24.5%) of administration.

[qq]For the estimate of annual Bath Salts for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (0.6%) and new web-push mode (0.0%) of administration.

[rr]For the estimate of annual Ketamine for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (1.6%) and new web-push mode (0.4%) of administration.

[ss]For the estimate of annual Alcoholic Bverages Containing Caffeine for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (34.6%) and new web-push mode (25.9%) of administration.

[tt]For the estimate of annual Tobacco with a Hookah for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (11.6%) and new web-push mode (14.9%) of administration.

[uu]For the estimate of annual Any Vaping for college students in 2018, there was a significant difference (p<.05) between the typical mail mode (26.9%) and new web-push mode (37.8%) of administration.

[vv]For the estimate of annual Any Vaping for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (24.3%) and new web-push mode (29.9%) of administration.

[ww]For the estimate of annual Vaping Nicotine for college students in 2018, there was a significant difference (p<.05) between the typical mail mode (19.0%) and new web-push mode (32.0%) of administration.

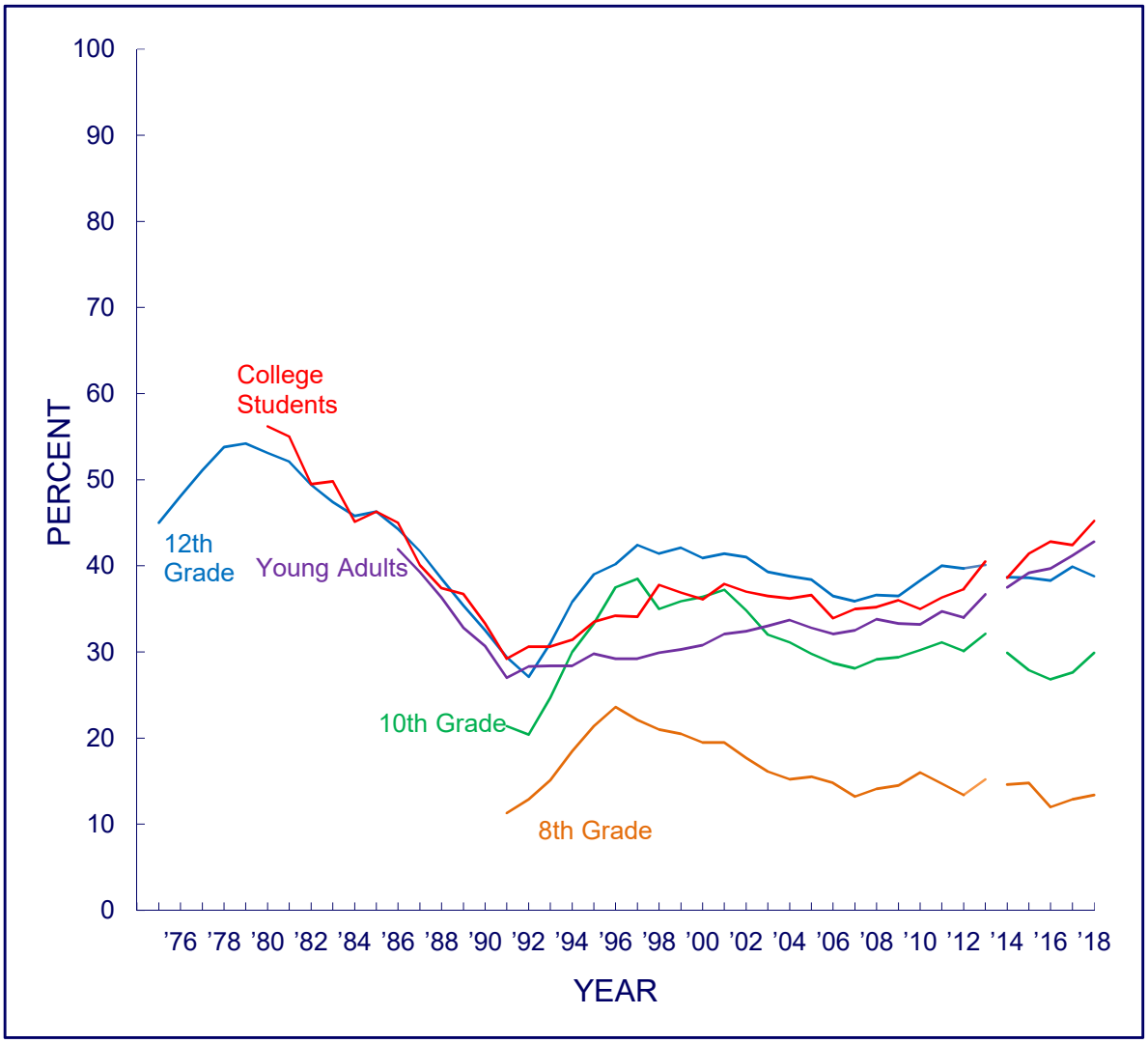
[xx]For the estimate of annual Any Vaping for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (15.6%) and new web-push mode (20.6%) of administration.

(Footnotes continued on next page.)

Footnotes for Tables 2-1 through 2-4 (cont.)

[yy]For the estimate of annual Any Marijuana for college students in 2018, there was a significant difference (p<.05) between the typical mail mode (15.2%) and new web-push mode (25.1%) of administration.
[zz]For the estimate of 30-day Marijuana for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (22.5%) and new web-push mode (25.5%) of administration.
[aaa]For the estimate of 30-day Been Drunk for young adults in 2018, there was a significant difference (p<.05) between the typical mail mode (38.8%) and new web-push mode (33.5%) of administration.
[bbb]For the estimate of 30-day Vaping Marijuana for college students in 2018, there was a significant difference (p<.05) between the typical mail mode (7.3%) and new web-push mode (14.5%) of administration.

FIGURE 2-1
Trends in Annual Prevalence of an Illicit Drug Use Index across 5 Populations



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

Notes. Illicit drug use index includes any use of marijuana, LSD, other hallucinogens, crack, cocaine other than crack, or heroin; or any use of narcotics other than heroin which is not under a doctor's orders, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers. Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change. In 2013, the question on use of amphetamines was changed such that "Amphetamines" was replaced with "Amphetamines and other stimulant drugs." Data for any illicit drug were affected by this change.

Chapter 3

STUDY DESIGN AND PROCEDURES

Monitoring the Future (MTF) incorporates several survey designs into one study, yielding analytic power beyond the sum of those component parts. The components include cross-sectional studies, repeated cross-sectional studies, and panel studies of individual cohorts and sets of cohorts. The annual cross-sectional surveys provide point estimates of various behaviors and conditions in any given year for a number of subpopulations (e.g., 8th graders, 10th graders, 12th graders, college students, all young adult high school graduates ages 19–30, 35-year-olds, 40-year-olds, etc.), as well as point estimates for various subgroups within these different populations. Repeating these annual cross-sectional surveys over time allows an assessment of change across history in consistent age segments of the population, as well as among subgroups. The panel study feature permits the examination of developmental change in the same individuals as they assume adult responsibilities, enter and leave various adult roles and environments, and continue further into adulthood. It also permits an assessment of a number of outcomes later in life that MTF has shown to be linked to substance use in adolescence and beyond.[1]

Finally, with a series of panel studies of sequential graduating class cohorts we are able to offer distinctions among, and explanations for, three fundamentally different types of change: age, period, and cohort. It is this feature that creates a synergistic effect in terms of analytic and explanatory power.[2,3]

RESEARCH DESIGN AND PROCEDURES FOR THE 12th GRADE SURVEYS

Twelfth graders have been surveyed in the spring of each year since 1975. Each year's data collection has taken place in 120-140 public and private high schools selected to provide an accurate representative cross-section of 12th graders throughout the coterminous United States (see Figure 3-1). The participating 12th graders serve as the sampling frame for the MTF panels. In addition, 12th grade prevalence and trends are included as a comparison to the older age groups throughout this volume.

The Population under Study

Senior year of high school is a strategic point at which to monitor drug use and related attitudes of youth. First, completion of high school represents the end of an important developmental period in this society, demarcating both the end of universal education and, for many, the end of living

[1] Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008) *The Education–Drug Use Connection: How Successes and Failures in School Relate to Adolescent Smoking, Drinking, Drug Use, and Delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis; Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002) *The Decline of Substance Use in Young Adulthood: Changes in Social Activities, Roles, and Beliefs*. Mahwah, New Jersey: Lawrence Erlbaum; Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, Drinking, and Drug Use in Young Adulthood: The Impacts of New Freedoms and New Responsibilities.* Mahwah, NJ: Lawrence Erlbaum Associates.

[2] 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.

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

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

The Omission of Dropouts

One limitation in the MTF study design is the exclusion of individuals who drop out of high school before graduation – approximately 6–15% of each age cohort nationally, according to U.S. Census statistics. The dropout rate has been declining in recent years; 6% is the most recent estimate.[4] Clearly, the omission of high school dropouts introduces biases in the estimation of certain characteristics of the entire age group; however, for most purposes, the small proportion of students who drop out sets outer limits on the bias. Further, since the bias from missing dropouts should remain relatively constant from year to year, their omission should introduce little or no bias in year-to-year change estimates. Indeed, we believe the changes observed over time for those who are surveyed in the 12th grade are likely to parallel the changes for dropouts in most instances. Appendix A in *Volume I*[5] addresses in detail the likely effects of the exclusion of dropouts (as well as absentees from school on the day of the survey administration) on estimates of drug use prevalence and trends for the entire age cohort.

Sampling Procedures and Sample Weights

A multistage random sampling procedure is used to secure the nationwide sample of 12th graders each year. Stage 1 is the selection of particular geographic areas, Stage 2 is the selection of one or more high schools in each area (with probability proportionate to the student enrollment size for the grade in question), and Stage 3 is the selection of 12th graders within each high school. Up to 350 12th graders in each school may be included. In schools with more than 350 12th graders classrooms are typically randomly sampled. In schools with fewer 12th graders, the usual procedure is to include all of them in the data collection, though a smaller sample is sometimes taken to accommodate the needs of the school (either by randomly sampling entire classrooms or by some other unbiased, random method). Weights are assigned to compensate for differential probabilities of selection at each stage of sampling. Final weights are normalized to average 1.0, so that the weighted number of cases equals the unweighted number of cases overall. In order to be able to check observed trends in any given one-year interval, schools participate in the study for two consecutive years on a staggered schedule, with one half being replaced with a new random half-sample of schools each year. Therefore, in any given year about half of the schools in the sample are participating for the first time and the other half are participating for their second and final

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

[5] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

year. This three-stage sampling procedure, with annual replacement of half of the sample of schools each year, has yielded the numbers of participating schools and students shown in Table 3-1.

Questionnaire Administration

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

Questionnaire Format

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

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

In 1991, MTF was expanded to include nationally representative samples of 8th and 10th grade students surveyed on an annual basis. The 8th and 10th grade samples are not followed up and thus not included in the MTF Panel. Their information is provided here because we cover 8th , 10th, and 12th graders in Chapter 2 when comparing key findings across teens, college students, and young adults. Separate samples of schools and students are drawn at each grade level. In general, the procedures used for the annual in-school surveys of 8th and 10th grade students closely parallel those used for 12th graders, including the selection of schools and students, questionnaire administration, and questionnaire format. A major exception is that only two different questionnaire forms were used in 8th and 10th grade from 1991 to 1996, expanded to four forms beginning in 1997. The same four questionnaire forms are used for both 8th and 10th graders; most of the content is drawn from the 12th grade surveys, including the core section. Thus, key

demographic variables and measures of drug use and related attitudes and beliefs are generally identical for all three grades. Fewer values and attitudes are covered in the 8th and 10th grade forms, in part because they are likely to be more fully formed by 12th grade and best monitored there.

About 15,000 8th grade students in approximately 130 schools (mostly middle schools) and about 15,000 10th grade students in approximately 130 schools are surveyed each year (see Table 3-1).

Mode of Administration

Since 1999, all surveys for 8th and 10th graders have been fully anonymous. In previous years, MTF collected confidential, personal identification information from these respondents, and from 1991 to 1993 this information was used to follow up with 8th and 10th graders in a manner similar to follow-ups of 12th graders (see "Research Design and Procedures for the 12th Grade Follow-Up Surveys" below).[6] Follow-up of 8th and 10th graders was discontinued after 1993, precluding the need for further collection of confidential, personal identification information. Considerations supporting a switch to fully anonymous surveys in 8th and 10th grade included the following: (a) school cooperation might be easier to obtain; and (b) to the extent that collecting contact information had any effect on survey responses such an effect would be removed from the national data, which are widely compared with results of state and local surveys (nearly all of which use anonymous questionnaires), thus making those comparisons more valid.

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

Examination of the 1998 results, based on the two equivalent half-samples at grades 8 and 10, revealed that there was no effect of anonymous as compared to confidential surveys among 10th graders and only a very modest effect, if any, in self-reported substance use rates among 8th graders, with prevalence levels slightly higher in the anonymous condition.[7] All tables and figures in this volume combine data from both half-samples of 8th graders surveyed in a given year. This is also true for 10th graders, for whom we found no methodological effect, and 12th graders, for whom we assumed no such effect since none was found for 10th graders. (This chapter's later section "Representativeness and Sample Accuracy" provides further discussion of half samples in the three grades surveyed.)

Questionnaire Forms and Sample Proportions

Beginning in 1997, in order to increase the measurement content in the study of 8th and 10th graders, the number of forms was expanded from two to four, although they are not distributed in equal numbers. Forms 1, 2, 3, and 4 are assigned to one third, one third, one sixth, and one sixth of the

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

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

students, respectively. Thus, if a question appears on only one form, it is administered to either one third or one sixth of the sample. A question in two forms may be assigned to one third of the sample (one sixth plus one sixth), one half of the sample (one third plus one sixth), or two thirds of the sample (one third plus one third). A question in three forms may be assigned to two thirds (one third plus one sixth plus one sixth), or five sixths of the sample (one third plus one third plus one sixth). Footnotes to the tables throughout this volume indicate what proportion of all respondents in each grade was asked the question, if that proportion is other than the entire sample. All of the samples, whether based on one or more forms, are random samples.

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

Beginning with the graduating class of 1976, a subset of each 12th grade class has been selected to be surveyed by mail after high school. From the 12,000–19,000 12th graders originally surveyed in a given senior class, a representative sample of 2,450 is randomly chosen for follow-up.

Survey mode. Up through 2017, all follow-up surveys were conducted by mail. As described in detail below, beginning in 2018, one random half of the 19-30 year old respondents receive the typical mail surveys and the other random half are encouraged to complete web-based surveys; content is the same across the two modes.

Oversampling of substance users. In order to ensure that drug-using populations are adequately represented in the follow-up surveys, 12th graders reporting 20 or more occasions of marijuana use in the previous 30 days (i.e., daily or near daily users), or any use of the other illicit drugs in the previous 30 days are selected with higher probability (by a factor of 3.0) than the remaining 12th graders. Differential weighting is then used in all follow-up analyses to compensate for these differential sampling probabilities. Because those in the drug-using stratum receive a weight of only 0.33 in the calculation of all statistics to correct for their overrepresentation at the selection stage, there are actually more follow-up respondents than are reported in the weighted numbers given in the tables; in recent years actual numbers average about 20% higher than the weighted numbers.

Follow-ups through young-, middle, and older-adulthood. The 2,450 participants selected from each 12th grade class are randomly split into two groups of 1,225 each – one group to be surveyed on even-numbered calendar years in a series of biannual follow-up surveys, and the other group to be surveyed on odd-numbered years also in a series of biannual follow-up surveys. By alternating the two half-samples through young adulthood, MTF collects data from every graduating class each year (through age 30), even though any given respondent participates only every other year.

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

of the life span, are extremely rare and can provide needed insight into the etiology and life-course history of substance use and relevant behaviors.

Mail Follow-Up Procedures

Using information provided by 12th grade respondents on a confidential tear-off card (requesting the respondent's name, address, phone numbers, and more recently, email address and cell phone numbers with consent to use text messaging), contact is maintained with the subset of people selected for inclusion in the follow up panels. Newsletters are sent to them each year, providing a short summary of results on a variety of survey topics. Name and address corrections are requested from both the U.S. Postal Service and the individual. Questionnaires are sent in the spring to each individual biennially through age 30, then at 5-year intervals. A check (for $25 in recent years[8]), made payable to the respondent, is attached to the front of each questionnaire. Reminder letters and postcards are sent at fixed intervals thereafter; telephone callers attempt to gather up-to-date location information for those respondents with whom we are trying to make contact; and, finally, those whom we can contact but who have not responded receive a prompting phone call from the Survey Research Center's phone interviewing facility in Ann Arbor, Michigan. If requested by the respondent, a second copy of the questionnaire is sent. No questionnaire content is administered by phone. If a respondent asks not to be contacted further, that request is honored.

Web-Based Follow-Up Procedures

The 2018 data collections among young adults (19-30) mark the first use of *web-based* surveys with our panel participants. In 2018, one random half of the sample received our typical mail surveys and the other half received the "web-push" condition (i.e., first pushed toward web-based surveys and then given the opportunity to complete paper surveys). This splitting of the sample (which is replicated in 2019 data collections) allows us to calibrate our historical and developmental trends. In 2020, we plan to use web-push data collection with all young adults, and to offer paper surveys only on request and to non-respondents. Because it is possible that the data collection procedures can affect responses, we have been deliberate in this process of moving to web-based data collections. For the past several years, we have been conducting experiments with extra panel samples of young adults, examining feasibility and comparing our typical mail-only surveys to other designs pushing web-based surveys. Findings suggest that there are some condition and mode differences in responses, as detailed in our recent peer-reviewed publications.[9] In the 2018 data presented in this volume, there are only a few significant differences between those randomly assigned to mail-only and web-push conditions in the prevalence estimates of the many substances we cover. Thus, in this volume, we combine the estimates across the two conditions (using a weighted average to take into account sample size of each condition due to differential response rates as noted below) and note when there are significant differences.

With the web-push condition, we have kept the procedures as similar as possible to our typical mail-based procedures, following many of the same steps summarized above for the mail-based

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

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

procedures, including initial contact, incentives, mailing of newsletters, and follow-up contact with non-respondents. There are important differences to note. In the web-push procedures, respondents were provided information to respond online (i.e., they were each given a link and PIN to access their survey) and then they were later offered a paper survey if they did not respond to the web survey. In addition to initial mail contact, respondents were also contacted by email and text message (for those who provided email and cellphone contact information in the 12th grade surveys, along with their permission to contact them by text). We ensure confidentiality of web-based responses, with data being immediately encrypted. By design, respondents can pause their web surveys and then easily get back into them; we send email reminders to non-respondents and respondents who have only partially completed the survey. The web-based surveys are optimized for a variety of operating systems and devices, including computers, tablets and smart phones.

As is typical in web-push procedures, respondents randomly assigned to this condition were also provided access to paper surveys; those who did not respond within a month of initial contact were automatically sent paper surveys. In the process of telephoning non-respondents, paper surveys were offered in addition to the survey login information. We found that 20% of respondents in the web-push condition completed paper surveys instead of web-based surveys; these respondents were included in the web-push condition in our tests for differences by assigned survey condition reported in this Volume, as appropriate given the definition of web-push procedures as well as differences in respondent contact between the two conditions. In supplemental analyses not shown in this Volume, we also tested for differences by response mode (rather than assigned condition). Findings were similar to what we report in this Volume; in general, there are very few significant differences in prevalence estimates based on survey procedures. A more detailed comparison by assigned and completed survey mode among 2018 young adults is being conducted for an empirical article.

Follow-Up Questionnaire Format

The questionnaires used in the follow-up surveys of 19- to 30-year-olds parallel those used in 12th grade. Many of the questions are the same, including the core section dealing with drug use. Respondents are consistently sent the same form of the questionnaire that they first received in 12th grade so that changes over time in their behaviors, attitudes, experiences, and so forth can be measured directly. Questions specific to high school status and experiences are dropped in the follow-ups, and questions relevant to post–high school status and experiences are added (mostly in the core section). The post-high school questions deal with issues such as college attendance, military service, civilian employment, marriage, and parenthood. In the study's early follow-ups (through 1988), the sample size for a question appearing on a single form was one fifth of the total sample. A sixth form was introduced in 12th grade beginning with the class of 1989 and extended a year later beginning with the follow-up surveys of that same class. Therefore, since 1990, a question appearing on a single form has been administered to one sixth of the total sample in the 19-30 young adult age band. Single-form data from a single cohort are typically too small to make reliable estimates; therefore, in most cases where they are reported, single-form data from several adjacent cohorts are combined. The content and ordering of items are identical between the typical mail surveys and the new web-based surveys for the 19-30 year olds, although the web-based surveys have more efficient skip patterns. The web-surveys have been optimized for use on multiple platforms, including smart phones and other devices.

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

REPRESENTATIVENESS AND SAMPLE ACCURACY OF INITIAL SCHOOL-BASED DATA

School Participation

Schools are invited to participate in the MTF study for a two-year period. For each school that declines to participate, a similar school (in terms of size, geographic area, urbanicity, etc.) is recruited as a replacement. In 2018, either an original school or a replacement school was obtained in 90% of the sample units. With very few exceptions, each school participating in the first year has agreed to participate in the second year as well. Figure 3-2 provides the year-specific school participation rates and the percentage of units filled since 1977. As shown in the figure, replacements for schools that decline participation are obtained in the vast majority of cases.

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

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

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

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

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

With respect to participation rates and changes in estimates of drug use, it is extremely unlikely that results have been significantly affected by changes in school participation rates. If changes in participation rates seriously affected prevalence estimates, there would be noticeable bumps up or down in concert with the changing rates. But this series of surveys produces results that are very smooth and generally change in an orderly fashion from one year to the next. Moreover, different substances trend in distinctly different ways. We have observed, for example, marijuana use decreasing while cocaine use was stable (in the early 1980s), alcohol use declining while cigarette use held steady (in the mid- to late 1980s), ecstasy use rising sharply while cocaine use showed some decline (late 1990s, early 2000s); and marijuana use continuing to rise while alcohol use hit historic lows (since 2011). Moreover, attitudes and perceptions about drugs have changed variously, but generally in ways quite consistent with the changes in actual use. All of these patterns are explainable in terms of psychological, social, and cultural factors; they cannot be explained by the common factor of changes in school participation rates.

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

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

At each grade level, half of each year's sample comprises schools that started their participation the previous year, and half comprises schools that began participating in the current year. (Both samples are national replicates, meaning that each is drawn to be nationally representative by itself.) This staggered half sample design is used to check on possible fluctuations in the year-to-year trend estimates due to school turnover. For example, separate sets of one-year trend estimates

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

are computed based on students in the half-sample of schools that participated in both 2017 and 2018, then based on the students in the half-sample that participated in both 2016 and 2017, and so on. Thus, each one-year matched half-sample trend estimate derived in this way is based on a constant set of schools (about 65 in 12th grade, for example, over a given one-year interval). When the trend data derived from the matched half-sample (examined separately for each class of drugs) are compared with trends based on the total sample of schools surveyed each year, the results are usually highly similar, indicating that the trend estimates are affected little by school turnover or shifting participation rates. As would be expected, levels of absolute prevalence for a given year are not as precisely estimated using just the half sample because the sample size is only half as large.

Student Participation

In 2018, completed questionnaires were obtained from 89% of all sampled students in 8th grade, 86% in 10th grade, and 81% in 12th grade (see Table 3-1 for student response rates in all years). In the large majority of cases, students are missed due to absence from school and/or class at the time of data collection; for reasons of cost efficiency, we typically do not schedule special follow up data collections for absent students. Because students with fairly high rates of absenteeism also report above-average rates of drug use, some degree of bias is introduced into the prevalence estimates by missing the absentees. Much of that bias could be corrected through the use of special weighting based on the self-reported absentee rates of the students who did respond; however, we decided not to use such a weighting procedure because the bias in overall drug use estimates was determined to be quite small *and* the necessary weighting procedures would have introduced greater sampling variance in the estimates. Appendix A in *Volume I*[11] illustrates the changes in trend and prevalence estimates that would result if corrections for absentees had been included. Of course, some students simply refuse, when asked, to complete a questionnaire. However, the proportion of explicit refusals amounts to less than 1.8% of the target sample for each grade.

Sampling Accuracy of the Estimates

Confidence intervals (95%) are provided in Tables 4-1a through 4-1d in *Volume I*[11] for lifetime, annual, 30-day, and daily prevalence of use for 8th, 10th, and 12th grade students. Confidence intervals for lifetime prevalence for 12th graders average less than ±1.4% across a variety of drug classes. That is, if we took a large number of samples of this size from the universe of all schools containing 12th graders in the coterminous United States, 95 times out of 100 the sample would yield a result that would be less than 1.4 percentage points divergent from the result we would get from a comparable massive survey of all 12th graders in all schools. This is a high level of sampling accuracy, permitting detection of fairly small changes from one year to the next. Confidence intervals for the other prevalence periods (last 12 months, last 30 days, and current daily use) are generally smaller than those for lifetime use. In general, confidence intervals for 8th and 10th graders are very similar to those observed for 12th graders. Some drugs (smokeless tobacco, PCP, and others, as indicated in the footnotes to the tables) are measured on only one or two questionnaire forms; these drugs will have somewhat larger confidence intervals because they are based on smaller sample sizes.

[11] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

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

PANEL ATTRITION AND RETENTION

We discuss here 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.

The Problem of Panel Attrition

Virtually all longitudinal studies – including MTF – experience attrition, which is often differential with respect to health risks including substance use.[12] In addition, survey response rates in general have been declining in recent decades,[13] 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 follow-up questionnaires sent each year (roughly 19,000) 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 surveys is that attrition rates tend to be higher than for data 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 large-scale 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 above and below), and the results of our experiments with web-

[12] 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; 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; Galea, S., & Tracy, M. (2007). Participation rates in epidemiologic studies. *Annals of Epidemiology, 17*(9), 643-653; McCabe, S.E., & West, B.T. (2016). Selective nonresponse bias in population-based survey estimates of drug use behaviors in the United States. *Social Psychiatry & Psychiatric Epidemiology, 51*(1), 141-153; 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.

[13] 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; Groves, R. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly, 70*, 646–75; Groves, R.M., Dillman, D.A., Eltinge, J.L., & Little, R.J.A. (Eds.) (2002). *Survey nonresponse*. New York: Wiley. Kim, J., Gershenson, C., Glaser, P., & Smith, T.W. (2011). The polls – trends: Trends in surveys on surveys. *Public Opinion Quarterly, 75*(1), 165-191; Groves, R.M. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly, 70(5)*, 646-675; 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; Pew Research Center. (2012). Assessing the representativeness of public opinion surveys; 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.

based data collections appear promising in terms of response rates and cost per respondent.[14] As mentioned above, starting in 2018, we are using web-based survey procedures with a random half of young adults, and our plan for the future is to move all follow-up data collections to push web-based surveys (and providing paper surveys as needed).

Retention Rates

The MTF survey data on American college students – an important subgroup in the panel surveys – now encompass 39 years. We know about our respondents' actual college attendance only from those who are invited to and do complete follow-up questionnaires; however, we can use 12th grade questionnaire answers (i.e., college intentions/expectations and program of study) to predict college attendance with a high degree of accuracy. MTF's retention of 12th graders who identified themselves as "college-bound" remains reasonably good. Among those participants in high school who were targeted for follow-up from the classes of 2012-2017, *and* who reported planning to attend college and being enrolled in a college-prep curriculum in 2018, the follow-up retention rates were: 40% in the first follow-up, one to two years past high school (based on the classes of 2016-2017); 43% in the second follow-up, three to four years past high school (based on the classes of 2014-2015); and 44% in the third follow-up, five to six years past high school (based on the classes of 2012-2013).

Retention rates in the biennial follow-ups of *all* panel members modal ages 19–30 (corresponding to the first six follow-ups) decline with the length of the follow-up interval, of course. For the five surveys from 2014 to 2018, the response rate in the first follow-up (corresponding to one to two years past high school) averaged 38%; and for the second through sixth follow-ups (corresponding to 3-12 years past high school) response rates averaged 39%. We found a significant difference ($p < .001$) in response rates by survey condition combining across 19-30 year olds in 2018: For typical mail condition, the response rate was 42.4%, and for web-push condition, the response rate was 47.3% (note that these response rates are higher than the retention rates listed above for this age group because those young adults already lost to follow-up were not assigned to either condition and thus the denominator in these response rates are somewhat lower than those in retention rates indicated above).

Among long-term respondents – those 35, 40, 45, 50, 55, and 60 years old – the retention rates are quite good, apparently due to cohort differences in their propensity to respond. Among respondents surveyed from 2014-2018, the average response rates for those age 35 (17 years past high school), age 40 (22 years past high school), age 45 (27 years past high school), age 50 (32 years past high school), and age 55 (37 years past high school) were 38%, 40%, 40%, 45%, and 53%, respectively. And for 60-year-olds, an age group surveyed for the first time in 2018, the response rate was 53%. In sum, the response rates attained under the current design range from respectable to good, especially when the low-cost nature of the procedures, the very long time intervals involved, and the substantial length of the questionnaires are taken into account. More importantly, the evidence leaves us confident that the data resulting from these follow-up panels are reasonably accurate.

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

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 U.S. 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, based on analyses conducted some years ago for 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 in 12th grade; 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.[15]

Thus, even among those who were active heavy users of marijuana in high school, response rates at the fourth follow-up were 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 estimates 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 2013 (Substance Abuse and Mental Health Administration, 2014[16]), 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. As shown in Table 3-2, these comparisons showed a high degree of comparability in the prevalence estimates of the two studies,[15] particularly with the post-stratification procedure applied to the MTF data, as presented in this volume.

[15] For more detail on these comparisons, see Chapter 3 in: 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: Institute for Social Research, The University of Michigan, 416 pp.

[16] Substance Abuse and Mental Health Administration. (2014). Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings and Detailed Tables.

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 detailed 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.

Finally, as is evident in the prevalence estimates and trends presented in this volume, substantial proportions of drug users remain in the MTF panels. Nonetheless, as mentioned above, we are unlikely to maintain large numbers of heavy drug users in our panels, suggesting that our estimates are conservative with respect to the adult population of U.S. high school graduates, even with post-stratification weighting.

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.[17] 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.[18] Thus, differential attrition may be of less concern in multivariable panel analyses focused on understanding the course, causes, and consequences of substance use. Still, as we summarized above, correcting for attrition can be important, and we continue to do so using these and other correction procedures (e.g., attrition weighting, data imputation, FIML) in our scientific publications.

[17] Bachman, J. G., O'Malley, P. M., & Johnston, J. (1978). *Youth in Transition: Vol. 6. Adolescence to adulthood: A study of change and stability in the lives of young men.* Ann Arbor, MI: Institute for Social Research. 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. Galea, S., & Tracy, M. (2007). Participation rates in epidemiologic studies. *Annals of Epidemiology, 17*(9), 643-653. 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. Groves, R., & Peytcheva, E. (2008). The impact of nonresponse rates on nonresponse bias: A meta-analysis. *Public Opinion Quarterly, 72,* 167–89. 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. 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. Peytchev, A. (2013). Consequences of survey nonresponse. *Annals of the American Academy of Political and Social Science, 645*(1), 88–111. Van Loon, A.J.M., Tijhuis, 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.

[18] Bryant, A. L., Schulenberg, J. E., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (2000). Understanding the links among school misbehavior, academic achievement, and cigarette use: A national panel study of adolescents. *Prevention Science, 1*(2), 71–87. 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. 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. 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. 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.

VALIDITY OF MEASURES OF SELF-REPORTED DRUG USE

Are sensitive behaviors such as drug use honestly reported? Like most studies dealing with sensitive behaviors, we have no direct, totally objective validation of the present measures; however, the considerable amount of existing inferential evidence strongly suggests that the MTF self-report questions produce largely valid data. Here we briefly summarize this evidence.[19]

First, using a three-wave panel design, we established that the various measures of self-reported drug use have a high degree of reliability – a necessary condition for validity.[20] In essence, respondents were highly consistent in their self-reported behaviors over a three- to four-year time interval. Second, we found a high degree of consistency among logically related measures of use within the same questionnaire administration. Third, the proportion of 12th graders reporting some illicit drug use has reached two thirds of all respondents in peak years and over 80% in some follow up years, constituting prima facie evidence that the degree of underreporting must be very limited. Fourth, 12th graders' reports of use by their unnamed friends – about whom they would presumably have considerably less reason to conceal information concerning use – have been highly consistent with self-reported use in the aggregate, both in terms of prevalence and trends in prevalence, as discussed in Chapter 7. Fifth, we have found self-reported drug use to relate in consistent and expected ways based on theory to a number of other attitudes, behaviors, beliefs, and social situations – strong evidence of "construct validity." Sixth, the missing data levels for the self-reported use questions are only very slightly higher than for the preceding nonsensitive questions, in spite of explicit instructions to respondents immediately preceding the drug section to leave blank those questions they feel they cannot answer honestly. Seventh, an examination of consistency in reporting of lifetime use conducted on the long-term panels of graduating seniors found quite low levels of recanting of earlier reported use of the illegal drugs.[21] There was a higher level of recanting for the psychotherapeutic drugs, suggesting that adolescents may actually overestimate their use of some drugs because of misinformation about definitions, and this knowledge improves as they get older. Finally, the great majority of respondents, when asked, say they would answer such questions honestly if they are or were users.[22]

As an additional step to assure the validity of the data, we check for logical inconsistencies in the answers to the triplet of questions about use of each drug (i.e., lifetime, annual, and 30-day use), and if a respondent exceeds a maximum number of inconsistencies across the set of drug use questions, his or her record is deleted from the data set. Similarly, we check for improbably high

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

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

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

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

rates of use of multiple drugs and delete such cases, assuming that the respondents are not taking the task seriously. Fortunately, very few cases (<3%) have to be eliminated for these reasons.

This is not to argue that self-reported measures of drug use are necessarily valid in all studies. In MTF we have gone to great lengths to create a situation and set of procedures in which respondents recognize that their confidentiality will be protected. We have also tried to present a convincing case as to why such research is needed. The evidence suggests that a high level of validity has been obtained. Nevertheless, insofar as any remaining reporting bias exists, we believe it to be in the direction of underreporting. Thus, with the possible exception of the psychotherapeutic drugs, we believe our estimates to be lower than their true values, even for the obtained samples, but not substantially so.

Consistency and Measurement of Trends

MTF is designed to be sensitive to changes from one time period to another. A great strength of this study is that the measures and procedures have been standardized and applied consistently across many years. To the extent that any biases remain because of limits in school participation and/or respondent retention, and to the extent that there are distortions (lack of validity) in the responses of some students, it seems very likely that such problems will exist in much the same proportions from one year to the next. In other words, biases in the survey estimates will tend to be consistent from one year to another, meaning that they should have very little effect on our measurement of trends. Even as panel retention rates decline, our ability to adjust for differential attrition based on what we know about those lost to attrition allows for us to maintain consistency in the panel samples over time. The smooth and consistent nature of most trend curves reported for the various drugs provides rather compelling empirical support for this assertion.

TABLE 3-1
Sample Sizes and Response Rates

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

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

TABLE 3-2
Substance Use Among Ages 19-28, Based on 2013 Data from Monitoring the Future and The National Survey on Drug Use and Health

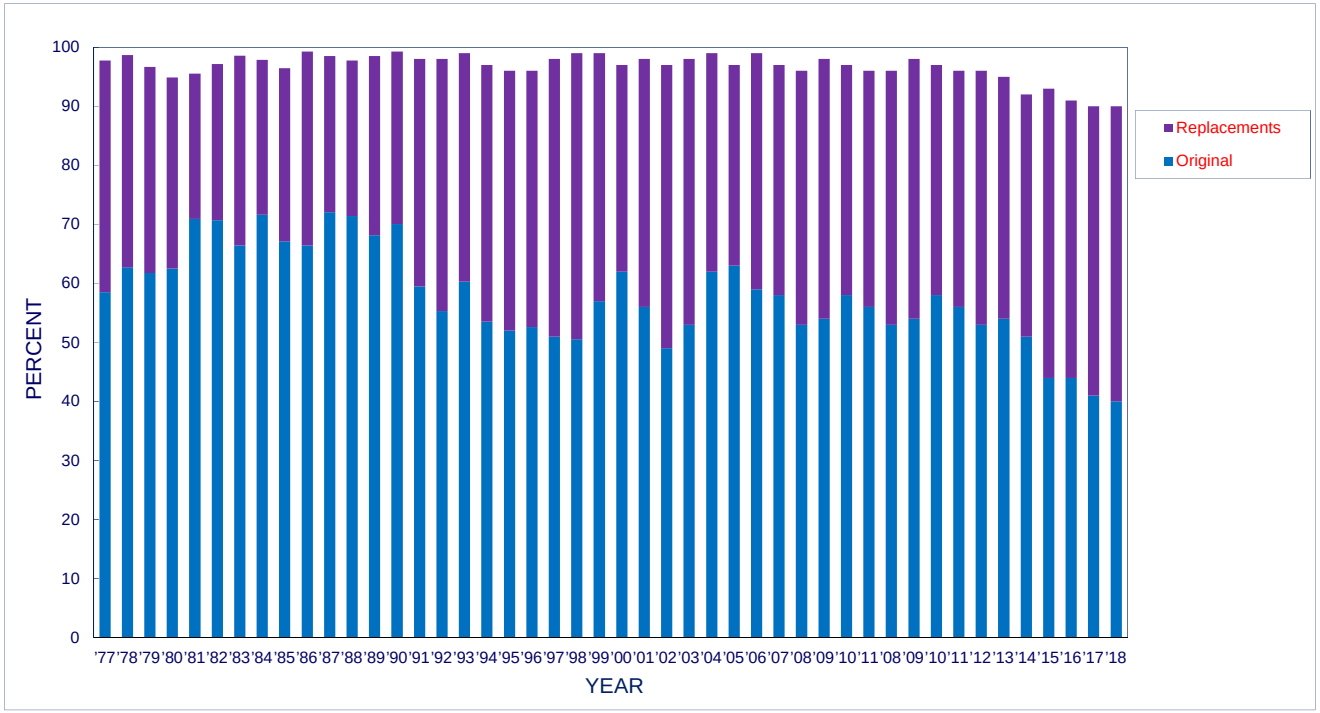
	NSDUH	MTF (Selection Weight Only)	MTF (Post-Stratification Weight)
Marijuana (use in past month)	17.9	16.9	19.1
Cocaine (use in past year)	4.7	3.5	3.9
Alcohol (use in past month)	65.0	67.7	68.7
Cigarettes (use in past month)	32.1	17.5	20.0

Source. The Monitoring the Future study, the University of Michigan and the National Survey on Drug Use and Health.

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

Source. The Monitoring the Future study, the University of Michigan.
Note. One dot equals one school.

FIGURE 3-2
School Participation Rates



Percent of slots filled by...	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07
Original	59	63	62	63	71	71	66	72	67	66	72	71	68	70	59	55	60	53	52	53	51	51	57	62	56	49	53	62	63	59	58
Replacements	39	36	35	32	25	26	32	26	29	33	26	26	30	29	39	43	39	44	44	43	47	48	42	35	42	48	45	37	34	40	39
Total	98	99	97	95	96	97	99	98	96	99	99	98	99	99	98	98	99	97	96	96	98	99	99	97	98	97	98	99	97	99	97

filled by...	'08	'09	'10	'11	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Original	53	54	58	56	53	54	58	56	53	54	51	44	44	41	40
Replacements	43	44	39	40	43	44	39	40	43	41	41	49	47	49	50
Total	96	98	97	96	96	98	97	96	96	95	92	93	91	90	90

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

Chapter 4

PREVALENCE OF DRUG USE IN EARLY, MIDDLE, AND LATER ADULTHOOD

Longitudinal panel studies that track the same individuals across several years are typically used to examine developmental changes with age, as is evident in many of our publications. At the same time, the multiple cohort feature of the MTF design provides a useful snapshot of each age group in a given year, showing the prevalence of use of various substances for each age group in that year, thus enabling us to compare these prevalence estimates with those of the same age in earlier years. This chapter highlights such prevalence data for the adult age groups covered by MTF, starting right after high school and moving through middle and into older adulthood. Each age group is defined by the modal age for its graduating high school class cohort.[1] We will see that recent use tends to be higher in the early post-high school age groups, corresponding to the new freedoms associated with leaving high school and often moving away from the parental home.[2,3] But sometimes there are also strong cohort effects that underlie differences among age groups at a given point in time; in this chapter we will see evidence of both age-related differences and cohort effects.

Estimates of drug use in the adult population are most often generated through household survey interviews of cross-sections of the general population. In the present study, our estimates come from self-reported questionnaires from respondents in the follow-up surveys. These are representative samples of previous classes of high school students who started their participation in MTF in their senior year. As described in more detail in Chapter 3, MTF has conducted ongoing panel studies on representative samples from each graduating high school senior class beginning with the class of 1976. From each class, two matched nationally representative subpanels of roughly 1,200 students each are randomly selected to comprise the follow-up panels through young adulthood; one subpanel is surveyed one year after graduation and every two years after that up through age 29/30. Beginning at modal age 35, data collection occurs at the same time for both subpanels at five-year intervals. So, while each *cohort* participates every year up through age 30, each *individual respondent* participates only every other year until age 29/30. This alternating panel design was chosen to reduce the burden and repetitiveness of participating in the panel study every year while still allowing for full age coverage between 19 and 30. Thus, in a given year, the study includes respondents ages 19-30 from one of the two subpanels from each of the last 12 senior classes previously participating in MTF.[4]

In 2018, representative samples of the classes of 2006 through 2017—modal ages 19 to 30—were surveyed using the same set of standard young adult survey instruments at each age. (There are six

[1] High school seniors have a modal age (the most common age) of 18; therefore, in a follow-up conducted 12 years later they would have a modal age of 30.

[2] Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, NJ: Lawrence Erlbaum Associates.

[3] Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles, and beliefs*. Mahwah, NJ: Lawrence Erlbaum Associates.

[4] Through 2001, the follow-ups also included modal ages 31 and 32. This seventh follow-up was dropped in 2002 because we believed that the costs were no longer justified by the marginal benefits of having these follow-up data, given that an age-35 survey was being conducted.

different questionnaire forms and each individual receives the form corresponding to the form he or she completed in 12th grade.) For brevity, we refer to this 19-30 year old age range as "young adults" in this chapter.

As discussed in Chapter 3, for 2018 data collections of 19-30 year olds, MTF began the transition from our typical mail-based surveys to web-based surveys. To test for survey mode differences, we randomly assigned half of the young adult respondents in 2018 to the typical mail survey condition and half to the new web-push condition (as described in Chapter 3). We found few significant differences in prevalence estimates between the two conditions, and thus combined the two in a weighted average in this chapter. We note exceptions when estimates differed significantly between conditions in the text and tables. At the end of the first section below on prevalence of substance use, we summarize the few significant differences in prevalence estimates across the two conditions.

To build on the national panels of young adults, we extend the surveys into and beyond middle adulthood. The middle adulthood surveys are conducted beginning at modal age 35 (that is, 17 years after high school graduation) and at five-year intervals thereafter through age 60. In each of these later follow-ups, the two sub-panels from the relevant graduating class are *both* surveyed in the same year, using a single questionnaire form instead of the six forms that were used from age 19 to 30. The content of the questionnaires is revised to some degree across age to be more relevant to the different developmental periods, although key substance use and other measures remain the same. The results of the 2018 follow-up surveys characterize the population of high school graduates of modal ages 19-30, 35, 40, 45, 50, 55, and 60. In 2018, we conducted our first age 60 follow-up survey (senior class of 1976); this volume provides the first examination of age 60 data. As discussed in Chapter 1, the high school dropout segment, between 6% and 15% across survey years, is missing from the senior year surveys and all of the follow-up surveys as well (as noted in Chapter 1, the high school dropout rate has declined for the younger cohorts). Thus, the results presented here are not necessarily generalizable to the entire population of each age, but are generalizable to the great majority of young and middle-aged adults—those who completed high school.

Figures 4-1 through 4-21 contain 2018 *prevalence* data by age, corresponding to respondents ages 19-30 (for total and in two-year age groups), as well as 35, 40, 45, 50, 55, and 60 year olds. For comparison purposes, data are also included for the 2018 high school senior class, listed as 18 year olds. Figures provided in Chapter 5 contain the *trend* data for each of these age groups derived from the repeated cross-sectional surveys, including 12th graders and high school graduates through age 60. In the figures in Chapters 4 and 5, age groups spanning the young adult years have been paired into two-year intervals in order to increase the number of cases, and thus the precision, for each point estimate; the approximate weighted sample sizes are 4,400 for 19-30 year olds, and 700-800 per two year age group (see Tables 4-1 through 4-5). The data for ages 35, 40, 45, 50, 55, and 60 are, of necessity, based on a single age in each case. As indicated above, *both* half-samples from a given class cohort are included in each year's samples of 35, 40, 45, 50, 55, and 60 year olds. In 2018 the paired half-samples came from the high school graduating classes of 2001, 1996, 1991, 1986, 1981, and 1976, respectively. The respective weighted numbers of cases were 692, 752, 771, 737, 775, and 825. (Actual unweighted numbers are somewhat higher because those from the oversampled drug-using stratum in high school, drawn at three times the rate of the others

to assure a sufficient sample of drug users, are counted as only one third of a case in the weighted follow-up data. This is discussed more in Chapter 3.)

The weighting procedures used to adjust the panel data for the effects of panel attrition are described in Chapter 3.

REPLICABILITY OF FINDINGS

It is worth noting that any pattern of age-related differences found in one year can be checked in an adjacent year (i.e., the previous or succeeding year's volume) for replicability, because two non-overlapping half-samples of follow-up respondents in the 19-to-30 age band are surveyed on alternating years. In the case of the 35, 40, 45, 50, 55, and 60 year olds, two entirely different graduating classes make up the samples for any two adjacent, chronological years of the survey results.

THE IMPORTANCE OF ADJUSTED LIFETIME PREVALENCE ESTIMATES

In Figures 4-1 through 4-21, two different estimates of *lifetime* prevalence are provided. One estimate is based on the respondents' *most recent* (i.e., 2018) responses about ever having used the drug in question (the blue bar). The other estimate takes into account each respondent's answers regarding lifetime use gathered from *all* of the previous data collections in which he or she participated (the white bar). *To be categorized as one who has used the drug based on all past answers regarding that drug, a respondent must have reported either lifetime use in the most recent data collection* and/or *reported some use in his or her lifetime on at least two earlier data collections.* (Because respondents of ages 18 through 20 cannot have their responses adjusted on the basis of two earlier data collections, adjusted prevalence rates are reported only for ages 21 and up; when considering the total age 19-30 sample, lifetime prevalence is also unadjusted.) Most other epidemiological studies can present only an unadjusted estimate because they have data from a single cross-sectional survey. An adjusted estimate of the type used here is possible only when panel data have been gathered so that a respondent can be classified as having used a drug at some time in his or her life, based on earlier answers, even though he or she no longer indicates lifetime use in the most recent survey.

The divergence of these two estimates increases as time passes; consistent divergences within age across history suggest this is largely an age effect (rather than a period or cohort effect). Obviously, there is more opportunity for inconsistency within individuals as the number of data collections increases. Our judgment is that the truth lies somewhere between the two estimates: the lower estimate may be depressed by tendencies to forget, forgive, or conceal earlier use, whereas the upper estimate may include earlier response errors or incorrect definitions of drugs that respondents appropriately corrected in later surveys as they became more knowledgeable. It should be noted that a fair proportion of those giving inconsistent answers across time had earlier reported having used the given drug only once or twice in their lifetime.

As we have reported in depth previously, the cross-time stability of self-reported usage measures, taking into account both prevalence and frequency of self-reported use, is very high.[5] Note that the

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

divergence between the two lifetime prevalence estimates is greatest for the psychotherapeutic drugs (including amphetamines, sedatives (barbiturates), narcotics other than heroin, and tranquilizers) and for the derivative index of ***use of an illicit drug other than marijuana*** (Figure 4-2), which is heavily affected by the estimates of use of these psychotherapeutic drugs (without a doctor's orders). We believe this is due to respondents having greater difficulty accurately categorizing psychotherapeutic drugs (usually taken in pill form) with a high degree of certainty, especially if such a drug was used (without a doctor's orders) only once or twice. We expect higher inconsistency across time when the event, and in many of these cases a single event, is reported with a relatively low degree of certainty at quite different points in time. Those who have gone beyond simple experimentation with one of these drugs would likely be able to categorize them with a higher degree of certainty. Also, those who have experimented more recently (i.e., in the past month or year) should have a higher probability of recall as well as fresher information for accurately categorizing the drug.

We provide both estimates of lifetime use across the list of drugs to make clear that a full use of respondent information provides a possible range for lifetime prevalence estimates, not a single point. However, by far the most important use of the prevalence data is to track *trends* in *annual and 30-day* (as opposed to lifetime) use. Thus, we are much less concerned about the nature of the variability in the lifetime estimates than we might otherwise be. The lifetime prevalence estimates are of importance primarily in showing the degree to which a drug class has penetrated the general population overall as well as particular cohorts; we believe that the evidence from the lifetime estimates suggests that other cross-sectional surveys of adults are subject to underreporting and that to some degree such underreporting increases with age, because adolescence and early adulthood are the periods in the life course during which most drug use occurs.[6]

PREVALENCE OF DRUG USE ACROSS AGE GROUPS

Figures 4-1 through 4-21 provide 2018 prevalence rates for each class of drugs, covering respondents ages 18 to 60. Tables 4-1 through 4-5 provide 2018 prevalence estimates for 19-30 year olds, for the total sample and by sociodemographic characteristics.

This section discusses differences in 2018 as a function of age, but it should be noted that these age differences are confounded with cohort differences. Thus, although the discussion is accurate with respect to age differences, it is not necessarily the case that the age differences would be similar in other time periods. In fact, our recent evidence, including many findings provided in Chapter 5, suggests both similarities and differences by age across cohorts. [7]

To begin this summary, we note three general age-related trends in 2018 prevalence; these trends were evident as they have been in our previous annual findings. ***First***, for nearly all illicit drugs considered across ages 18 to 60, *lifetime* prevalence was higher for the older age groups, as would be expected (because of both age effects and cohort effects, with the current older cohorts being

[6] For a more detailed analysis and discussion, see Johnston, L. D., & O'Malley, P. M. (1997). The recanting of earlier-reported drug use by young adults. In L. Harrison & A. Hughes (Eds.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (NIDA Research Monograph No-167). Washington, DC: National Institute on Drug Abuse. Accessed at https://archives.drugabuse.gov/nida-research-monograph-index

[7] See 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 toward lower intercepts and steeper, ascending slopes. *Development and Psychopathology, 25*(2), 527-543.

from the highest drug using cohorts in the life of the study). The high levels of lifetime use among adults at ages 55 and 60 in 2018 are especially noteworthy, with adjusted lifetime prevalence of ever using *any illicit drug* being almost nine out of ten for 2018 55 and 60 year olds. ***Second***, *annual and 30-day* illicit drug use in 2018 are highest among those in their early 20s for nearly all drugs, and then lower in subsequent age groups through age 60. Regarding marijuana in particular, annual use (43-44%) and 30-day use (26-28%) were highest for 21-24 year olds, with both declining mostly linearly with age to 16% and 11%, respectively, at age 60. ***Third***, these age trends of annual and 30-day use did not generally apply for alcohol and tobacco use in 2018, with most age patterns being either rather flat across age or showing increases with age. An important exception is binge drinking (five or more drinks in a row at least once in last two weeks), which was highest at age 23/24 in 2018 at 37% and then progressively lower across age groups to 16% among 60 year olds. Details of and exceptions to these general age-related trends are provided below. As we note, age-related trends likely reflect, to some extent, cohort effects and secular trends.[8]

- The *adjusted lifetime prevalence* figures are most striking for today's 55 and 60 year olds (the high school classes of 1981 and 1976), who were passing through adolescence near the peak of the 1970s drug epidemic. Nearly nine out of ten (89%) reported trying ***an illicit drug*** (lifetime prevalence, adjusted), leaving only 11% who reported never having done so (Figure 4-1). Staying with the adjusted lifetime figures, about four out of five 55 and 60 year olds (82% and 79%, respectively) said they had tried ***marijuana*** (Figure 4-3), and about three quarters (75% and 77%, respectively) said they had tried some ***other illicit drug*** (Figure 4-2), including almost half (47% and 48%) who had tried ***cocaine*** specifically (Figure 4-7). The adjusted lifetime prevalence of ***any illicit drug*** for 2018 50 year olds (high school class of 1986) was somewhat lower than for the 55 and 60 year olds, but still notably high at 82%; moving down the age spectrum, prevalence for 35-45 year olds was 74-78% in 2018. It is clear from Figure 4-1 (and many of the other figures in this chapter) that *the parents and grandparents of today's teenagers and young adults represent very drug-experienced generations*; this may help to explain the *acceptance of medical marijuana* in a large number of states and *legalization of recreational marijuana* for adults in a growing number of states.

- In 2018, almost half (48%) of the high school seniors reported trying at least one illicit drug in their lifetime, typically marijuana (44%) as summarized below. Lifetime prevalence figures tend to be higher for those in their 20s than at earlier ages, suggesting that initiation of some drugs continues for many youth through their 20s. Among 29 to 30 year olds adjusted lifetime prevalence reached 77% for ***any illicit drug***, 70% for ***marijuana***, 55% for ***any illicit drug other than marijuana***, and 20% for ***cocaine***. The 29 to 30 year olds graduated from high school in 2006 and 2007, long after the peak of the 1970s drug epidemic and after the peak of the relapse phase in the epidemic during the 1990s; even in these relatively low drug-using cohorts, only about one fourth (23%) report *never* having tried an illegal drug.

[8] See for example: Patrick, M. E., Terry-McElrath, Y. M., Lanza, S. T., Jager, J., Schulenberg, J. E., & O'Malley, P. M. (2019). Shifting age of peak binge drinking prevalence: Historical changes in normative trajectories among young adults aged 18 to 30. *Alcoholism: Clinical and Experimental Research, 43*, 287-298.

- As summarized below, despite the higher lifetime prevalence rates of illicit drugs among older age groups, these older groups generally showed *annual* or *30-day* prevalence rates that are typically considerably lower than those of today's 12th graders and young adults, suggesting that desistence more than offsets the incidence of initiating use of most illicit drugs during the years after high school.

  In analyses published elsewhere, we looked closely at patterns of change in drug use with age and identified post-high school experiences that contribute to declining levels of annual or 30-day use of drugs as respondents grow older. For example, the likelihood of marriage increases with age, and we have found that marriage is consistently associated with declines in ***alcohol*** use, ***binge drinking***, ***marijuana*** use, and ***cocaine*** use, and most likely just about all of the other illicit drugs as well.[9]

- For use of ***any illicit drug***, *annual* prevalence in 2018 was 42% among 19-30 year olds combined (Table 4-1), peaking among 21 to 24 year olds (47%); it was lowest among the older age groups, ranging between 19% and 30% among 35 to 60 year olds (Figure 4-1). Thirty-day prevalence was 26% among 19-30 year olds combined and highest among 21-22 year olds (30%); it was lower among the older age groups (12% to 18%). Thus, the annual and 30-day use of any illicit drugs in 2018 was highest among those in their early 20s.

- *Lifetime* prevalence for ***marijuana*** (Figure 4-3) in 2018 generally increased with age through the 20s, with adjusted lifetime prevalence reaching 70% among those aged 29-30. But, against the general pattern of increasing lifetime prevalence with age, prevalence was level or even slightly lower among 45 year olds (68%). This pattern of lifetime use leveling or even being lower among 45 year olds was also true for some other illicit drugs (e.g., amphetamines, cocaine, sedatives (barbiturates). The 45 year olds graduated from high school in 1991 when prevalence of marijuana and other drugs was at or near historic lows across the past four decades, thus suggesting a cohort effect.

- *Annual* prevalence for ***marijuana*** in 2018 was 38%[10] for 19-30 year olds combined (Table 4-1), and highest at ages 21-22 (44%); it generally declined through age 50 (13%) and then

[9] See MTF website for examples including: a) Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities.* Mahwah, NJ: Lawrence Erlbaum Associates; and Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles, and beliefs*. Mahwah, NJ: Lawrence Erlbaum Associates; b) O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2004). Studying the transition from youth to adulthood: Impacts on substance use and abuse. In J. S. House, F. T. Juster, R. L. Kahn, H. Schuman, & E. Singer (Eds.), *A telescope on society: Survey research and social science at the University of Michigan and beyond* (pp. 305–329). Ann Arbor, MI: The University of Michigan Press; c) 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; d) Maggs, J. L., Jager, J., Patrick, M. E., & Schulenberg, J. E. (2012). Social patterning in early adulthood in the USA: Adolescent predictors and concurrent wellbeing across four distinct configurations. *Longitudinal and Life Course Studies* (Special Section: Transition to Adulthood in the UK, the US and Finland; Guest Editors: J. E. Schulenberg and I. Schoon), *3*(2), 190-210; e) McCabe, S. E., Kloska, D. D., Veliz, P., Jager, J., & Schulenberg, J. E. (2016). Developmental course of nonmedical use of prescription drugs from adolescence to adulthood in the United States: National longitudinal data. *Addiction*, *111*(12), 2166-2176; f) Jang, B., Patrick, M. E., & Schuler, M. S. (2018). Substance use behaviors and the timing of family formation during young adulthood. *Journal of Family Issues, 39*, 1396-1418; and Jang, B., Schuler, M. S., Evans-Polce, R. J., Patrick, M. E. (2018). Marital status as a partial mediator of the associations between young adult substance use and subsequent substance use disorder: Application of causal inference methods. *Journal of Studies on Alcohol and Drugs*, *79*, 567-577.

[10] As noted in Table 4-1, for the 2018 estimate of annual marijuana use for 19-30 year olds combined, there was a significant difference ($p<.05$) between the typical mail condition of survey administration (36.5%) and the new web-push condition (39.5%) of survey administration.

increased somewhat at ages 55 and 60 (16%) (Figure 4-3). A similar age-group pattern held for *30-day* prevalence. It was 24% for ages 19-30 combined and highest for 21-22 year olds (28%); it declined through age 50 (8%) and then increased somewhat at ages 55 and 60 (10-11%). As is evident in Figure 4-3 comparing annual and 30-day prevalence with lifetime prevalence, greater proportions—usually much greater proportions—of the older cohorts have discontinued use.

- Current ***daily marijuana*** use (defined as using on 20 or more occasions in the past 30 days) in 2018 was 8% among 19-30 year olds combined (Table 4-1). It showed some age differences (see Figure 4-3 in this chapter as well as in Figure 5-3c in Chapter 5), standing at 6% at age 18, 9% at ages 21-24, and then dropping with age to 3-4% at ages 45 to 60. This suggests that many respondents who were daily users at some point in their teenage and young adult years are no longer daily users in middle to later adulthood.

- New questions about ***vaping marijuana*** were added to two forms of the young adult surveys in 2017 and 2018 (yielding sample sizes of about 1500 for 19-30 combined, and 230-270 per age group). In 2018, *lifetime* prevalence was 21% among 19-30 year olds; across the age groups, it was 22% at ages 19-24, 23-24% at ages 25-28, and dropping to 18% at ages 29-30 (Table 4-2). *Annual* prevalence was 15% among 19-30 year olds; for the young adult age groups, it was 17% at ages 19-24, 16% at ages 25-26, 12% at ages 27-28, and 14% at ages 29-30 (Table 4-3). *Thirty-day* prevalence of vaping marijuana in 2018 was 8.5% among 19-30 year olds; for the young adult age groups it was 10-11% for age groups between 19-20 and 25-26, dropping to 6% at ages 27-30 (Table 4-4). Thus, in 2018, vaping marijuana is more common among those in their early to mid-20s than later 20s. The recent rapid increase in vaping among adolescents[11] may well have generated cohort differences that are reflected in these age groups and may also appear in later age groups in the future. Beginning in 2019, the vaping items will be on four of the six young adult survey forms, and will be in the age 35 and up forms, providing a better perspective on this rapidly growing phenomenon. Trends (2017-2018) in vaping marijuana among young adults are presented in Chapter 5.

- ***Synthetic marijuana*** refers to a set of substances containing synthetic cannabinoids that are meant to mimic the effects of cannabinoids found in natural marijuana; synthetic cannabinoids are created artificially and typically sprayed on herbal and plant material, which is then smoked. These substances have been sold over the counter in head shops, gas stations, on the Internet, and in other venues under various brand names like "spice" and "K-2." Only 1.4% of young adults ages 19 to 30 years reported using synthetic marijuana in the last 12 months in 2018 (Table 4-3). Use rates were highest among the 19-20 year olds (2%), and then declined unevenly with age to 0.4% among 29-30 year olds (use is not asked of those over age 30). Clearly, synthetic marijuana is not a commonly used drug, especially beyond the early 20s.

- Adjusted rates for *lifetime* use of ***any illicit drug other than marijuana*** (Figure 4-2) showed an appreciable rise across age groups in 2018, reaching 55% for the 29-30 year

[11] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

olds and 77% among 60 year olds (Figure 4-2). In other words, *about three quarters of all 60 year olds* have tried some illicit drug other than marijuana, and *over half of today's 30 year olds* have done so.

In 2018, both *annual* and *past 30-day* use were highest in the early to mid-20s (Figure 4-2). Annual use was 19% among 19-30 year olds combined (Table 4-1). It rose with age from 12% among 12th graders to 22% among 21-24 year olds, and then was fairly level through age 29-30 (18-20%). Thirty-day use was 8% among 19-30 year olds combined (Table 4-4); it rose across age groups from 6% at age 18 to 10% at ages 23-24, and was 7-9% for ages 25-30. Among those age 35 and older, annual prevalence declined unevenly from 14% at age 35 to 7% at age 60; 30-day prevalence was fairly level from ages 35 to 60 at 4% to 6%. As summarized below, a number of the individual drugs that comprise this general category show lower rates of use at higher ages for annual prevalence, usually with the highest rate observed at ages 18-24. This is particularly true for ***amphetamines***, ***cocaine, hallucinogens***, ***LSD*** specifically, ***hallucinogens other than LSD***, ***inhalants***, and ***MDMA (ecstasy, Molly)***. The falloff across age strata is not as great nor as consistent for ***crystal methamphetamine*** (***ice***), ***heroin***, ***narcotics other than heroin***, ***sedatives*** (***barbiturates***), and ***tranquilizers***, though in general, usage rates are somewhat lower among those in their late-20s and older than among those in their early to mid-20s. Several of these classes of drugs are discussed individually next.

- ***Hallucinogens*** (Figure 4-10) have been used by a fair proportion of adults. Adjusted lifetime rates in 2018 were between 22% and 28% for the 35-50 year olds. (Hallucinogens are not included in the age 55 or age 60 survey.) Adjusted lifetime prevalence was lower at younger ages, and was at 13% at age 21-22. Annual prevalence in 2018 was 5% among 19-30 year olds combined (Table 4-3), ranging 4-6% in this age group; it was 2% or less at the older ages (Figure 4-10).

- ***LSD*** (Figure 4-11) had a fairly limited adjusted lifetime prevalence among young adults in 2018, reaching a high of 14% among 23-24 and 29-30 year olds. Annual prevalence was 4% among 19-30 year olds combined (Table 4-3), and highest among 19-22 year olds at 5%, falling thereafter to 2-4% through age 29-30. LSD use was not asked of those over age 30.

- ***Hallucinogens other than LSD*** (Figure 4-12), which means psilocybin ("magic mushrooms") for the most part, had a higher adjusted lifetime prevalence among young adults in 2018 than LSD, reaching 20% by age 29-30. Annual prevalence was level at 3-4% across all age groups 19 to 30. Overall, among young adults aged 19-30, annual prevalence was similar for hallucinogens other than LSD (3.3%) and for LSD (3.6%) (Table 4-3). Use was not asked of those over age 30.

- ***Inhalants*** are not commonly used by adults. In 2018, adjusted lifetime prevalence increased across age strata, peaking at 13% among 29-30 year olds (Figure 4-13). Annual prevalence was highest at ages 18-20 (2%) and declined with age, while 30-day rates were already quite low by age 18 and did not have much more room to decline. Clearly, 30-day use of inhalants is almost absent beyond about age 18, and we know from data presented

in *Volume I* that much of the decline in use with age has already occurred by 10th grade. Use was not asked of those over age 30.

- For ***amphetamines*** used without a doctor's orders, lifetime prevalence was much higher among the older age groups, with adjusted lifetime prevalence increasing from 16% at age 21-22 to 29% at age 29-30 and to 53% at age 60 in 2018 (Figure 4-4). This increase with age reflects in part the addition of new users who initiate use in adulthood, but also reflecting some cohort differences carried over from high school. Those aged 45 in 2018 had relatively lower lifetime amphetamine use, reflecting that these respondents graduated from high school in the early 1990s when prevalence was at or near historic lows across the past four decades. As is true for most psychotherapeutic drugs, corrected lifetime prevalence and contemporaneously reported lifetime prevalence diverge considerably especially among those age 35 and older. However, more recent use, as reflected in annual prevalence (Table 4-3 and Figure 4-4), was considerably lower among the older age groups. It was 7.5% for those age 19-30 combined, peaking at 10% at age 23-24 and declining to 7% at age 29-30 and to 1% by age 60. Thirty-day prevalence was 2.8% for 19-30 year olds overall (Table 4-3), ranging from 2% to 4% in this age group; it was 0-1% among those aged 35-60. These age differences have not always been true; the present pattern reflects a sharper historic decline in use among older respondents than has occurred among 12th graders, as well as cohort differences in having ever used these drugs. These trends are discussed in the next chapter.

- ***Ritalin***, a stimulant widely prescribed for the treatment of attention deficit hyperactivity disorder or ADHD, shows a relatively low annual prevalence of nonmedical use, between 0.8% and 1.8% for ages 19 to 30 in 2018 (Table 4-3). Use was not asked of those over age 30.

- ***Adderall***, an amphetamine stimulant also used in the treatment of ADHD, showed a substantially higher annual prevalence of nonmedical use in 2018 compared to Ritalin. It was 8.7% among 19-30 year olds combined; it was highest at 12% among 21-24 year olds and was 6-7% among 25-30 year olds (Table 4-3). The higher rates of use among those in their early 20s are consistent with the interpretation that initially Ritalin and perhaps now Adderall are sometimes used by college students in an effort to enhance their academic performance. Use was not asked of those over age 30.

- Questions on the use of ***methamphetamine*** are contained in only two of the six questionnaire forms for young adults, so estimates are less reliable than those based on all six forms. In 2018 adjusted lifetime use increased across age strata, from 2% for 21-22 year olds to 7% for 29-30 year olds. This suggests that much initiation of methamphetamine use occurs after high school, though more recent cohorts of high school graduates have been reporting considerably lower levels of use post high school. *Annual* prevalence did not vary much with age, however, remaining at 0.4-2.5% for ages 19-30 in this population of high school graduates (Table 4-3 and Figure 4-5.) Respondents over age 30 are not asked about methamphetamine use.

- ***Crystal methamphetamine*** (***ice***) is also included on only two questionnaire forms through age 30 and is not asked of older respondents. In 2018, adjusted lifetime prevalence was highest at 5% among those age 29-30. Among the 19-30 year old respondents combined, only 0.4% reported any use in the prior year, similar to the 0.6% reported by 12th graders (Table 4-3 and Figure 4-6).

- Questions regarding ***bath salts*** were added to the MTF questionnaires for young adults in 2012. Fortunately, the rates of use of these dangerous over-the-counter stimulants containing cathinones, which are intended to mimic the effects of amphetamines, are quite low at this point. In 2018, 12th graders had an annual prevalence of 0.6%; among young adults 19-30, prevalence in 2018 was 0.2%,[12] with some minor variation by age (Table 4-3). Use is not asked of those over age 30.

- Nonmedical use of ***sedatives*** (***barbiturates***) showed adjusted lifetime prevalence rates in 2018 that rose fairly linearly from age 21-22 (6%) through age 60 (36%), and showing a slight relative dip at age 45 (Figure 4-14). *Annual* use was 2.5% among 19-30 year olds combined (Table 4-1) and was quite level across all age groups from 18 to 60 at 2-3%. Thirty-day use was 0-1% across all age groups. It is noteworthy that because of the substantial long-term decline in sedative (barbiturate) use over the life of MTF, the 60 year olds had by far the highest adjusted lifetime prevalence (36%); but they were not any more likely to be currently using than the younger age groups.[13]

- Nonmedical use of ***tranquilizers*** (Figure 4-16) shows a similar picture to that for sedatives (barbiturates), with a general increase across age-bands in adjusted lifetime prevalence through age 35 (29%), with a slight dip among those ages 40 and 45 (27%), reflecting a likely cohort effect in terms of the lower use among adolescents in the late 1980s and early 1990s. Those aged 50, 55, and 60 again showed higher, indeed the highest, levels of adjusted lifetime prevalence (31%, 38%, and 46% respectively). Annual prevalence of nonmedical tranquilizer use was 4.2% among 19-30 year olds combined (Table 4-1) and was similar across all age groups, ranging between 3% and 5% from age 18 through age 60. Thirty-day prevalence was 0-2% across all age groups.

- Adjusted lifetime prevalence of nonmedical use of ***narcotics other than heroin*** (Figure 4-15) varied considerably across the age groups in 2018 from 10% for those age 21-22 to 29% for those age 29-30; it was 34% at age 35, 32% at age 40, 31% at age 45, 33% at age 50, 33% at age 55, and 37% at age 60. [14]These age differences in adjusted lifetime prevalence likely reflect cohort effects, with the oldest and more recent cohorts through age 35 showing higher prevalence. Annual prevalence of narcotics other than heroin was

[12] As noted in Table 4-1, for the 2018 estimate of annual bath salt use for 19-30 year olds combined, there was a significant difference ($p<.05$) between the typical mail condition (0.4%) and new web-push condition (<0.05% - essentially 0.0%) of survey administration.

[13] Barbiturates were the dominant form of sedatives in use when these questions were first introduced. In the intervening years, a number of non-barbiturate sedatives have entered the market and largely displaced barbiturates. We believe that a number of users of non-barbiturate sedatives are reporting them in answer to this question, which also defines them in terms of the conditions for which they are prescribed. In recognition of this fact, we now label them as "sedatives (barbiturates)." The rewording of the question was made in half of the questionnaire forms in 2004 and in the other half in 2005.

[14] As noted in Table 4-2, for the 2018 estimate of (unadjusted) lifetime narcotics other than heroin use for 19-30 year olds combined (14.0%), there was a significant difference ($p<.01$) between the typical mail condition (15.2%) and new web-push condition (12.7%) of survey administration.

3.6% among 19-30 year olds combined, and increased slightly across the 20s from 2.2% at age 19-20 to 4.5 at age 29-30 (Table 4-3). Among older adults, it was highest at age 35 (5%) and level from ages 40 to 60 (3-4%). Thirty-day prevalence showed little difference across the age bands, with rates at 1-2% up through age 60.

- Adjusted lifetime prevalence of ***cocaine*** in 2018 was lowest among 21-22 year olds (10%) and generally increased through age 40 (23%); it then leveled through age 45 (22%), continued to increase at age 50 (32%) and 55 (47%), and peaked at age 60 (48%) (Figure 4-7). This uneven age progression is indicative of a cohort effect, with the 40-45 year olds being from lower drug using 12th grade cohorts (as discussed in Chapter 5, there have been clear cohort effects in cocaine use over the years). *Annual* prevalence in 2018 was 5.9% for ages 19-30 combined, peaking at 9.2% at ages 23-24, and was otherwise at 4-6% among young adults; annual use was only 1-3% in the age groups beyond age 30. *Thirty-day* use was 2.2% for ages 19-30 combined, ranging from 1.5% to 2.9% among young adults. Very few (0-1%) of the 35-60 year olds today are past-30-day users of cocaine, despite the fact that so many of them used it at least once in their lifetime. Among 55 and 60 year olds, nearly half used cocaine at some time in their life but less than 1% reported using it in the past 30 days. In other words, noncontinuation rates for cocaine are now extremely high among adults, particularly older adults.

- In 2018, adjusted lifetime prevalence of ***crack*** use (Figure 4-8) was much lower than general cocaine use. It was 2% among 23-24 year olds and then increased with age to 11% among 60 year olds, peaking at 13% among 55 year olds. That it was highest among 50-60 year olds (10-13%) reflects something of a cohort effect due to the rather transient popularity of crack in the early to mid-1980s and a brief resurgence in the mid-1990s. Annual prevalence was highest among 18 year olds at 0.9%, and was between 0.0% and 0.4% for all other age groups. Thirty-day prevalence was less than 0.5% in each of these age groups.

- ***MDMA*** (***ecstasy*** and, more recently, ***Molly***) is asked about in four of the six follow-up questionnaire forms up through age 30. Molly was added as an example in half of the questionnaire forms in 2014 and in all young adult forms in 2015 (use is not asked for those over age 30). As Table 5-2 in the next chapter shows, the inclusion of Molly appears to have only raised the annual prevalence estimate in 2014 (when the two versions could be compared) by a little—from 4.8% to 5.1%. In 2018, among 19-30 year olds combined, 13% said they have tried MDMA (adjusted lifetime prevalence), compared to 4% of 12th graders. Across the 20s, adjusted lifetime MDMA prevalence increased unevenly with age, peaking at 20% among 29-30 year olds (Figure 4-17). *Annual* prevalence was 4.0% for ages 19-30 combined, ranging from 3.1% to 4.5% (Table 4-3). *Thirty-day* MDMA use was at 1% or lower for all age strata between 18 and 30 years in 2018. There clearly has been a high degree of noncontinuation of the use of this drug in 18-30 year olds, and the large differences across age groups likely reflect cohort effects. (Note in Figure 4-17 that there is practically no difference between the current reporting of lifetime prevalence and the adjusted figures.)

- A question about the use of ***salvia*** was introduced into one questionnaire form in 2009 as a single tripwire question asking only the frequency of use in the past twelve months (Table 4-3). Salvia has some mild hallucinogenic properties. It is not currently regulated by the federal government, but a number of states have restrictions on it, and other states are considering restrictions; previously, there had been considerable attention in the media paid to its potential for harm. Annual prevalence for ages 19 through 30 combined is very low; it stood at 0.6% in 2018 (Table 4-3). Thirty-day use was 1% or less across ages 18-30. Older respondents are not asked the question.

- In 2018, all ***alcohol*** prevalence estimates were considerably higher among young adults than among 12th graders, and they generally increased after high school, through at least the mid-20s (Figures 4-20a and 4-20b). Adjusted lifetime prevalence was 86% among 21-22 year olds and ranged from 93% to 94% among 23-30 year olds; it changed very little after age 30, due in large part to a "ceiling effect" (prevalence was 96% to 99% among those age 35 to 60). Annual use was 53% at age 18 and 83% at ages 19-30 combined (Table 4-3); it rose sharply with age, peaking at 90% at age 23-34; it was level from age 25-26 through age 40 (86-87%), and then declined to 78% among 60 year olds. Thirty-day use was 30% at age 18 and 67% at ages 19-30 combined (Table 4-3); it rose sharply with age, peaking at 75% among 23-24 year olds, was fairly level from age 25-26 to age 45 (70-73%), and then declined unevenly through age 60 (61%). Current ***daily drinking*** (Figure 4-20b) increased gradually and steadily across age strata, peaking at 12% at age 60.

  Binge drinking (i.e., having five or more drinks in a row on at least one occasion in the two weeks prior to the survey) was 31%[15] for young adults age 19-30 combined (Table 4-5) and showed considerable differences by age (Figure 4-20b). Prevalence was 14% at age 18 and 21% among those ages 19-20. It was highest at age 23-24 at 37% and ranged from 31% to 33% among 25-30 year olds; it was 27% at age 35 and declined with age to 16% at age 60. We have interpreted this increasing-then-decreasing relationship with age as reflecting an age effect, not a cohort effect, because it seems to replicate across different graduating class cohorts and also because it has been linked directly to age-related events such as leaving the parental home (which is linked to increases binge drinking) and marriage (which is linked to decreases).[16] Clearly, binge drinking is most popular among people in their twenties and falls off after that. Still, among those age 50 and older, almost a fifth report current binge drinking.

[15] As noted in Table 4-5, for the 2018 estimate of binge drinking for 19-30 year olds combined, there was a significant difference ($p<.05$) between the typical mail condition (29.4%) and new web-push condition (32.9%) of survey administration.

[16] O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1988). Period, age, and cohort effects on substance use among young Americans: A decade of change, 1976–1986. *American Journal of Public Health, 78*(10), 1315–1321. See also a) Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities.* Mahwah, NJ: Lawrence Erlbaum Associates; b) Schulenberg, J. E., & Maggs, J. L. (2002). A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. *Journal of Studies on Alcohol, Supplement,* (14), 54-70; c) Patrick, M. E., Terry-McElrath, Y. M., Lanza, S. T., Jager, J., Schulenberg, J. E., & O'Malley, P. M. (2019). Shifting age of peak binge drinking prevalence: Historical changes in normative trajectories among young adults aged 18 to 30. *Alcoholism: Clinical and Experimental Research, 43,* 287-298.

Questions regarding ***extreme binge drinking*** (also referred to as high-intensity drinking)[17,18,19,20] were introduced into MTF surveys in 2005. Two measures are used: drinking *10 or more drinks* on one or more occasions in the prior two weeks and drinking *15 or more drinks* on one or more occasions in the prior two weeks.[21] Among all young adults 19-30 (Table 4-5), prevalence of having 10 or more drinks on at least one occasion in the two weeks prior to the survey was 8.4% in 2018 or roughly one in every twelve respondents; it was 5.7% at ages 19-20, 8-11% at ages 23-30, and highest at ages 23-24 (11%). The combined age 19-30 prevalence for having 15 or more drinks on at least one occasion in the prior two weeks was 3.4% or about one in 30 respondents; it appeared highest among 21-22 year olds (5.5%). These questions are not asked of respondents over age 30.

- ***Cigarette smoking*** showed an unusual pattern of age-related differences, influenced to some extent by cohort differences (Figure 4-21). In 2018 ***30-day (current) smoking*** prevalence was lowest among 12th graders (8%), highest among 23-24 and 29-30 year olds (15%) and was 10-13% among other young adults; among those age 35-60, it was level, ranging from 11% to 14%. Among 18-30 year olds, the prevalence of ***daily smoking*** generally was higher among the older age strata, peaking at ages 29-30 (10%); among those aged 35-60, it was 9-12%. At older ages, a rising proportion past-30-day smokers also reported daily smoking. Through age 30 a majority of those indicating any smoking in the prior year were not ***daily*** smokers; the proportion then declined with age so that among those age 60 only about one fifth of those who smoked in the prior year were not daily smokers.

  The prevalence of smoking ***half a pack or more*** of cigarettes per day was only 1% among those age 18 and increased with age across young adulthood to 6% at age 29-30; it was 6-7% among 35-50 year olds, and highest among 55-60 year olds (9-10%). The *proportions* of current smokers who smoked a half-pack or more per day also were higher among older respondents in 2018: about one eighth among 18 year olds (1% smoking a half-pack or more divided by 8% who are 30-day smokers), about one third among 29-30 year olds (5% smoking a half-pack or more divided by 15% who are 30-day smokers), and nearly three fourths at age 60 (10% smoking a half-pack or more divided by 13% who are 30-day smokers).

  In essence, lighter smoking (in the past 12 months, but not in the past 30-days) falls off as one moves up the age bands beyond age 30, after which regular/heavy smoking accounts

[17] Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., Schulenberg, J. E., O'Malley, P. M., & Johnston, L. D. (2017). Age-specific prevalence of binge and high-intensity drinking among U.S. young adults: Changes from 2005 to 2015. *Alcoholism: Clinical and Experimental Research, 41*(7), 1319-1328.

[18] Patrick, M. E. & Terry-McElrath, Y. M. (2017). High-intensity drinking by underage young adults in the United States. *Addiction, 112*, 82-93.

[19] Patrick, M. E., Terry-McElrath, Y. M., Kloska, D. D., & Schulenberg, J. E. (2016). High-intensity drinking among young adults in the United States: Prevalence, frequency, and developmental change. *Alcoholism: Clinical and Experimental Research, 40*, 1905-1912.

[20] Terry-McElrath, Y. M. & Patrick, M. E. (2016). Intoxication and binge and high-intensity drinking among US young adults in their mid-20s. *Substance Abuse, 37*, 597-605.

[21] Because these two measures reported here have been included in only one of the six questionnaire forms used with young adults (they are included on a second form, but those data are not included here due to inconsistent variations between the responses on the two forms), the numbers of cases are very limited, less than 200 weighted cases per year for each two-year age band from 19 to 30. Therefore, the estimates may be less reliable than those based on more cases.

for increasing proportions of all current smoking, as may be seen in Figure 4-21. It appears highly likely that cohort differences in ever initiating smoking drive this pattern of cross-age smoking rates.

- Past 30-day prevalence of ***smokeless tobacco*** use (asked in one of the six questionnaire forms, so estimates tend to vary unsystematically) stood at 7.2% among all young adults in 2018 (most of it by males, as will be discussed below). Daily prevalence was 3.6% among all young adults, with the highest rate observed among 23-24 year olds (9.5%) (Tables 4-4 and 4-5).

- In 2017, we expanded the questions about vaping on two of the survey forms to get at specific substances being vaped, specifically for nicotine, marijuana, and "just flavoring." In 2018, *lifetime* prevalence of ***vaping nicotine*** was 27%[22] among 19-30 year olds, with it being highest for 19-20 year olds (35%) and declining across the age groups (Table 4-2). *Annual* prevalence was 17%[23] among 19-30 year olds, with it also being highest among 19-20 year olds (27%) and declining across age groups (Table 4-3). *Thirty-day* prevalence was 10%[24] among 19-30 year olds, and again highest among 19-20 year olds (16%) and declining across age groups (Table 4-4). The recent rapid increase in vaping nicotine among adolescents[25] may well have generated cohort differences that are reflected in these age groups and may also be related to future increases in later age groups. It remains an open question whether nicotine vaping will continue to fall off with advancing age or whether it will remain primarily at levels set in young adulthood, a pattern seen for cigarette use. Beginning in 2019, the vaping items will be on four of the six young adult survey forms, and will be in the age 35 and up forms, providing a better perspective on this rapidly growing phenomenon. Trends (2017-2018) in vaping nicotine among young adults are presented in Chapter 5.

- Questions were added in 2011 on the consumption by young adults of tobacco in various specific forms other than cigarettes and vaping nicotine. Tripwire questions are used for these forms of tobacco use, providing only annual prevalence and frequency data (Table 4-3). Past-year prevalence of use in 2018 among 19-30 year olds was 12%[26] for using a ***hookah*** to smoke tobacco, 15% for smoking ***small cigars***, 3.2% for using ***snus***, and only 0.2% for using ***dissolvable tobacco***. Among young adults, hookah smoking was highest among 23-24 year olds at 17% and declined steadily to 8% at ages 29 to 30. (Rather than being an age effect, this could represent more of a cohort effect corresponding to the increased and then decreased popularity of this practice.) Annual prevalence of smoking small cigars was highest among 23-26 year olds at 17%, and 12-14% among other young adults. Annual prevalence of use of snus was highest among the 23-24 year olds at 7.7%

[22] As noted in Table 4-2, for the 2018 estimate of lifetime vaping nicotine, there was a significant difference ($p<.05$) between the typical mail condition (23.6%) and new web-push condition (29.0%) of survey administration.
[23] As noted in Table 4-3, for the 2018 estimate of annual vaping nicotine, there was a significant difference ($p<.05$) between the typical mail condition (14.4%) and new web-push condition (18.8%) of survey administration.
[24] As noted in Table 4-4, for the 2018 estimate of 30-day vaping nicotine, there was a significant difference ($p<.05$) between the typical mail condition (8.1%) and new web-push condition (11.3%) of survey administration.
[25] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.
[26] As noted in Table 4-3, for the 2018 estimate of annual hookah smoking, there was a significant difference ($p<.05$) between the typical mail condition (11.3%) and new web-push condition (14.1%) of survey administration.

vs. 2-4% among the older age groups of young adults. Annual prevalence of dissolvable tobacco use was 0.8% or less among all young adult age groups.

- Questions on ***anabolic steroid*** use (Figure 4-18) were added to one questionnaire form in 1989 and to an additional form in 1990, making it difficult to determine age-related differences with much accuracy due to limited sample sizes. Overall, 1.3% of all 19-30 year olds in 2018 reported having used anabolic steroids in their lifetime and 0.5% in the prior 12 months. Use did not vary greatly or systematically by age. Questions about steroid use are not asked of respondents over age 30.

In sum, in 2018, *annual* and *30-day* marijuana and the many forms of illicit drug use tended to be highest among those in their early to mid-20s. This is true as well regarding near-daily marijuana use and binge drinking. Annual and 30-day prevalence of vaping marijuana also tended to be highest in 2018 among those in their early to mid-20s, and vaping nicotine was highest among 19-20 year olds. *Lifetime* prevalence in some of the older age groups (particularly those aged 55 and 60), who passed through adolescence in the heyday of the drug epidemic, showed remarkably high lifetime rates of illicit drug use—particularly when lifetime prevalence was corrected for the recanting (or forgetting) of previously reported use. This highlights the importance of cohort effects when considering age-related changes (for example, for some drugs, including amphetamines, cocaine, sedatives [barbiturates], and tranquilizers, there tended to be a lower lifetime prevalence in 2018 at age 45 compared to those younger and older, consistent with their lower prevalence as teens in the late 1980s and early 1990s). However, *30-day* use of most illicit drugs was substantially lower among those over age 30 than among those in their late teens to early 20s. For the two licit drugs, alcohol and cigarettes, the picture is different; there is less falloff in active use with age, and there are higher levels of daily alcohol use and regular cigarette smoking in the older ages.

When considering these various prevalence estimates, it is important to recall that our samples are based on high school graduates and thus exclude those who drop out of high school, a group that tends to show higher prevalence of most substances, especially cigarettes; in addition, we are less likely to maintain persistent heavy drug users, such as current heroin and crack cocaine users, in our sample. Thus, prevalence estimates are likely underestimates of the total population of adults, but on target for adults who are high school graduates.

As discussed above and in Chapter 3, in 2018 we began our transition to *web-based surveys* among young adults, with half being randomly assigned to our typical mail-based condition and half to the new web-push condition in order to gauge any impact of survey condition on the prevalence estimates. As indicated above and in footnotes to Tables 4-1 through 4-5, there were very few significant differences in prevalence estimates between the two conditions, and thus we combined estimates across the two conditions into an average (weighted for sample size per condition) for young adults. About 10% of the comparisons reported in this chapter for young adults across all drugs and intensities of use yielded significant differences (and most all were at $p<.05$ level), and except for the vaping questions, there was little consistency in the significant differences across substances and drug use intensities. To summarize, significant differences were found for the following in 2018: lifetime prevalence of narcotics other than heroin (15% for typical mail condition, 13% for web-push condition) and flavored alcoholic beverages (77% for mail and 84%

for web-push); annual prevalence of bath salts (0.4% for mail and 0.05% for web-push), for ketamine (1.3% for mail, 0.3% for web-push), and hookah tobacco use (11% for mail, 14% for web-push); and of two-week binge drinking (29% for mail, 33% for web-push). For the vaping items, significant differences were found for six of the twelve items including for lifetime any vaping (34% for mail and 39% for web-push), annual any vaping (24% for mail and 28% for web-push), lifetime nicotine vaping (24% for mail and 29% for nicotine), annual nicotine vaping (14% and 19%), 30-day nicotine vaping (8% for mail and 11% for web-push), and annual vaping just flavoring (7% for mail and 10% for web-push). Thus, the vaping item differences between condition in 2018 appeared to be localized for nicotine, with the web-push condition showing higher prevalence than the typical mail condition for lifetime, annual, and 30-day prevalence. We note that the vaping items are included on only two of the six young adult survey forms, meaning relatively small sample sizes for these comparisons (which argue against finer-grained condition comparisons by sociodemographic characteristics); also, in the two-year comparisons between 2017 (all typical mail condition) and 2018 (half typical mail and half web-push condition) summarized in Chapter 5, the increases in vaping generally held regardless of 2018 condition. We are repeating this condition comparison in 2019 for young adults (which is an independent sample from 2018 given the biennial assessments for young adults), and will consider the extent to which significant differences between conditions hold in 2019. For additional information, see our published articles for earlier experiments on mail and web conditions among young adults.[27]

PREVALENCE COMPARISONS FOR SUBGROUPS OF YOUNG ADULTS

Subgroup differences for 19-30 year olds are presented in Tables 4-1 through 4-5. While Table 4-1 provides only gender differences, the remaining tables show prevalence estimates by gender, age, region of the country, and population density. Age-group differences were summarized above; below we summarize gender, region, and population density differences separately. Lifetime, annual, 30-day, and daily use prevalence are shown in Tables 4-2 through 4-5, respectively.

Gender Differences

In general, most of the gender differences in drug use that are observed among young adults (19-30) were observed in high school students as well. See Tables 4-1 and 4-5 for the full set of gender comparisons.

- Among the full young adult sample ages 19 to 30 in 2018, *lifetime* use of ***any illicit drug*** was similar for men (66%) and women (65%), and the same was true regarding lifetime ***marijuana*** use (62% vs. 61%); but lifetime use of any ***illicit drug other than marijuana*** was clearly higher among men (42%) than women (35%) (Table 4-3). Regarding annual prevalence, men were somewhat higher than women on reported *annual* use of any illicit drug (44% vs. 41%), marijuana (40% vs. 37%), and any illicit drug other than marijuana (22% vs. 17%). Similarly, slighty more men than women reported *30-day* use of any illicit drug (27% vs. 25%), marijuana (25% vs. 23%), and any illicit drug other than marijuana (9.6% vs. 7.4%) (Table 4-1).

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

- ***Vaping marijuana*** (based on new questions included in two of the six forms of the young adult surveys starting in 2017) was somewhat more common for young adult men than women in 2018 (Table 4-1). The 2018 *annual* prevalence of vaping marijuana among 19-30 year old men and women was 17% and 14%, respectively (this compares to 2017 annual prevalence of 16% and 9%, respectively, indicating some increase over the one-year period for both men and women). For *30-day* prevalence of vaping marijuana, it was 10% for men and 7% for women (this compares to 2017 30-day prevalence of 9% and 4%, respectively, again reflecting increases for both men and women over the one-year period).

- ***Daily marijuana*** use (i.e., using on 20 or more occasions in the past 30 days) was more common for men (10.3%) than women (6.3%) among 19-30 year olds in 2018 (Table 4-5).

- Annual prevalence of ***synthetic marijuana*** use in 2018 was low and about equivalent among young adult men and women (1.4% vs. 1.3%) (Table 4-1).

- Among 19-30 year olds in 2018, men had higher annual prevalence levels than women for nearly all illicit drugs, sometimes with ratios of two times greater or more among infrequently used drugs (including ***crack, heroin,*** and ***bath salts.***) (Table 4-3). We summarize some of the gender differences in annual use of some specific illicit drugs next.

- Annual ***hallucinogen*** use was more common among men (6.9%) than women (4.1%) in 2018, and the same was true regarding ***LSD*** (4.9% vs. 2.8%) and ***hallucinogens other than LSD*** (4.5% vs. 2.4%) (Table 4-1).

- Use of ***MDMA*** (***ecstasy***, ***Molly***) was slightly higher among men than among women with annual prevalence in 2018 of 4.6% and 3.6%, respectively.

- All measures of ***cocaine*** use were higher among men than women in 2018. Annual ***cocaine*** use was reported by 7.4% of men and 5.0% of women, ***powder cocaine*** use by 7.3% of men and 5.1% of women, and ***crack*** use by 0.4% of men and 0.1% of women (Table 4-1).

- Annual prevalence of use of ***narcotics other than heroin*** outside of medical supervision was slightly higher in 2018 among men than women (4.3% vs. 3.1%) (Table 4-1). The use of ***Vicodin***, one of the most widely used drugs in the class, was similar for men (2.5%) and women (2.4%); likewise, ***OxyContin*** use was similar for men (1.9%) and women (1.8%) (Table 4-3).

- The use of ***amphetamines*** was higher among men than women, with 2018 annual prevalence of 9.1% and 6.4%, respectively; the same was true regarding annual use of ***Adderall*** (9.8% vs. 7.9%) (Table 4-3).

- Regarding 30-day ***alcohol*** use, prevalence was somewhat higher among men (69%) than women (66%), as was true for 30-day prevalence of being ***drunk*** (37% vs. 34%). Women (29%) were higher than men (24%) for 30-day prevalence of ***flavored alcoholic beverage*** use (Table 4-4).

- For more frequent use of alcohol, gender differences were greater. Among 19-30 year olds in 2018, ***daily alcohol*** use was more common for men than women (6.3% vs. 3.6%), as was true for ***binge drinking***—having five or more drinks in a row at least once in the prior two weeks (37% vs. 27%). There was a particularly large gender difference in the measures of ***extreme binge drinking*** (also called ***high-intensity drinking***) in 2018: prevalence of having 10 or more drinks at least once in the prior two weeks across ages was 14.9% for men vs. 4.0% for women; prevalence of having 15 or more drinks was 6.5% for men and 1.2% for women[28] (Table 4-5).

- In 2018, 19-30 year old men were more likely than women to smoke ***cigarettes*** in the past year (26% vs. 20%) and past month (15% vs. 12%); but men and women were similar for smoking daily in the past month (7.5% vs. 7.7%), and for smoking half a pack or more per day in the past month (3.8% vs. 4.3%) (Table 4-1).

- Based on new vaping questions added in 2017, annual prevalence of ***vaping nicotine*** in 2018 was higher at ages 19-30 for men than women (20% vs. 14%) (Table 4-1); this compares to 2017 annual prevalence of 18% and 10%, respectively, indicating some increase for both men and women over the one-year period. Regarding 30-day prevalence in 2018, it was also higher for men than women (13% vs. 8%) (Table 4-1); this compares to 2017 30-day prevalence of 9% and 4%, respectively, again reflecting increases for both men and women over the one-year period.

- Among young adults there was a very large gender difference in 2018 in the use of ***smokeless tobacco***, with men much more likely than women to have used in their lifetime (37% vs. 13%) (Table 4-2) and in the past month (12.7% vs. 2.9%) (Table 4-1). Almost all past-year use of ***snus*** occurred among men (6.2% vs. 1.1% among women); and there was very little annual use of ***dissolvable tobacco*** for men (0.1%) or women (0.2%) (Table 4-3).

- In 2018, men were much more likely to have smoked ***small cigars*** in the past year than women (23.2% vs. 8.7%). The same was true for past 30-day use of ***regular little cigars*** (6.0% vs. 2.2%) and of flavored ***little cigars*** (7.2% vs 4.7%).

- There was less gender difference in the annual use of ***hookah*** pipes (13.1% for men vs. 11.8% for women).

- ***Steroid*** use among young adults is relatively rare, with adjusted lifetime prevalence being 2.7% for men and 0.3% for women in 2018 among 19-30 year olds. Annual and 30-day prevalence was 1.1% or below for men and women.

[28] For information on gender differences by age for these measures, see for example: Patrick, M. E., & Terry-McElrath, Y. M. (2019). Prevalence of high-intensity drinking from adolescence through young adulthood: National data from 2016-2017. *Substance Abuse: Research and Treatment, 13*, 1-5.

Regional Differences

Follow-up respondents are asked in what state they resided as of March of current year. States are then grouped into the same four regions used in the analysis of high school data.[29] Tables 4-2 through 4-5 present regional differences in lifetime, annual, 30-day, and current daily prevalence for 19-30 year olds combined.

- There exist some regional differences in the annual prevalence of ***marijuana*** use, with 2018 rates being higher in the Northeast (43%) and West (43%) than the Midwest (37%) and the South (34%). Likewise, regarding annual prevalence of ***any illicit drug*** use, which is driven largely by marijuana use, rates were higher in the Northeast (47%) and West (46%) than in the Midwest (40%) and South (39%) (Table 4-3).

- In 2018, the annual prevalence of ***any illicit drug other than marijuana*** (Table 4-3) was highest in the West (21%) and lowest in the South (18%).

- Thirty-day prevalence of ***marijuana*** use was higher in the Northeast (28%) and West (28%) and lower in the Midwest (21%) and South (21%) (Table 4-4). Daily use of marijuana, however, was similar across regions (ranging from 7.5% to 8.6%) (Table 4-5).

- The annual prevalence for ***vaping marijuana*** in 2018 was higher in the West (23%) and Northeast (18%) than in the Midwest (12%) and South (11%) (Table 4-3); this compares to 2017 annual prevalence of 15%, 14%, 11%, and 6%, respectively, indicating the same pattern of regional differences in the two years, and an increase for each over the one-year period. The same regional pattern held for 30-day prevalence of vaping marijuana in 2018 (West at 14.6%, Northeast at 11.4%, Midwest at 6.4%, and South at 5.4%) (Table 4-4); this compares to 2017 30-day prevalence of 10.4%, 6.8%, 5.5%, and 4.3%, respectively, showing the same pattern of regional differences in the two years, and an increase for each over the one-year period. Thus, regional ranking of vaping marijuana is similar to overall marijuana use.

- The annual prevalence for ***synthetic marijuana*** in 2018 was quite low and did not differ much by region (ranging from 1.0% to 1.9%) (Table 4-3).

- In 2018, the use of ***hallucinogens*** tended to be highest in the West and lowest in the South. Annual prevalence of hallucinogen use was 7.7% and 4.2% in the West and South, respectively; for ***LSD***, it was 5.3% and 3.1%, respectively; and for ***hallucinogens other than LSD***, it was 5.3% and 2.4%, respectively (Table 4-3).

- For ***MDMA*** (***ecstasy***, ***Molly***), annual 2018 prevalence was considerably higher in the West (6.6%) than in the other regions of the country, with annual prevalence in the Northeast (2.5%), the South (2.8%) and the Midwest (3.7%) (Table 4-3).

[29] States are grouped into regions as follows: ***Northeast***—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania; ***Midwest***—Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas; ***South***—Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas; ***West***—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

- In 2018, annual prevalence of ***cocaine*** was higher in the West (8.2%) and Northeast (6.8%) than in the South (4.2%) and Midwest (5.3%) (Table 4-3).

- The annual prevalence for ***narcotics other than heroin*** was similar across regions in 2018 (ranging from 3.2% to 4.4%) (Table 4-3).

- The annual prevalence of ***amphetamines*** was similar across regions in 2018 (ranging from 6.9% to 8.0%), and the same was true regarding ***Adderall*** (ranging from 7.8% to 9.9%) (Table 4-3).

- Overall, regarding illicit drug use, it is noteworthy that the use of ***LSD***, ***hallucinogens other than LSD***, ***MDMA (ecstasy, Molly)***, and ***cocaine*** tended to be higher in 2018 among young adults in the West than the other regions. Across other illicit drugs, regional differences in 2018 were not substantial (Tables 4-2 through 4-5).

- Prevalence rates for ***alcohol use*** are typically somewhat higher in the Northeast and Midwest regions than in the South and West; this pattern still pertained in 2018 and was generally true among 12th graders as well (as reported in *Volume I*[30]). For ***binge drinking*** among 19-30 year olds, the Northeast and Midwest were at 35% and 34% respectively, with the South at 28% and the West at 29% (Table 4-5). Regarding ***extreme binge drinking (high intensity drinking)*** among 19-30 year olds, having 10 or more drinks in a row was more common in the Midwest (12.3%) and Northeast (8.7%) than in the South and West (6.2% and 7.1%, respectively). Thirty-day self-reported ***drunkenness*** showed a similar pattern (Table 4-4), as would be expected.

- ***Cigarette smoking*** among young adults tended to be slightly higher in the Midwest and Northeast and lowest in the West in 2018. Thirty-day prevalence was 14% in both the Midwest and Northeast, 13% in the South, and 11% in the West (Table 4-4).

- In 2018, 30-day prevalence of ***vaping nicotine*** was higher for the West (12.6%) than for the South (9.2%), Northeast (9.2%), and Midwest (9.6%) (Table 4-4); this compares to 2017 30-day prevalence of 6.1%, 6.4%, 7.7%, and 5.1%, respectively, indicating increases for each region over the one-year period, especially for the West. Thus, regional differences for vaping nicotine do not follow those for smoking cigarettes, although the Ns by region for vaping nicotine are relatively small.

- Use of ***flavored little cigars*** (Table 4-4) showed some regional difference in 2018, with the 30-day prevalence ranging from 7.7% in the South to 3.8% in the West. Similarly, the 30-day prevalence of ***regular little cigars*** (i.e., non-flavored) ranged from 4.9% in the South to 1.4% in the West, and 30-day prevalence for the use of ***large cigars*** ranged from 7.3% in the South to 1.5% in the West (Table 4-4).

- The 30-day prevalence of ***smokeless tobacco*** use in 2018 was higher in the Midwest (15.5%) than the other regions (ranging from 0.8% to 5.8%) (Table 4-4).

[30] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

- The annual use of ***snus*** in 2018 was higher in the Midwest (5.4%) compared to the South (3.2%), West (1.2%), and Northeast (3.4%) (Table 4-3).

- Annual use of a ***hookah*** to smoke tobacco was somewhat higher in Northeast (15.0%), compared to the West (12.4%), Midwest (11.7%), and South (11.1%) (Table 4-3).

Population Density Differences

Population density is measured by asking respondents to select the response category that best describes the size and nature of the community where they lived during March of the year in which they completed the follow-up questionnaire. The various categories are listed in Tables 4-2 through 4-5; the population sizes given to the respondent to help define each level are provided in a footnote to each table.[31] See Tables 4-2 through 4-5 for the tabular results on 19-30 year olds combined.

- Most differences in illicit drug use by population density tend to be modest, perhaps more modest than is commonly supposed. Among the general population, use of most illicit drugs is broadly distributed among all areas from rural to urban. To the extent that there are variations, almost all of the associations are positive with regard to density, with rural/country areas having the lowest levels of use, and small towns having the next lowest. Medium-sized cities, large cities, and very large cities tend to be appreciably higher. In 2018, positive associations with population density existed for annual prevalence of ***any illicit drug*** (ranging from 31.1% for farm/country to 51.0% for very large city), ***any illicit drug other than marijuana*** (ranging from 16.1% to 25.8%, respectively), and ***marijuana*** (25.3% to 47.4%, respectively) (Table 4-3). The annual prevalence of ***vaping marijuana*** showed the same pattern, ranging from 9.4% for farm/country to 22.8% for very large city (the same pattern was found in 2017 for annual prevalence of vaping marijuana, ranging from 7.0% to 18.6%, respectively, with each region showing some increase over the one-year period). Most of the drugs that comprise the measure of any illicit drug other than marijuana showed a similar pattern, with exceptions noted below.

- Annual prevalence of ***cocaine***, ***MDMA (ecstasy***, ***Molly)***, and ***hallucinogens other than LSD*** tended to be twice as high in 2018 in very large cities (10.2%, 7.8%, and 5.0%, respectively) than the other density strata, with little difference among them (Table 4-3).

- Annual prevalence was distinctly higher in the farm/country stratum compare to the other four strata for some uncommonly used drugs including ***methamphetamine*** (2.0% vs. 0.6-1.5%), ***synthetic marijuana*** (2.3% vs. 0.8-1.7%), and ***inhalants*** (2.4% vs. 0.2-0.9%).

- Differences among density strata were quite small in 2018 for annual prevalence of ***narcotics other than heroin***, ranging from 3.2% to 4.4% (and the same was true for OxyContin and Vicodin specifically) (Table 4-3). Similarly, many of the illicit drugs with relatively low annual prevalence did not show substantial variation by population density, including use of ***PCP, salvia, crack, heroin, sedatives (barbiturates), Ketamine,*** and ***steroids*** (Table 4-3).

[31] An examination of the 1987 and 1988 drug use data for the two most urban strata revealed that the modest differences in prevalence rates between the suburbs and their corresponding cities were not worth the complexity of reporting them separately; accordingly, since then these categories have been merged to increase sample sizes.

- Among young adults age 19-30, the lifetime and annual ***alcohol*** use measures all showed a slight positive association with population density, while 30-day use had a somewhat stronger positive association, with 55% of the farm/country stratum reporting alcohol use in the prior 30 days versus 75% of those in very large cities.

  Prevalence of ***binge drinking*** among young adults was positively associated with population density as well (Table 4-5), with 24% of those in the farm/country stratum indicating having had five or more drinks in a row at least once in the prior two weeks compared to 37% of those in the very large cities. ***Daily alcohol use*** in the prior month varied little by population density in 2018 (ranging from 4.1% to 5.3%). For 10 or more drinks in a row in the past two weeks (***extreme binge drinking***), prevalence in 2018 was highest in farm/country (13.6%), next highest in very large cities (8.3%) and large cities (8.2%), and lowest in small towns (7.9%) and medium cities (7.7%) (Table 4-5).

- Contrary to what we find for almost all other substances, there exists a negative association between population density and ***daily cigarette smoking***, which was highest in the farm/country stratum (daily prevalence of 11%) and lowest in the large and very large cities (daily prevalence of 6% and 7%, respectively). Smoking at the half-pack-a-day level in the prior 30 days was more than twice as high in the farm/country stratum as in very large cities (7.2% vs. 2.8%, respectively; Table 4-5).

- Annual prevalence of ***small cigars*** was lowest in the farm/country stratum (10%), and ranged from 13% to 17% in the other population density strata. (As noted in Table 4-3, Ns are relatively small for these and other forms of tobacco use summarized below.)

- Thirty-day prevalence of ***flavored little cigars*** was highest in the farm/country stratum (9.3%) and lower in all other strata (1.0% to 6.4%). (Table 4-4).

- Similarly, 30-day prevalence of ***smokeless tobacco*** use was highest in the farm/country stratum (12.9%) and lowest in cities (4.3-4.7%) (Table 4-4).

- In contrast, the annual prevalence of ***hookah*** smoking (Table 4-3) was highest in very large cities (19.3%) and declined with population density, being smallest in the farm/country stratum (4.9%).

- Finally, ***vaping nicotine*** varied somewhat by population density. Annual prevalence in 2018 was 11% in the farm/country stratum and ranged from 16% to 20% in the other density strata (Table 4-3); in 2017, the annual prevalence ranged from 12% to 15%, with little variation by population density and showing one-year increases for most strata. The 30-day prevalence in 2018 was also lowest in the farm/country stratum (5.3%) and ranged from 8.9% to 12.4% in the other strata (Table 4-4); in 2017, there was little variation by population density, ranging from 5.8% to 6.4%.

TABLE 4-1
Prevalence of Use of Various Types of Drugs by Gender among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Men	Women	Total
Approximate Weighted N =	*1,800*	*2,600*	*4,400*
Any Illicit Drug [a]			
Annual	43.9	40.8	42.0
30-Day	27.0	24.9	25.7
Any Illicit Drug other than Marijuana [a]			
Annual	22.0	17.4	19.2
30-Day	9.6	7.4	8.3
Marijuana			
Annual [j]	40.0	36.9	38.1
30-Day	25.0	23.1	23.9
Daily [b]	10.3	6.3	8.0
Synthetic Marijuana			
Annual [c]	1.4	1.3	1.4
Inhalants [c]			
Annual	1.0	0.6	0.8
30-Day	0.3	0.2	0.2
Hallucinogens [e]			
Annual	6.9	4.1	5.3
30-Day	1.6	1.0	1.3
LSD [e]			
Annual	4.9	2.8	3.6
30-Day	1.0	0.8	0.9
Hallucinogens other than LSD [e]			
Annual	4.5	2.4	3.3
30-Day	1.1	0.4	0.7
PCP [d]			
Annual	*	0.9	0.6
30-Day	*	0.5	0.3
MDMA (Ecstasy, Molly) [f]			
Annual	4.6	3.6	4.0
30-Day	1.3	1.0	1.2
Cocaine			
Annual	7.4	5.0	5.9
30-Day	3.0	1.7	2.2
Crack [e]			
Annual	0.4	0.1	0.2
30-Day	0.4	0.1	0.2
Other Cocaine [f]			
Annual	7.3	5.1	5.9
30-Day	3.1	1.6	2.2
Heroin			
Annual	0.5	0.1	0.3
30-Day	0.3	0.1	0.2
With a Needle [g]			
Annual	*	0.1	*
30-Day	*	0.1	*
Without a Needle [g]			
Annual	*	0.2	0.1
30-Day	*	0.1	*

(Table continued on next page.)

TABLE 4-1 (cont.)
Prevalence of Use of Various Types of Drugs by Gender among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Men	Women	Total
Approximate Weighted N =	*1,800*	*2,600*	*4,400*
Narcotics other than Heroin [h]			
Annual	4.3	3.1	3.6
30-Day	0.9	0.9	0.9
Amphetamines, Adjusted [h,i]			
Annual	9.1	6.4	7.5
30-Day	3.6	2.2	2.8
Methamphetamine [g]			
Annual	1.3	0.9	1.0
30-Day	0.5	0.3	0.4
Crystal Methamphetamine (Ice) [g]			
Annual	0.5	0.3	0.4
30-Day	0.3	0.2	0.2
Bath Salts (Synthetic Stimulants) [c]			
Annual [k]	0.3	0.1	0.2
Sedatives (Barbiturates) [h]			
Annual	2.9	2.3	2.5
30-Day	0.9	0.9	0.9
Tranquilizers [h]			
Annual	4.3	4.1	4.2
30-Day	1.5	1.3	1.4
Alcohol			
Annual	81.5	83.2	82.5
30-Day	69.2	65.9	67.3
Daily [b]	6.3	3.6	4.7
5+ Drinks in a Row in Last 2 Weeks [l]	36.6	27.4	31.2
10+ Drinks in a Row in Last 2 Weeks [d]	14.9	4.0	8.4
15+ Drinks in a Row in Last 2 Weeks [d]	6.5	1.2	3.4
Been Drunk [c]			
Annual	63.4	62.1	62.6
30-Day	37.4	33.8	35.2
Daily [b]	0.2	0.5	0.4
Flavored Alcoholic Beverages [d]			
Annual	48.9	57.2	53.9
30-Day	24.2	29.0	27.1
Cigarettes			
Annual	25.9	20.2	22.5
30-Day	14.5	11.6	12.8
Daily	7.5	7.7	7.6
1/2 Pack+/Day	3.8	4.3	4.1
Any Vaping [g]			
Annual [m]	27.6	23.1	24.9
30-Day	18.3	14.7	16.2
Vaping Marijuana [g]			
Annual	15.2	14.6	14.8
30-Day	9.6	8.2	8.8
Vaping Nicotine [g]			
Annual [n]	18.2	13.4	15.4
30-Day [o]	12.4	9.7	10.8

(Table continued on next page.)

TABLE 4-1 (cont.)
Prevalence of Use of Various Types of Drugs by Gender among Respondents of Modal Ages 19–30, 2018

	Men	Women	Total
Vaping Just Flavoring [g]			
Annual [p]	9.4	8.5	8.9
30-Day	4.1	3.2	3.6
Smokeless Tobacco [d]			
30-Day	12.7	2.9	7.2
Daily	6.1	1.7	3.6
Steroids [g]			
Annual	1.1	0.1	0.5
30-Day	0.6	0.0	0.2

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

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

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders.

[b]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes, measured as actual daily use, and 5+ drinks, measured as having five or more drinks in a row in the last two weeks.

[c]This drug was asked about in three of the six questionnaire forms. Total *N* is approximately 2,200.

[d]This drug was asked about in one of the six questionnaire forms. Total *N* is approximately 700.

[e]This drug was asked about in five of the six questionnaire forms. Total *N* is approximately 3,700.

[f]This drug was asked about in four of the six questionnaire forms. Total *N* is approximately 2,900.

[g]This drug was asked about in two of the six questionnaire forms. Total *N* is approximately 1,500.

[h]Only drug use that was not under a doctor's orders is included here.

[i]Based on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

[j]For the total estimate of annual Marijuana use in 2018, there was a significant difference (p<.05) between the typical mail condition (36.5%) and new web-push condition (39.5%) of survey administration.

[k]For the total estimate of annual Bath Salt use in 2018, there was a significant difference (p<.05) between the typical mail condition (0.4%) and new web-push condition (0.0%) of survey administration.

[l]For the total estimate of 5+ Drinks in a Row in Last 2 Weeks in 2018, there was a significant difference (p<.01) between the typical mail condition (29.4%) and new web-push condition (33.0%) of survey administration.

[m]For the total estimate of annual Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (23.7%) and new web-push condition (28.4%) of survey administration.

[n]For the total estimate of annual Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (14.4%) and new web-push condition (18.8%) of survey administration.

[o]For the total estimate of 30-day Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (8.1%) and new web-push condition (11.3%) of survey administration.

[p]For the total estimate of annual Vaping Just Flavoring in 2018, there was a significant difference (p<.05) between the typical mail condition (7.3%) and new web-push condition (10.4%) of survey administration.

TABLE 4-2
Lifetime Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Any Illicit Drug [a]	Any Illicit Drug other than Marijuana [a]	Marijuana	Inhalants [b]	Hallucinogens [d]	LSD [d]	Hallucinogens other than LSD [d]	PCP [c]	MDMA (Ecstasy,Molly) [f]	Cocaine	Crack [d]
Total	*4,400*	65.3	38.3	61.3	6.4	14.9	10.5	11.9	1.3	13.4	12.7	1.7
Gender												
Men	*1,800*	65.7	41.7	62.0	7.0	18.9	14.2	15.7	0.5	15.2	14.9	1.9
Women	*2,600*	65.0	35.9	60.9	6.0	12.2	8.0	9.5	1.8	12.2	11.1	1.6
Modal Age												
19–20	*800*	52.2	22.9	48.9	3.8	9.0	7.6	4.9	1.2	5.7	5.2	1.1
21–22	*700*	62.0	34.3	58.6	5.1	12.4	10.1	8.5	0.8	10.5	9.7	0.4
23–24	*700*	68.3	40.9	64.6	5.4	18.0	13.2	14.5	0.4	16.8	16.5	2.1
25–26	*700*	68.9	41.3	65.8	6.2	15.0	9.6	12.7	1.6	13.0	13.1	0.8
27–28	*800*	67.6	42.4	63.0	7.5	17.2	11.2	15.2	2.3	14.7	12.9	3.0
29–30	*800*	72.2	46.1	67.0	9.7	17.8	11.5	15.6	1.1	18.7	17.7	2.6
Region												
Northeast	*800*	68.4	40.5	65.1	6.2	15.2	10.5	12.0	2.5	12.7	14.9	1.8
Midwest	*1,200*	65.2	39.1	61.2	5.0	14.0	9.5	11.1	0.2	11.1	10.7	2.0
South	*1,400*	62.8	36.7	57.8	6.1	13.3	9.8	10.2	0.6	12.0	11.3	1.6
West	*1,000*	66.8	37.2	64.1	8.3	17.5	12.0	14.9	2.5	18.0	14.8	1.4
Population Density [e]												
Farm/Country	*400*	56.2	35.7	49.4	8.4	15.2	10.0	13.0	2.7	8.0	8.9	3.0
Small Town	*1,100*	64.3	35.2	60.1	5.6	12.5	9.4	9.3	0.5	11.2	11.0	2.0
Medium City	*1,200*	63.9	36.1	59.7	6.1	14.5	10.0	11.2	1.3	11.3	10.3	1.2
Large City	*1,000*	66.4	38.2	64.0	7.2	14.0	9.5	11.3	1.4	14.3	13.2	0.8
Very Large City	*700*	73.0	47.7	69.5	6.0	20.4	14.8	17.4	1.4	22.1	19.8	2.3

(Table continued on next page.)

TABLE 4-2 (cont.)
Lifetime Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Other Cocaine [f]	Heroin	Heroin with a Needle [g]	Heroin without a Needle [g]	Narcotics other than Heroin [h,j]	Amphetamines [h,i]	Methamphetamine [g]	Crystal Methamphetamine (Ice) [g]
Total	*4,400*	13.4	1.6	0.6	1.5	14.0	19.7	3.2	1.9
Gender									
Men	*1,800*	15.9	2.1	0.6	2.2	16.0	22.3	3.9	2.0
Women	*2,600*	11.7	1.3	0.6	1.0	12.6	17.9	2.7	1.8
Modal Age									
19–20	*800*	4.7	0.4	0.4	0.2	5.5	10.3	0.4	0.2
21–22	*700*	9.6	0.6	0.2	0.4	9.0	15.5	1.8	1.2
23–24	*700*	16.8	1.8	*	2.2	13.6	22.5	3.5	2.0
25–26	*700*	13.9	1.8	0.7	2.1	15.8	21.3	3.2	1.6
27–28	*800*	15.8	2.3	0.5	1.8	17.3	22.7	4.3	1.6
29–30	*800*	18.3	2.6	1.4	2.2	21.4	24.7	5.4	4.1
Region									
Northeast	*800*	16.1	1.7	0.9	1.5	13.6	21.2	2.7	0.8
Midwest	*1,200*	12.9	1.1	0.4	1.1	14.3	20.1	2.1	2.0
South	*1,400*	10.8	1.5	0.2	1.0	13.7	18.9	4.1	2.3
West	*1,000*	15.1	2.0	1.0	2.4	13.6	18.5	3.3	2.0
Population Density [e]									
Farm/Country	*400*	9.4	1.5	0.4	1.1	14.5	16.6	4.3	0.8
Small Town	*1,100*	12.7	1.7	0.9	1.9	15.0	18.3	4.7	3.2
Medium City	*1,200*	11.0	1.8	0.6	1.2	13.2	17.7	1.8	1.3
Large City	*1,000*	12.3	1.1	0.5	1.5	12.4	19.5	2.2	1.4
Very Large City	*700*	21.9	1.7	0.2	1.6	15.2	27.0	3.4	1.9

(Table continued on next page.)

TABLE 4-2 (cont.)
Lifetime Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Sedatives (Barbiturates) [h]	Tranquilizers [h]	Alcohol	Been Drunk [b]	Flavored Alcoholic Beverages [c,k]	Cigarettes	Any Vaping [g,l]	Vaping Marijuana [g]	Vaping Nicotine [g,m]
Total	*4,400*	8.3	12.6	86.2	78.1	80.6	—	36.1	21.2	26.5
Gender										
Men	*1,800*	9.4	12.8	84.3	75.6	76.0	—	38.6	23.4	30.2
Women	*2,600*	7.6	12.4	87.5	79.8	83.7	—	34.4	19.6	23.9
Modal Age										
19–20	*800*	3.5	7.0	66.6	54.9	64.0	—	43.6	21.7	34.7
21–22	*700*	5.0	9.9	85.8	73.1	80.2	—	37.8	21.6	26.1
23–24	*700*	8.9	13.4	92.2	84.5	87.1	—	34.2	23.0	26.2
25–26	*700*	10.1	13.4	91.0	85.2	86.2	—	36.5	24.1	26.9
27–28	*800*	8.8	13.3	90.2	83.4	87.9	—	33.4	18.4	24.0
29–30	*800*	12.9	18.0	91.1	85.2	78.9	—	33.0	19.6	21.8
Region										
Northeast	*800*	7.5	13.9	88.7	83.3	78.9	—	37.7	22.9	28.2
Midwest	*1,200*	7.2	11.0	89.2	84.3	83.8	—	33.0	15.5	23.6
South	*1,400*	8.5	13.1	85.0	73.6	79.3	—	33.1	17.4	25.8
West	*1,000*	9.4	12.5	82.4	73.7	78.4	—	43.5	32.0	29.7
Population Density [e]										
Farm/Country	*400*	6.4	10.3	82.6	75.7	82.6	—	28.8	11.5	23.8
Small Town	*1,100*	9.0	12.1	83.1	75.0	75.2	—	35.3	16.3	27.4
Medium City	*1,200*	7.1	12.1	86.3	76.4	80.2	—	34.0	21.6	25.5
Large City	*1,000*	7.5	12.3	89.3	82.1	85.9	—	38.9	23.8	28.4
Very Large City	*700*	11.1	15.8	89.1	80.9	81.2	—	42.6	31.4	25.9

(Table continued on next page.)

TABLE 4-2 (cont.)
Lifetime Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Vaping Just Flavoring [g]	Smokeless Tobacco [c]	Steroids [g]
Total	*4,400*	20.6	23.5	1.3
Gender				
Men	*1,800*	20.7	37.3	2.7
Women	*2,600*	20.5	12.8	0.3
Modal Age				
19–20	*800*	33.3	21.5	0.4
21–22	*700*	24.6	15.2	0.4
23–24	*700*	21.7	31.2	1.9
25–26	*700*	16.7	*	1.4
27–28	*800*	15.3	30.3	1.0
29–30	*800*	15.0	35.3	2.3
Region				
Northeast	*800*	18.3	17.1	1.4
Midwest	*1,200*	20.3	38.2	0.3
South	*1,400*	20.3	23.9	1.8
West	*1,000*	24.3	10.2	1.5
Population Density [e]				
Farm/Country	*400*	14.8	27.1	1.2
Small Town	*1,100*	20.6	32.4	1.5
Medium City	*1,200*	20.5	17.8	1.1
Large City	*1,000*	25.2	19.1	0.4
Very Large City	*700*	19.0	23.1	2.5

(Table continued on next page.)

FOOTNOTES FOR TABLE 4-2

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

Notes. ' — ' indicates data not available.

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in three of the six questionnaire forms. Total *N* is approximately 2,200.

[c]This drug was asked about in one of the six questionnaire forms. Total *N* is approximately 700.

[d]This drug was asked about in five of the six questionnaire forms. Total *N* is approximately 3,700.

[e]A small town is defined as having fewer than 50,000 inhabitants; a medium city as 50,000–100,000; a large city as 100,000–500,000; and a very large city as having over 500,000. Within each level of population density, suburban and urban respondents are combined.

[f]This drug was asked about in four of the six questionnaire forms. Total *N* is approximately 3,900.

[g]This drug was asked about in two of the six questionnaire forms. Total *N* is approximately 1,900.

[h]Only drug use that was not under a doctor's orders is included here.

[i]Based on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

[j]For the total estimate of lifetime Narcotics other than Heroin use in 2018, there was a significant difference ($p<.01$) between the typical mail condition (15.2%) and new web-push condition (12.7%) of survey administration.

[k]For the total estimate of lifetime Flavored Alcoholic Beverages use in 2018, there was a significant difference ($p<.05$) between the typical mail condition (77.1%) and new web-push condition (84.2%) of survey administration.

[l]For the total estimate of lifetime Any Vaping in 2018, there was a significant difference ($p<.05$) between the typical mail condition (33.7%) and new web-push condition (38.9%) of survey administration.

[m]For the total estimate of lifetime Vaping Nicotine in 2018, there was a significant difference ($p<.05$) between the typical mail condition (23.6%) and new web-push condition (29.0%) of survey administration.

TABLE 4-3
Annual Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Any Illicit Drug [a]	Any Illicit Drug other than Marijuana [a]	Marijuana [j]	Synthetic Marijuana [c]	Inhalants [c]	Hallucinogens [e]	Hallucinogens LSD [e]	Hallucinogens other than LSD [e]	PCP [d]	MDMA (Ecstasy,Molly) [f]	Salvia [c]	Cocaine	Crack [e]
Total	*4,400*	42.0	19.2	38.1	1.4	0.8	5.3	3.6	3.3	0.6	4.0	0.6	5.9	0.2
Gender														
Men	*1,800*	43.9	22.0	40.0	1.4	1.0	6.9	4.9	4.5	*	4.6	0.7	7.4	0.4
Women	*2,600*	40.8	17.4	36.9	1.3	0.6	4.1	2.8	2.4	0.9	3.6	0.6	5.0	0.1
Modal Age														
19–20	*800*	43.1	14.2	40.5	2.0	1.9	5.9	5.1	2.9	0.3	3.1	0.9	3.9	0.2
21–22	*700*	47.2	22.1	44.3	1.7	0.5	5.9	4.6	3.5	0.8	4.5	0.4	5.9	0.2
23–24	*700*	47.0	22.1	43.0	1.4	0.3	5.7	3.2	4.0	*	4.5	0.3	9.2	0.2
25–26	*700*	40.2	17.8	36.4	0.9	0.6	4.1	2.4	2.8	0.8	3.9	*	6.0	*
27–28	*800*	36.9	19.1	32.0	1.8	0.5	6.3	4.2	3.5	1.5	3.8	1.7	5.2	0.4
29–30	*800*	39.2	19.9	34.3	0.4	0.9	3.8	2.4	2.9	*	4.1	0.4	5.5	0.2
Region														
Northeast	*800*	46.5	20.3	42.9	1.2	1.3	4.8	3.0	2.9	2.1	2.5	0.2	6.8	0.4
Midwest	*1,200*	40.4	19.1	37.1	1.9	0.8	4.8	3.5	2.6	*	3.7	0.6	5.3	0.3
South	*1,400*	38.6	17.6	33.6	1.3	0.6	4.2	3.1	2.4	0.2	2.8	0.6	4.2	0.1
West	*1,000*	46.1	20.7	42.8	1.0	0.7	7.7	5.3	5.3	0.6	6.6	0.9	8.2	0.2
Population Density [i]														
Farm/Country	*400*	31.1	16.1	25.3	2.3	2.4	3.5	2.6	2.5	2.0	1.8	0.6	3.4	0.8
Small Town	*1,100*	40.5	18.1	36.7	1.6	0.5	4.9	3.6	2.6	0.5	2.6	0.2	4.7	*
Medium City	*1,200*	41.3	17.8	36.4	0.8	0.9	5.2	3.8	3.2	0.5	3.4	1.1	4.6	0.5
Large City	*1,000*	42.8	18.2	40.7	1.7	0.8	4.7	3.3	2.7	0.5	3.9	0.8	6.3	*
Very Large City	*700*	51.0	25.8	47.4	0.8	0.2	7.4	5.0	5.0	*	7.8	0.2	10.2	*

(Table continued on next page.)

TABLE 4-3 (cont.)
Annual Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Other Cocaine [f]	Heroin	Heroin with a Needle [b]	Heroin without a Needle [b]	Narcotics other than Heroin [g]	OxyContin [c,g]	Vicodin [c,g]	Amphetamines [g,h]	Ritalin [c,g]	Adderall [c,g]	Methamphetamine [b]	Crystal Methamphetamine (Ice) [b]
Total	*4,400*	5.9	0.3	*	0.1	3.6	1.9	2.4	7.5	1.3	8.7	1.0	0.4
Gender													
Men	*1,800*	7.3	0.5	*	*	4.3	1.9	2.5	9.1	1.2	9.8	1.3	0.5
Women	*2,600*	5.1	0.1	0.1	0.2	3.1	1.8	2.4	6.4	1.4	7.9	0.9	0.3
Modal Age													
19–20	*800*	3.8	0.1	*	*	2.2	1.7	2.0	5.5	1.1	8.3	0.4	0.2
21–22	*700*	6.0	0.2	*	*	3.6	1.4	1.3	8.8	1.7	11.7	0.9	0.2
23–24	*700*	8.5	0.3	*	0.2	3.6	1.5	3.0	10.1	1.8	11.9	1.2	0.6
25–26	*700*	6.9	0.3	0.3	0.2	3.1	2.1	2.9	6.6	1.3	7.0	0.9	0.6
27–28	*800*	5.7	0.4	*	0.2	4.3	2.7	2.8	6.6	1.6	6.4	2.5	0.4
29–30	*800*	4.9	0.3	*	*	4.5	2.1	2.6	7.5	0.8	7.0	0.5	0.2
Region													
Northeast	*800*	6.8	0.2	0.2	*	3.2	2.2	1.4	7.4	1.9	9.9	1.2	*
Midwest	*1,200*	5.8	0.1	*	0.1	3.2	1.7	3.4	7.6	0.9	8.6	0.8	0.6
South	*1,400*	4.3	0.4	*	0.2	3.6	1.6	2.0	6.9	0.9	7.8	0.6	0.3
West	*1,000*	7.6	0.2	*	*	4.4	2.5	2.9	8.0	2.0	8.7	1.6	0.4
Population Density [i]													
Farm/Country	*400*	4.0	0.2	*	*	4.2	1.8	2.0	6.4	1.6	6.0	2.0	*
Small Town	*1,100*	5.4	0.2	0.2	0.1	4.3	2.2	2.7	6.4	1.2	8.4	1.5	0.4
Medium City	*1,200*	4.8	0.4	*	0.1	3.3	1.8	2.0	7.0	1.7	8.7	0.6	0.4
Large City	*1,000*	5.5	0.1	*	*	2.8	1.3	2.6	7.7	1.1	8.9	0.6	0.5
Very Large City	*700*	10.6	0.4	*	0.2	3.6	2.6	3.0	10.2	1.2	10.1	0.8	0.2

(Table continued on next page.)

TABLE 4-3 (cont.)
Annual Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Bath Salts (synthetic stimulants) [c,k]	Sedatives (Barbiturates) [g]	Tranquilizers [g]	GHB [b]	Ketamine [b,l]	Alcohol	Been Drunk [c]	Flavored Alcoholic Beverages [d]	Alcoholic Beverages containing Caffeine [b]	Cigarettes	Tobacco using a Hookah [c,m]	Small Cigars [b]	Any Vaping [b,n]	Vaping Marijuana [b]
Total	*4,400*	0.2	2.5	4.2	-	0.8	82.5	62.6	53.9	28.9	22.5	12.3	14.6	25.9	15.1
Gender															
Men	*1,800*	0.3	2.9	4.3	-	0.4	81.5	63.4	48.9	33.7	25.9	13.1	23.2	28.6	17.0
Women	*2,600*	0.1	2.3	4.1	-	1.0	83.2	62.1	57.2	25.4	20.2	11.8	8.7	23.9	13.8
Modal Age															
19–20	*800*	0.4	2.1	3.5	-	1.2	63.0	47.0	51.5	20.5	18.4	11.3	14.1	35.5	16.6
21–22	*700*	0.3	2.2	3.9	-	0.5	83.5	63.8	66.1	31.5	21.9	15.2	14.7	28.3	17.4
23–24	*700*	*	3.1	4.7	-	0.9	89.7	70.5	67.0	40.8	27.2	17.2	16.9	27.7	16.9
25–26	*700*	*	2.3	3.9	-	0.6	86.8	69.4	56.8	28.3	22.7	14.4	17.2	27.8	16.4
27–28	*800*	0.8	2.8	4.0	-	1.3	85.7	62.6	44.5	27.0	22.4	8.6	14.1	18.5	11.6
29–30	*800*	*	2.8	5.1	-	*	86.1	61.3	39.0	25.2	22.6	7.9	11.6	20.5	13.6
Region															
Northeast	*800*	0.4	2.4	4.0	-	1.0	86.3	70.1	53.2	28.9	22.1	15.0	16.8	29.0	17.7
Midwest	*1,200*	0.5	2.1	3.2	-	0.6	86.0	68.2	62.6	40.4	25.4	11.7	18.7	21.5	12.1
South	*1,400*	0.1	2.6	4.9	-	0.4	80.2	56.0	49.3	22.9	21.4	11.1	10.9	23.1	11.4
West	*1,000*	*	2.8	4.2	-	0.6	78.6	59.7	50.0	23.5	20.5	12.4	13.9	32.7	22.7
Population Density [i]															
Farm/Country	*400*	*	1.5	4.1	-	0.3	74.6	50.6	54.9	20.5	23.7	4.9	10.2	16.2	9.4
Small Town	*1,100*	0.4	2.4	3.5	-	0.6	79.3	59.0	51.3	30.3	25.0	9.1	15.8	24.6	13.0
Medium City	*1,200*	0.3	2.1	4.2	-	0.8	82.8	60.8	54.7	26.8	20.2	11.6	12.5	24.7	14.3
Large City	*1,000*	0.3	2.1	3.7	-	0.5	86.3	68.2	60.8	33.2	21.4	15.4	16.1	29.6	16.4
Very Large City	*700*	*	4.7	5.8	-	1.3	86.5	69.4	47.6	30.3	23.4	19.3	17.0	31.6	22.8

(Table continued on next page.)

TABLE 4-3 (cont.)
Annual Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Vaping Nicotine [b,p]	Vaping Just Flavoring [b]	Dissolvable Tobacco [b]	Snus [b]	Steroids [g]
Total	*4,400*	16.7	8.8	0.2	3.2	0.5
Gender						
Men	*1,800*	20.1	9.2	0.1	6.2	1.1
Women	*2,600*	14.3	8.4	0.2	1.1	0.1
Modal Age						
19–20	*800*	27.1	20.5	0.8	2.8	*
21–22	*700*	19.9	9.3	*	0.8	0.4
23–24	*700*	17.8	9.6	0.3	7.7	0.8
25–26	*700*	15.7	6.6	*	3.7	0.4
27–28	*800*	11.5	4.3	0.7	3.2	0.6
29–30	*800*	10.3	4.3	*	2.4	0.6
Region						
Northeast	*800*	17.5	8.8	0.7	3.4	0.5
Midwest	*1,200*	15.4	7.7	0.4	5.4	0.2
South	*1,400*	15.8	8.8	0.2	3.2	0.3
West	*1,000*	19.6	10.8	*	1.2	0.8
Population Density [i]						
Farm/Country	*400*	11.0	4.0	0.5	1.7	0.6
Small Town	*1,100*	16.1	11.4	*	6.3	1.0
Medium City	*1,200*	17.7	8.2	0.4	2.3	0.3
Large City	*1,000*	20.0	9.4	0.6	1.4	*
Very Large City	*700*	15.8	8.0	0.0	5.6	0.6

FOOTNOTES FOR TABLE 4-3

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

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

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in two of the six questionnaire forms. Total *N* is approximately 1,500.

[c]This drug was asked about in three of the six questionnaire forms. Total *N* is approximately 2,200.

[d]This drug was asked about in one of the six questionnaire forms. Total *N* is approximately 700.

[e]This drug was asked about in five of the six questionnaire forms. Total *N* is approximately 3,700.

[f]This drug was asked about in four of the six questionnaire forms. Total *N* is approximately 2,900.

[g]Only drug use that was not under a doctor's orders is included here.

[h]Based on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

[i]A small town is defined as having fewer than 50,000 inhabitants; a medium city as 50,000–100,000; a large city as 100,000–500,000; and a very large city as having over 500,000.
Within each level of population density, suburban and urban respondents are combined.

[j]For the total estimate of annual Marijuana use in 2018, there was a significant difference (p<.05) between the typical mail condition (36.5%) and new web-push condition (39.5%) of survey administration.

[k]For the total estimate of annual Bath Salts use in 2018, there was a significant difference (p<.05) between the typical mail condition (0.4%) and new web-push condition (0.0%) of survey administration.

[l]For the total estimate of annual Ketamine use in 2018, there was a significant difference (p<.05) between the typical mail condition (1.3%) and new web-push condition (0.3%) of survey administration.

[m]For the total estimate of annual Tobacco Using a Hookah in 2018, there was a significant difference (p<.05) between the typical mail condition (11.3%) and new web-push condition (14.1%) of survey administration.

[n]For the total estimate of annual Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (23.7%) and new web-push condition (28.4%) of survey administration.

[o]For the total estimate of annual Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (14.4%) and new web-push condition (18.8%) of survey administration.

[p]For the total estimate of annual Vaping Just Flavoring in 2018, there was a significant difference (p<.05) between the typical mail condition (7.3%) and new web-push condition (10.4%) of survey administration.

TABLE 4-4
Thirty-Day Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Any Illicit Drug [a]	Any Illicit Drug [a] other than Marijuana	Marijuana	Inhalants [b]	Hallucinogens [d]	LSD [d]	Hallucinogens other than LSD [d]	PCP [c]	MDMA (Ecstasy,Molly) [f]	Cocaine	Crack [d]
Total	*4,400*	25.7	8.3	23.9	0.2	1.3	0.9	0.7	0.3	1.2	2.2	0.2
Gender												
Men	*1,800*	27.0	9.6	25.0	0.3	1.6	1.0	1.1	*	1.3	3.0	0.4
Women	*2,600*	24.9	7.4	23.1	0.2	1.0	0.8	0.4	0.5	1.0	1.7	0.1
Modal Age												
19–20	*800*	24.7	6.1	24.1	0.6	1.9	1.5	1.0	0.3	1.3	1.5	*
21–22	*700*	29.8	9.3	27.5	0.2	0.9	0.6	0.3	*	0.9	2.4	0.2
23–24	*700*	28.5	10.0	26.1	*	1.0	0.7	0.4	*	1.3	2.9	0.2
25–26	*700*	23.1	6.7	21.7	0.6	1.0	0.8	0.4	0.8	0.7	2.4	*
27–28	*800*	23.6	8.3	21.5	*	1.3	0.5	1.0	0.7	1.4	1.5	0.4
29–30	*800*	25.2	9.0	22.7	*	1.4	1.0	0.9	*	1.2	2.7	0.2
Region												
Northeast	*800*	30.4	9.7	28.4	0.4	1.0	0.6	0.8	1.4	0.9	2.9	0.4
Midwest	*1,200*	23.5	8.2	21.2	0.2	1.0	0.9	0.1	*	1.0	1.8	0.1
South	*1,400*	22.8	7.3	20.7	0.3	1.3	0.7	0.7	0.2	1.2	1.6	0.1
West	*1,000*	29.4	8.6	28.1	0.2	1.6	1.3	0.9	*	1.3	3.0	0.2
Population Density [e]												
Farm/Country	*400*	19.0	7.0	16.5	1.0	0.4	0.1	0.3	2.0	0.4	0.7	0.8
Small Town	*1,100*	24.3	8.3	22.8	0.2	1.4	1.1	0.6	*	0.9	2.4	*
Medium City	*1,200*	24.3	6.7	22.9	0.3	1.4	1.0	0.8	0.5	1.4	1.5	0.4
Large City	*1,000*	26.4	7.5	24.8	0.1	0.9	0.8	0.2	*	0.5	1.8	*
Very Large City	*700*	33.1	12.0	29.5	*	1.5	0.8	1.2	*	2.0	4.0	*

(Table continued on next page.)

TABLE 4-4 (cont.)
Thirty-Day Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Other Cocaine [f]	Heroin	Heroin With Needle [g]	Heroin Without Needle [g]	Narcotics other than Heroin [h]	Amphetamines [h,i]	Methamphetamine [g]	Crystal Methamphetamine (Ice) [g]
Total	*4,400*	2.2	0.2	*	*	0.9	2.8	0.4	0.2
Gender									
Men	*1,800*	3.1	0.3	*	*	0.9	3.6	0.5	0.3
Women	*2,600*	1.6	0.1	0.1	0.1	0.9	2.2	0.3	0.2
Modal Age									
19–20	*800*	1.4	0.1	*	*	0.6	1.7	*	*
21–22	*700*	2.1	*	*	*	1.0	3.3	*	*
23–24	*700*	3.2	0.1	*	*	1.1	3.7	0.8	0.6
25–26	*700*	3.2	0.3	0.3	0.2	0.5	2.1	*	0.4
27–28	*800*	1.7	0.3	*	*	1.5	2.8	1.3	0.4
29–30	*800*	1.7	0.3	*	*	0.8	3.1	0.1	*
Region									
Northeast	*800*	3.1	0.2	0.2	*	1.4	3.5	0.4	*
Midwest	*1,200*	2.1	0.0	*	*	1.1	2.6	0.5	0.4
South	*1,400*	1.4	0.3	*	0.1	0.8	2.7	0.1	0.2
West	*1,000*	2.7	0.2	*	*	0.5	2.6	0.6	0.3
Population Density [e]									
Farm/Country	*400*	1.7	0.2	*	*	1.7	1.9	0.7	*
Small Town	*1,100*	3.0	0.1	0.2	*	1.5	2.6	1.0	0.3
Medium City	*1,200*	0.9	0.2	*	*	0.6	2.4	0.2	0.4
Large City	*1,000*	1.8	0.1	*	*	0.3	3.0	*	0.3
Very Large City	*700*	3.9	0.4	*	0.2	0.8	4.1	*	*

(Table continued on next page.)

TABLE 4-4 (cont.)
Thirty-Day Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Sedatives (Barbiturates) [h]	Tranquilizers [h]	Alcohol	Been Drunk [b]	Flavored Alcoholic Beverages [c]	Cigarettes	Large Cigars [c]	Flavored Little Cigars [c]	Regular Little Cigars [c]
Total	*4,400*	0.9	1.4	67.3	35.2	27.1	12.8	3.5	5.7	3.7
Gender										
Men	*1,800*	0.9	1.5	69.2	37.4	24.2	14.5	7.7	7.2	6.0
Women	*2,600*	0.9	1.3	65.9	33.8	29.0	11.6	0.7	4.7	2.2
Modal Age										
19–20	*800*	0.9	0.5	44.4	24.9	30.2	10.5	3.8	8.2	3.9
21–22	*700*	0.6	1.8	68.8	40.5	31.3	10.9	1.7	3.3	2.5
23–24	*700*	1.3	1.5	75.1	44.3	37.2	14.7	3.7	7.4	5.4
25–26	*700*	0.7	0.8	73.0	39.3	24.8	13.0	4.0	3.8	3.1
27–28	*800*	1.0	1.8	69.6	31.1	22.9	12.4	2.7	6.1	3.3
29–30	*800*	1.0	1.9	72.1	31.1	16.1	14.6	4.9	4.5	3.6
Region										
Northeast	*800*	1.5	1.5	72.0	41.8	30.2	13.6	2.4	6.4	4.0
Midwest	*1,200*	0.7	1.1	70.9	40.0	32.7	13.9	7.3	7.7	4.9
South	*1,400*	0.8	1.8	63.6	28.8	21.8	12.8	2.2	4.9	3.3
West	*1,000*	0.9	1.2	64.0	33.2	23.8	10.5	1.5	3.8	1.4
Population Density [e]										
Farm/Country	*400*	0.9	1.2	55.2	21.8	32.6	15.1	3.6	9.3	2.6
Small Town	*1,100*	1.1	1.1	61.5	33.4	26.6	15.1	2.0	6.4	4.3
Medium City	*1,200*	0.6	1.4	67.3	30.9	26.5	11.3	3.0	6.0	5.2
Large City	*1,000*	0.7	1.0	73.0	41.1	32.2	10.5	5.7	5.3	2.3
Very Large City	*700*	1.5	2.5	75.3	43.0	17.3	13.2	4.1	1.0	3.1

(Table continued on next page.)

TABLE 4-4 (cont.)
Thirty-Day Prevalence of Use of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Any Vaping [g]	Vaping Marijuana [g]	Vaping Nicotine [g,j]	Vaping Just Flavoring [g]	Smokeless Tobacco[c]	Steroids [g]
Total	*4,400*	16.1	8.5	9.9	3.6	7.2	0.2
Gender							
Men	*1,800*	18.8	10.3	12.8	4.1	12.7	0.6
Women	*2,600*	14.2	7.2	7.9	3.3	2.9	*
Modal Age							
19–20	*800*	22.9	9.8	15.8	7.7	6.3	*
21–22	*700*	19.4	10.1	13.1	4.2	2.1	0.4
23–24	*700*	17.4	10.5	10.5	4.6	14.9	0.4
25–26	*700*	16.0	10.0	8.2	2.7	*	0.4
27–28	*800*	11.0	6.4	6.1	2.1	9.4	0.2
29–30	*800*	12.3	5.7	7.2	1.4	7.5	*
Region							
Northeast	*800*	18.1	11.4	9.2	4.7	5.8	0.5
Midwest	*1,200*	13.7	6.4	9.6	2.6	15.5	0.2
South	*1,400*	13.0	5.4	9.2	2.9	5.0	*
West	*1,000*	23.4	14.6	12.6	5.2	0.8	0.3
Population Density e							
Farm/Country	*400*	8.3	4.2	5.3	1.7	12.9	*
Small Town	*1,100*	16.3	9.7	9.5	4.7	11.0	0.4
Medium City	*1,200*	14.6	6.9	10.9	3.3	4.3	0.3
Large City	*1,000*	19.6	10.2	12.4	4.2	4.4	*
Very Large City	*700*	18.8	10.8	8.9	2.6	4.7	0.4

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

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

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in three of the six questionnaire forms. Total *N* is approximately 2,200.

[c]This drug was asked about in one of the six questionnaire forms. Total *N* is approximately 700.

[d]This drug was asked about in five of the six questionnaire forms. Total *N* is approximately 3,700.

[e]A small town is defined as having fewer than 50,000 inhabitants; a medium city as 50,000–100,000; a large city as 100,000–500,000; and a very large city as having over 500,000.

Within each level of population density, suburban and urban respondents are combined.

[f]This drug was asked about in four of the six questionnaire forms. Total *N* is approximately 2,900.

[g]This drug was asked about in two of the six questionnaire forms. Total *N* is approximately 1,500.

[h]Only drug use that was not under a doctor's orders is included here.

[i]Based on data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

jFor the total estimate of 30-day Vaping Nicotine in 2018, there was a significant difference ($p<.05$) between the typical mail mode (8.1%) and new web-push mode (11.3%) of administration.

TABLE 4-5
Thirty-Day Prevalence of Daily Use [a] of Various Types of Drugs by Subgroups among Respondents of Modal Ages 19–30, 2018

(Entries are percentages.)

	Approximate Weighted N	Marijuana Daily	Alcohol Daily	Alcohol: 5+ Drinks in a Row in Last 2 Weeks [d]	Alcohol: 10+ Drinks in a Row in Last 2 Weeks [c]	Alcohol: 15+ Drinks in a Row in Last 2 Weeks [c]	Cigarettes Daily	Cigarettes: 1/2 Pack+ per Day	Smokeless Tobacco[c]
Total	*4,400*	8.0	4.7	31.2	8.4	3.4	7.6	4.1	3.6
Gender									
Men	*1,800*	10.3	6.3	36.6	14.9	6.5	7.5	3.8	6.1
Women	*2,600*	6.3	3.6	27.4	4.0	1.2	7.7	4.3	1.7
Modal Age:									
19–20	*800*	7.1	1.4	20.5	5.7	2.9	5.9	2.3	4.2
21–22	*700*	8.6	3.5	34.3	6.9	5.5	4.4	2.3	0.7
23–24	*700*	7.5	6.0	37.0	11.1	4.1	8.2	4.3	9.5
25–26	*700*	8.3	5.0	33.5	9.1	2.9	7.6	4.2	0.0
27–28	*800*	8.4	5.5	31.4	8.0	2.4	8.9	5.7	2.7
29–30	*800*	8.0	6.4	30.6	9.8	2.9	10.3	5.7	3.7
Region									
Northeast	*800*	8.6	5.6	34.6	8.7	1.2	8.7	3.7	3.4
Midwest	*1,200*	7.8	5.9	34.2	12.3	6.3	8.7	5.0	6.7
South	*1,400*	7.5	3.3	27.9	6.2	3.0	7.9	4.7	3.3
West	*1,000*	8.6	4.8	29.3	7.1	1.9	5.1	2.7	0.6
Population Density [b]									
Farm/Country	*400*	8.8	4.1	23.8	13.6	5.2	10.7	7.2	2.9
Small Town	*1,100*	7.9	5.3	29.1	7.9	4.4	9.9	5.5	8.4
Medium City	*1,200*	7.2	4.4	29.2	7.7	3.3	6.7	3.8	2.3
Large City	*1,000*	7.9	4.3	34.9	8.2	2.2	5.5	2.5	1.4
Very Large City	*700*	8.7	5.0	36.5	8.3	2.7	6.8	2.8	1.9

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

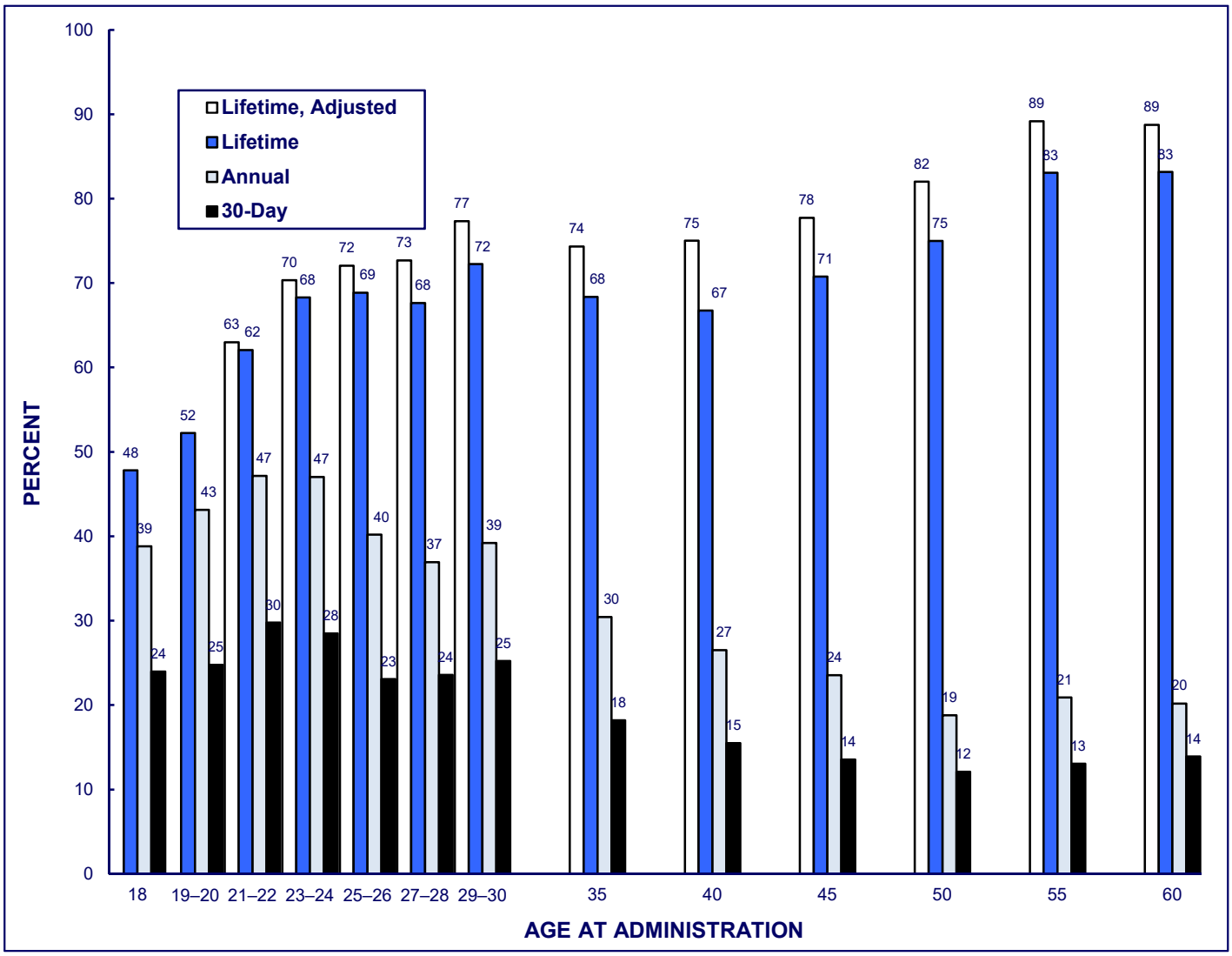
[a]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes, measured as actual daily use, and 5+ drinks, measured as having five or more drinks in a row in the last two weeks.

[b]A small town is defined as having fewer than 50,000 inhabitants; a medium city as 50,000–100,000; a large city as 100,000–500,000; and a very large city as having over 500,000. Within each level of population density, suburban and urban respondents are combined.

[c]This drug was asked about in one of the six questionnaire forms. Total *N* is approximately 700.

[d]For the total estimate of 5+ Drinks in a Row in Last 2 Weeks in 2018, there was a significant difference (p<.01) between the typical mail condition (29.4%) and new web-push condition (33.0%) of survey administration.

FIGURE 4-1
ANY ILLICIT DRUG[a]
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018

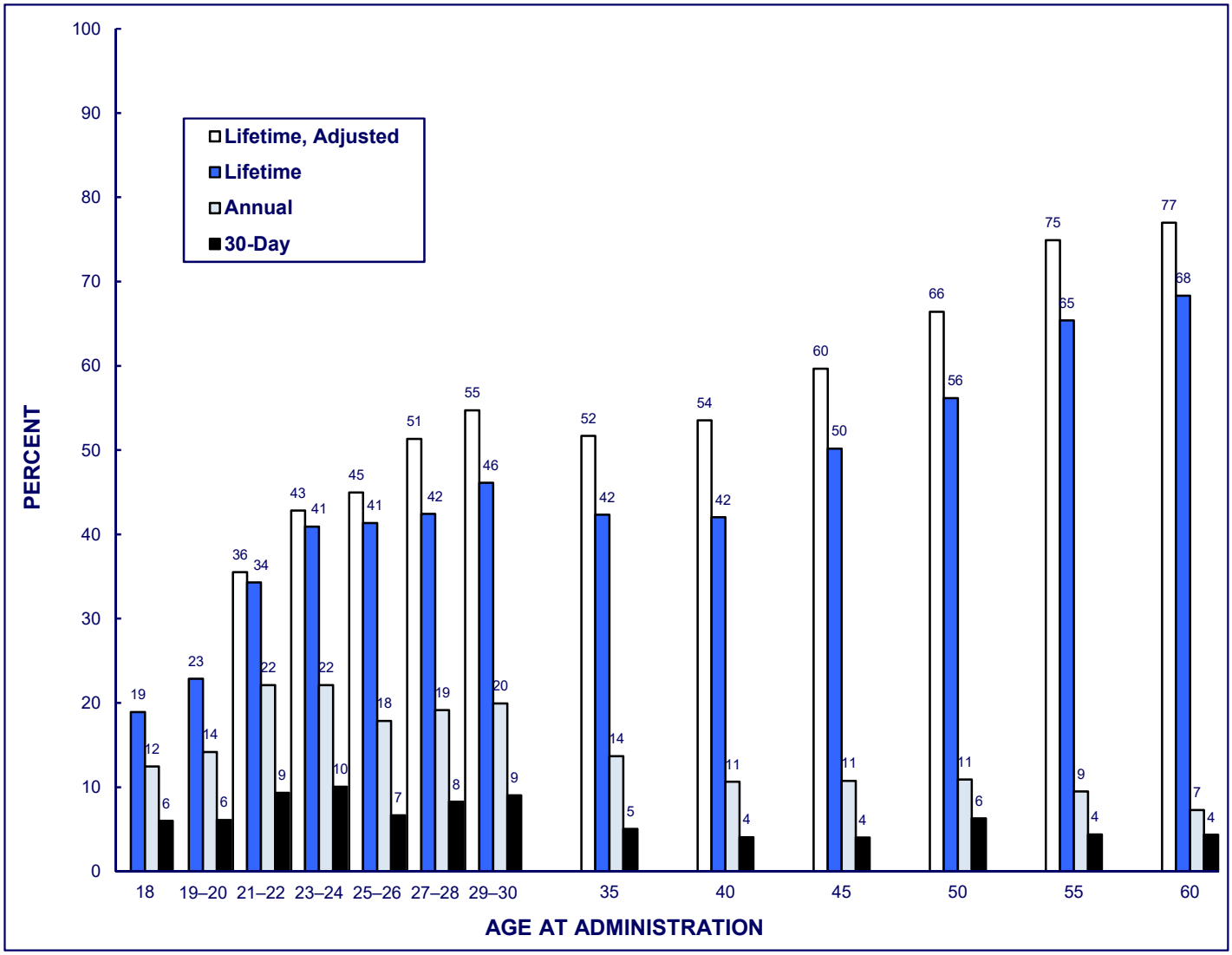


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]The questions on hallucinogen use are not included in the age 55 or age 60 questionnaires. Therefore, the data presented here include hallucinogens for ages 18 to 50, but not for ages 55 and 60.

FIGURE 4-2
ANY ILLICIT DRUG OTHER THAN MARIJUANA[a]
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018

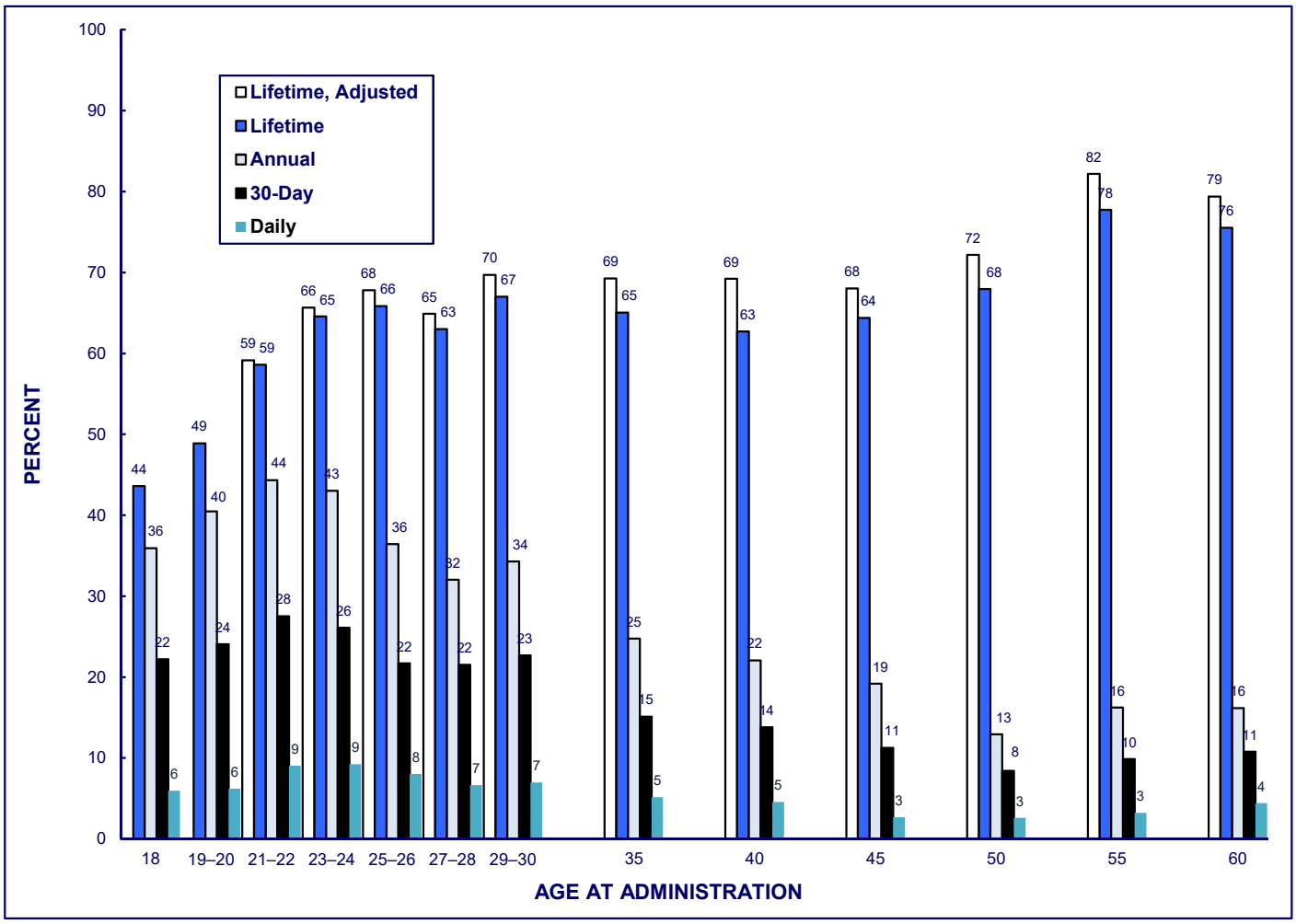


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]The questions on hallucinogen use are not included in the age 55 or age 60 questionnaires. Therefore, the data presented here include hallucinogens for ages 18 to 50, but not for ages 55 and 60.

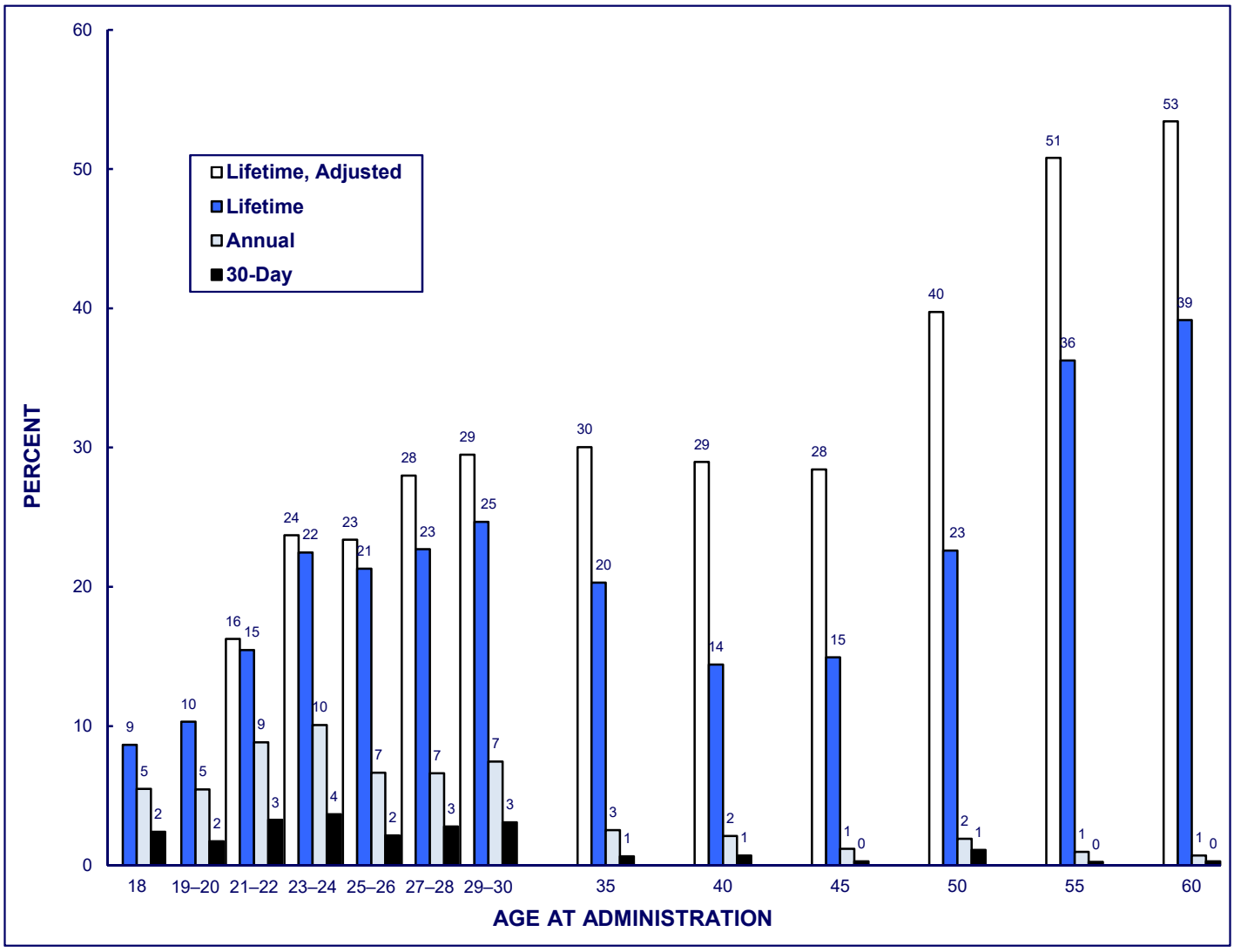
FIGURE 4-3
MARIJUANA
Lifetime, Annual, 30-Day, and Daily Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding some bars with the same number may have uneven height.

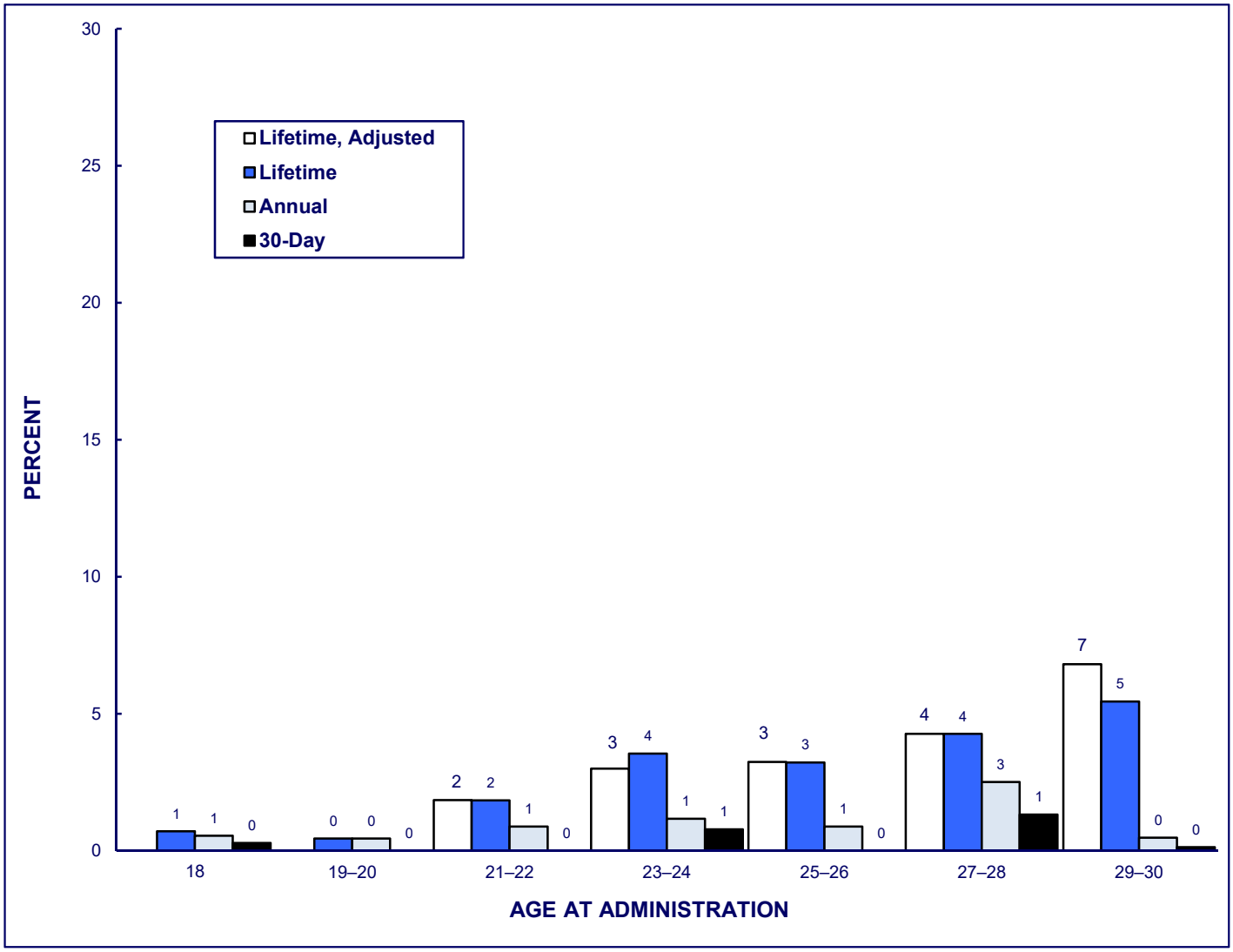
FIGURE 4-4
AMPHETAMINES
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

FIGURE 4-5
METHAMPHETAMINE
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [a] by Age Group, 2018

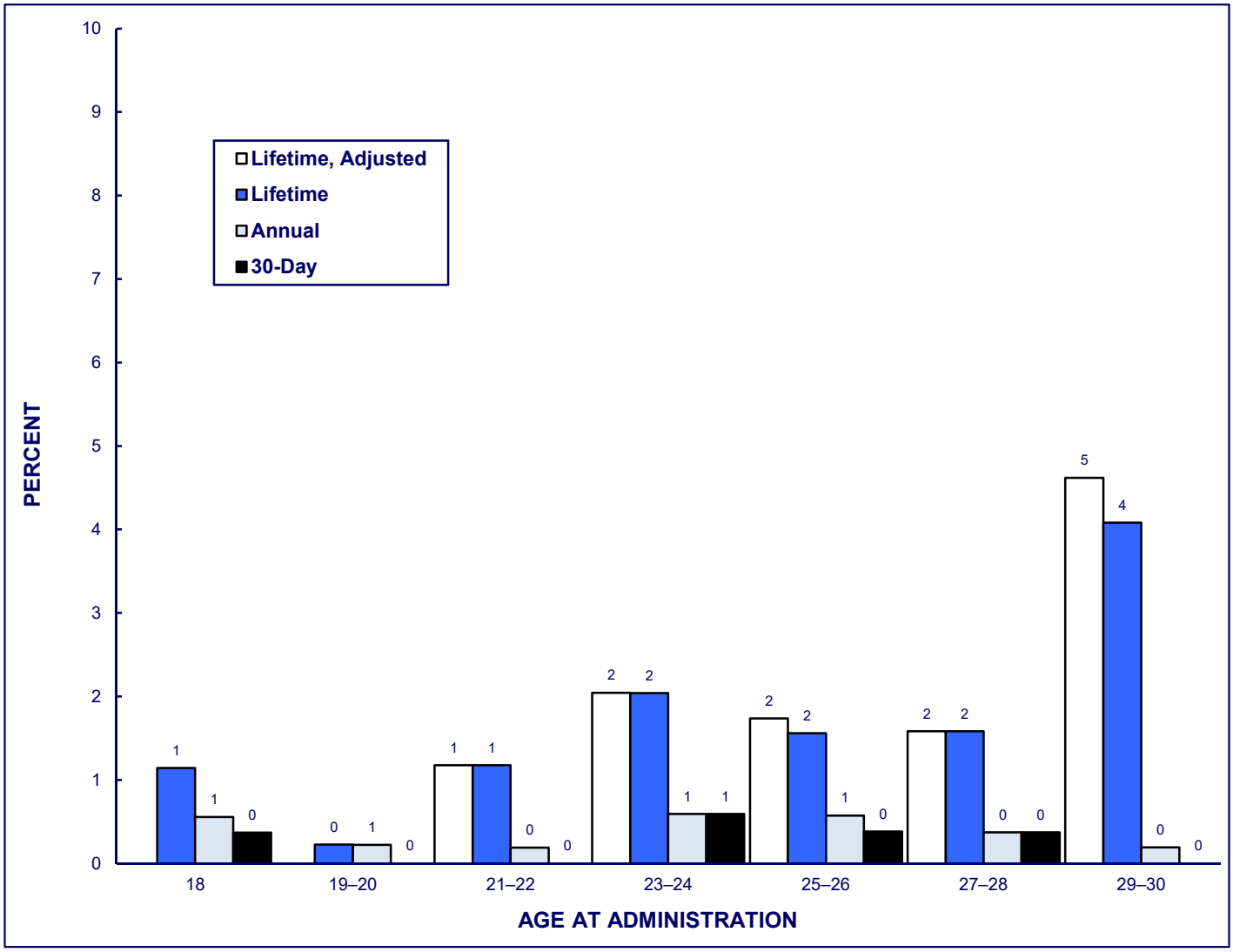


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Questions about the use of methamphetamines were not included in the questionnaires for 35- to 60-year-olds.

FIGURE 4-6
CRYSTAL METHAMPHETAMINE (ICE)
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [a] by Age Group, 2018

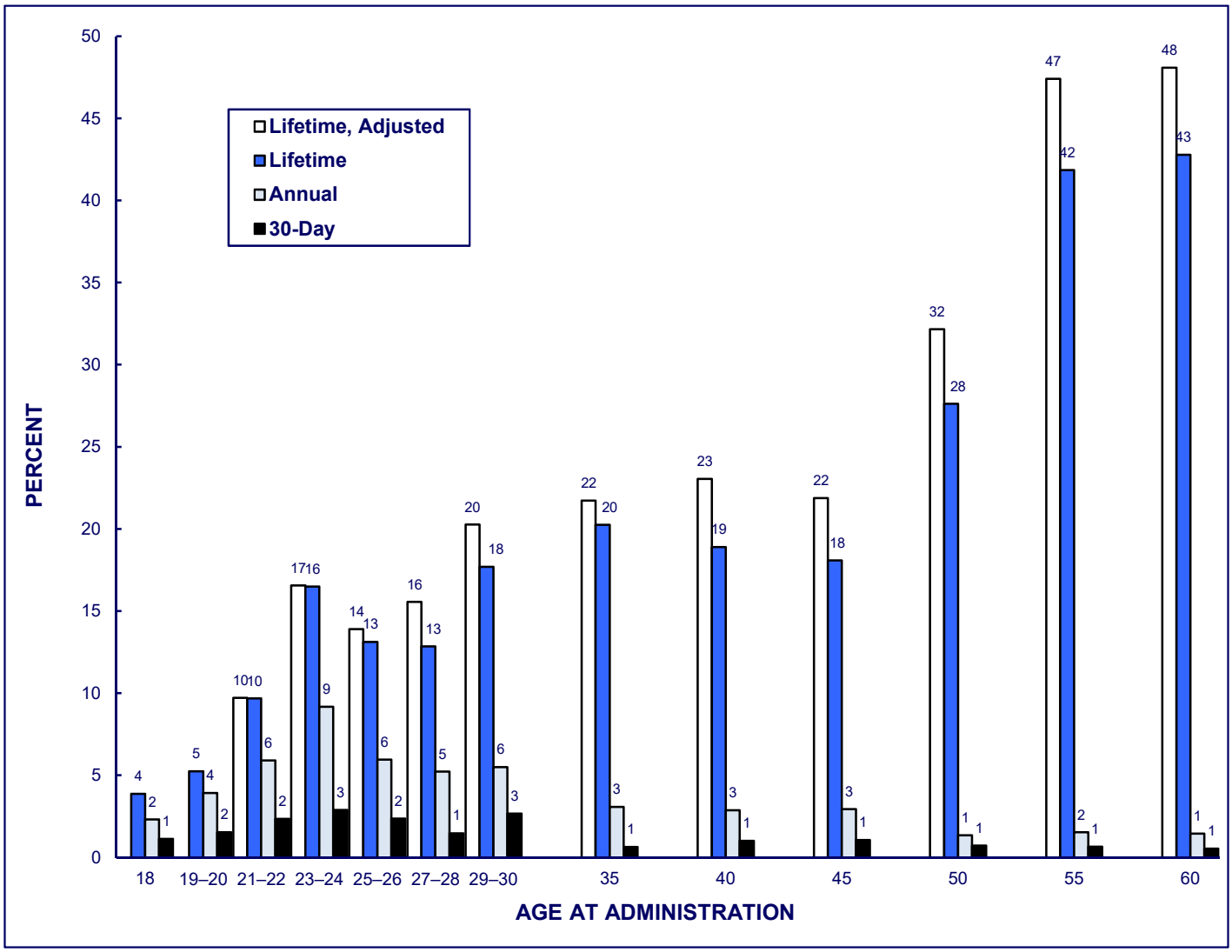


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Questions about the use of crystal methamphetamine were not included in the questionnaires for 35- to 60-year-olds.

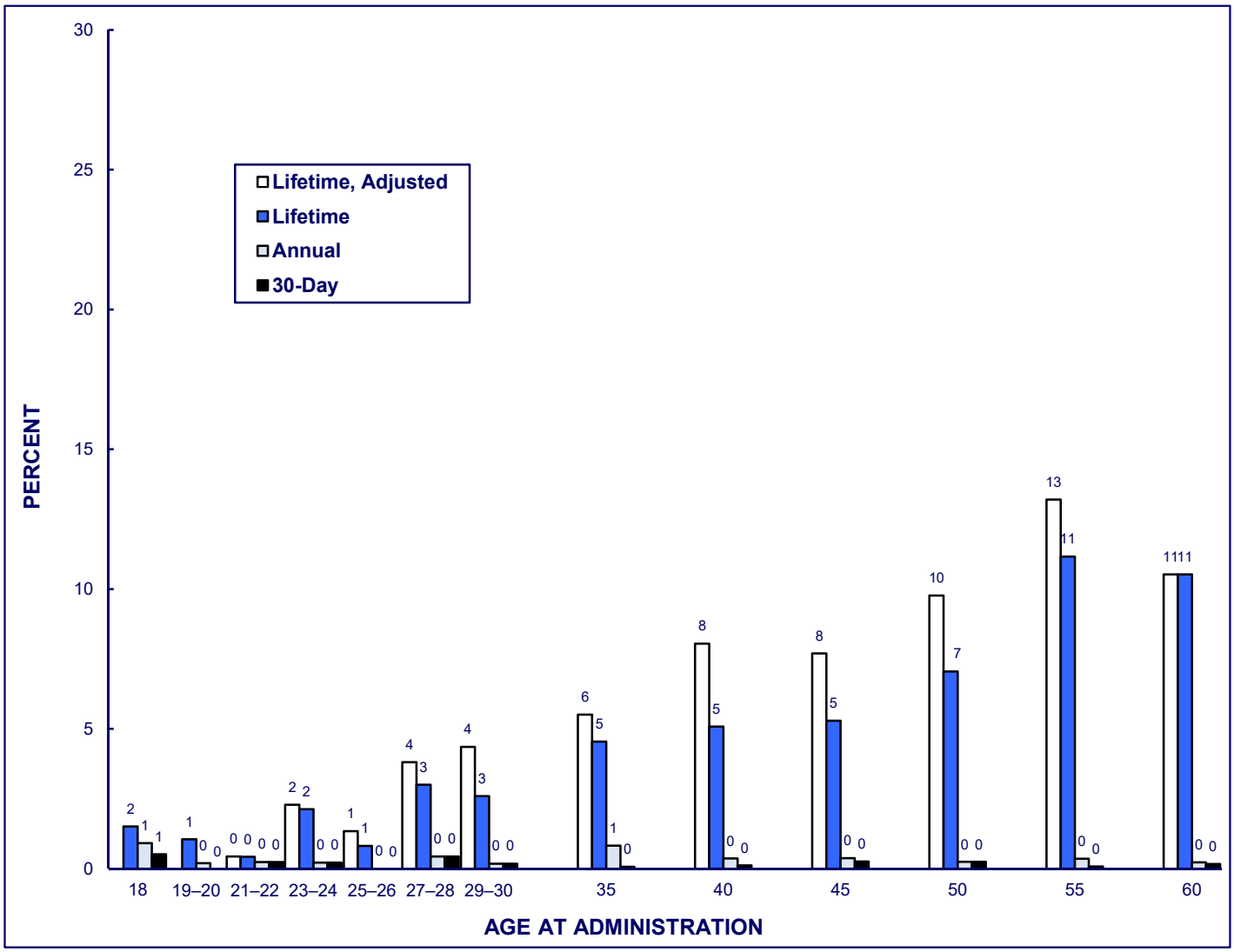
FIGURE 4-7
COCAINE
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding some bars with the same number may have uneven height.

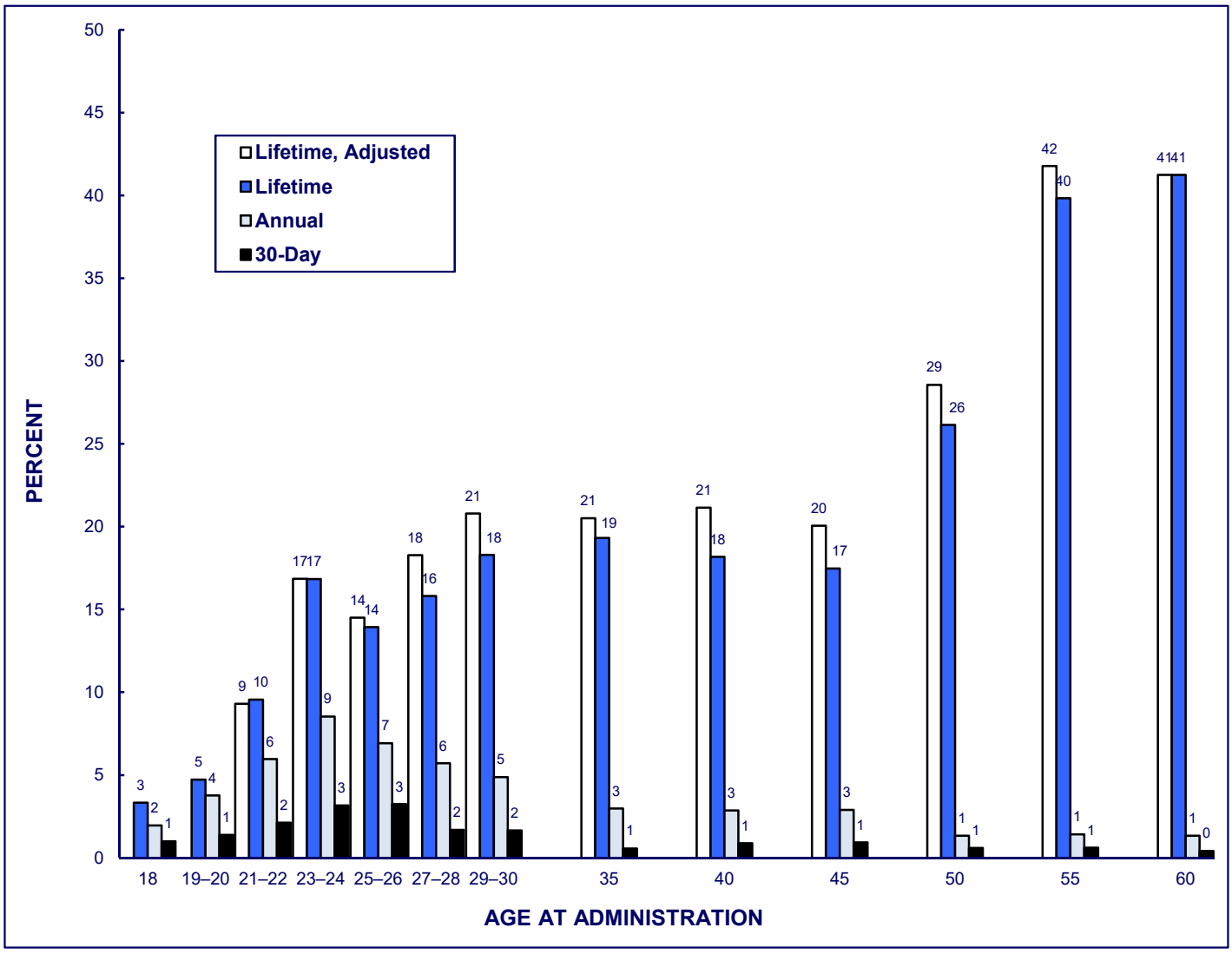
FIGURE 4-8
CRACK COCAINE
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

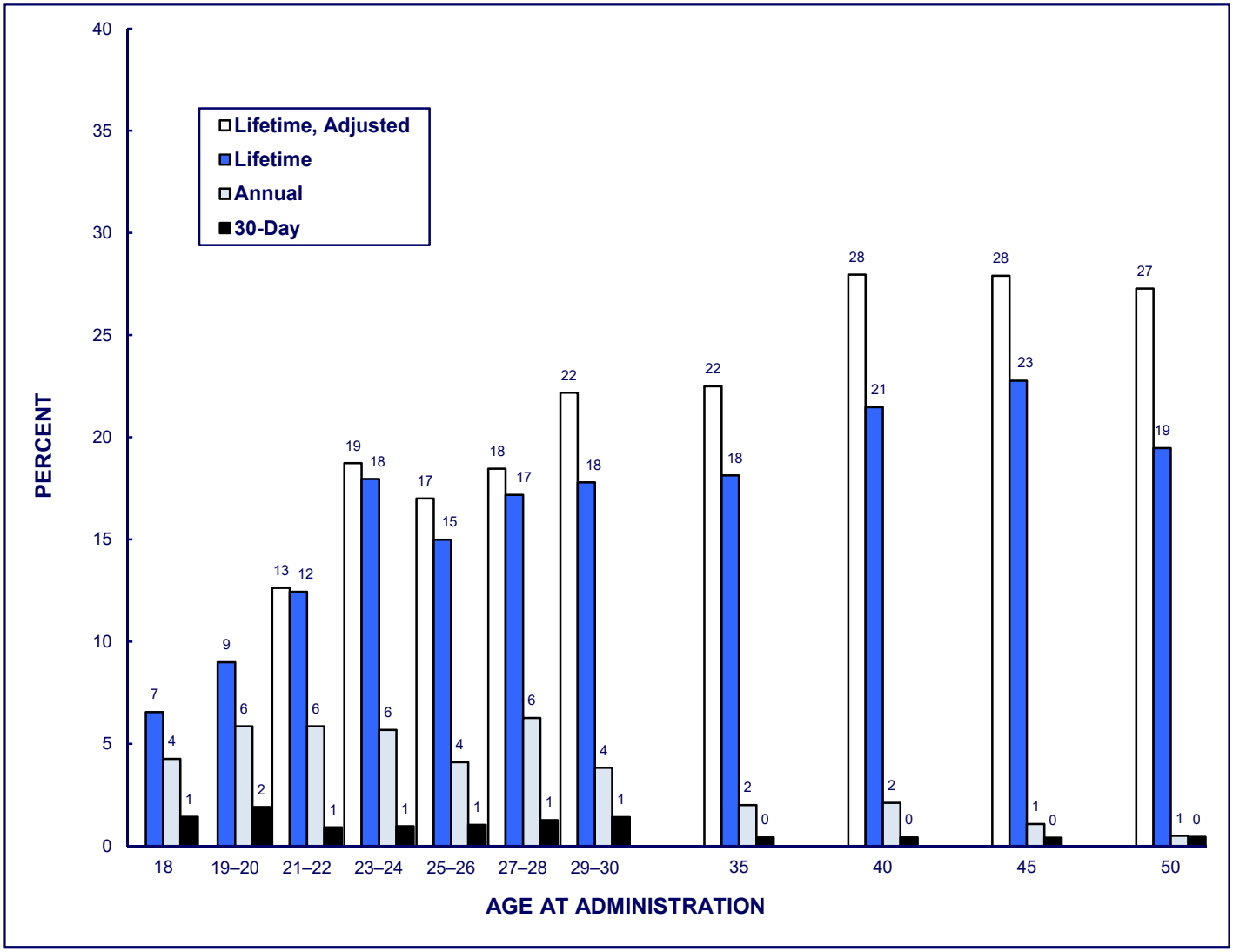
FIGURE 4-9
OTHER COCAINE
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

FIGURE 4-10
HALLUCINOGENS [a]
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 50[b] by Age Group, 2018

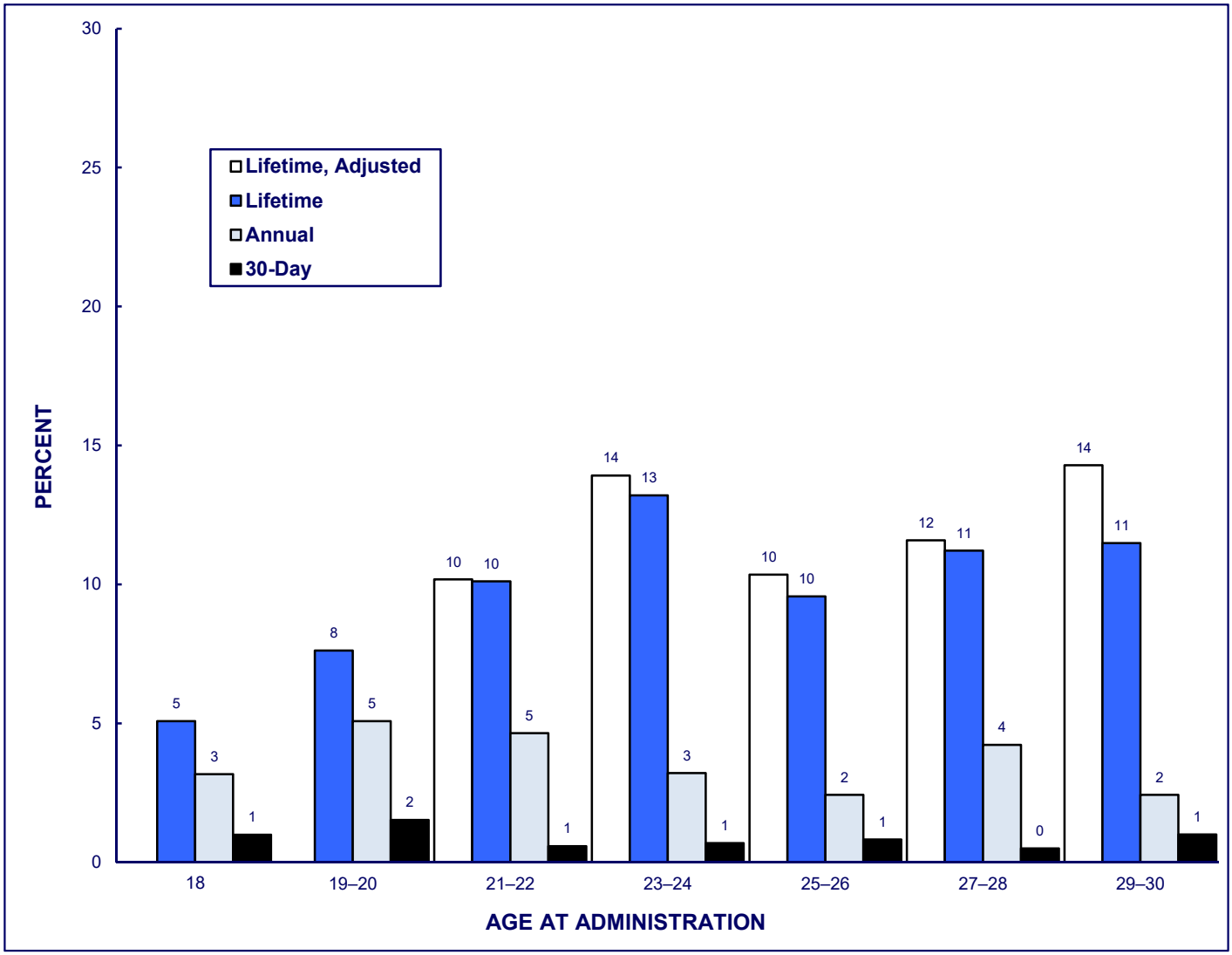


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Unadjusted for the possible underreporting of PCP.
[b]Questions about the use of hallucinogens were not included in the questionnaires for 55-year-olds.

FIGURE 4-11
LSD
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [a] by Age Group, 2018



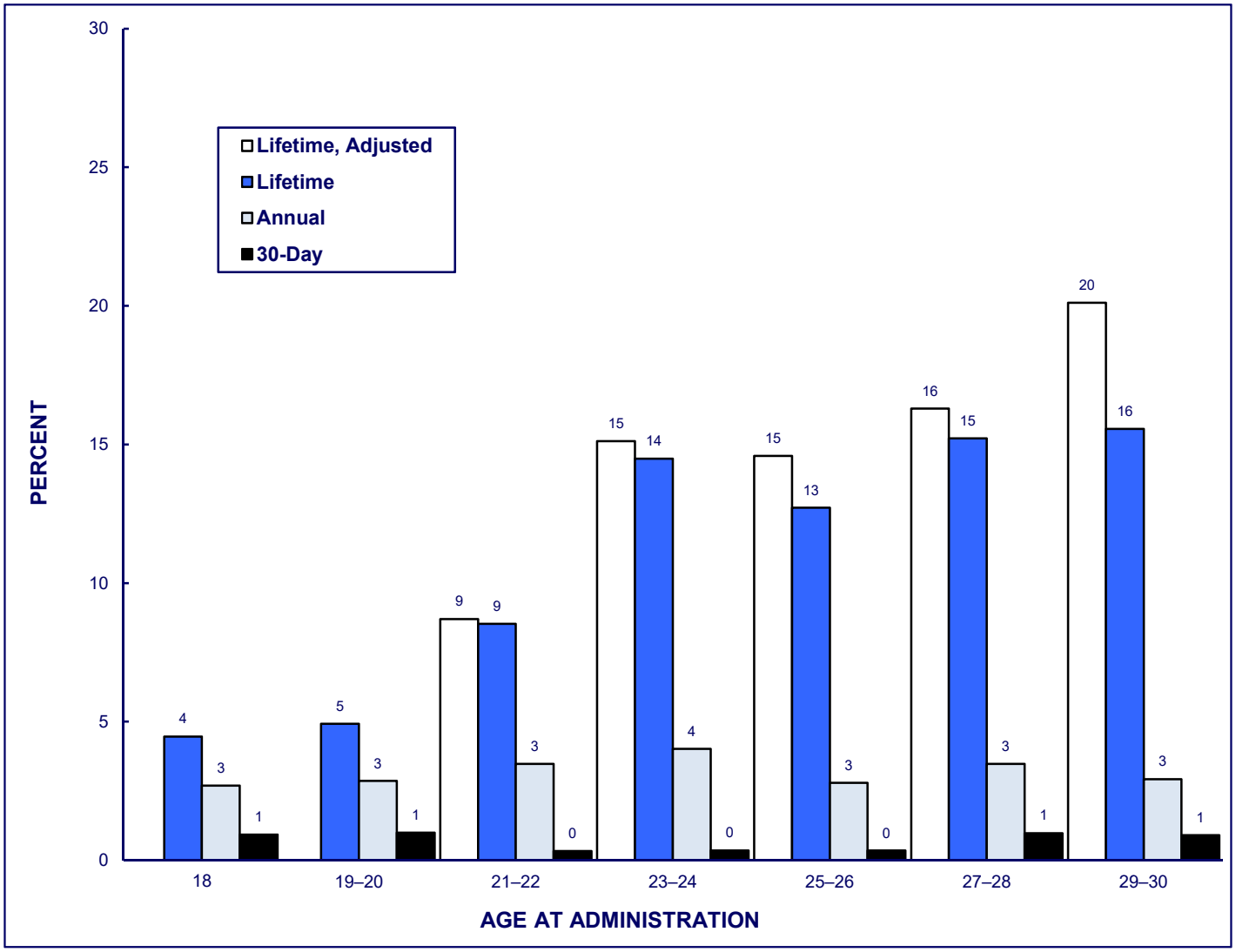
Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.

Due to rounding, some bars with the same number may have uneven height.

[a]Questions about the use of LSD were not included in the questionnaires for 35- to 60-year-olds.

FIGURE 4-12
HALLUCINOGENS OTHER THAN LSD [a]
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [b] by Age Group, 2018



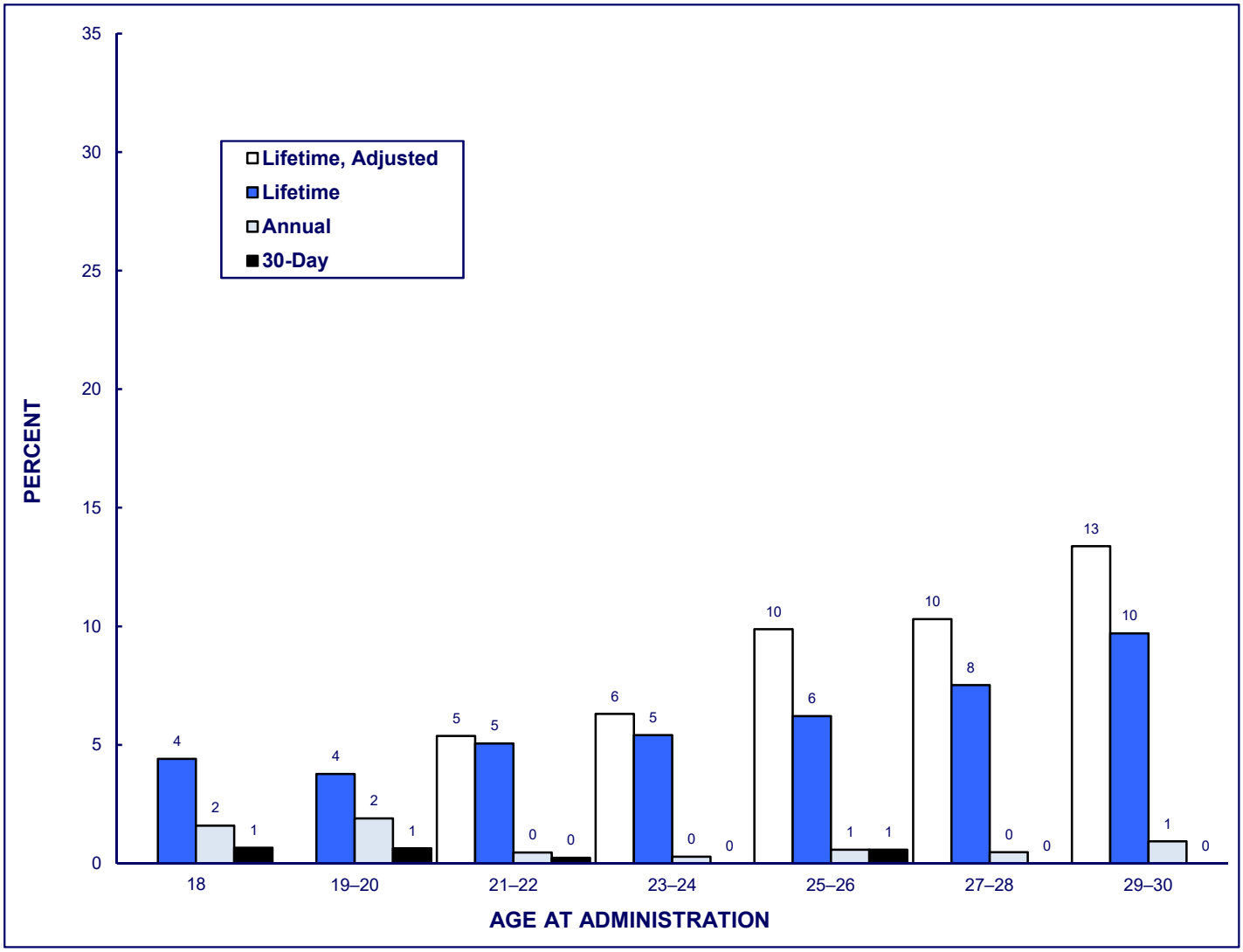
Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Unadjusted for the possible underreporting of PCP.

[b]Questions about the use of hallucinogens other than LSD were not included in the questionnaires for 35- to 60-year-olds.

FIGURE 4-13
INHALANTS [a]
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [b] by Age Group, 2018



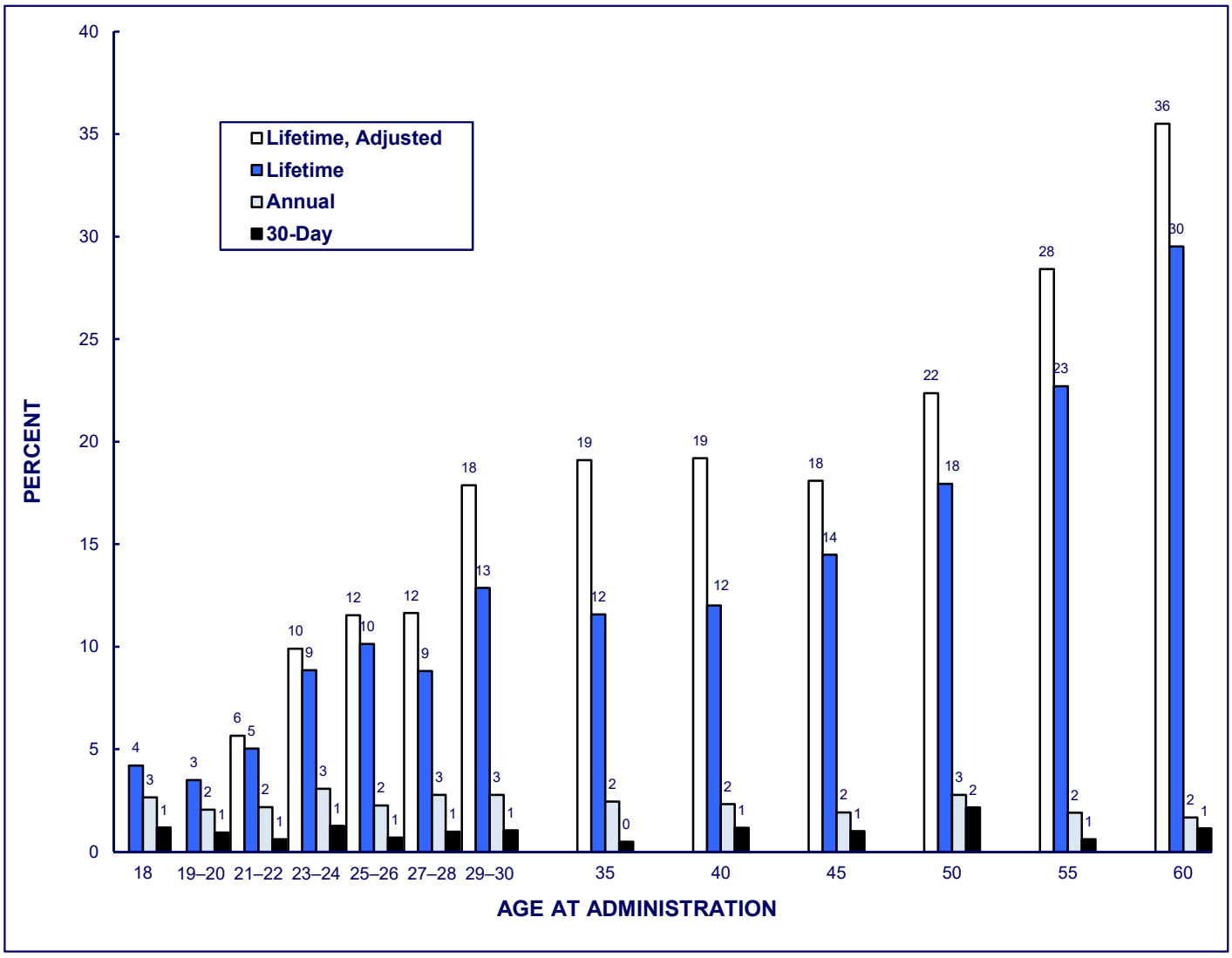
Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding some, bars with the same number may have uneven height.

[a]Unadjusted for the possible underreporting of amyl and butyl nitrites.

[b]Questions about the use of inhalants were not included in the questionnaires for 35- to 60-year-olds.

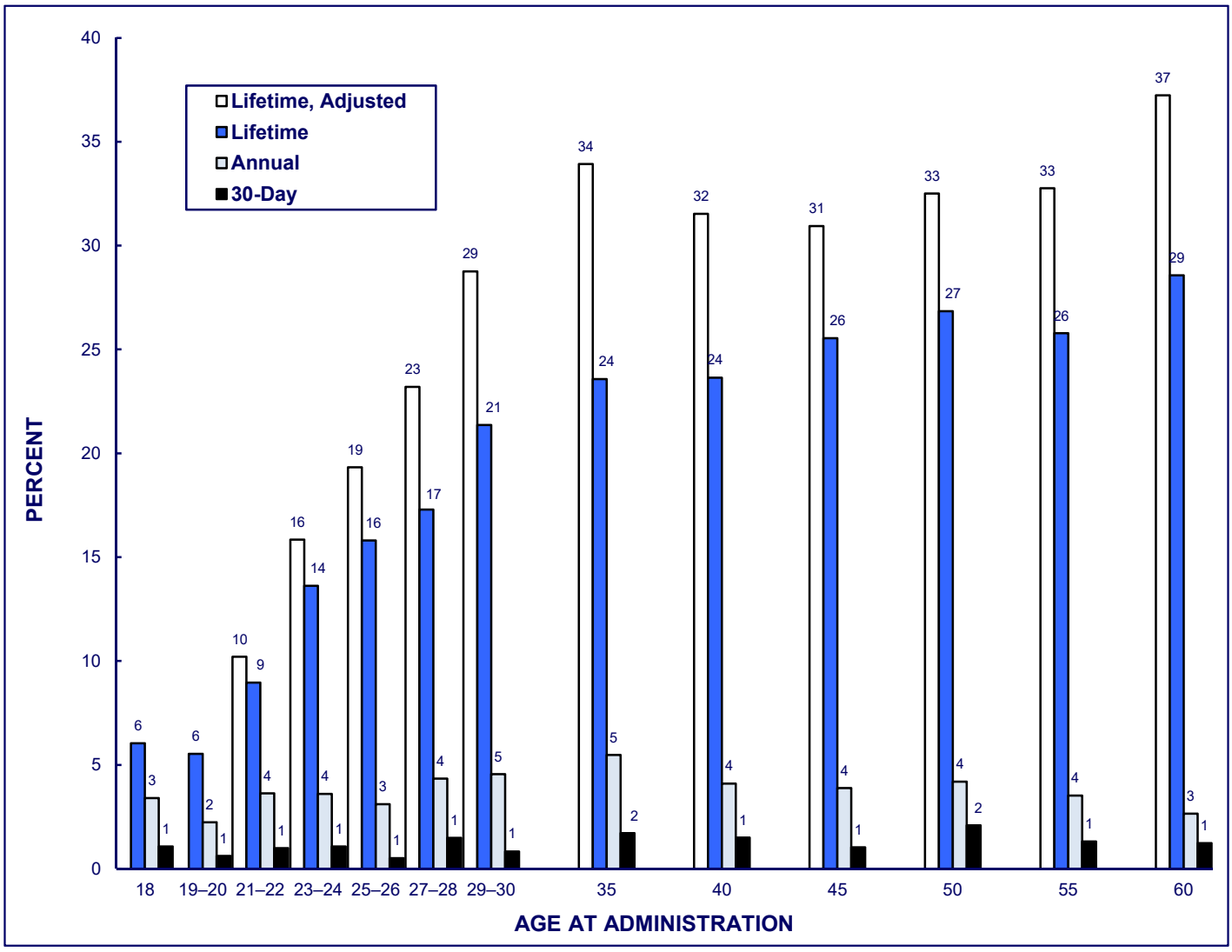
FIGURE 4-14
SEDATIVES (BARBITURATES)
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

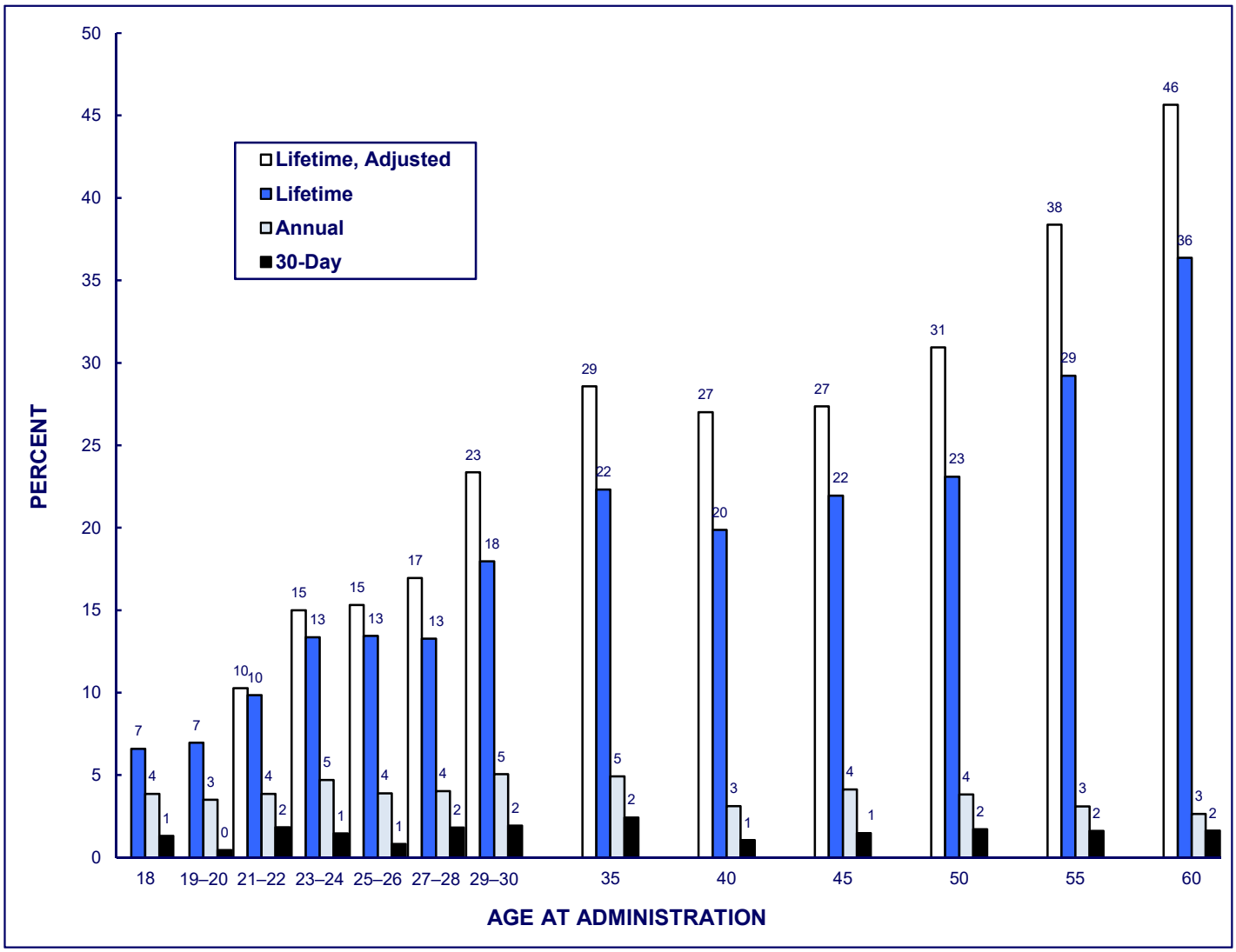
FIGURE 4-15
NARCOTICS OTHER THAN HEROIN
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

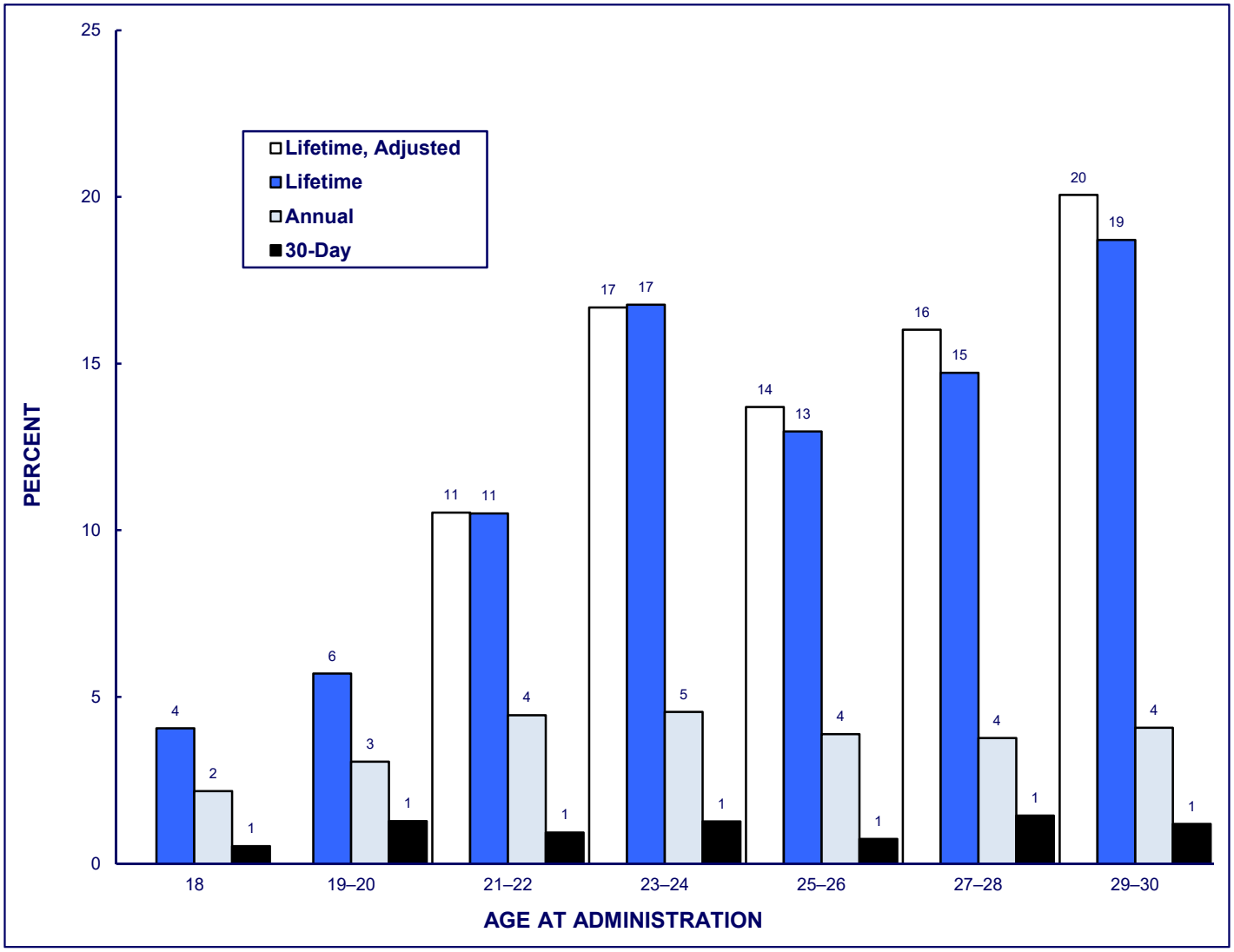
FIGURE 4-16
TRANQUILIZERS
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

FIGURE 4-17
MDMA (Ecstasy, Molly)
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [a] by Age Group, 2018

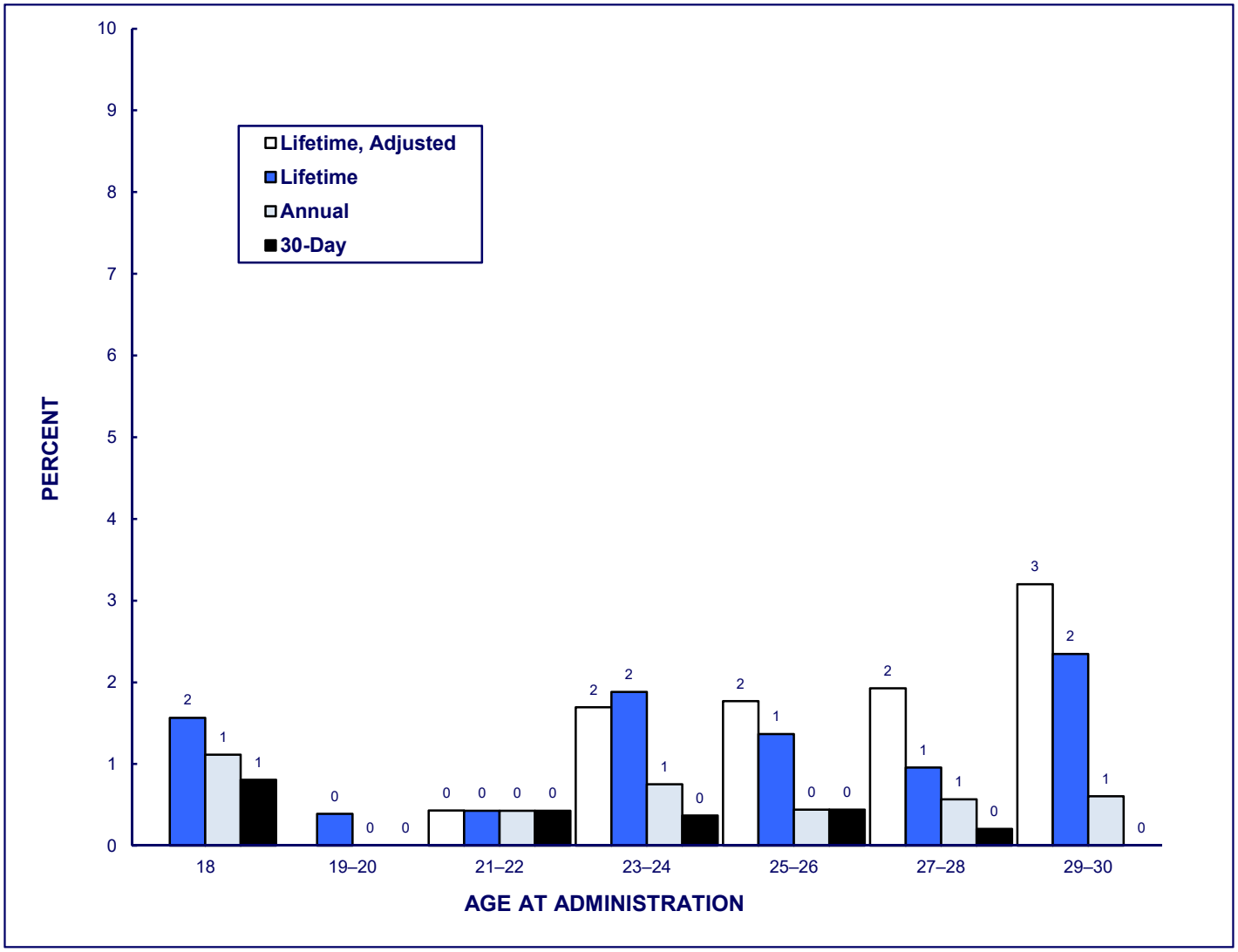


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Questions about the use of ecstasy were not included in the questionnaires for 35- to 60-year-olds.

FIGURE 4-18
STEROIDS
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 30 [a] by Age Group, 2018

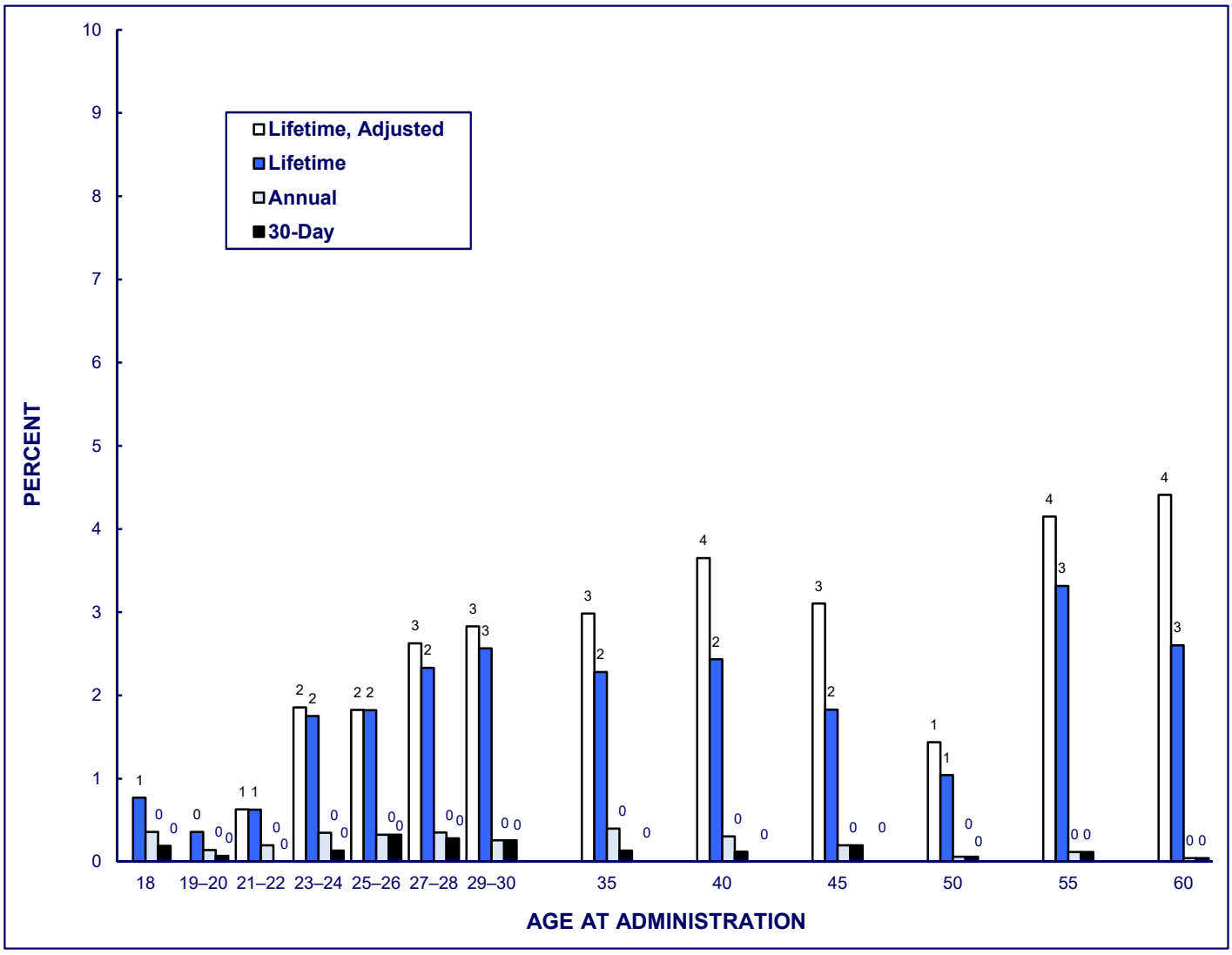


Source. The Monitoring the Future study, the University of Michigan.

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

[a]Questions about the use of steroids were not included in the questionnaires for 35- to 60-year-olds.

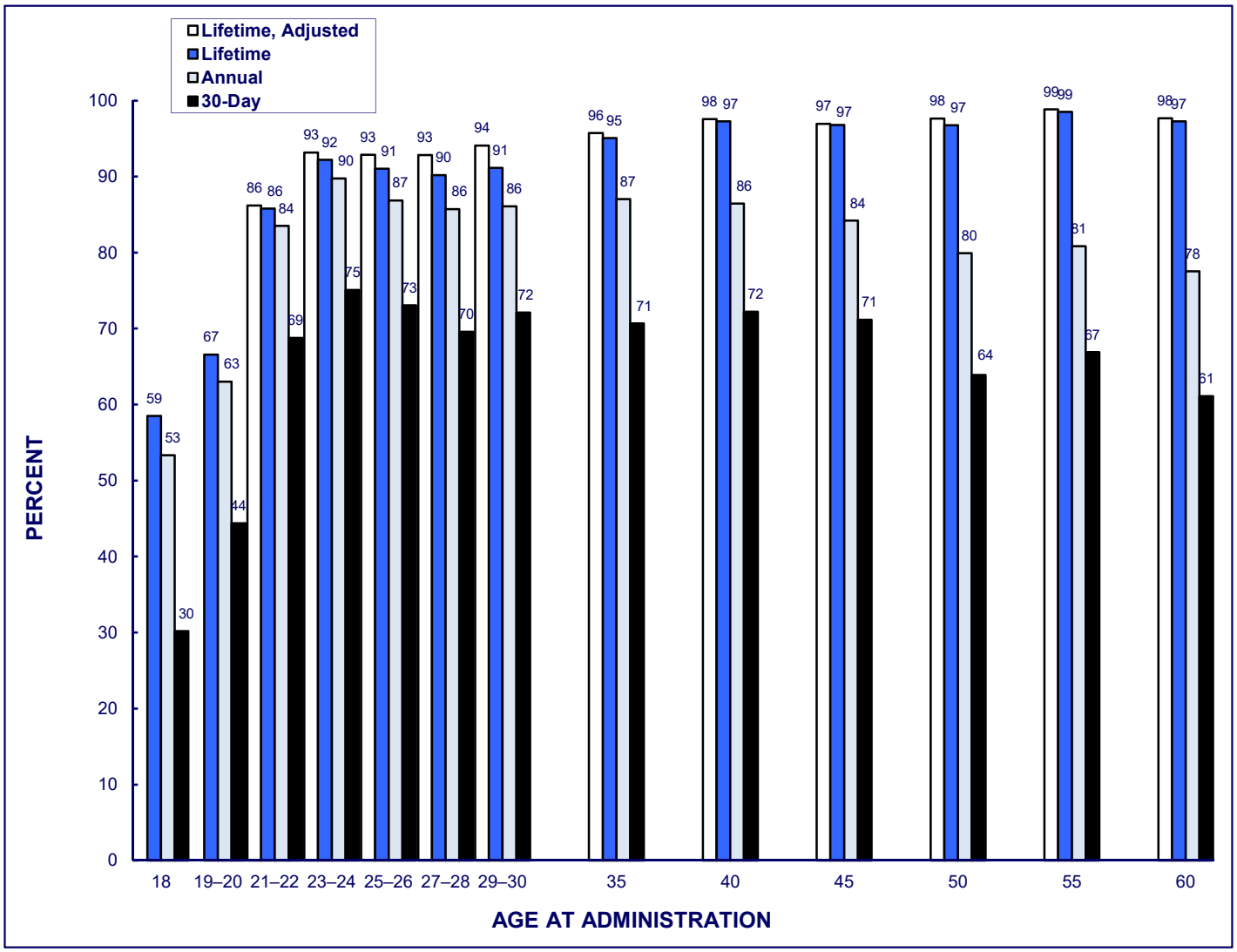
FIGURE 4-19
HEROIN
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

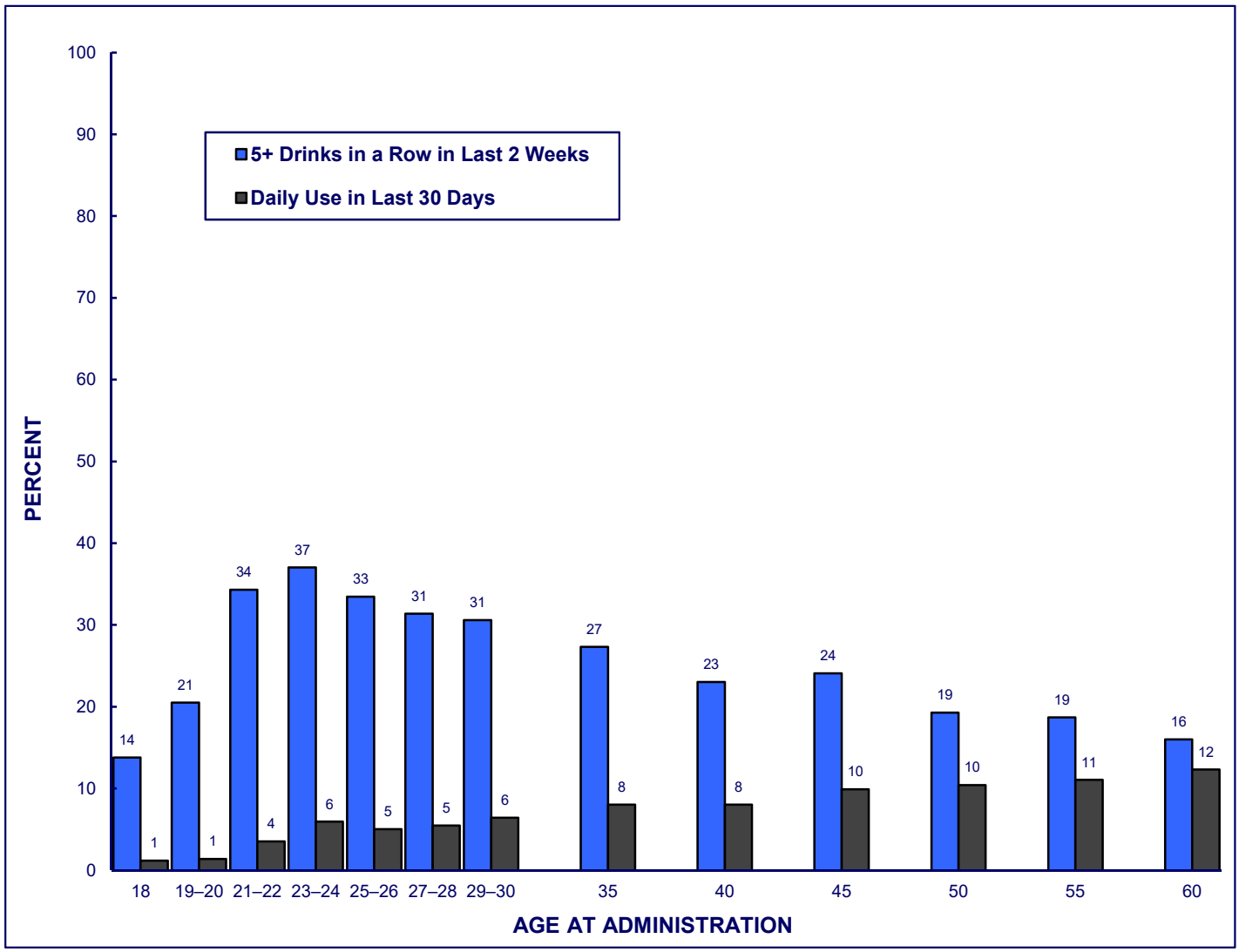
FIGURE 4-20a
ALCOHOL
Lifetime, Annual, and 30-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Lifetime prevalence estimates were adjusted for inconsistency in self-reports of drug use over time. See text for discussion.
Due to rounding, some bars with the same number may have uneven height.

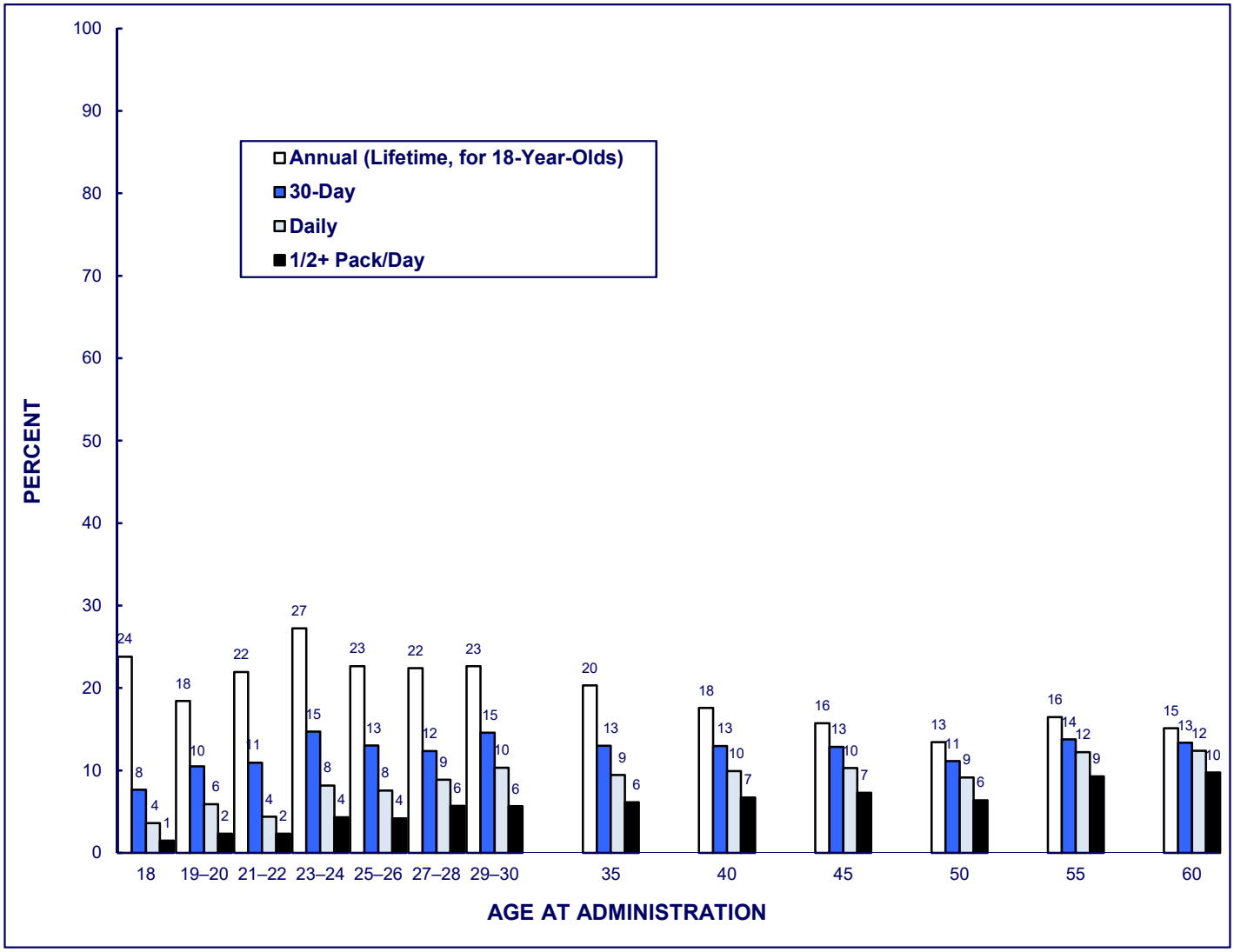
FIGURE 4-20b
ALCOHOL
2-Week Prevalence of 5 or More Drinks in a Row and 30-Day Prevalence of Daily Use by Age Group, 2018



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

Notes. Due to rounding some bars with the same number may have uneven height.

FIGURE 4-21
CIGARETTES
Annual, 30-Day, Daily, and Half-Pack-a-Day Prevalence among Respondents of Modal Ages 18 through 60 by Age Group, 2018



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

Notes. Due to rounding, some bars with the same number may have uneven height.

Chapter 5

TRENDS IN DRUG USE IN EARLY AND MIDDLE ADULTHOOD

In this chapter we examine historical trends through 2018 in substance use for various age bands from early to later adulthood, ages 19 through 60**.** We use MTF panel data from graduating high school seniors spanning more than four decades. Although such panel data are typically used to study stability and change in the same individuals over time, we use the data here cross-sectionally to consider how substance use has varied across the years for each age group, much as we use the repeated cross-sectional surveys of secondary school students to track changes in behaviors over time for particular grade levels (8, 10, and 12) in *Volume I*. In the early 1990s, we began to document large and important increases among secondary school students in the use of several substances, particularly marijuana and cigarettes. The increases continued among 12th graders through 1997, as discussed in *Volume I*. One of the important issues addressed in this chapter is whether such increases occurred only among adolescents or whether those higher-using graduating classes have carried their higher levels of drug use with them as they moved into young adulthood. In other words, are they exhibiting lasting differences across class cohorts, known as cohort effects? These would be indicated by the inflection points in the cross-time trends (turning either up or down) coming sequentially across the age strata as cohorts age with a time lag between adjacent strata.

Figures 5-1 through 5-19c present separate trend lines for two-year age strata through age 30,[1] that is, respondents who are one to two years beyond high school, three to four years beyond high school, and so on. These two-year age strata are used to reduce the random fluctuations that would be seen with one-year strata due to smaller sample size.[2] Each data point through age 30 in these figures is based on approximately 680 to 900 weighted cases drawn from two adjacent high school classes; actual (unweighted) numbers of cases are somewhat higher than those shown in the tables.[3] Figures 5-1 through 5-19c also present trend data from respondents at modal ages 35, 40, 45, 50, 55, and 60 based on follow-up data collected at those ages. Beginning at age 35, the age strata are constituted in a slightly different way, in that the two half-samples from a *single* graduating class (which up through age 30 had been surveyed in alternating years) are now *both* surveyed in the same year. In 2018, the 35 year olds are graduates from the high school class of 2001 (weighted N = 692, the 40 year olds from the high school class of 1996 (weighted N = 752), the 45 year olds from the high school class of 1991 (weighted N = 771), the 50 year olds are graduates from the high school class of 1986 (weighted N = 737), the 55 year olds are graduates from the high school class of 1981 (weighted N=775), and the 60 year olds are graduates from the high school class of

[1] MTF collected age 31 and 32 data from 1990 through 2001, then stopped collecting data from this age group to put resources instead into longer term data collections at 5 year intervals after age 30. Thus, starting in 2002, we collected data from young adults biennially through age 30, and from middle adults every five years starting at age 35. We no longer present trends on the age 31-32 year band; for such trends, please see the previous editions of this volume. Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2017). *Monitoring the Future national survey results on drug use, 1975-2016: Volume II, college students and adults ages 19-55.* Ann Arbor: Institute for Social Research, The University of Michigan.

[2] Strictly speaking, these two-year strata are not age strata, because they are based on all respondents in the given year from two adjacent high school classes, and they do not take into account the any differences in individual respondents' ages within each graduating class; however, they are close approximations to age strata, and we characterize them by the modal age of the respondents as ages 19 to 20, 21 to 22, and so on.

[3] For example, in the 2016 data, the 19-20 year old stratum is composed of participating respondents from the high school graduating classes of 2015 and 2014, respectively; the 21-22 year old stratum contains data from the classes of 2013 and 2012, respectively; and so on.

1976 (weighted N=825). The unweighted actual *N*s are somewhat higher. Modal age 55 was first added to the survey in 2013, providing five-year trends in 2018; modal age 60 was just added this year, so we include 2018 estimates in the figures and will add in trend data for 60 year olds next year. The figures also include trend data for 18 year olds for comparison purposes. The page following the figure for each drug contains a table of values for each point in the trend lines separately for the various age strata.

Tables 5-1 through 5-5 are derived from the same data but presented in tabular form for 19-28 year olds *combined*—who we call "young adults" —providing an overall view of the first decade after high school. Data are given for each year in which they are available for that full age band (i.e., from 1986 onward). The percentage point changes between 2017 and 2018 are listed in the second to last column, along with an indication about the statistical significance of this one-year change. We also include percentage point changes over the past five years (2013-2018) in the last column, indicating whether the five-year change is significant. Respondents ages 29 and over are omitted from the tables. However, the full data for those respondents are contained in Figures 5-1 through 5-19c.

As we discuss in Chapters 3 and 4, for the 2018 data collections of 19-30 year olds, MTF began the transition from our typical mail-based surveys to web-based surveys. To test for possible survey mode differences, we randomly assigned half of the young adult respondents 2018 to the typical mail survey condition and half to the new web-push condition (as described in Chapter 3). We discuss in Chapter 4 that there were few significant differences in 2018 prevalence estimates between the two conditions among 19-30 year olds, and thus combined the two in a weighted average in that chapter and noted the few significant differences. In the current chapter, we also combined the prevalence estimates from the two conditions in 2018, and in Tables 5-1 through 5-4 concerning trends among 19-28 year olds combined, we note the few significant differences between the two conditions.

RECENT TRENDS IN DRUG USE AMONG YOUNG ADULTS AGES 19-28

In this section we focus on recent trends over the past year and past five years in substance use among young adults ages 19 to 28 combined (shown in Tables 5-1 through 5-4). Longer term trends for individual age groups of young adults and older adults are summarized in the next section.

- The percent of young adults ages 19 to 28 indicating use of ***any illicit drug*** in the prior 12 months continued to increase—up by a nonsignificant 1.6 percentage points over 2017 prevalence to reach 42.8% in 2018. This is up from the most recent low of 32.1% in 2006 (Table 5-2). As shown in the last column in Table 5-2, this prevalence increased a significant 6.2 percentage points over the past five years, that is, since 2013. Correspondingly, 30-day use of any illicit drug increased a significant 4.3 percentage points over the past five years, rising to 25.9% in 2018 (Table 5-3). These increases primarily have been due to the increases in marijuana use.

- ***Marijuana*** use showed a one-year nonsignificant 1.6 percentage point rise in annual prevalence to 39.1% in 2018 for 19-28 year olds. This was up from 27.7 % in 2006—the most recent low point. *Levels today for this age group are at the highest they have been in*

over three decades, above the 36.5% prevalence in 1986 when we began tracking this age span (Table 5-2). The five-year change in annual marijuana use was a significant increase of 7.0 percentage points for 19-28 year olds. Likewise, 30-day use of marijuana has increased significantly by 5.1 percentage points across the past five years, rising to 24.1% in 2018, *an all-time high for the study* (Table 5-3). *Thus, as of 2018 annual and 30-day marijuana use among young adults aged 19-28 are at the highest levels in the 33 years that MTF has been monitoring their use.* As shown in Figure 5-3a (in table after the figure), the percentage point increases over the past five years (2013-2018) have been greater for those in their mid- to late-20s than for those in their early 20s (e.g., annual use increased across the five years by 5.0, 8.7, and 6.8 percentage points, respectively for the 19-20, 23-24, and 27-28 age bands; 2018 prevalence for these three age groups was 41%, 43%, and 32%, respectively). Although the trends for the 35-55 year olds are considered in the next section, it is worth noting here that their annual and 30-day marijuana use also increased in recent years through 2018 (e.g., between 2013 and 2018, annual use rose 7.6, 7.7, 7.4, 1.0, and 4.1 percentage points, respectively, for 35, 40, 45, 50, and 55 year olds; 2018 prevalence was 25%, 22%, 19%, 13%, and 16%, respectively). Thus, it is likely that the recent increases in marijuana across all age bands of adults 19-55 reflect both secular trends as well as cohort effects.

- ***Daily or near daily marijuana*** use (defined as use of marijuana on 20 or more occasions in the past 30 days) among young adults increased nonsignificantly between 2017 and 2018 to 8.0% *, the highest level ever observed in this young adult population since tracking their use began over 30 years ago.* It is over three times the level in 1992 (2.3%), the low point since 1986 (Table 5-4). Daily marijuana increased a significant 1.7 percentage points over the past five years. Thus, as of 2018, almost one-in-twelve young adults aged 19-28 is a daily marijuana user.

- With regard to marijuana use, there has been a recent cross-over in terms of age differences, with those in their early 20s showing higher prevalence than 12th graders of annual use (since 2016), 30-day use (since 2015), and daily marijuana use (since 2014), with the gaps widening in the past few years. In recent years, up until this cross-over, 12th graders had higher or similar prevalence levels. This likely reflects somewhat of a cohort effect, with prevalence leveling for 12th graders after an increase through about 2012, and prevalence continuing to rise for those in their early-to-mid-20s. A similar pattern is found for annual prevalence of the index of any illicit drug other than marijuana (Figure 5-2).

- New questions about ***vaping marijuana*** were added to two forms of the young adult surveys in 2017 and 2018. *Annual* prevalence of vaping marijuana in 2017 and 2018 was 12.6% and 15.6%, respectively, among 19-28 year olds overall, showing a significant 3.1 percentage point increase in 2018 (Table 5-2). For the individual young adult age groups in 2017 and 2018, annual prevalence was 12% and 17% for ages 19-20, 11% and 17% for ages 21-22, 17% and 17% for ages 23-24, 11% and 16% for ages 25-26, and 12% and 12% for ages 27-28. Thus, between 2017 and 2018, annual vaping of marijuana increased significantly for 19-28 year olds, with increases in most age strata; it was highest in both 2017 and 2018 among 23-24 year olds at 17%. *Thirty-day* prevalence of vaping marijuana in 2017 and 2018 was 6.6% and 9.3%, respectively, among 19-28 year olds overall,

showing a significant 2.7 percentage point increase (Table 5-3). For the individual young adult age groups in 2017 and 2018, 30-day prevalence was 6% and 10% for ages 19-20, 6% and 10% for ages 21-22, 8% and 11% for ages 23-24, 5% and 10% for ages 25-26, and 7% and 6% for ages 27-28. Thus, 30-day prevalence of vaping marijuana also increased significantly between 2017 and 2018 for young adults, especially those in their early- to-mid 20s, where use was highest in 2018 (Table 4-4). It is clear that vaping marijuana is increasing among young adults, and it appears more common in the early- and mid-20s than later-20s. The recent rapid increase in vaping among adolescents[4] may well have generated cohort differences that are reflected in these age groups and that will appear in later age groups in the future.

- Annual use of ***synthetic marijuana*** remained essentially unchanged in 2018 at 1.6% (Table 5-2). This is down appreciably from the 7.4% annual prevalence observed in 2011, when use of this drug was first measured; the five-year decrease from 2013 was significant. This decline parallels a sharp decline in synthetic marijuana use among secondary school students.

- Annual use of ***any illicit drug other than marijuana*** showed a one-year nonsignificant decrease of 1.1 percentage points to 19.0% in 2017, following a significant increase in 2014 when it rose from 18.1% to 21.2%. This annual prevalence had been relatively stable from 2003 to 2013, at between 17% and 19%. The five-year increase between 2013 and 2018 was a nonsignificant 0.9 percentage points. As summarized below, this lack of significant change over the past five years in this index of any illicit drug other than marijuana appears largely to be due a mix of some drugs increasing significantly over the past five years (annual use of ***hallucinogens***, specifically ***LSD,*** and ***cocaine***, specifically ***cocaine other than crack***) and others decreasing significantly over the past five years (annual use of ***narcotics other than heroin, sedatives (barbiturates),*** and ***tranquilizers***).

- ***Hallucinogens*** and ***LSD*** specifically showed slight one-year increases in 2018, and significant five-year increases. Between 2013 and 2018, annual use of hallucinogens rose significantly from 3.9% to 5.6%, and LSD rose significantly from 2.0% to 3.9% (Table 5-2).

- The annual prevalence of ***cocaine*** (any type including crack and cocaine powder) among young adults showed a one-year nonsignificant increase in 2018 to 6.0%, up from an all-time low of 3.9% in 2013. The increase of 2.1 percentage points over the past five years is significant (Table 5-2). Annual use of ***cocaine other than crack*** (typically in powdered form) remained fairly level across the past three years (6.2% in 2018), and showed a five-year significant increase of 2.5 percentage points. Annual use of ***crack***, however, declined unevenly and nonsignificantly over the past five years from 0.5% to 0.2%, indicating that this drug is now all but forgotten -- among young adult high school graduates, at least.

[4] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

- Annual nonmedical use of ***Adderall*** has increased in recent years, showing a significant five-year increase of 2.1 percentage points to 9.1% in 2018, the highest level since it was first measured in 2009. Amphetamine use in general, however, has been level in recent years as mentioned below.

- A few specific illicit drugs showed recent declines. Most notably, annual use of ***narcotics other than heroin*** by young adults showed a nonsignificant one-year decline in 2018 to 3.4%, as well as a significant five-year decline of 3.6 percentage points. Its peak was 9.1% in 2006 and 2008 (Table 5-2). Correspondingly, annual use of ***Vicodin*** showed a significant five-year decline of 3.7 percentage points to 2.4% in 2018; its peak was 9.3% in 2005. ***OxyContin*** appears to have leveled at very low prevalence (1.9% in 2018), also showing a significant decrease of 0.9 percentage points in the past five years. This is an important class of substances, accounting for many overdose deaths[5], so the fact that use is now in decline among young adults is a very favorable development for the nation's health.

- Annual prevalence levels of both ***sedatives (barbiturates)*** and ***tranquilizers*** have been declining somewhat in recent years among young adults, both now at or near all-time lows for the past two decades. Although annual use of sedatives (barbiturates) has been fairly level in the past few years (2.5% in 2018), it declined significantly by one percentage point over the past five years. Annual use of tranquilizers declined nonsignificantly in 2018 (to 4.0% in 2018), with a significant five-year decline of 1.4 percentage points (Table 5-2).

- Annual use of ***MDMA*** (***ecstasy***, and more recently ***Molly***) has also declined somewhat in recent years, showing a leveling in 2018 (3.9%). In 2014, we added Molly as an example, and since then, annual use has declined from 5.1% to 3.9% (Table 5-2).

- The annual use of several other illicit drugs have shown some leveling in recent years as summarized in Table 5-2. In particular, the annual use of ***amphetamines*** has leveled recently at a relatively high level, ranging between 7.2% and 8.0% over the past five years (Table 5-2). As mentioned above in the summary of drugs that have increased recently, annual nonmedical use of ***Adderall*** increased significantly over the past five years (to 9.1% in 2018); annual nonmedical use of ***Ritalin*** leveled in recent years at 1.2% to 2.0% between 2013 and 2018.

- There have been some recent declines in ***alcohol*** use among young adults. Annual prevalence both of use and of ***been drunk*** was fairly level over the past five years (82% and 63%, respectively in 2018) (Table 5-2). The *30-day prevalence* of alcohol use declined slightly, but significantly, over the past five years from 68.7% in 2013 to 66.0% in 2018; the 30-day prevalence of been drunk declined nonsignificantly from 37.7% in 2013 to 35.9% in 2018 (Table 5-3). The annual use of ***alcoholic beverages mixed with energy drinks*** showed some uneven declines in recent years, with a net significant five-year decline of 7.3 percentage points in 2018 to 29.9% (Table 5-2). The annual use of ***flavored alcoholic beverages***, however, showed some nonsignificant increase in the past five years (to 57% in 2018).

[5] National Institute on Drug Abuse (2019). *Overdose death rates.* Accessed July 30, 2019.

Binge drinking—having five or more drinks at least once in the prior two weeks—declined gradually from 2008 (when 37.9% of young adults indicated such use) through 2015 (31.9%), about where it remained in 2018 (31.2%); the five-year decline of 3.9 percentage points was significant (Table 5-4). This decline among young adults follows a similar decline among high school seniors. ***Extreme binge drinking*** (also known as high intensity drinking) has shown some uneven change in recent years among young adults (due to some extent to the relatively small Ns that are asked these questions, only one-sixth of the sample). For having ***10 or more drinks*** on one or more occasions in the past two weeks, prevalence ranged between 7.3% and 11.2% in the past five years (neither the one-year nor five-year change was significant); similarly, prevalence of having ***15 or more drinks*** ranged between 2.4% and 3.7% in the past five years (neither the one-year nor five-year change was significant) (Table 5-4).

- ***Cigarette smoking*** among young adults significantly declined over the past five years, a continuation of longer-term declines and reaching historic lows in 2018. *Annual prevalence* declined nonsignificantly to 22.5% in 2018, and the five-year decline of 7.3 percentage points was significant (Table 5-2). *Thirty-day* prevalence decreased a significant 3.0 percentage points in 2018 to 12.3%; the five-year decline of 7.7 percentage points was also significant (Table 5-3). *Daily* smoking decreased a significant 1.8 percentage points in 2018 to 7.0%; the five-year decline of 5.1 percentage points was significant (Table 5-4). *Half-pack-a-day* smoking by young adults declined by a nonsignificant 0.9 percentage points to 3.8% in 2018; the five-year decline of 3.2 percentage points was significant (Table 5-4). *On all of these measures of smoking, the 2018 levels were at historic lows.* This pattern of significant decline follows appreciable declines to historic lows among high school seniors (Figures 5-19a, b, and c).

- In 2017, we expanded the questions about vaping on two of the survey forms assess specific substances being vaped, specifically for nicotine, marijuana, and "just flavoring." *Annual* prevalence of ***vaping nicotine*** in 2017 and 2018 was 12.6% and 15.6%, respectively, among 19-28 year olds, showing a significant 3.0 percentage point increase (Table 5-2). For the young adult age groups in 2017 and 2018, annual prevalence was 14% and 27% for ages 19-20, 17% and 20% for ages 21-22, 15% and 18% for ages 23-24, 12% and 16% for ages 25-26, and 14% and 12% for ages 27-28. Thus, annual prevalence of vaping nicotine significantly increased between 2017 and 2018 for young adults, with the increase being especially large at age 19-20, where use was highest in 2018 at 27%. *Thirty-day* prevalence of vaping nicotine in 2017 and 2018 was 6.5% and 10.6%, respectively, among 19-28 year olds, showing a significant 4.0 percentage point increase (Table 5-3). For the young adult age groups in 2017 and 2018, 30-day prevalence was 7% and 16% for ages 19-20, 6% and 13% for ages 21-22, 8% and 11% for ages 23-24, 4% and 8% for ages 25-26, and 7% and 6% for ages 27-28; thus, between 2017 and 2018, 30-day vaping nicotine also increased significantly, with the increase being largest among 19-20 year olds, who had the highest level at 16% in 2018. It is clear that vaping nicotine is increasing among young adults, especially among 19-20 year olds, where it was most common in 2018 (for lifetime, annual, and 30-day use). The recent rapid increase in vaping nicotine among

adolescents[6] may well have generated cohort differences that are reflected in these age groups and may also be related to increases in later age groups in the future. It remains an open question whether nicotine vaping will continue to decline with advancing age or whether it will remain primarily at levels set in young adulthood, a pattern seen for cigarette use. Beginning in 2019, the vaping items will be on four of the six young adult survey forms, and will be in the age 35 and older forms, providing more precise estimates on this rapidly growing phenomenon.

In summary of the recent trends among young adults age 19-28, ***marijuana*** use has increased to all-time highs, which is true for annual use, 30-day use, and daily use; the five-year increases from 2013 to 2018 for all three levels of marijuana use were significant. As of 2018, nearly four-in-ten young adults (39%) used marijuana at least once in the past year, nearly one-in-four (24%) used it at least once in the past month, and nearly one-in-twelve (8.0%) was a daily or near-daily marijuana user in the past month.

Concerning the index of ***illicit drugs other than marijuana***, annual use has been steady the last few years, with the five-year trend showing no significant change (19% in 2018). This level trend corresponds to a mix of five year increases in annual use of certain illicit drugs (including ***hallucinogens***, specifically ***LSD***, and ***cocaine other than crack***, all three showing significant five-year increases in 2018 to 5.6%, 3.9%, and 6.2%, respectively), and declines in annual use of other illicit drugs (including annual nonmedical use of ***narcotics other than heroin, sedatives*** [***barbiturates***]***,*** and ***tranquilizers*** showing a significant five-year declines in 2018 to 3.4%, 2.5%, and 4.0%, respectively). ***MDMA (ecstasy***, and more recently ***Molly)*** has also been in decline, with annual use showing a significant decline from 2016 to 2017, and a leveling in 2018 (3.9%); it has declined from 5.1% since 2014 (when we first included Molly as an example). Nonmedical annual use of ***amphetamines*** has been fairly steady in recent years, showing no significant change across the past five years (7.5% in 2018); however, annual nonmedical use of ***Adderall*** showed a significant five-year increase of 2.1 percentage points to 9.1% in 2018, the highest level since it was first measured in 2009.

There have been continued recent declines in ***alcohol*** use among young adults, with 30-day prevalence of alcohol use declining significantly over the past five years to 66.0% in 2018; ***binge drinking*** declined a significant 3.9 percentage points across the past five years to 31.2% in 2018.

Cigarette use continued to decline through 2018, with annual, 30-day, daily, and half-pack a day prevalence declining significantly over the past five years.

Finally, based on new vaping questions added to the young adult surveys in 2017 and 2018, annual and 30-day prevalence of ***vaping marijuana*** showed significant increases in 2018 for 19-28 year olds (to 15.6% and 9.3%, respectively, in 2018), with annual use in 2018 being highest among 23-24 year olds (17%) and 30-day use being similar among 19-26 year olds (10-11%). Annual and 30-day prevalence of ***vaping nicotine*** also showed significant increases in 2018 for 19-28 year olds (to 18.2% and 10.6%, respectively), with annual and 30-day use being highest in 2018 among 19-20 year olds (27% and 16% respectively).

[6] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

LONGER-TERM TRENDS IN EARLY AND MIDDLE ADULTHOOD

In this section we consider longer-term trends among 19-28 year olds overall (Tables 5-1 through 5-4), as well as among all age groups individually (Figures 5-1 through 5-19), giving attention to how trends have varied by age and by cohort.

- Longer-term declines among young adults in the annual prevalence of several drugs appeared to end in 1992 or 1993 (Table 5-2, Figure 5-1). Among the 19-28 year olds overall, this was true for the use of ***any illicit drug***, ***marijuana***, ***any illicit drug other than marijuana***, ***hallucinogens***, ***narcotics other than heroin***, ***crack***, ***amphetamines***, ***sedatives*** (***barbiturates***), and ***tranquilizers***. In 1994, annual prevalence for most drugs remained steady. ***Cocaine other than crack*** reached its low point in 1994 after a period of substantial decline that began in the late 1980s. In 1995 there again were modest increases (a percentage point or less) in the annual prevalence of almost all of the drug classes in Table 5-2, some of which were statistically significant.

  Thus, it was clear that by 1992 or 1993 the downward secular trend (i.e., period effect) running back to the 1980s and observable in all of these age strata (as well as among adolescents) had ended. What has happened since then, however, is more of a cohort effect, reflecting an interaction between age and period such that only adolescents showed an increase in illicit drug use initially, and they then carried those new (higher) levels of drug use with them as they entered older age bands. Figure 5-1 shows the effects of generational replacement on the use of ***any illicit drug***, as the teens of the early 1990s reached their 20s. While all age groups generally moved in parallel through about 1992, the youngest age bands first showed signs of increase in their overall level of illicit drug use. The 18 year olds shifted up first, followed by the 19-20 year olds in 1994, the 21-22 year olds in 1996, the 23-26 year olds in 1999, the 29-30 year olds in 2004, and the 35 year olds in 2008. So far, the 40, 45, 50 and 55 year olds have not shown much systematic increase in any illicit drug use through 2014. (It is noteworthy that 8th graders, who are not included in these graphs but are described in *Volume I*, actually began an increase in use a year earlier than the 12th graders, suggesting a cohort effect was already underway before use turned upward among 12th graders.)

  Then, from 2007 to 2013, use among 12th graders and several of the youngest young adult age bands increased, and a number of the older age bands followed suit in subsequent years including increases among 35 year olds starting in 2013, among 40 year olds starting in 2015, and among 45 year olds in 2017, once again suggesting a cohort effect (see Figure 5-1).

  To summarize, in the earlier decline phase of the drug epidemic, annual prevalence of use of ***any illicit drug*** moved in parallel for all age strata, as illustrated in Figure 5-1; this pattern reflects a secular trend, because a similar change is observed simultaneously across different age levels. After 1992—in what we have called the "relapse phase" of the popular drug epidemic that began in the 1960s—a quite different pattern emerged: 8th graders

increased their drug use first, followed by 10th and 12th graders[7]; then the next-oldest age group increased use, but with a little delay; the next-oldest then increased use, but with a longer delay; and so on. This pattern reflects a classic cohort effect, in which different age groups are not all moving in parallel; rather, different age groups show increases when the cohorts (i.e., high school classes) having heavier use at an earlier stage in development reach the relevant age level. In addition, note that the slopes of the age bands are successively less steep in the older age groups, suggesting that some of the cohort effect may be dissipating with maturation, quite likely indicating an age effect. But we think it unlikely that only cohort effects are occurring (in addition to the long-established age effects); period effects also likely play a role.

- Use of ***marijuana*** shows an almost identical pattern to the illicit drug use index—not surprising given the fact that marijuana, by far the most prevalent of the illicit drugs, tends to drive the index (Figure 5-3a). After a long and steady decline from the late 1970s to the early 1990s, annual marijuana use leveled for a while among young adults before beginning a gradual increase. Virtually all of this increase was attributable to the two youngest age bands (18 and 19 to 20) until 1996, when the 21-22 year olds began to show a rise. The older age bands then tended to show increases fairly sequentially, with 29-30- and 35 year olds showing significant increases in 2008. The 18 year olds' use of marijuana in the prior 12 months declined after 1997 and, later, several of the succeeding age bands through age 26 began to show declines in a pattern that again suggests lasting cohort differences. Since about 2006, however, use rose not only among the 18 year olds (through about 2011, leveling since then) but also among all age bands through 2018, including uneven increases for 35 to 45 year olds (and for 50 and 55 year olds since 2008 and 2013, respectively), thus indicating a secular trend. This strongly suggests an impact on use by culture-wide events to which all of the age bands are exposed and by which they all were affected during this historical period. Changing attitudes toward marijuana use, perhaps driven in part by the legalization of medical use in many states and more recently by legalization of recreational use for adults in some states, likely have played an important role in this secular trend.

- A similar pattern emerged for current ***daily marijuana*** use (Figure 5-3c). In the mid- to late 1990s, daily marijuana use among 35 and 40 year olds was as high as or higher than use among some younger age groups, suggesting a lasting cohort effect on this behavior, because the cohorts comprising those older age strata grew up in a period of particularly high adolescent marijuana use. However, in more recent years through the mid-2000s, the 35, 40, and 45 year olds were similar to respondents ages 27 to 30, who had among the lowest levels of daily use in adolescence. An important finding shown in Figure 5-3c is that, although the various age groups had been moving in parallel for many years at fairly similar levels of prevalence, the trends diverged considerably in the 1990s in a staggered fashion, such that the 18-30 year olds came to have distinctly higher levels of daily marijuana use than the older age groups, again reflecting stable cohort differences and perhaps some new age effects emerging in the middle-to-late adult ages (this is discussed further below when considering the strong cohort effects in cigarette use). In 2010 the upturn in daily marijuana use that had been occurring at younger ages (best seen in the

[7] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

table accompanying Figure 5-3c) reached the age-35 stratum, with a significant increase from their 2009 prevalence rate putting the age 35 group back in company with the younger adults through 2015. Since about 2010, the increase has been greater for those in the mid- to late-20s through age 40, and these age groups had higher levels of daily use in 2018 than they did in 2010, reaching levels well above those observed in the early to mid-1990s (Figure 5-3c and associated table).

- The index of using ***any illicit drug other than marijuana*** has shown a similar transition in the pattern of change. Period effects seemed to predominate in the 1980s until about 1992 as all age groups moved in parallel, but a cohort-related pattern of change emerged thereafter (Figure 5-2). And, while the rise in annual use leveled by 1997 among 18 year olds, it began rising in 1999 among 19-20 year olds, in 2000 among 21-22 year olds, in 2002 among 23-24 year olds, in 2005 among 29-30 year olds, and so on. The primary difference from the picture for marijuana is that the increases were not as sharp in the 1990s for most of the age groups. (Compare Figure 5-2 with Figure 5-1 to see the difference.) Between about 2000 and 2008, annual use remained fairly steady or dropped some for 12th graders and 19-22 year olds, and increased for the other age groups, particularly the 23-30 year olds. Since about 2008 the levels of use of any illicit drug other than marijuana in nearly all age groups have remained fairly steady, except for 12th graders who have shown a decline.

- With regard to ***inhalants***, the large separation of trend lines for the younger age groups in Figure 5-4 shows that, across many cohorts, annual use has dropped consistently and sharply with age, particularly in the first few years after high school. In fact, of all the populations covered by MTF, the 8th graders (not shown in Figure 5-4) have had the highest rate of use, indicating that the decline in use with age starts at least as early as 8th or 9th grade.[8] Like cocaine, inhalants have shown a strong age effect, but unlike cocaine, use of inhalants declines rather than increases with age and the age effect generally has been sustained throughout the life of the study.

  Figure 5-4 also shows that, until the mid-1990s, there was a long-term gradual increase in annual inhalant use (unadjusted for underreporting of nitrite inhalants), one which was greatest among 12th graders, next greatest among 19-20 year olds, and next greatest among 21-22 year olds. Respondents more than six years past high school, who historically have had a negligible rate of use, did not exhibit the increases in use seen among the younger respondents, which began at least as early as 1977 among 12th graders and in 1983 among 19-20 year olds. There was some subsequent increase among 21-22 year olds and, later still, an increase among 23-24 year olds. After 1995, this long-term trend, reflecting a cohort effect, began to reverse in the two youngest age strata (coincident with an anti-inhalant media campaign by the Partnership for a Drug-Free America) as well as among several other age strata, suggesting a period effect due to some culture-wide influence, such as a media campaign. Subsequently, further declines among several age strata are suggestive of a cohort effect. Those in their mid- to late-20s have generally shown very

[8] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

low rates of inhalant use throughout the course of the study (this question is not asked of the age 35 and above groups).

- In the late 1980s and again in the first half of the 1990s, ***LSD*** use also increased among those in their teens and early 20s much more than among the older strata, as Figure 5-6 illustrates. Over the interval 1985 to 1996, there was a gradual but considerable increase in annual LSD use among respondents ages 18 to 24, which was sharpest among 12th graders and 19-20 year olds. The increase did not seem to radiate up the age spectrum beyond age 26. A turnaround began among 12th graders after 1995 and then among the older age groups in a somewhat staggered fashion, again indicative of a cohort effect. Declines through 2003 were greatest among 18-24 year olds, who had attained the highest rates of LSD use. Use declined considerably from 2001 to 2003 in all age bands (including 8th and 10th graders), and then leveled through 2007 at historically low rates, suggesting that an important secular trend may have set in, which was quite possibly related to decreased availability of the drug. Since 2007 there has been evidence of a very gradual increase in use in all age groups 18-30, particularly among those ages 18 to 28; in the past few years, use also has increased unevenly among the 29-30 year olds. Among 35 year olds, use has been near-zero (this question is not asked for those age 40 and older). It thus appears that LSD may be making a gradual comeback among young adults since about 2007.

- The use of ***hallucinogens other than LSD*** showed a similar and fairly parallel decline in use among all age bands through the 1980s, indicating a secular trend (Figure 5-7). During the relapse phase for many drugs during the 1990s, there was a substantial increase in use among the younger age bands, but not among those ages 27 or older. The increases in the older age bands did not appear for some time, again indicating a cohort effect at work. Since about 2003 through 2018, the prevalence of use of hallucinogens other than LSD has continued to decline gradually among 18-20 year olds, declined gradually and leveled among 21-24 year olds, increased unevenly for 25-35 year olds, and was fairly level for those aged 40 and above; this resulted in a considerable convergence in use among the various age strata.

- The annual prevalence for ***MDMA*** use (***ecstasy*** and more recently ***Molly***) among those aged 19 to 28 was at about 1.5% in 1989 and 1990 (Table 5-2 and Figure 5-8). After 1991 it dropped to around 0.8% for several years before rising significantly in 1995. MDMA use then rose sharply in all of the young adult age strata, most notably in the younger age bands (19 through 26) through 2001. Use among 12th graders, which was not measured until 1996, was by then the highest of any of the age groups at 4.6% annual prevalence. Twelfth graders' use declined by a full percentage point through 1998 before jumping significantly—by two full percentage points—in 1999. (Use by 10th graders also jumped significantly in 1999.[9]) Thus it appears that young people from their mid-teens to mid-20s "discovered" MDMA after some years of low and relatively level use. In 2000 the sharp increase in use continued among ages 15 to 16 (10th graders) through age 26—with highs of over 10% among 19-22 year olds—and also showed up among 8th graders for the first time. By 2001 the increase had slowed and even begun to reverse among those aged 18 to

[9] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

26. We attributed the deceleration in 2001 to a fairly sharp increase in *perceived risk* of MDMA use in that year, and based on that, we predicted a turnaround in use in 2002. In 2002, and again in 2003, perceived risk increased sharply and, as Figure 5-8 illustrates, all age bands showed a reversal with a sharp decrease in use. Clearly, the decrease has been sharpest in the younger age bands, perhaps because a cohort effect is at work in the upper ages, helping to offset a downward secular trend. From about 2005 through 2014 there was some rebound in MDMA use in all age bands through age 30 (older respondents are not asked about this drug), and the increase was staggered, suggesting that another cohort effect was underway. Between 2014 (when the question was changed to include Molly as an example) and 2018, there has been some uneven decrease or leveling for most of the age groups in annual MDMA use; however, there was a continued uneven increase for those aged 23-24, who had the highest prevalence among young adults in 2018 at 4.5% (it was also 4.5% in 2018 among 21-22 year olds, but their trend since 2014 has been an uneven decrease).

- Several drug classes exhibited a faster decline in use among the older age groups than among 12th graders during the earlier period of decline in the 1980s (see Figures 5-1 through 5-19c). These included ***any illicit drug***, ***any illicit drug other than marijuana***, ***amphetamines***, ***hallucinogens*** (until 1987), ***LSD*** (through 1989), and ***methaqualone***, but *not* ***marijuana*** or ***cocaine***.

- In fact, a crossover was evident for some drugs when 12th graders were compared to young adults. In earlier years 12th graders had lower usage levels, but for some years after 1993 they tended to have higher levels than young adults for use of ***any illicit drug***, ***marijuana***, ***hallucinogens***, ***LSD*** specifically, ***crack cocaine***, ***tranquilizers***, and ***crystal methamphetamine*** (***ice***). However, as summarized above regarding recent trends in marijuana use, there has been another crossover for most of these drugs, with 12th graders again having lower annual prevalence than those in their early to mid-20s.

- ***Cocaine*** (Figure 5-9) gives quite a dramatic picture of change. Unlike most other drugs, annual use of cocaine has generally tended to rise with age after high school, usually peaking three to four years past graduation from the mid-1970s through the mid-1990s. This was a classic example of an age effect. Despite the large age differences in absolute prevalence during that period, all age strata moved in a fairly parallel way through 1991, indicating that a secular trend was taking place in addition to the age effect. All age strata began a sharp and sustained decline in use after 1986—again reflecting a period effect. The two youngest strata (12th graders and 19-20 year olds) leveled by 1992, whereas use continued a decelerating decline for a few years beyond that in the older age groups, signaling the continuation of a cohort effect that began earlier. From 1994 to 1999, annual prevalence of cocaine use rose some in the five youngest strata (i.e., those younger than 27) on a somewhat staggered basis, with the three older groups still decreasing a bit more over that same period. This, to some degree, reversed the age differences that were so prominent in the 1970s and 1980s.

Cohort-related change appears to have predominated in the 1990s, quite possibly as the result of "generational forgetting" of the cocaine-related casualties so evident in the early to mid-1980s. In other words, those in the older cohorts retained that learning experience, but those in the newer cohorts never had it. The fact that from 1994 to 1996 the 35 year olds had higher lifetime prevalence levels of cocaine use than some of the younger age groups also suggests some lasting cohort-related differences established during the peak years of the cocaine epidemic. From about 2005 or 2006 through 2013 there was a gradual decline in cocaine use in all age bands, but particularly among the younger ages who had earlier attained higher prevalence levels. Between 2013 and 2014, however, there was a significant increase in cocaine use among young adults ages 19 to 28 combined (but not for 12th graders and those over age 30), and the five-year increase between 2013 and 2018 for 19-28 year olds was also significant as noted above. Between 2014 and 2018 use either leveled or declined for most age groups; however, for those aged 21-24, there was some continued uneven increase, reaching 5.9% to 9.2% annual use (Figure 5-9). This recent continued increase, at least for those in their early 20s, suggests a possible resurgence in cocaine use since the relapse that started in the early 1990s.

Crack use was added to the 12th graders' questionnaires in 1986 and to the follow-up questionnaires in 1987. The decline in annual crack use, which began right after the introduction of these questions, ended in 1991 among 12th graders, and by 1994 it had ended among young adults (Figure 5-10 and Table 5-2). Among 19-28 year olds, the annual prevalence rate held at about 1%, which was down from the peak levels of just over 3% in 1986 through 1988. As was true for a number of other drugs, crack use began to rise after 1993 among 12th graders, at the beginning of the relapse phase in the epidemic, but not in the older age strata until years later, when increases were observed in a somewhat staggered pattern going up the age scale. Again, a cohort effect due to generational replacement seems to have been occurring. Since 1994, 18 year olds have had the highest-reported rates of use, though they have shown considerable decline since 1999. Among all young adults ages 19-28, crack use had its lowest prevalence in 2016 through 2018 (0.2% or lower, compared with 3.2% in 1986).

- Use of ***heroin*** increased appreciably in 1995 among 12th graders and young adults ages 19 to 24, but not among the older age bands (Figure 5-11). It remained at this higher plateau in these younger age bands through 2000 or 2001, before falling off some, particularly among 12th graders. Among young adults aged 19-28 as a group, annual use had previously been quite stable from at least as far back as 1986 through 1994 at 0.2% (Table 5-2), and it stabilized again at a higher level of 0.4% from 1995 through 2018. Use among 12th graders has declined since 2000, among 19-20 year olds since 2001, and among the 21 to 22 year olds since 2006, but it remains fairly stable (at a very low rate of use) among the older age groups.

- Among 19-28 year olds, use of ***narcotics other than heroin*** leveled after 1991, following a long period of slow, fairly steady decline (Figure 5-12 and Table 5-2). After 1992 twelfth graders showed an appreciable increase in use, which continued for more than a decade into 2004, while 19-20 year olds showed some increase after 1994, 21-22 year olds after 1996, 23-24 year olds after 1997, and the older age groups after 2000. Thus, cohort-related

change appears to have been occurring during the 1990s and beyond for this class of drugs as well, following a long period of secular trends. In 2002, the question text was changed on three of the six questionnaire forms to update the list of examples of narcotic drugs other than heroin. Talwin, laudanum, and paregoric, each of which had negligible rates of use by 2001, were replaced by Vicodin, OxyContin, and Percocet. As a consequence of this revision, reported use rates increased in 2002 as may be seen in Figure 5-12. Data presented for 2002 are from three of the six questionnaire forms with the new wording (which showed higher prevalence rates than the older question did). All six questionnaire forms contained the new wording beginning in 2003, so the data presented for 2003 onward are based on all forms. Although the older version of the question showed no significant changes occurring in 2002, there was a significant increase in narcotics use observed in 2003 (based on the new question in both 2002 and 2003). Among 19-28 year olds, annual prevalence reached a peak level of 9.1% in 2006; it has since fallen by more than half to 3.4% by 2018. Some turnaround was observed among 19-22 year olds after 2004 in the use of this important class of drugs, but use continued to rise in some of the older age bands through 2007 to 2009, likely reflecting a cohort effect. Use of these drugs outside of medical supervision remained relatively high in all age groups studied here through about 2010, and has since declined for 12th graders and young adults (to between 2.2% and 4.5% in 2018), and largely leveled for those aged 35-55 (to between 3.5% and 5.5% in 2018). Overall, in the past few years, use of this important class of drugs has decreased in younger age groups and leveled for those age 35 and older.

- The annual prevalence rates for ***Vicodin*** and ***OxyContin***, first measured in 2002 (separately from the general question about narcotics other than heroin), were appreciable (8.2% and 1.9%, respectively) for 19-28 year olds. Increases were observed for these two drugs in subsequent years. Among 19-28 year olds (Table 5-2), the annual prevalence of ***OxyContin*** use rose from 1.9% in 2002 to 3.1% in 2004 through 2006—changes that were fairly parallel to those observed among 12th graders over the same interval (when their slightly higher annual prevalence rose from 4.0% in 2002 to 5.5% in 2005). The increases in OxyContin use between 2002 and 2005 were significant for both 12th graders and 19-28 year olds. Annual prevalence was stable from 2004 to 2007 at about 3% for young adults, increased to 5.2% in 2009, but was down to 1.9% by 2018. ***Vicodin*** use (Table 5-2) rose by less, but started from a higher base, with annual prevalence increasing slightly among 19-28 year olds, from 8.2% in 2002 to 8.9% in 2004; it remained at about 9% through 2009, followed by a decline to 2.4% by 2018. Thus, since 2009 the annual prevalence of both OxyContin and Vicodin among young adults has declined by over half. Given the widespread concern about these narcotic drugs, which are among those most cited in overdose deaths, this downturn is very good news. Further good news would be a cohort effect carrying these declines in use to later age bands.

- In the late 1970s, ***amphetamine*** use outside of medical supervision rose some with age beyond high school, but after a long period of secular decline in use from 1981 to the early 1990s, this relationship had reversed (see Figure 5-13). The declines were greatest in the older strata and least among 12th graders, even though use decreased substantially in all groups. As was true for many illicit drugs, amphetamine use began to rise among 12th graders after 1992, and eventually among the 19-24 year olds; but there was only a small

increase among 25-30 year old respondents. In other words, another cohort-related pattern of change was beginning to emerge in the 1990s for amphetamines, and the increase in use has really only developed since 2006 among the 25-30 year olds as can be seen in Figure 5-13. While amphetamine use declined a fair amount among 12th graders between 2002 and 2009 (from 11.1% to 6.6%), there was less proportional decline among 18-20 year olds and really no decline among the 21-55 year old age strata. After 2009 there was some resurgence in use, particularly among the younger age groups in 12th grade and college age. It may well be that the use of amphetamines for studying was what caused this resurgence. In recent years, use has leveled or begun to decline at most younger ages and increased somewhat among the 25-40 year olds, quite possibly as a result of a continuing cohort effect. Among those strata ages 45 and older, use has been very low, and there has been little change for more than a decade. For several years, the age differences in amphetamine use through age 55 have been of considerable magnitude and mostly ordinal; however, since about 2009, it has been curvilinear, with use being highest for 21-24 year olds. (See the table accompanying Figure 5-13.)

- Since 1990, when it was first measured, use of ***crystal methamphetamine*** (***ice***) has remained at low rates in the young adult population (Figure 5-14). However, among 19-28 year olds combined, annual prevalence rose from 0.4% in 1992 to 1.6% by 2005 (Table 5-2). (Use had been rising among 12th graders and 19-20 year olds specifically between 2000 and 2002, reaching peak levels, but since then their use has declined to low levels.) For 19-28 year olds, use declined unevenly from 2005 through 2018, reaching 0.4%; in 2018, among the lowest levels for the past decade. General ***methamphetamine*** use was first measured in 1999; its use was stable until 2005 among 19-28 year olds, with annual prevalence fluctuating between 2.4% and 2.8%. Use has declined since to 0.4% by 2018 (Table 5-2). (Use of these drugs is not asked of those over age 30.)

- ***Sedative*** (***barbiturate***) use (Figure 5-15) outside of medical supervision showed a long-term parallel decline in all age groups covered through the late 1970s and 1980s, leveling by about 1988. While use then remained low and quite level for most of the age bands for about five years, it began to rise by 1993 among 18 year olds, by 1995 among 19-20 year olds, by 1997 among 21-22 year olds, by 1998 among 23-24 year olds, by 2001 among 25-28 year olds, and by 2005 among 29-30 year olds. The same cohort-related pattern of change seen during the 1990s for many other drugs also exists for sedatives (barbiturates); like most other drugs, this pattern was preceded by a long period of secular change during which all age groups moved in parallel. While use leveled off among most age groups by 2005, the 35, 40, and 45 year olds all showed increases in sedative (barbiturate) use between 2006 and 2008. However, their usage rates leveled after 2008. In 2018 the annual usage rates for the 35-60 year olds were about 2-3%. Sedative use among 18 year olds declined steadily after 2005, among 19-20 year olds after 2008, and among 21-22 year olds after 2009, suggesting another cohort effect. From 2011 through 2018 the usage rates in most age strata leveled off or declined slightly. The 12th graders have consistently had the highest annual prevalence for sedative use without medical supervision, though their continued decline has resulted in relatively little differences among the age groups in 2016 through 2018.

- ***Tranquilizers*** (Figure 5-16) follow a similar pattern to that just described for sedatives (barbiturates). One difference is that the 12th graders' annual prevalence rate has not always been the highest among the various age groups, as was the case for sedatives (barbiturates), although it was highest between 1994 and 2000 as a result of a greater increase in tranquilizer use among the 12th graders than in the young adult strata. Since about 2004, however, as use rose and then leveled among those in their early 20s, the 12th graders no longer stood out as having the highest rate of tranquilizer use. In fact, the 21-22 year olds or 23-24 year olds had the highest rate in 2005 through 2009; in 2011, the 25-26 year olds had the highest rate; and in 2012 the 27-28 year olds had the highest rate of use. Use then increased among the 29-30 year olds, who had the highest rate in 2015. This was another clear example of a cohort-related pattern of change. Since about 2011 and 2012, use has declined somewhat for 18-28 year olds, and leveled for those aged 29 and older.

- Use of ***anabolic steroids*** has been substantially lower after high school than during 12th grade (Figure 5-17), ever since measures were first introduced in 1991 (in two follow-up questionnaire forms). The age-related differences are not consistent; prevalence rates among the young adult strata are all quite low and do not appear to trend in any systematic way. (In general, as covered in *Volume I*, it seems that the rise in steroid use from 1999 to 2003 among 8th and 10th graders and from 2001 to 2004 among 12th graders was largely specific to those age groups.) Annual prevalence rates are now very low for respondents in all young adult strata of ages 19-30 (ranging from less than 0.1% to 1.0%).

- ***Alcohol*** trends for the older age groups (Figures 5-18a–d) have been somewhat different than for the younger age groups in some interesting ways. For *annual* and *30-day* prevalence, the declines for the two youngest age strata (12th graders and those one to two years past high school) during the 1980s were greater than for the older age groups. These differential trends were due in part to the effects of changes in minimum drinking age laws in many states—changes that would be expected to affect primarily the age groups under age 21. However, because similar (though weaker) trends were evident among 12th graders in states that maintained a constant minimum drinking age of 21, the changed laws cannot account for all the downward trends, suggesting that there was also a more general downward trend in alcohol consumption during the 1980s.[10] By 1994, the declines in 30-day prevalence had slowed or discontinued for virtually all age groups until 1997, when they began to turn downward again for 12th graders, and 1999, when they began to decline among 19-20 year olds. The long term declines in the 30-day prevalence of alcohol use have been substantial—from 72% in 1980 to 30% in 2018 among 18 year olds, and from 77% in 1981 to 44% in 2018 among 19-20 year olds. Since about 1997, as the declines continued in the under-21 groups (that is, those under the minimum legal drinking age), no such declines occurred among the 21 and older groups; in fact, there have been some modest increases in all these groups. These trends have resulted in substantial differences in 30-day drinking rates in 2018 between those 18 to 20 years of age (30% to 44%) versus those 21 through 30 (69% to 75%)—much larger differences than when we first looked at them in the 1980s.

[10] O'Malley, P. M., & Wagenaar, A. C. (1991). Effects of minimum drinking age laws on alcohol use, related behaviors, and traffic crash involvement among American youth: 1976–1987. *Journal of Studies on Alcohol, 52,* 478–491.

- ***Binge drinking*** has continued an uneven but substantial decline for 18 and 19-20 year olds since the early 2000s through 2018, reaching the lowest levels ever in 2018 at 14% and 21%, respectively, down from the all-time highs in 1981 of 41% and 43%, respectively (Figure 5-18d). Respondents three to four years past high school show the smallest downward trend since the early 1980s, but even this age group has shown declines in the past decade from 46% in 2007 to 34% in 2018. One important segment of that age stratum is composed of college students who have shown less decline in alcohol use over the past quarter century (see Chapter 9, which also shows prevalence of and trends in ***extreme binge drinking***).

  Across the life of the study, declines in binge drinking have been modest among those aged 23-30. Note that the binge drinking trend lines for different age groups (Figure 5-18d) are spread out on the vertical dimension, reflecting large and persisting age differentials (age effects) in this behavior. The relationship with age is curvilinear, however. In the past decade, the 21-26 year olds have consistently shown the highest rates of binge drinking. Binge drinking had been gradually increasing since the early 2000s through about 2008 among 25-30 year olds, perhaps reflecting a cohort effect that emerged during the period of increasing adolescent binge drinking in the early 1990s, but this has turned around in recent years, with binge drinking among 25-30 year olds now being among the lowest it has been for several years. Among those aged 35 to 55, binge drinking has shown some uneven increases over the years, with recent leveling for most age groups.

  From the early 1980s through the mid-1990s, rates of ***daily drinking*** (Figure 5-18c) fell by considerable proportions in all age strata for which we have data, reflecting a secular trend and an important change in drinking patterns in the culture. Among 19-28 year olds combined, daily drinking declined from 1987 (6.6%) to 2000 (4.1%), but has since increased unevenly to 4.3% by 2018 (Table 5-4). Daily drinking rates now show a fairly linear age trend, and have generally been highest for the age 55 group in recent years, whereas daily drinking has declined substantially among 18 year olds and 19-20 year olds over the life of the study. In 2018 there was a considerable difference among the age strata in rates of daily drinking, ranging from 1% among 19-20 year olds to 10% to 12% among 45, 50, 55, and 60 year olds.

  It is worth noting that the 35, 40, 45, 50, 55, and 60 year olds have had among the lowest rates of binge drinking but among the highest rates of daily drinking in recent years. These patterns—particularly the high rate of daily drinking—likely reflect age effects as well as perhaps some enduring cohort differences (because these cohorts had considerably higher rates of daily drinking when they were in high school). They may also have been influenced by the widely disseminated medical findings that suggest that one or two drinks per day for males and one per day for females have some benefits for heart health.[11,12] That may be

[11] Manttari, M., Tenkanen, L., Alikoski, T., & Manninen, V. (1997). Alcohol and coronary heart disease: The roles of HDL-cholesterol and smoking. *Journal of Internal Medicine, 241*, 157–63.

[12] Savolainen, M. J., & Kesaniemi, Y. A. (1995). Effects of alcohol on lipoproteins in relation to coronary heart disease. *Current Opinions in Lipidology, 6*, 243–50.

a more salient message for those who are in their forties or above than for younger people. Whether there really are such health effects has been questioned since.[13,14]

- The prevalence levels for ***cigarette smoking*** show more complex trends than most other substances, due to the long-term presence of both cohort and age effects, plus slightly different patterns of such effects on the several different measures of smoking during the past 30 days (one or more cigarettes per month, one or more cigarettes per day, and a half pack or more of cigarettes per day).

  In the earlier years of MTF, the curves across time were of the same general shape for each age band (Figures 5-19a–c), but each of those curves tended to be displaced to the right of the immediately preceding age group, which was two years younger. The pattern is clearest in Figure 5-19c (half pack plus per day) during the late 1970s and 1980s. This pattern is very similar to the one described in *Volume I* for lifetime smoking rates for various grade levels *below* senior year; it is the classic pattern exhibited by a cohort effect,[15] and we believe that the persisting cohort differences are due to the dependence-producing characteristics of cigarette smoking.

  The declining levels of cigarette smoking observed in the 12th grade classes of 1978 through 1981 were later observable in the early-30s age band, as those same high school graduating classes grew older (Figures 5-19b and c). This was true at least through about 1991. By then there had been a considerable convergence of rates across age groups, largely because there were few cohort differences among the senior classes who graduated from the early to mid-1980s through the early 1990s—a period of fairly level cigarette use in high school.

  In addition to these cohort differences, there are somewhat different age trends in which, as respondents grow older, the proportion smoking at all in the past 30 days declines some, while the proportion smoking a half pack per day actually increases. Put another way, many of the light smokers in high school either transition to heavier smoking or quit smoking.[16-18]

  The picture was further complicated in the 1990s when it appears that a new cohort effect emerged, with smoking among adolescents rising sharply (beginning after 1991 for 8th and 10th graders and after 1992 for 12th graders). The 19-20 year olds soon showed a rise at the beginning of the 1990s—perhaps responding to some of the same social forces as the

[13] Keyes, K., & Miech, R. A. (2013). Commentary on Dawson et al. (2013): Drink to Your Health? Maybe Not. *Addiction, 108*(4), 723-724.

[14] Goulden, R. (2016). Moderate alcohol consumption is not associated with reduced all-cause mortality. *The American Journal of Medicine 129*, 180-186.

[15] O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1988). Period, age, and cohort effects on substance use among young Americans: A decade of change, 1976–1986. *American Journal of Public Health, 78*, 1315–1321.

[16] To illustrate, in the graduating class cohort of 1976, 39% were 30-day smokers in senior year, 39% by ages 19 to 20, but only 29% by ages 29-30—a net drop of 11 percentage points over the entire interval. By way of contrast, 19% of that class was half-pack-a-day smokers in senior year, 24% by ages 19 to 20, and 22% at ages 29-30—a net gain of five percentage points and three percentage points over the respective intervals.

[17] Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, NJ: Lawrence Erlbaum Associates.

[18] Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles, and beliefs.* Mahwah, NJ: Lawrence Erlbaum Associates

adolescents (including the Joe Camel advertising campaign); but 21-24 year olds did not show an increase until about 1995, and 25-26 year olds until about 1996. Young adults over age 26 showed a modest increase from 1997 through 2004, but a decline in use since then; it is quite possible that an upward cohort effect was at least partially offset by a downward secular trend during this period.

After about 1999, smoking rates among nearly all age groups leveled or declined, suggesting that societal forces may be affecting all age groups in a similar way, giving rise to a secular trend. Large increases in the price of cigarettes were important. The tobacco settlement between the state attorneys general and the major tobacco companies likely played a critical role, because the industry had to raise prices in order to recoup their substantial losses in the settlement. Price increases also were due at least in part to sales tax increases[19] and later federal excise taxes. In addition, there was a great deal of adverse publicity for the tobacco industry along with the introduction of the national anti-smoking campaign of the American Legacy Foundation, an increase in state and national anti-smoking advertising, the demise of the Joe Camel campaign and all billboard advertising, and the imposition of no-smoking regulations in many public and workplace settings by states and municipalities. From 2003 through 2018, thirty-day, daily, and half-pack smoking have all declined among 35, 40, and 45 year olds; recent trends among 50 and 55 year olds have shown some modest declines (Figures 5-19a through 5-19c). In sum, there have been very substantial declines in smoking among all age groups. Since smoking is the leading cause of preventable death and disease in the country, these improvements are extremely important for population health and longevity.

- Apart from cigarettes, none of the other drugs included in the study showed a clear long-term pattern of enduring cohort differences in the earlier years of MTF (the 1970s and 1980s), despite wide variations in their use by different cohorts at a given age. There was one exception for ***daily marijuana*** use (long-term trends are summarized above, but we give them more detail here by way of contrast with cigarette smoking trends). A modest cohort effect was observable for daily marijuana use (Figure 5-3c) during the late 1970s and early 1980s.[20] But as subsequent classes leveled at lower rates of use, evidence for the cohort effect faded. The emergence in the 1990s of a new epidemic of marijuana use among teens once again yielded a strong pattern of cohort effects. As can be seen in Figure 5-3c, daily use rose sharply among 12th graders and 19-20 year olds after 1992, among 21-22 year olds after 1993 with a sharp rise occurring in 1997, among 23-24 year olds after 1998, among 25-26 year olds after 2000, among 27-28 year olds in 2003, among 29-30 year olds in 2005, among 35 and 40 year olds in 2006, and among 45 year olds in 2007. This is not unlike the pattern of change for cigarette smoking that occurred in the 1990s (Figure 5-19a). The cohort effect for daily marijuana use may be attributable, in part, to the very strong association between that behavior and regular cigarette smoking. The net effect of all of this is that a considerable age difference has emerged in current daily marijuana use since the early 1990s, when there was practically no difference. The cohort effect resulting

[19] Huang, J., & Chaloupka, F. J. (2012). *The impact of the 2009 federal tobacco excise tax increase on youth tobacco use.* NBER Working Paper 18026. National Bureau of Economic Research, Cambridge, MA.

[20] O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1988). Period, age, and cohort effects on substance use among young Americans: A decade of change, 1976–1986. *American Journal of Public Health, 78,* 1315–1321.

from the rise in use among 18 year olds in the latter half of the 1990s has been working its way up the age spectrum, and in 2010 was observable in the form of a significant increase among 35 year olds (more recent trends in daily marijuana use are discussed above).

In sum of longer-term trends in reference to cohort effects, trends up until 1992 in illicit drug use were highly parallel across 12th graders and young adult age groups, indicating a secular trend. (Cigarettes and alcohol showed a different pattern.) Since 1992, however, there has been considerable divergence in the trends for different age bands on a number of drugs as use among adolescents rose sharply, followed by subsequent rises among 19-20 year olds, 21-22 year olds, and so on. This divergence indicated a new cohort effect, quite possibly reflecting a generational forgetting[21] of the dangers of drugs by the cohorts who reached senior year in the early to mid-1990s. Data discussed in Chapter 6, "Attitudes and Beliefs about Drugs among Young Adults," provide additional evidence for this interpretation.

[21] Johnston, L. D. (1991). Toward a theory of drug epidemics. In L. Donohew, H. E. Sypher, & W. J. Bukoski (Eds.), Persuasive communication and drug abuse prevention (pp. 93-131). Hillsdale, NJ: Lawrence Erlbaum.

TRENDS FOR IMPORTANT SUBGROUPS OF YOUNG ADULTS

Four-year age bands are used here to examine subgroup trends in order to yield sufficiently large numbers of cases to permit reliable estimates for the various subgroups being examined. Subgroup data for young adult respondents of each gender and for respondents from communities of different sizes are available for 19-22 year olds since 1980, 23-26 year olds since 1984, and 27-30 year olds since 1988. (Subgroup data are not presented for the ages above 30.) A question about state of residence was added in 1987 to all follow-up questionnaires, permitting trend data to be calculated for the four regions of the country since then (MTF samples within these four regions, so each is represented by these data). These various subgroup data are not presented in tables or figures here because of the substantial amount of space they would require. However, for the reader interested in more detail, these are available in a separate MTF Occasional paper. Subgroup data on young adults through 2018 are available in *MTF Occasional Paper 93*. That document contains both tabular and graphic presentations of the data, with the graphs, which are by far the easier to read, showing each subgroup in a different color. A synopsis of trends through 2018 for young adults is presented below.

Gender Differences in Trends

- Over the long term, gender differences narrowed for some drugs among young adults in each of these three age bands (19-22, 23-26, 27-30), primarily when a steeper decline in use among men (who generally had higher rates of use) occurred in the 1980s. The overall picture, though, is one of parallel trends, with use among men remaining consistently and modestly higher for most drugs, including the indexes of annual use of ***any illicit drug*** and of ***any illicit drug other than marijuana*** (see Table 5-5, which lists prevalence for 19-28 year olds separately by gender, for example, and Figures 1 and 4 in *Occasional Paper 93*). In general, the gender gap for 19-22 year olds annual prevalence of any illicit drug has been somewhat narrower than in the other age bands across the years through 2018 (but note that the trends for the three age bands are not on the same scale in the figures).

- The downward trend in ***marijuana*** use among 19-22 year olds between 1980 and 1989 was also a bit sharper among men than women, narrowing the gap between the two groups. Annual prevalence fell by 22 percentage points (to 34%) among men, compared to a drop of 14 percentage points (to 31%) among women, leaving a difference of three percentage points (Figure 7 in *Occasional Paper 93*). From 1995 through 2018, the gender gap has averaged about 5 to 9 percentage points in all three age groups—that is, for 19-22 year olds, 23-26 year olds, and 27-30 year olds. However, between 2015 and 2017, the gender gap for 19-22 year olds diminished to 2 to 3 percentage points for annual marijuana use, and in 2018, for the first time ever, annual prevalence of marijuana use was higher for women (43%) than for men (41%). (Regarding ***vaping marijuana***, the one-year changes in prevalence from 2017 to 2018 for men and women are presented in Chapter 4.)

- Between 1980 and 1993, ***daily marijuana*** use for the 19–22 age group fell from 12.9% to 2.9% among men, and 6.1% to 1.7% among women, narrowing the rather large gap that existed in the early 1980s (Figure 9 in *Occasional Paper 93*). As overall use rose after

1993, the gap widened again. Among 23-26 year olds, as daily use first began to increase in 1998 and 1999, the gap between the genders began to widen. In the oldest age group (ages 27–30), the difference had been fairly constant, with daily marijuana use among men generally being about two percentage points higher than among women through 2005; from 2006 through 2018, the gender gap within the age groups widened somewhat to between three and four percentage points for most years. Consistent with what is true for overall trends, *daily marijuana use in 2018 was at or near historic highs for both men and women across the three age groups*, at 10.2% and 6.1% respectively for 19-22 year olds, 9.9% and 6.3% respectively for 23-26 year olds, and 10.8% and 6.6% respectively for 27-30 year olds.

- In all three age bands, use of ***synthetic marijuana*** by men tended to be higher than use by women. In 2011, when use was first measured, it was highest among the 19-22 year olds with men higher than women; it has fallen sharply since 2011 for both genders and the gap between them has closed considerably (Figure 14 in *Occasional Paper 93*). Annual prevalence in 2018 for the 19-22 age group was 2.5% for men and 1.5% for women. The two older age bands started out with considerably lower rates in 2011, but also have shown some decline since then, narrowing the gender difference in both groups.

- ***Inhalant*** use, while always quite low in these young adult age groups, was fairly consistently higher among men than women; however, this difference has disappeared in the past few years after a long period of decline in which prevalence declined to 2% or lower for all groups since 2011 (Figure 17 in *Occasional Paper 93*).

- For ***LSD***, men have consistently had higher rates of use than women (Figure 22 in *Occasional Paper 93*). Among 19-22 year olds, the male–female differences tended to diminish as use declined (from 1980 to 1985 and again from 1999 to 2004) and expand as use increased (1986–1995). Since 2011, the gender gap has widened again as use has increased somewhat, with men having about twice the level of women; annual prevalence in 2018 for men and women were at highest levels since 2001, at 6.6% and 3.7%, respectively. In the two older age bands there was less change in use, and differences had been relatively consistent (with men higher) since data have been available, beginning in 1984 for 23-26 year olds and in 1988 for 27-30 year olds. After 1999 and 2001 for the two older groups, respectively, overall LSD use dropped, substantially narrowing the gender differences. Men began to show these declines first, and both genders moved to almost no use of LSD between 2003 and 2009. Beginning in 2009 among the 23-26 year olds, use increased for men especially in 2016 and 2017, widening the gender gap, with women showing some increase through 2016; in 2017, men increased to 6.4% (an all-time high) and women decreased to 1.9%. However, in 2018, use decreased significantly for men (3.4%) and leveled for women (2.4%). Similarly, the gender gap among 27-30 year olds in annual use of LSD began to widen again as use increased somewhat for men in 2011 and especially 2016 through 2018; for women, it also increased in the past few years, significantly so in 2018. In 2018, levels were 4.7% and 2.4% respectively, at all-time highs. Overall, it appears that there has been some return of LSD use in the last few years among young adults.

- Use of ***hallucinogens other than LSD*** taken as a group has consistently been considerably higher among men in all three age strata with the difference growing larger when use increased some in the late 1990s and early 2000s (Figure 25, *Occasional Paper 93*). The differences have been greatest in the youngest of the three age strata and least in the oldest one. Use and gender differences have been relatively level for several years through 2016, showing no increase at least through 2016. However, there has been some change in the past two years in the two older age groups. Use increased among 23-26 year old men to 6.2% (an all-time high) in 2017 and then decreased in 2018 to 3.9% (consistent with the pattern of increase and decrease in LSD for this age group of men); use also increased nonsignificantly for 23-26 year old women in 2018 (to 3.0%, an all-time high). In addition, use increased nonsignificantly in 2018 among 27-30 year old men to 4.9%, an all-time high. Thus, as was true for LSD, there is some evidence of recent increased use of hallucinogens other than LSD among young adults.

- ***MDMA (ecstasy*** and more recently ***Molly***) exhibited little or no gender difference in any of the three age bands before use began to grow in the late 1990s (Figure 28 in *Occasional Paper 93*). Between then and 2009, there was little gender difference in MDMA use among 19-22 year olds. From 2009 through 2016, use rose some for men, slightly widening the gender differences; but in the past two years, use declined among men reducing the gender difference (4.9% for men, 3.0% for women in 2018). In the older age groups, a gender difference opened up after 1997, with men fairly consistently having higher rates of use among both 23-26 year olds and 27-30 year olds. From about 2009 to 2016, use among 23-26 year olds rose unevenly for both genders with little consistent difference between men and women. In 2017, use rose significantly for men 23 to 26 years old to 7.1% and declined nonsignificantly to 2.7% for women; however, this pattern reversed in 2018 (with a nonsignificant decrease for men to 4.4% and nonsignificant increase for women to 4.1%), reducing the gender difference. Among 27-30 year olds between 2010 and 2016, use increased more for men, widening the gender difference (even though women increased some through 2016). In 2017, use declined significantly for men to 2.3% and declined nonsignificantly for women to 2.8%; in 2018, use again increased nonsignificantly for both men and women, to 4.4% and 3.6%, respectively.

- The annual prevalence of ***salvia*** use (Figure 31 in *Occasional Paper 93*) was much higher among men in the 19-22 year olds when first measured in 2009, and somewhat higher among men in the two older age groups. However, use by men has dropped dramatically in the years since then such that use has become negligible (below 1% in 2018) among the two younger age groups. Among the 27-30 year olds, there has been some nonsignificant increase in the past two years for men and women, though use is still quite low (1.4% and 0.8%, respectively, in 2018).

- Men have had higher rates of ***cocaine*** use than women since MTF began. During the period of sharp decline from the peak levels in annual cocaine prevalence (1986–1993), use dropped more among men than women, narrowing the gender differences that existed (Figure 34 in *Occasional Paper 93*). In the 19-22 year old age band, by 1993 annual prevalence for men had declined by 16 percentage points (to 4.5%) versus 13 percentage points among women (to 2.8%). In the 23-26 year old age band, there was also a narrowing

of the gender difference between 1986 and 1993, with annual prevalence down 19 percentage points among men (to 6.9%) and 13 percentage points among women (to 4.2%). Use in the 27-30 year old group also dropped faster among men between 1988 (when data were first available) and 1997—down 13 percentage points versus 7 among women. In sum, during the period of sharp decline in overall cocaine use, the gender differences—which had been fairly large—narrowed considerably in all three of these age bands. During the resurgence in cocaine use of the 1990s and into the early 2000s, which occurred on a somewhat staggered basis over the years, the gap between genders expanded only slightly. In the past decade, overall use and gender differences have remained fairly level in all age groups, with the gender difference generally being less among the 19-22 age group (6.0% for men and 4.2% for women in 2018). Among the two older age groups, there was some evidence of increases in 2018; for 23-26 year olds, it leveled for men at 9.5% and increased significantly for women to 6.2%; and for 27-30 year olds, it increased nonsignificantly for men to 6.7% and for women to 4.5%.

- ***Crack*** followed a similar pattern during the earlier period of decline, though the proportional difference between the two genders had been consistently higher than for cocaine overall in the first decade of measurement (Figure 37 in *Occasional Paper 93*). With crack, though, there was some gender convergence (between 1992 and 1998) among 19-22 year olds, as use among men declined slightly and use among women rose gradually; the genders converged somewhat for the two older groups in the late 1990s. After 1999, there was no consistent change for some years in differences between men and women. In all three age bands, men consistently had slightly higher crack usage rates, at least until a greater decline among men in recent years has nearly eliminated the gender differences and brought all of the annual prevalence levels below 1%.

- There have been modest gender differences in ***heroin*** use for all of the three age groups of young adults in recent years, with men generally having higher rates of use than women. There was very little gender difference when the project first reported results for young adults in the 1980s, and differences emerged only when heroin prevalence rose in the last half of the 1990s during the relapse phase of the drug epidemic (Figure 40 in *Occasional Paper 93*). As of 2018, prevalence ranged between 0.1% and 0.5% across both genders in the three age groups.

- Among 19-22 year olds, both genders showed some decline in their nonmedical use of ***narcotics other than heroin*** between 1980 and 1991, with a near elimination of previous gender differences (males had been higher). (Figure 43 in *Occasional Paper 93*.) Beginning in 1994, use by men began to rise in this age group, while use by women began to rise a year later. Some gender differences developed as use increased, with use by men being higher; after 2006, as use declined, there was a smaller difference, with annual prevalence in 2018 at 3.3% for men and 2.6% for women. The picture for 23-26 year olds is very similar except that the increase in use occurred a few years later (in 1997 and 1998). The gender difference (males higher) had been eliminated by 1988, but re-emerged after 1995 as use increased more among men. Since 2010, use has declined for both genders, with a consistent gender difference of about 2 percentage points (it was 4.2% for men and 2.8% for women in 2018). Among 27-30 year olds, there has been a smaller

gender difference and the least increase in use in the 2000s. Still, use increased for both genders after 1999 and leveled in the mid-2000s, with men emerging with modestly higher rates of use most years thereafter (it was 5.3% for men and 3.9% for women in 2018).

- Since 2002, the first year in which the survey gathered data on nonmedical use of ***OxyContin***, its use has generally been higher among men than women for all three age bands (Figure 46 in *Occasional Paper 93*). Both genders showed some increase in use between 2002 and 2009 or 2010, followed by some falloff since then in the two younger age bands. In the past few years, there have not been consistent gender differences in any of the age groups. In 2018, use was 2% or lower for men and women in all age groups, except it was 3.0% among the 27-30 year old men.

- Nonmedical use of ***Vicodin***, first measured in 2002, also has been higher among men in most years. There was a somewhat larger increase in use among men in all age bands initially, but the men began to trend down earlier than the women, reducing the disparities in use such that in 2015-2018 the gender difference was nearly eliminated in all three age bands; in 2018, use ranged from 1.2% to 3.4% among both genders in all age groups (Figure 49 in *Occasional Paper 93*).

- In general, there have been no appreciable gender differences in ***amphetamine*** use for most years in any of these three young adult age bands, although there is some evidence of emerging gender differences in recent years in the two older age bands. Between 1981 and 1991, rates of amphetamine use were similar for men and women and showed substantial and parallel downward trends for both genders (Figure 52 in *Occasional Paper 93*). Among 19-22 year olds, annual prevalence of use dropped 22 percentage points for men (to 5.2% in 1991) and 21 percentage points for women (to 4.7% in 1991). There were small increases in annual prevalence for both genders in the 19-22 year old age group after 1991, in the 23-26 year old age group after 1995, and in the 27-30 year old age band after 2000, but the genders diverged only slightly (with men higher). At about 2008, annual amphetamine use began drifting up slowly in all three age bands, with men consistently a bit higher than women. Among 19-22 year olds, use has declined for men in the past few years (to 6.6% in 2018) and remained fairly level for women (at 7.3% in 2018). Among the 23-26 year olds and the 27-30 year olds, while use has been fairly level for women in recent years, it has increased some for men. In 2017, the increase was significant for men in both of these older age groups, rising to 10.4% and 9.3%, respectively (compared to 6.1% and 4.7% for women in the two age groups, respectively); in 2018, it continued to rise nonsignificantly for 23-26 year old men to 12.1%, and declined nonsignificantly for 27-30 year old men to 8.3% (compared to 5.6% and 6.3% for women in the two age groups, respectively).

- Nonmedical use of ***Ritalin***, a prescription stimulant used in the treatment of ADHD, was added to MTF questionnaires in 2002 (Figure 55 in *Occasional Paper 93*). Findings for the first decade show prevalence being somewhat higher for men than women, after which gender differences have tended to be small and inconsistent. Use in 2018 ranged from 0.5% to 1.6% among both genders in all age groups.

- Like Ritalin, nonmedical use of ***Adderall*** (another prescription stimulant) has generally been slightly higher among men than women since 2009, when the question was added (Figure 58 in *Occasional Paper 93*). The largest gender difference in annual use was initially among 19-22 year olds, the age band that includes most of those in college, and this difference diminished since 2016 as use dropped for men (in 2018, it was 10.9% for men and 9.3% for women). Since 2011 a fair-sized gender difference emerged among the 23-26 year olds that closed in 2016 as use dropped among men; however, use rose significantly for men in 2017 and 2018 and remained unchanged for women (in 2018, it was 12.1% for men and 7.5% for women). The gender differences generally have been small among those over age 26 (in 2018, it was 6.2% for men and 7.0% for women).

- A question on ***methamphetamine*** use was introduced in 1999 (Figure 59 in *Occasional Paper 93*); by 2011, after many years of decline, annual prevalence was at or below 1% for both genders in all age groups, and has been 1.8% or less since then. Throughout, men generally showed slightly higher prevalence than women, particularly in the first years of measurement; however, in recent years, gender differences have been small or nonexistent.

- ***Crystal methamphetamine ("ice")*** was added to the study's coverage in 1990 (Figure 62 in *Occasional Paper 93*). In the early 1990s, use was low and very similar for both genders in all three young adult age bands. In the mid-1990s the younger two age bands showed a greater increase in annual use among men, opening a gender gap. The gap then narrowed, though men on average were slightly more likely to report use of crystal methamphetamine until 2005. From 2009 through 2018 the gender differences have been small and inconsistent. In 2018, annual prevalence was between 0.2% and 0.3% for women in the three age groups and between 0.2% and 0.9% for men. It should be noted that the estimates are less stable for this drug due to limited sample sizes.

- Questions about the use of ***"bath salts***"—stimulant designer drugs (synthetic cathinones) meant to mimic the effects of amphetamines—were first introduced in 2012, so there are as yet only limited data on trends in their use (Figure 65 in *Occasional Paper 93*). Among 19-22 year olds in 2012 there was a large gender difference in use (annual prevalence of 3.0% among men vs. 0.5% among women); however, there was virtually no gender difference in the two older age bands (0.7% vs. 0.6%, respectively, among 23-26 year olds and less than 0.5% for both genders among 27-30 year olds). In 2013 the large gap between the genders among the 19-22 year olds disappeared as men that age showed a significant 2.8 percentage point decline in use. This decline coincided with a dramatic 18 percentage point increase in the perceived risk of trying bath salts (for men and women combined). A similar change in perceived risk occurred among both older groups, as well, no doubt serving to hold their usage rates very low. As of 2018, annual use was below 0.5% among both men and women in all three age bands.

- As ***sedative*** (***barbiturate***) use declined through the 1980s, the modest gender differences (males were higher) were virtually eliminated in all three age bands (Figure 68 in *Occasional Paper 93*). Beginning in the early 1990s, a staggered increase in use by both genders emerged across all three age groups, with men increasing more than women,

thereby again opening a small difference in the late 1990s and into the 2000s. From about 2008 through 2018, use declined and generally leveled for men and women in the three age groups, essentially eliminating gender differences. In 2018, use ranged between 1.7% and 3.2% across both genders and all age groups.

- For ***tranquilizers***, both genders showed a long, gradual decline and very similar rates of use from 1980 through about 1993 in all three age bands (Figure 71 in *Occasional Paper 93*). Beginning in 1995, use increased for both genders in the 19-22 year old group, followed by an increase beginning after 1997 among 23-26 year olds and after 1999 among 27-30 year olds, again reflecting cohort effects driven by generational replacement. Some gender differences emerged during these periods of increase and remained during part of the subsequent decrease after 2002 and 2003 for the two younger age bands. Men generally reported somewhat higher usage rates, though the gender differences have narrowed in recent years as use has generally declined or leveled for all three age groups. In 2018, use ranged between 3.2% and 4.9% across both genders and all age groups.

- ***Inhalant*** use has generally been quite a bit higher among men than women, particularly in the younger age groups (Figure 17 in *Occasional Paper 93*). The 19-22 year old group showed a gradual upward shift from 1980 to 1988, followed by a leveling for some years for both genders. In 1997, annual inhalant use began to decline among 19-22 year old women, followed by men in 2001; however, the gender gap did not diminish much with this decline until 2005, when there was a convergence that continued through 2016, with some divergence since then due to a slight increase for men (in 2018, it was 2.0% for men and 0.7% for women). Among 23-26 year olds the gender gap widened as use by men increased between 1992 and 1999, though a subsequent decline in use among men narrowed the gap, almost eliminating it by 2005 (use has been under 1.0% for both in the past few years). It then re-emerged between 2008 and 2012 and diminished since then. In the oldest age stratum, use among men has generally been slightly higher, though the prevalence of inhalant use has been very low in this age group (under 0.9% in 2018).

- Use of three "club drugs"— ***Rohypnol, GHB***, and ***ketamine***—has tended to be more concentrated among men in all three age strata (Figures 74, 76, and 79 in *Occasional Paper 93*), but the estimates are not very stable because of the limited numbers of cases upon which they are based. By 2009, annual prevalence levels were very low for all three drugs, and gender differences were small; this has continued to be the case in the years since then. In 2018, annual ketamine prevalence was between 0.0% and 1.1% for both genders in all three age groups. Rohypnol was dropped from the study after 2009 because of the low numbers of users (between 0.0% and 0.3%), at which point no gender difference remained in any of the three age groups (in earlier years use by men had tended to exceed use by women). GHB was dropped from the study after 2015 (when prevalence was between 0.0% and 1.1% for both genders in all age groups).

- For ***alcohol***, ***30-day prevalence*** levels (Figure 82 in *Occasional Paper 93*) exhibited a gradual, parallel decline from 1981 through 1992 for both genders in the 19-22 year old age group. Thirty-day prevalence fell from 83% to 72% among men and from 75% to 62% among women by 1992. There has been a convergence since then, beginning in the late

1990s, because use by men has declined slightly while use by women increased slightly through 2008. The increasing proportion of women attending college may help to explain this convergence, at least in part. The gender difference was virtually eliminated in this age group by 2004 and use remained quite level since then for both genders through 2017; however, in 2018, it decreased a significant 6.3 percentage points for men to 54.9% (an all-time low), and decreased nonsignificantly 2.6 percentage points for women to 57.1% (also an all-time low). In the two older age bands, there was a more modest, parallel decline for both genders, from 1985 through 1992 in the case of 23-26 year olds, and at least from 1988 (when data were first available) to 1991 or 1992 in the case of 27-30 year olds. From 1992 through 2004, use among men in the older two age bands showed fairly level rates of use; but use among women rose gradually, narrowing the gender difference among 23-26 year olds (78% vs. 71% in 2018) and among 27-30 year olds (74% vs. 69% in 2018).

Gender differences in ***daily drinking*** (Figure 83 in *Occasional Paper 93*) have been somewhat consistent over the years in each of the three age groups, with men always higher than women but gender differences decreasing gradually in the two younger age groups. Among 19-22 year olds daily drinking showed a general long-term decline from about 1981 or 1982 through about 1992, with daily use falling more among men, considerably reducing but far from eliminating what had been a large gender difference. To illustrate, in 1981, 11.8% of men reported daily use versus 4.0% of women; the comparable 1992 statistics were 5.3% and 2.7%. After 1995, daily drinking began to increase among 19-22 year olds for both genders, but leveled a few years later. From 2002 to 2005 their daily use was rising among men and falling among women, increasing their differences, but since 2005 there has been a considerable convergence with daily use among men falling and use among women increasing modestly through 2014. Men showed an increase in 2016, widening the gap, but then decreased significantly in 2018, decreasing the gap; in 2018 a slight gender difference remained for daily drinking in the 19-22 year old age group—3.7% for men versus 1.6% for women— considerably smaller than it was in 1981 (11.8% vs. 4.0%, respectively). The gender differences have been larger and longer lasting for the two older age groups. Although the gap diminished in 2014 for the 23-26 year olds, it widened somewhat through 2017 and then decreased again in 2018 (7.0% for men vs. 4.4% for women). Among the 27-30 year olds the gender difference increased from 2000 to 2017, with use rising for both genders, to a slightly greater extent among men; however, in 2018 daily drinking dropped for men, narrowing the difference (8.1% for men vs. 4.6% for women).

There are also long-established and large gender differences in all three age groups in the prevalence of ***binge drinking*** (Figure 84 in *Occasional Paper 93*). Men in the 19-22 year old band have shown some longer-term decline in this statistic, from 54% in 1986 to 45% in 1995 to 29% in 2018 (a significant decline of 7.4 percentage points from 2017, reaching an all-time low). Use by women declined less, from 33% in 1981 to 28% in 1995 before rising some to 34% in 2006, and then back to 26% in 2018. Thus, the gender gap has narrowed considerably (from 24 percentage points in 1986 to 17 percentage points in 1995 to just 3 percentage points by 2018). In the two older age bands (23-26 year olds and 27-30 year olds), the sizable gender differences remained mostly stable as the binge drinking

rates drifted steadily upward in both genders since the early 1990s, at least until 2009 or 2010. These rates have leveled or even declined a bit in both genders among 23-26 year olds over the past seven years (to 41% vs. 31% in 2018), and among the 27-30 year olds in the past five years (to 39% vs. 26% in 2018), suggesting a cohort effect. Overall, the gender differences for all three age groups have narrowed over the longer term. (Figure 85 in *Occasional Paper 93* shows gender differences by college student status for those aged 19-22; substance use by college student status is covered in this volume in Chapters 8 and 9.)

- Most striking for ***cigarette smoking*** by young adults are the similarities between the genders in both absolute levels and trends. All three age groups showed a long-term decline in ***30-day smoking*** rates for both men and women (Figure 91 in *Occasional Paper 93*). For 19-22 year olds, declines occurred from 1980 through 1991 and again since 1999; for 23-26 year olds, declines occurred from 1984 to 1995 and again since 2001; for the 27-30 year olds, declines occurred from 1988 through 2001 and again since about 2006. These staggered patterns again reflect a cohort effect moving up the age scale. Among those aged 19–22 years, women had slightly higher rates of 30-day smoking until 1992; but there was a crossover and since 1994 men have had a higher 30-day prevalence of smoking. Since 1998, men 23–26 years old have had a higher 30-day prevalence of smoking than women. Among those 27–30 years old, men have generally had a higher 30-day prevalence, with the gender gap increasing some in recent years. Overall, from about 2007 through 2017, gender differences widened a bit in all three age groups because women showed a more consistent decline than men over the years; however, in 2018, gender differences narrowed again due to greater declines for men. Among the two younger age groups in 2017, there was some evidence of leveling among men and women, but in 2018, the continuing decline resumed especially for men, with the decline being significant for men in the 23-26 year old group. In 2018, prevalence reached all-time lows for 19-22 year old men and women (13.1% and 9.2%. respectively) and 23-26 year old men and women (16.6% and 11.8%, respectively). Among 27-30 year olds, the decline has continued for men, reaching a new low of 13.6% in 2018, whereas use appears to have leveled for women the past few years (it was 13.5% in 2018). (Regarding ***vaping nicotine***, the one-year changes in prevalence from 2017 to 2018 for men and women are presented in Chapter 4.)

  Male and female trends in ***daily smoking*** (Figure 92 in *Occasional Paper 93*) levels have also been quite parallel over most of the time for which data are available, particularly in the two younger age groups. Among 19-22 year olds there was a crossover after 1993—before that point, women had slightly higher daily smoking rates, whereas men generally did from 1994 onward, primarily because use was rising faster among men through 1999. Both genders in this age group have shown parallel declines from 1999 through 2016; use rose nonsignificantly for both men and women in 2017 (to 8.0% and 6.1%, respectively), and then declined nonsignificantly for both in 2018 to all-time lows (5.6% and 4.9%). Among 23-26 year olds, the genders had very similar smoking rates until men started reporting higher daily smoking rates from 1996 on. Men declined less after 1998, opening up a modest gap; however, this gap has narrowed some in recent years as smoking has declined a bit more among men. However, in 2017, use increased nonsignificantly to

12.9% for men, and continued to decline for women to 7.1% (all-time low); in 2018, it declined significantly for men to 7.5% (all-time low), and increased slightly for women to 8.1%. In the oldest age band, the two genders were quite close until men opened a gap in 2002, and their rate generally remained somewhat higher through 2015. Between 2016 and 2018, use slightly declined for men (to 9.3% in 2018, an all-time low) and leveled for women (9.8% in 2018).

Smoking half-pack-a-day shows similar trends to daily smoking, though the gender differences are a little larger, with men showing higher rates than women since 1993 in the youngest age band, since 1989 in the middle age band, and since 1988 in the oldest age band, when use data for this group were first available (Figure 93 in *Occasional Paper 93*). However, all three age groups have shown a convergence by 2018, with most groups reaching all-time lows; in 2018, for men and women, it was 2.4% and 2.1% respectively among 19-22 year olds, 3.4% and 4.9% respectively among 23-26 year olds, and 5.4% and 5.9% among 27-30 year olds. We note that smoking a half pack a day increased nonsignificantly to 7.8% in 2017 among 23-26 year old men, and then declined significantly in 2018 to 3.4% (an all-time low), a pattern consistent with increases and decreases in 30-day and daily smoking among men in this age group as noted above.

- ***Hookah smoking*** generally has been slightly higher among men than women in all three age bands, but especially in the two older age bands; however, use has been declining and with that a convergence has taken place (Figure 98 in *Occasional Paper 93*).

- There has been a large and fairly consistent gender difference in the use of ***small cigars***, ***dissolvable tobacco***, and ***snus,*** specifically, with men having higher prevalence levels in all three age groups (Figures 101, 104, and 107 in *Occasional Paper 93*).

Regional Differences in Trends

The respondent's current state of residence was first asked in the 1987 follow-up surveys; thus trend data by region exist only for the interval since then. In this case, changes have been examined for all 19-28 year olds combined to increase estimate reliability. Because gender, for example, crosscuts all regions, it has less sampling error than when the sample is divided into four separate regions. (Each region is represented by between 800 and 2,200 weighted cases in all years. Actual case counts are somewhat higher.) By combining across all ages, we lose the ability to see the cohort effects that have occurred with many drugs, but we are able to see whether overall trends are similar across regions. Note that the charts showing regional differences in Occasional Paper 93 differ from those just discussed for gender differences. There are no longer three age bands depicted: the freed space on each page is used to add additional prevalence periods (i.e., lifetime, annual, and 30-day). But for the most part we continue to concentrate on annual prevalence.

In general, the changes that have occurred since 1987 have been fairly consistent across regions, particularly in terms of the direction of change. The four regions of the country—Northeast, Midwest, South, and West—have generally moved in parallel. Rather than include the large number of tables or figures necessary to show regional trends, we provide a verbal synopsis instead. The detailed information on subgroup trends through 2018 are available in graphic and tabular forms in *MTF Occasional Paper 93.*

- There were substantial drops among young adults 19-28 year olds in all four regions between 1987 (the initial measurement point) and 1991 for ***any illicit drug*** (Figure 2 in *Occasional Paper 93*). After 1991, most or all regions showed some increase and then a leveling for a number of years, followed by more recent increases through 2018. The proportions of 19-28 year olds using any illicit drug have been consistently lowest in the South and highest in the West and Northeast; but the regional differences have been fairly modest. In 2018 the West and Northeast had the highest annual prevalence at 48% and 46% respectively, and the Midwest and South were lower at 41% and 39% respectively. The West has shown greater relative increases in the past few years.

- For ***marijuana*** use (Figure 10 in *Occasional Paper 93*), the South has consistently been lowest, and the Midwest consistently has been second lowest. Generally, the other two regions have been fairly close to one another. However, the differences have generally not been great. The 2018 annual prevalence ranged from 34% (South) to 44% (Northeast and West). Regional differences in ***daily marijuana*** use have been relatively low over the years. The South has generally had the lowest levels of daily use. In 2018, daily use ranged from 6.9% (South) to 9.0% (Northeast), with none of the one-year changes being significant. (Regarding ***vaping marijuana***, the one-year changes in prevalence from 2017 to 2018 by region are presented in Chapter 4.)

- For the use of ***any illicit drug other than marijuana*** (Figure 5 in *Occasional Paper 93*), the regional differences are not large and the regions have moved in parallel. The West stood out as consistently highest in annual use until 2000, with the other three regions being very similar; since 2001, use in the Northeast generally has been about as high as in the West. In 2018, use was 22% in the West, 20% in the Northeast, 19% in the Midwest, and 17% in the South.

- Data on use of ***synthetic marijuana*** have been gathered since 2011 (Figure 15 in *Occasional Paper 93*). These data show a considerable decline between 2011 (when annual prevalence ranged from 5.5% in the Northeast to 9.7% in the Midwest) and 2018 in all four regions. There remains little difference among the regions in annual prevalence, which ranges from 1.2% to 2.3% in 2018.

- From 1987 (when data were first available) through 1994, rates of ***inhalant*** use remained relatively stable, quite low, and about equal in all four regions among 19-28 year olds. Annual use then rose in the Northeast in 1995 and 1996 and remained higher than in the other regions through 2000, before dropping back to rates comparable to the other three regions (Figure 18 in *Occasional Paper 93*). Except for that divergence, the regions have moved very much in parallel for this class of drugs. Annual prevalence in 2018 was at low levels among all young adults, ranging between 0.6% in the Midwest and South and 1.4% in the Northeast.

- From 1987 (when data were first available) through 2001, the West had the highest level of *lifetime* prevalence for ***LSD*** (Figure 23 in *Occasional Paper 93*)**.** From 1991 through 1995, the West had slightly higher *annual* prevalence levels of LSD than the other three regions among young adults. Otherwise the lifetime and annual prevalence has been quite similar in all four regions; all showed sharp declines in LSD use after 2001, though use had been declining some in all regions for several years prior to that. From about 2009 through 2018, all four regions have shown some modest increase in annual prevalence of LSD, with the Northeast typically having slightly higher annual prevalence through 2014, and the West generally having the highest levels since then through 2018. In 2018, prevalence of annual use was 5.7% in the West, 3.6% in the Midwest, 3.4% in the South, and 3.1% in the Northeast.

- ***Salvia***, which was first measured with a tripwire question in 2009, showed a continuous decline from 2009 through 2013 in the West (which started out highest) and the South (Figure 32 in *Occasional Paper 93*). Use began to decline in the Midwest after 2010 and in the Northeast after 2011. Use was very low in all regions by 2018 at 0.9% or less annual prevalence, compared to 2.5% to 5.4% in the four regions in 2009.

- Questions about ***MDMA*** (***ecstasy*** and more recently ***Molly***) were added to the follow-up surveys of young adults in 1989 (Figure 29 in *Occasional Paper 93*). Through 1993, rates were highest in the West and South and a little lower in the Northeast and Midwest regions. Subsequently, use in the Northeast began to increase (as was true among 12th graders), exceeding levels of use found in the South and West from 1999 to 2001. The Midwest has quite consistently had a much lower level of MDMA use than the other three regions, although it was joined by the South in recent years. In 2000 all four regions showed a sharp and fairly parallel increase in MDMA use; the rise decelerated in 2001 and use began to decline thereafter in all regions. As discussed elsewhere, we believe that this decrease may have been caused by growing concern about the hazards of MDMA use. By 2003, little regional difference remained in annual prevalence, largely because the declines in use were most pronounced in the Northeast and West. By 2007, use was down a little more in all regions; but after 2007 MDMA use generally was increasing in the West until it leveled after 2012, before increasing again in 2016, thereby reopening regional differences that remained through 2018. In 2018 annual MDMA prevalence levels among young adults were 6.4% in the West, 3.4% in the Midwest, 2.9% in the South, and 2.5% in the Northeast.

- The considerable declines in ***cocaine*** use, observed in all regions between 1987 and 1991, were greatest in the two regions that had attained the highest levels of use by the mid-1980s—the West and Northeast (Figure 35 in *Occasional Paper 93*). These regional differences had diminished considerably by 1992 after a large overall decline in use had taken place. Similar to the finding for 12th graders, in 1992 the decline in annual prevalence stalled in all regions except the Northeast. A gradual further decline then occurred in all regions through 1996 (1997 for the West) before a slight rise began to occur, likely reflecting the effects of young adults forgetting of the hazards of cocaine use as a result of generational replacement. Regional variability in annual cocaine prevalence was minimal for some years after the mid-1990s, but between 2005 and 2013, use in the

Midwest and South declined more than in the West and Northeast, creating some regional difference; for the past few years, use has been increasing unevenly for the West and has been fairly level for the other three regions. Annual prevalence for the young adult age band in 2018 was 8.4% in the West, 6.7% in the Northeast, 5.2% in the Midwest, and 4.6% in the South.

- Through about 2011, lifetime prevalence of ***crack*** use generally has been highest in the West since crack use was first measured in 1987, as has been true for cocaine in general (Figure 38 in *Occasional Paper 93*). All four regions exhibited an appreciable drop in crack use between 1987 and 1991, again with the greatest declines in the West and Northeast, where prevalence had been the highest. Use then generally leveled in all regions except the South, where it continued a gradual decline through 1997. As was true for cocaine generally, annual prevalence for crack use among the regions have converged and are at very low levels, ranging from 0.2% to 0.5% in 2018.

- The regions have trended fairly similarly in their prevalence of ***amphetamine*** use by young adults (Figure 53 in *Occasional Paper 93*). The only modest exception was that use declined more in the Northeast (which started out lowest) in the period 1987 to 1992, giving it a substantially lower rate than the other three regions; it remained lowest until 1998. The West fairly consistently had the highest rate through about 2000, although not by much. By the late 1990s, the Northeast had caught up to the Midwest and South, making the regional differences very small; there have been no consistent regional differences since 2000 (annual prevalence ranged from 5.0% to 5.9%), with all regions showing uneven increases. In 2018 the annual prevalence levels ranged between 6.7% in the South and 8.3% in the West.

- ***Methamphetamine*** use (Figure 60 in *Occasional Paper 93*) has been measured only since 1999 (though crystal methamphetamine, discussed next, has been in the study for a longer interval). It shows some differences in rates among the regions and some differential trending, with a gradual decline for some years in annual prevalence in the Northeast (where use generally was lowest) and a gradual increase in the West (where use had usually been highest) from 2000–2004, after which use declined in the West. Use in the other two regions remained fairly flat until 2006, when both showed some decline. Use in the West fell after 2006, leaving very little variability among regions by 2012. (*Lifetime* prevalence reached particularly high levels in the West, starting at 16% in 1999, and declining fairly steadily to 3% in 2018.) Annual prevalence in 2018 ranged from 0.7% in the South to 1.9% in the West.

- The West consistently has had the highest rates for ***crystal methamphetamine*** (***ice***) use, and until recently the regional differences were very substantial, particularly in terms of lifetime use (Figure 63 in *Occasional Paper 93*). The Northeast has generally had the lowest prevalence. When data were first available on crystal methamphetamine in 1990, the West had a lifetime prevalence of 5.1% versus a range of 1.7% to 2.3% in the other three regions. By 2006, the lifetime prevalence level in the West had increased to 8.8%, and lifetime prevalence in the Midwest and South grew quite steadily over that interval. This strongly suggests that crystal methamphetamine use among young adults diffused

from the West primarily to the South and Midwest regions, but diffused much less to the Northeast, which has had the lowest prevalence since 1998. The annual prevalence figures tell a similar story, but also show that there was a spike in past-year use in the West from 1991 to 1995 before use there declined and then stabilized at around 2% from 1997 through 2001. Rates then rose again in the West between 2001 and 2003 and stabilized at a slightly higher level around 2.7%. Since 2006, use in the West declined, narrowing the differences among regions. In 2018, annual use of crystal methamphetamine stood between 0.7% and 1.7% across all regions.

- ***Bath salts*** (synthetic stimulants sold over the counter) were first included in the study in 2012 and showed some regional variation, though all regions had an annual prevalence of use below 1.7% (Figure 66 in *Occasional Paper 93*). Use by young adults was highest in the Northeast at 1.6% in 2012, but use in all regions has fallen from the 2012 levels, and the differences among regions are now minor, ranging from 0.0% in the West to 0.6% in the Midwest in 2018.

- The annual prevalence for ***sedatives*** (***barbiturates***) remained flat, and at about equivalent levels, in all four regions of the country from 1987, when first measured, through 1994 (Figure 69 in *Occasional Paper 93*). Rates then rose gradually and in parallel in all regions for a number of years until about 2004, followed by some leveling and then some decline after 2008, followed by a leveling since 2011; regional differences have been consistently small. In 2018 annual prevalence ranged from 2.0% in the Northeast to 2.7% in the West.

- The picture for ***tranquilizers*** (Figure 72 in *Occasional Paper 93*) is similar to that for sedatives (barbiturates). Annual prevalence generally held fairly steady in all regions from 1987 through 1993, even though lifetime use was declining steadily in all regions through 1997. After 1993 there was some increase in all regions in lifetime and annual use, again with the South experiencing the most increase through 2004, after which all regions showed a leveling in use, followed by gradual uneven declines in use for the four regions since about 2007 through 2018. The regional differences have been small, though they grew a bit larger during the period of increasing use in the late 1990s, primarily because the South showed a greater increases in lifetime and annual use than the other regions and had the highest prevalence through about 2008; since then, there have been few consistent regional differences. Annual prevalence in 2018 ranged from 2.8% in the Midwest to 4.9% in the South.

- Levels and trends in ***heroin*** use were quite comparable across the four regions from 1987 through 2006 (Figure 41 in Occasional Paper 93). All regions had low and stable rates through the early 1990s. A gradual increase was observed from about 1993 through 2000, during the relapse phase in the overall drug epidemic, and annual prevalence was fairly stable in all regions through roughly 2004. After that, there was a steady increase in heroin use in the Northeast from 0.4% in 2004 to 1.1% in 2009, and also an increase in the West, from 0.3% in 2004 to 0.8% in 2009. After 2009 young adults in these two regions continued to have the highest prevalence of heroin use through 2012. In 2013, use continued to rise in the Northeast bringing its annual prevalence up to 1.8%, compared to 0.2% to 0.5% in the other three regions. This rise in the Northeast is consistent with

statements by governors in the Northeast that they were facing a rising level of heroin use. The rate in the West fell back to 0.5% in 2013. In 2014 there was a significant decline in annual prevalence in the Northeast, leaving it only slightly higher than the other regions (at 0.6% vs. 0.3%–0.4%). In 2015 the Northeast showed a small and nonsignificant rise back to 1.1% while the other regions remained level at 0.3% to 0.4%. In 2018, annual use dropped back to 0.3% in the Northeast, closing the gap (it ranged from 0.1% to 0.4% across all regions in 2018).

- Trends in annual prevalence of the use of ***narcotics other than heroin*** without medical supervision have been quite parallel for the four regions (Figure 44 in *Occasional Paper 93*). After a period of slight decline between 1987 and 1993 in all regions, a gradual, long-term, and substantial increase occurred from the mid-1990s through 2003 or 2004, depending on the region, with little systematic change through 2010, at which point use began to decline gradually in all regions—a decline that for the most part continued up through 2018. The South tended to have the lowest prevalence of use from 2003 through 2013, with the other three regions being tightly grouped; however, all regions were about the same in 2018, with annual prevalence ranging from 2.8% to 4.3%. It is noteworthy that trends in lifetime prevalence have been consistent with annual trends noted above, including the recent declines and lack of regional differences (11.6% to 12.7% in 2018).

- The annual prevalence of ***OxyContin*** use without medical supervision was highest in the Northeast and lowest in the West in 2002, when it was first measured (Figure 47 in *Occasional Paper 93*). Use rose some in all regions through about 2009, and it has shown a substantial decline in all regions since then. The Midwest had the lowest prevalence level from 2010 through 2018 (except for 2013). The four regions were fairly tightly grouped in 2018, with annual prevalence ranging from 1.5% to 2.6%. In general, regional differences have not appeared very consistent due to the limited sample sizes.

- Annual prevalence of use for ***Vicodin*** without medical supervision showed considerable variation among the regions between 2002, when it was first measured, and 2010 (Figure 50 in *Occasional Paper 93*). The West and Midwest generally had the highest rates, with the South the lowest and the Northeast in between. However, the West and Midwest have shown declines in use since 2005 and 2006, respectively, narrowing the differences; use has since declined for all regions since 2010 with the South generally continuing to have the lowest prevalence. Annual prevalence levels in 2018 were 1.6% in the Northeast, 1.9% in the South, 2.9% in the West, and 3.3% in the Midwest. (It should be noted that the sample sizes are more limited than usual for Vicodin and OxyContin, because questions about their use are contained on only two of the six questionnaire forms. Consequently, the trends are less smooth.)

- When two club drugs, ***GHB*** and ***ketamine***, were first measured in 2002, the Northeast stood out as having a higher rate of annual use (especially so for ketamine); but use in the Northeast dropped over the next two years, bringing that region's usage rates down to the same very low levels as the other three regions (Figures 77 and 80 in *Occasional Paper 93*). There appears to have been a little resurgence of ketamine use between 2008 and 2010 in all regions except the Midwest, followed by a decline in all regions in 2011. In

2012 through 2018 ketamine use stood slightly higher in the Northeast than in the other regions. In 2018, annual use ranged from 0.5% in the South to 1.3% in the Northeast. GHB use also appeared to rise in the Northeast in 2012, but use then fell back in 2013. Because of consistent very low levels of GHB (annual use ranging from 0.0% to 0.3% in 2015), it was dropped from the surveys to make room for items on other drugs.

- Questions about the use of ***Rohypnol***, another so-called club drug, were discontinued in 2010. Rohypnol use (Figure 75 in *Occasional Paper 93*) remained very low in all four regions from 2002, when it was first measured, through 2009, not reaching 1% in any region. For this reason, questions about its use were dropped from the surveys in 2010 to make room for other drugs.

- With respect to ***alcohol*** use (Figure 86 in *Occasional Paper 93*), there were modest declines in 30-day prevalence in all four regions between 1987 (when the first measurement was available for 19-28 year olds) and 1992. The rates for 30-day prevalence among young adults then leveled in all regions. The West and South have consistently had lower rates of 30-day use than the Northeast and Midwest (as has generally been true among 12th graders). In 2018, 30-day use ranged from 62% in the South to 72% in the Northeast.

  Current ***daily use*** of alcohol also showed a decline from the first (1987) data collection through about 1994 or 1995 in all regions. The proportional declines were substantial—on the order of 40–50%. (This decline corresponds to a period of appreciable decline in daily drinking among 12th graders, though we can tell from their longer-term data that their decline started in 1980; thus the decline may well have begun earlier among 19-28 year olds as well.) After the mid-1990s there was some upward trending in daily prevalence in all regions through about 2007 or 2008, followed by a leveling. Across the years, there have not been consistent regional differences. In 2018 the four regions had rates of daily alcohol use between 3.4% (South) and 5.9% (Midwest).

  Binge drinking was fairly level in all regions between 1987 and the late 1990s or early 2000s (bottom panel of Figure 86 in *Occasional Paper 93*.) There were then some modest increases through about 2006, followed by a leveling and even a slight decline, particularly in the West. Throughout the years, prevalence has been consistently higher in the Midwest and Northeast. Declines since 2011 have been greater for the Midwest and Northeast, with smaller declines in the West and South, narrowing the regional differences somewhat. In 2018, prevalence of binge drinking was 28% in the South, 30% in the West, 34% in the Midwest, and 36% in the Northeast.

- There have been highly consistent regional differences among young adults in ***cigarette smoking*** since data were first available in 1987—these differences exist for monthly, daily, and half-pack-daily prevalence levels (Figure 94 in *Occasional Paper 93*). The West has consistently had the lowest rates all three measures of cigarette use across the years. The other three regions have tended to cluster fairly closely, but usually with the Midwest highest and the Northeast a little lower. However, as prevalence levels have fallen in recent years, the rates have converged, with rather little regional difference

remaining in 2018. In general, all of the smoking measures have shown parallel movements across regions, suggesting that the forces accounting for changes have been nationwide in scope. (It should be remembered that, as illustrated earlier in this chapter, there are strong cohort effects in smoking that are obscured to a considerable degree when we combine age groups across a 10-year age span, as we have done in the present analyses.)

As noted above, 2017 was the first year in many that did not show continued declines in ***30-day*** and ***daily cigarette smoking***, with some nonsignificant increases suggesting a leveling in cigarette smoking among young adults. This pattern of leveling or even nonsignificant increases in 2017 held for all regions except the Northeast. However, in 2018, the overall trend of continuing declines resumed, with the declines for both 30-day and daily cigarette smoking being significant for the Midwest and South. In 2018, 30-day use ranged from 12.9% in the Midwest to 10.8% in the South, with 2018 levels begin at all- time lows for all four regions. Likewise, daily use levels were at all-time lows in 2018 for all four regions in 2018, ranging from 7.6% in the Northeast and South to 5.4% in the West. (Regarding ***vaping nicotine***, the one-year changes in prevalence from 2017 to 2018 by region are presented in Chapter 4.)

- Smoking using a ***hookah*** (Figure 99 in *Occasional Paper 93*) has not shown important regional differences, with annual prevalence generally declining for all regions from 2014 through 2017; in 2018, there was a significant increase in the Midwest to 15.3%, with use being 12.2 to 12.7% in the other three regions. Annual use of ***small cigars*** and ***snus*** (Figures 102 and 108, respectively in *Occasional Paper 93*) have shown some modest decreases or leveling in all regions from 2011 (when first asked) to 2018, with use of both consistently highest in the Midwest; the South has shown some recent modest increases in small cigar use. In 2018, small cigar use ranged from 20% in the South and 19% in the Midwest to 12% in the West; snus annual prevalence ranged from 6.1% in the Midwest to 1.5% in the West. Annual use of ***dissolvable tobacco*** (Figure 105 in *Occasional Paper 93*) has generally been below 1% in all regions since 2011 (when first asked) through 2018.

Population Density Differences in Trends

The analyses presented here for population density return to the use of three four-year age groups of young adults (19-22, 23-26, and 27-30); these age groupings allow a longer time interval to be examined for the younger strata and for cross-age comparisons of the trends. Among young adults, five levels of population density are distinguished based on the respondent's answer to the question, "During March of this year did you live mostly . . ."; answer alternatives were "in a very large city (over 500,000 people), in a large city (100,000 to 500,000), in a medium-sized city (50,000 to 100,000), in a small city or town (under 50,000), or on a farm/in the country." Data on the suburbs of cities of each size were combined with the corresponding city. These various subgroup data are not presented in tables or figures here because of the substantial amount of space they would require. Rather, a verbal synopsis of what they contain is presented. More detailed information on subgroup trends will soon be available in both graphic and tabular form in *MTF Occasional Paper 93*.

- Annual use of ***any illicit drug*** among young adults generally has moved in parallel among the various community-size strata. The farm/country stratum has tended to have the lowest use. The other four community-size strata have differed little from one another, though the very large cities have generally ranked at the top in all three age bands and have shown more of a recent increase in annual prevalence than the other strata among 23-30 year olds but not among 19-22 year olds (Figure 3 in *Occasional Paper 93*). Across the years among the 19-22 year olds, annual prevalence has been similarly high among the cities of all sizes and lowest among the farm/country stratum; in 2018, annual prevalence was: 33% for the farm/country stratum, 43% for small towns, 49% for medium-sized cities, 45% for large-sized cities, and 50% for very large cities. Among 23-26 year olds and 27-30 year olds, population density differences in annual use have expanded in recent years, though still generally maintaining the positive relation with community size; in 2018, annual prevalence for the two age groups was 33% and 29% for farm/country, 42% and 35% for small towns, 41% and 33% for medium cities, 45% and 39% for large cities, and 53% and 51% for very large cities.

- Trends in the use of ***any illicit drug other than marijuana*** tell a similar story, with annual use generally highest in very large cities and lowest in farm/country communities across the age groups (Figure 6 in *Occasional Paper 93*). There was a long period of fairly parallel declines along with some convergence of usage rates among the community-size strata at all three age levels (among 19-22 year olds it was between 1981 and 1992), followed by an increase in use and more recently a leveling. In general, medium, large, and very large city strata have all tended to share about the same rates, while the farm/country stratum has tended to have the lowest rates, particularly prior to 1990; the differences by population density have been quite small since about 2000 through about 2012 across the three age groups. After 2012 or 2013 the most noteworthy change has been increased prevalence in the very large cities among the two older age groups in the past few years.

- ***Marijuana*** use (Figure 11 in *Occasional Paper 93*) has moved pretty much in parallel among the various community-size strata over the time intervals for which data exist. Among all three age strata annual prevalence of marijuana use tends to be ordinally related to population density, with the farm/country stratum having the lowest annual prevalence of marijuana use and the very large cities having the highest. Among 19-22 year olds, the annual prevalence levels have been quite close among communities of all sizes, except for the farm/country stratum. Use in the farm/country stratum fell less in the decline period during the ‘80s and rose more slowly in the subsequent increase than in the other community-size strata in the 90s, first narrowing and then increasing the gap; in 2018, annual prevalence was 27% for farm/country, 40% for small towns, and 44-47% among cities. In the past few years among 23-26 year olds and 27-30 year olds, the differences among the communities have widened some as use among the large and very large cities increased faster than among the other strata; however, in 2018, use in small towns increased more than most other strata (significantly so for the 23-26 year olds). In 2018, annual prevalence levels for the two older strata were 28% and 23% for farm country, 39% and 30% for small towns, 36% and 27% for medium cities, 42% and 36% for large cities, and 50% and 46% for very large cities. (Regarding ***vaping marijuana***, the one-year

changes in prevalence from 2017 to 2018 by population density are presented in Chapter 4.)

- ***Daily marijuana use*** (Figure 13 in *Occasional Paper 93*) has also moved largely in parallel among the five population-density strata within each age band, with few consistent differences among the strata over the years. The population-density strata all showed some decline in daily use from 1980 through about 1992, suggesting a period effect influencing all ages, and then more of a staggered increase from 1992 through 2000 among the 19-22 year olds, from roughly 1998 to 2003 among the 23-26 year olds, and from roughly 2004 to 2008 among the 27-30 year olds, indicative of a cohort effect. Over the past decade, there have been few systematic differences between the strata in the three age groups, with all showing uneven increases; however, daily use among 23-30 year olds in the farm/country stratum has shown a consistent increase in the past few years. In 2018, daily use for 19-22 year olds ranged from 6.8% for very large cities to 8.7% for small towns; for 23-26 year olds, it ranged from 6.7% among medium cities to 13.0% among farm/country; and for 27-30 year olds, it ranged from 6.4% in farm/country to 9.8% in very large cities.

- ***Synthetic marijuana***, such as "K-2" and "Spice," was added to the study in 2011; data covering only a six-year interval exist so far (Figure 16 in *Occasional Paper 93*). The farm-country stratum had the highest annual prevalence initially among 19-22 year olds (17.3% in 2011), but their use fell sharply and significantly in the years since then to 4.4% in 2018. In 2018 the annual prevalence among 19-22 year olds ranged from 1.3% to 2.1% among the other four strata. In the older age groups, use started from a lower level and generally has fallen in all community size strata as well, such that in 2018 annual prevalence ranged from 0.0% to 1.8% among 23-26 year olds and 27-30 year olds.

- In general, there have not been large differences in ***LSD*** use among young adults as a function of community size since 1983 (Figure 24 in *Occasional Paper 93*). Among 19-22 year olds (the young adult age group with by far the highest rates of LSD use prior to 2003), use in communities of all sizes declined appreciably in the early to mid-1980s, particularly in the urban strata, eliminating modest prior differences by 1984. From around 1989 through 1996, there was some increase in LSD use in all population-density strata among 19-22 year olds, with the most rural areas generally continuing to have the lowest prevalence of use. After 1997, there was some decline in LSD use in all community-size strata among 19-22 year olds, followed by a sharp decline occurring from 2001 to 2003, with all strata moving in concert. Since 2011, among 19-22 year olds, there have been uneven increases in annual use among all strata; in 2018, prevalence ranged from 3.6% in large cities to 6.0% in very large cities. The 23-26 year old respondents had some modest increases after 1989 in all community-size strata, though the increases had virtually ended by 1995. From about 1999 through about 2011, there were declines in all strata, with the largest decline occurring from 2001–2003 in most strata. (In *Volume I* in this series, we discussed how a sharp decline in supply may be responsible for the sizable decline in use among all ages after 2001.) Since about 2011, however, annual use has shown some unsteady increase through 2018, with annual prevalence in 2018 ranging from 1.9% in medium cities to 4.1% in very large cities. In the oldest age group, LSD use has remained

very low and for the most part quite stable through about 2013, with very little difference among the community size strata. Since about 2013 through 2018, annual use increased unevenly for all strata, with the 2018 increases being significant in medium and very large cities; in 2018 the annual prevalence of LSD ranged from 2.1% in farm/country to 5.0% in very large cities.

- The use of ***hallucinogens other than LSD*** (Figure 27 in *Occasional Paper 93*), taken as a class, has also shown considerably higher rates in the youngest age band compared to the two older ones, suggesting a consistent sharp falloff in use with age—an *age effect*. (The drug most often reported in this general class has been psilocybin or *shrooms*, as is true among 12th graders as well.) Use of this general class of drugs has tended to be highest in very large cities and lowest in farm/country communities across the years in the three age groups. Use fell in communities of all sizes among young adults between 1980 and about 1988. Among 19-22 year olds, there was then a leveling of use for a few years, followed by an extended increase in use among all community-size strata. By 2003 the rates attained by each stratum exceeded those originally observed in 1980; there have been some declines and leveling since then in most strata (in 2018, it ranged from 4.6% in farm/country to 2.2% in small towns). The 23-26 year old group showed slightly rising rates of use between 1998 and 2004, followed by some uneven leveling through 2018. Sharp increases occurred in the very large cities in 1999, 2000, 2010, and 2017; in 2018, annual use was 4.6% in very large cities and 2.8% to 3.3% in the other four strata. The 27-30 year olds have generally had low rates of use, and the trend lines were very flat with only minor community-size stratum differences until 2001, when all strata, especially the very large cities, began to increase before showing some uneven leveling after 2005 through 2011. However, since 2012 and through 2018, there has been an uneven increase in annual use in the very large city stratum, reaching 6.5% in 2018 (and ranging between 0.8% and 2.7% in the other four strata). Thus, both LSD and hallucinogens other than LSD have been showing a particular increase in use in the very large cities among young adults generally.

- ***Salvia*** (or ***salvia divinorum)*** use was first measured in 2009 and has shown somewhat irregular trend lines since then (Figure 33 in *Occasional Paper 93*). The overall picture is clearly one of decreasing use since 2009 in the youngest age-group and since 2010 in the middle age-group. Annual prevalence levels started out highest in the farm/country stratum among the two younger age groups; but use fell sharply in all strata and in both age groups by about 2012 and annual prevalence is now very low for this drug across all population density strata and age groups; in 2018, it ranged from 0.0% to 1.2% among 19-22 year olds, it was less than 0.9% across all strata among the 23-26 year olds, and it ranged from 0.0% to 2.3% among the 27-30 year olds.

- ***MDMA*** (***ecstasy*** and more recently ***Molly***) use was first measured in 1989, and since then has shown some of the largest short-term changes of any drug among young adults (Figure 30 in *Occasional Paper 93*). Among 19-22 year olds annual use in 1989 was highest in the very large cities (5% annual prevalence), but declined in all population-density strata between 1989 and 1994 (to 1.6% or less). By 1998, use had begun to increase in all community-size strata within this age band, except in the farm/country stratum. The

farm/country stratum moved up sharply in 1999, but then the three most urban strata jumped sharply in 2000, opening a fair gap in use with large and very large cities having rates nearly twice as high as any of the other strata in 2002. All community-size strata showed large declines in MDMA use after 2000 or 2001, which lasted through 2004, narrowing the differences among them. In 2011, MDMA use in the very large cities rose sharply and has stayed highest there in the years since, with the other strata showing some leveling or uneven decline; in 2018, annual use was lowest in the small town stratum at 2.5% and highest in the farm/country stratum at 5.4%. Among the 23-26 year olds, all population-density strata increased from about 1994 through 2000 (with a large increase among very large cities to 15%), then declined, or at least remained level, through 2003, and then stayed level through 2008 when differences by community size were negligible (ranging between 2.2% and 3.5%). After 2008 through 2018, annual use began to diverge among the communities, with use rising for very large cities and leveling or declining unevenly for the other strata; in 2018, annual prevalence among 23-26 year olds was 7.4% for very large cities and 0.5% to 3.8% for the other four strata. Considerably less increase in MDMA use occurred among 27-30 year olds, though there was some increase in the largest cities starting after 1996 and in the large and medium-sized cities after 1999. From 1997 through 2005 the very large cities stood out as having the highest rates of MDMA use, but the differences were modest through 2012. Between 2012 and 2018, annual prevalence again started to rise among very large cities but tended to level or decline for the other four strata; in 2018, use was 9.9% in very large cities and 0.5% to 3.8% in the other four strata. It thus appears that *over the past several years, MDMA use has made somewhat of a comeback among young adults in the country's very large cities*.

MDMA use trends tell an interesting story. In very large cities use peaked in all three age bands in 2000 and then began to decline. The medium-sized cities were beginning to level or decline by 2001 in the two younger age bands. The small town and farm/country strata peaked in 2001 in all age groups. These data support our belief, based on school-level analyses of secondary schools, that the presence of this drug was still diffusing geographically—in this case, from more urban to more rural areas—and, were it not for this continued diffusion, MDMA use would actually have begun to decline nationally a year earlier. The data from 12th graders on perceived risk provide the clue as to the most likely cause of this turnaround; they showed a large jump in the level of perceived risk associated with MDMA use from 2000 through 2003. Unlike most other drugs discussed here, the pattern of change since the mid-1990s appears to reflect secular trends rather than cohort effects, with all age groups moving largely in parallel—that is, until the recent resurgence of use in the very large cities which has been staggered across the age bands largely consistent with a cohort effect.

- In the early 1980s, ***cocaine*** use was positively correlated with population density, with the highest use in the very large cities and the lowest use in the farm/country stratum (Figure 36 in *Occasional Paper 93*). The important drop in cocaine use that began after 1986 slowed considerably after 1992 or 1993 in all three age strata and in communities of all sizes, by which time the positive association with population density had been virtually eliminated. Among 19-22 year olds there was a slow sustained increase in cocaine use among all community-size strata after about 1993 or 1994, and among 23-26 year olds

after about 1998. There was some decline in the mid-2000s in all strata except large cities, which showed a decline in subsequent years. As just stated, usage rates among the population-density strata tended to converge considerably during the period of decline; this convergence remains, except for the very large cities, which since 2007 have shown rates of cocaine use somewhat higher than the less densely populated areas in all three age bands. In the 27-30 year old age group, a gradual increase in use emerged in nearly all population-density strata after 2000, no doubt reflecting a cohort effect working its way up the age spectrum. By 2004, all of the strata in the oldest age band leveled or declined from their peak rates; the single exception was very large cities, where use remained relatively high and even increased through 2018. In 2018, annual prevalence among 19-22 year olds was 7.6% in very large cities and 3.0% to 5.1% in the other strata; among 23-26 year olds, it was 13.7% in very large cities and 3.5% to 8.3% in the other strata; and among 27-30 year olds, it was 9.4% in very large cities and 2.3% to 5.6% in the other strata.

- ***Crack*** use among all age groups peaked in 1987 or 1988 (strongly suggesting a secular trend at work at that time) and then, after declining appreciably, bottomed out in most all population-density strata for several years through 2018 (Figure 39 in *Occasional Paper 93*). Use reported in these young adult samples at all three age levels has borne practically no systematic association with community size, and for the most part the strata have all tended to move in parallel, with the youngest age band tending to be highest in the farm/country stratum in many of the years. In 2018, annual prevalence was at or below 0.9% across all strata in the older two age bands, and among 19-22 year olds use was at or below 1.7% in all strata. Clearly, as we have indicated in other chapters in this volume, crack cocaine may have become all but forgotten among young adults who are high school graduates.

- ***Amphetamine*** use showed virtually no differences associated with urbanicity in any of the three age groups through about 2008; some differences occurred since then through 2018, with annual use generally lowest in the farm/country stratum and highest in very large cities (Figure 54 in *Occasional Paper 93*). Among 19-22 year olds, trend lines began to diverge among the five strata in 2008, with differences becoming most prominent in 2013 through 2015 especially between very large cities (12.0% in 2015) and farm/country (4.4% in 2015). Between 2016 and 2018, trends have converged again, with 2018 prevalence ranging from 5.6% for large cities to 9.0% in medium cities. A similar pattern occurred for the 23-26 year olds beginning in 2010, with use tending to increase among very large cities and large cities and declining or leveling for the other three strata; in 2018 use ranged from 4.2% in the farm/country stratum to 11.4% in very large cities. For 27-30 year olds, trends have diverged among the strata since 2013, with use being generally level for farm/country and small town strata and increased unevenly for the city strata; in 2018, use ranged from 4.2% for farm/country to 11.4% for very large cities.

- Due to limited sample sizes, estimates of the use of ***crystal methamphetamine*** (***ice***) as a function of population density have been quite erratic across time in all three age groups, particularly in the earlier years of collecting such data (Figure 64 in *Occasional Paper 93*). Since 2007, annual use has been relatively low in all strata and age bands and in 2018,

very low use was found across all strata in the three age groups (between 0.0% and 1.2%). Since the late 1990s, through about 2013 to 2015, the farm/country and small town segments have tended to show the highest rates of crystal methamphetamine use in the two older age bands.

- The use of ***methamphetamine*** in any form has been measured only since 1999 (Figure 61 in *Occasional Paper 93*). In general, the farm/country stratum has shown higher than average rates of use in the two youngest age groups, with higher rates in particular from 2001 to 2005 among 19-22 year olds and from 2004 to 2007 among the 23-26 year olds. Among the 27-30 year olds the farm/country stratum was highest from 2009 to 2013, suggesting a cohort effect at work. Otherwise there has been little systematic difference. Among 19-22 year olds, all community-size strata have shown substantial declines in annual use since 2003 or 2004, reaching very low levels by 2007 through 2018 at 2.5% or lower; the exception is that use increased to 4.4% in the farm/country stratum in in 2017 and held in 2018 (versus 0.0% to 0.4% in the other four strata in 2018). Annual use has declined some over the same interval among 23-26 year olds (2018 prevalence ranged from 0.0% to 1.9%). Among 27-30 year olds annual use generally declined from 2002 to 2006 in all population-density strata; after 2009, this group showed a slight rebound in use, particularly in the farm-country stratum already mentioned; 2018 prevalence ranged from 0.6% to 2.5%.

- ***Bath salts*** were added to the study in 2012, so trends are available only since then (Figure 67 in *Occasional Paper 93*). They showed a high prevalence of annual use (6.5% annual prevalence) in 2012 in the farm/country stratum among 19-22 year olds, but a significant decline in 2013 such that there have been practically no differences among the different levels of population density in the years since; the exception is that use increased to 4.5% in the farm/country stratum in 2017 (versus 0.0% to 0.8% in the other four strata); in 2018, use dropped back among the farm/country stratum, and use was 1.0% or lower in all strata. Among 23-26 year olds, annual use started highest in 2012 in small towns and farm/country areas, but dropped there the next year; in 2018, annual prevalence was essentially 0.0% in all strata. Use among 27-30 year olds has been negligible all along, with annual prevalence ranging between 0.0% and 0.9% across all strata since 2012. These findings suggest that this type of drug use tended to be concentrated among younger people and in more rural areas; otherwise the use of bath salts is almost nonexistent.

- ***Sedatives*** (***barbiturates***) have never shown much variation by population density, at least as far back as 1980, with trends showing gradual declines (through about 1992, 1995, and 2000 for the three age groups, respectively), then increases (through about 2002, 2004, and 2007 for the three age groups, respectively), and more recently gradual declines or leveling. (Figure 70 in *Occasional Paper 93*). This remained true in all three age bands through 2018; one exception was that among 19-22 year olds use in the farm country areas emerged as highest between 2011 and 2014, and another exception is that use has increased somewhat in the past few years for those in very large cities among the two older age groups. Otherwise the trends have been similar within each age band. In 2018, annual use across all strata in the three age groups was below 6%.

- ***Tranquilizer*** use among young adults has also had little or no association with population density over the time interval under study (Figure 73 in *Occasional Paper 93*). Like sedatives (barbiturates), there was an earlier period of decline, staggered inflection points, a long period of gradual increase, and then a leveling staggered up the age band from about 2003–2005 through 2018. In recent years, tranquilizer use has tended to be somewhat lower in the farm/country stratum in the three age groups, but otherwise, there have been few consistent differences among the strata. In 2018, annual use across all strata in the three age groups ranged between 2% and 7%.

- From 1980 to 1995, annual ***heroin*** prevalence was less than 1.0%—usually much less—in all population-density strata for all three age bands (Figure 42 in *Occasional Paper 93*). After 1994, use among 19-22 year olds in all community-size strata rose and reached 1.0% in the three most urban strata by 1998. In fact, in the very large cities, it reached 2.1% in 2000 (vs. 0.3–0.6% in the other strata). Use levels have been lower among 23-26 year olds and lower still among 27-30 year olds, making it difficult to discern systematic differences among the population-density strata in those age bands. In 2018 the annual prevalence of heroin was 0.6% or lower in all community-size strata for all three young adult age bands and near 0.0% in most.

- The annual use of ***narcotics other than heroin*** (Figure 45 in *Occasional Paper 93*) had some positive association with population density among 19-22 year olds through the early 1990s; however, it has shown rather little systematic association since then. Use of narcotics other than heroin increased substantially in all community-size strata after 1993 in the case of 19-22 year olds, after about 1996 in the case of 23-26 year olds, and after about 1998 in the case of 27-30 year olds; however, no systematic differentiation by community size was evident during those periods of increasing use. Clearly a cohort effect was at work, and the increasing use of these drugs was quite widespread. Use leveled off since about 2004 in the youngest age band, 2006 in the middle age band, and 2007 in the oldest age band. In the past few years, annual use continued to decline for most strata across the age groups, with the exception of some nonsignificant increase among the two older age bands in very large cities to 8.1% and 6.9%, respectively, in 2016 (levels for others ranged from 4% to 6%). In 2018, use continued to decline or level in all age groups in all population density strata, with annual prevalence ranging between 2.1% and 6.5%. Still, use remains at considerably higher levels, particularly in the two older age bands, than was true back in the 1980s and early 1990s.

- Sample sizes for two of the narcotic drugs of particular interest, ***OxyContin*** and ***Vicodin***, are not sufficient to estimate population-density differences or trends with a reasonable degree of accuracy (Figures 48 and 51 in *Occasional Paper 93*). It is clear, however, that Vicodin use has been in decline in all strata in all age bands since around 2008.

- The absolute levels of ***inhalant*** use have remained low in these age groups, particularly above age 22 (Figure 19 in *Occasional Paper 93*). However, during the mid- to late 1980s, there was a gradual increase in use among 19-22 year olds in all community-size strata. No strong or consistent association with population density has appeared, though the very large cities have not infrequently had higher rates than the other areas among 19-22 year

olds, particularly in the period 1998 through 2000. Among both the 19-22 year olds and the 23-26 year olds, there has been some falloff in inhalant use since the late 1990s through 2018 in all population-density levels, although the farm/country stratum in the two younger age groups showed a nonsignificant increase in 2018. In 2018, annual use was between 0.0% and 3.7% in all strata across the age groups.

- Limitations in sample sizes make estimation of differences and trends as a function of population density difficult for the club drugs ***GHB*** (Figure 78 in *Occasional Paper 93*) and ***Ketamine*** (Figure 81 in *Occasional Paper 93*).

- There have been few differences as a function of population density in the *annual* and *30-day* prevalence of drinking ***alcohol*** among 19-22 year olds since data were first available in 1980, except that the farm/country stratum has tended to have slightly lower-than-average use across the years (Figures 87 and 88 in *Occasional Paper 93*); in 2018, 30-day use was 45% for the farm/country stratum and 53% to 63% in the other strata. In the two older age bands, however, there has been a fairly consistent positive correlation between population density and use of alcohol in the *past 30 days*—though not always a very strong one. In 2018, 30-day use ranged from 64% in the farm/country stratum to 83% in very large cities among 23-26 year olds; and among 27-30 year olds, it ranged from 55% in the farm/country stratum to 83% in very large cities. Trends have been fairly parallel for all strata in all age bands. There have also been no consistent trend differences in current ***daily drinking*** associated with population density in any of the three age bands, though since the early 2000s the very large cities tended to have the highest rates among the two older age groups (Figure 89 in *Occasional Paper 93*).

- For ***binge drinking*** (Figure 90 in *Occasional Paper 93*), all community-size strata have been fairly close across time, with few consistent population density differences at all three age levels (exceptions noted below). Among 19-22 year olds, the farm/country stratum has fairly consistently shown a lower prevalence of binge drinking across the years. Binge drinking has declined for all groups since about 2007, with prevalence in 2018 ranging from 25% in the farm/country stratum to 29% in large cities. Among 23-26 year olds, the farm/country stratum has also tended to have the lowest binge drinking across the years, and very large cities having the highest, particularly since about 2002. Differences among the strata started to expand in 2007 and converged again in 2014, with the differences in binge drinking ordinal across the five strata. Between 2014 and 2018, binge drinking increased considerably in very large cities, and leveled or declined for the other strata; prevalence in 2018 ranged from 28% for the farm/country stratum to 46% for very large cities, with the other strata ranging from 31% to 39%. Among the 27-30 year olds, binge drinking has tended to be highest in very large cities across the years, particularly since about 2002. Differences among the strata began to emerge in 2006, with binge drinking rising in very large and large cities through 2013/2014, and leveling or declining for the other strata. Prevalence in 2018 ranged from 20% in small towns to 37% in very large cities. To summarize, binge drinking has tended to be lowest in the farm/country stratum in all three age bands, and has risen among very large cities in the two older age bands since the early 2000s, with greater differences emerging as a function of population density.

- ***Cigarette smoking*** has generally been negatively associated with population density in all three age strata, without much evidence of differential trends related to population density (Figures 95, 96, and 97 in *Occasional Paper 93*). There is one exception: Among 19-22 year olds, all smoking prevalence measures rose from 1997 through 1999 in the farm/country and small town strata, while in most other strata they remained level. The differences in 1999 were most striking for half-pack-a-day smoking among the 19-22 year olds—24% for farm/country, 19% for small town, 15% for both medium-sized and large cities, and 10% for very large cities. Compare this with 1985, when there was virtually no difference in half-pack-a-day smoking rates among these strata (all were at 18% or 19%). Thus, smoking among those in their early 20s became more concentrated in the nonurban populations. In fact, among 19-22 year olds, the farm/country stratum has usually had the highest rate of daily smoking since 1986, and the small town stratum has generally ranked second since then. As smoking has declined in all strata in the youngest group, this difference has diminished, though not so much in the older two age bands. Among the two older age groups, the farm/country stratum has been highest more often than not. Among 19-22 year olds, there has been a decline in 30-day prevalence in most population density strata since about 2000 or 2001, down in 2016 to 10% in very large cities and 18% in farm/country communities, and among 23-26 year olds since 2005, down in 2016 to 10% in large cities and 19% in farm/country communities; prevalence has been declining among 27-30 year olds since about 2009, down in 2016 to 12% in very large cities and 17% in farm/country communities. These staggered recent declines across communities are consistent with cohort effects. Note also that differentiation among the different population density strata is greatest for half-pack-a-day smoking, particularly among the oldest age stratum.

  As noted above, the 2017 evidence suggested that cigarette smoking was leveling for young adults. With regard to population density, there was some evidence to support this particularly among the farm/country and small town strata in the two younger age bands. However, in 2018, the trend of continuing decline resumed for all measures of cigarette use among these strata in the two younger age groups. For example, for daily cigarette use, 2018 prevalence was at or near all-time lows for all strata in the two younger age groups, ranging from 4.8% in the farm/country stratum to 0.0% in very large cities among 19-22 year olds, and from 7.8% in the farm/country stratum to 2.4% in large cities among 23-26 year olds. Daily use either leveled or dropped somewhat for all strata among 27-30 year olds in 2018, with prevalence ranging from 8.2% for the farm/country stratum to 3.4% in large cities. (Regarding ***vaping nicotine***, the one-year changes in prevalence from 2017 to 2018 by population density are presented in Chapter 4.)

- Smoking using a ***hookah*** has been measured since 2011 (Figure 100 in *Occasional Paper 93*), and its use has tended to be positively correlated with population density for all age groups. Annual use has been declining among 19-22 year olds, and this decline generally continued in 2018. For the two older age groups, use either leveled or increased nonsignificantly in 2018.

- Use of ***small cigars*** has not differed much as a function of population density, and use has been fairly flat in all strata since first measured in 2011, though recent years have shown

a positive correlation with population density, being higher in very large cities and lower in the farm/country stratum (Figure 103 in *Occasional Paper 93*).

- Use of ***dissolvable tobacco*** (Figure 106 in *Occasional Paper 93*) has tended to be very low in all strata, with little consistent differences among the strata in any age group.

- Use of ***snus,*** specifically, has also tended to be quite low, but with the farm/country stratum tending to be highest, particularly in the youngest age group, though their usage level has been falling fast (Figure 109 in *Occasional Paper 93*).

TABLE 5-1
Trends in Lifetime Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Any Illicit Drug [a]	70.5	69.9	67.9	66.4	64.5	62.2	60.2	59.6	57.5	57.4	56.4	56.7	57.0	57.4	58.2	58.1	59.0	60.2	60.5	60.4	59.7	59.8	59.3	59.3	58.4	59.1	58.9	60.0	62.2	62.9	62.8	64.0	63.8	-0.2	+3.8 sss
Any Illicit Drug other than Marijuana [a]	48.4	47.0	44.6	42.7	40.8	37.8	37.0	34.6	33.4	32.8	31.0	30.5	29.9	30.2	31.3	31.6	32.8	33.9	35.2	34.0	34.8	34.2	34.7	32.8	33.3	33.2	32.8	34.0	37.3	36.8	36.2	36.8	36.3	-0.5	+2.2 s
Marijuana	66.5	66.0	63.8	62.8	60.2	58.6	56.4	55.9	53.7	53.6	53.5	53.8	54.4	54.6	55.1	55.7	56.8	57.2	57.4	57.0	56.7	56.7	55.9	56.0	55.9	56.3	56.5	57.1	57.5	58.5	58.7	60.1	60.1	0.0	+3.0 ss
Inhalants [b]	12.3	12.7	12.6	13.2	12.5	13.4	13.5	14.1	13.2	14.5	14.1	14.1	14.2	14.2	14.3	12.8	12.4	12.2	11.6	10.3	10.9	9.1	9.5	8.9	7.9	7.2	7.2	6.5	6.7	6.4	6.3	5.2	5.6	+0.4	-1.0
Nitrites [c]	2.6	6.9	6.2	—	1.9	1.4	1.2	1.3	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens [d,y]	18.5	17.1	17.0	15.9	16.1	15.7	15.7	15.4	15.4	16.1	16.4	16.7	17.4	18.0	18.4	18.3	19.6	19.7	19.3	17.6	17.2	16.0	14.8	14.2	13.9	13.0	12.2	12.4	11.9	11.7	12.2	12.9	14.3	+1.4	+1.8 s
LSD [y]	14.6	13.7	13.8	12.7	13.5	13.5	13.8	13.6	13.8	14.5	15.0	15.0	15.7	16.2	16.4	16.0	15.1	14.6	13.4	11.2	10.1	9.6	8.1	7.3	7.2	6.1	6.2	6.3	6.6	7.0	8.0	8.8	10.3	+1.5 s	+4.0 sss
Hallucinogens other than LSD [d,y]	12.6	11.4	10.6	9.4	9.1	8.4	8.0	7.6	7.4	7.8	7.9	8.4	9.4	9.3	9.9	12.0	15.0	16.4	15.6	15.4	14.9	14.1	13.0	13.0	12.6	12.1	11.1	11.4	10.8	10.4	10.6	10.6	11.1	+0.5	-0.3
PCP [e]	8.4	4.8	5.0	—	2.5	3.1	2.0	1.9	2.0	2.2	1.9	2.4	2.7	2.3	2.3	3.1	2.5	3.0	2.7	2.0	2.4	2.1	2.2	1.6	1.6	1.7	1.1	1.4	0.6	1.2	1.9	0.3	1.3	+1.0	-0.1
MDMA (Ecstasy, Molly) [z], original	—	—	—	3.3	3.7	3.2	3.9	3.8	3.8	4.5	5.2	5.1	7.2	7.1	11.6	13.0	14.6	15.3	16.0	14.9	14.4	13.1	13.1	11.5	12.3	11.3	11.4	11.6	11.4	—	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.5	12.9	12.5	12.6	12.2	-0.4	—
Cocaine	32.0	29.3	28.2	25.8	23.7	21.0	19.5	16.9	15.2	13.7	12.9	12.0	12.3	12.8	12.7	13.1	13.5	14.7	15.2	14.3	15.2	14.7	14.8	13.9	13.6	12.5	11.9	12.2	11.7	12.1	10.4	11.2	11.4	+0.2	-0.8
Crack [g]	—	6.3	6.9	6.1	5.1	4.8	5.1	4.3	4.4	3.8	3.9	3.6	3.8	4.3	4.6	4.7	4.3	4.7	4.2	4.1	4.4	3.9	4.3	3.3	3.6	2.9	2.7	2.6	2.1	1.8	1.2	1.2	1.5	+0.3	-1.1 ss
Other Cocaine [h]	—	28.2	25.2	25.4	22.1	19.8	18.4	15.1	13.9	12.4	11.9	11.3	11.5	11.8	11.7	12.1	12.8	13.5	14.4	13.3	14.4	14.0	13.9	13.5	13.1	12.2	11.8	11.8	11.6	11.8	11.9	12.6	12.2	-0.4	+0.4
Heroin	1.3	1.3	1.1	1.0	0.9	0.9	0.9	0.9	0.8	1.1	1.3	1.3	1.6	1.7	1.8	2.0	1.8	1.9	1.9	1.7	1.9	1.6	1.9	1.6	1.8	1.7	1.6	1.6	1.4	1.6	1.6	1.4	1.4	0.0	-0.2
With a Needle [i]	—	—	—	—	—	—	—	—	—	0.4	0.4	0.3	0.4	0.6	0.4	0.6	0.4	0.5	0.4	0.6	0.6	0.5	0.5	0.5	0.8	0.7	0.5	1.0	0.7	0.7	0.7	0.8	0.4	-0.4	-0.6
Without a Needle [i]	—	—	—	—	—	—	—	—	—	1.0	1.4	1.5	1.7	1.9	2.1	2.1	1.8	2.2	2.1	1.8	2.4	1.9	2.1	1.9	1.8	1.6	1.7	1.8	1.2	1.8	1.5	1.5	1.3	-0.1	-0.5
Narcotics other than Heroin [j,k,bb]	10.7	10.6	9.8	9.6	9.4	9.3	8.9	8.1	8.2	9.0	8.3	9.2	9.1	9.5	10.0	11.5	13.9	16.8	17.6	17.8	18.7	18.8	19.5	18.5	19.0	18.2	17.6	17.4	16.3	15.0	14.3	13.4	12.3	-1.2	-5.1 sss
Amphetamines, Adjusted [j,l]	32.3	30.8	28.8	25.3	24.4	22.4	20.2	18.7	17.1	16.6	15.3	14.6	14.3	14.1	15.0	15.0	14.8	15.2	15.9	14.6	15.6	15.3	14.6	14.9	16.1	16.5	17.4	18.8	18.7	18.8	18.7	18.2	18.4	+0.3	-0.3
Methamphetamine [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	8.8	9.3	9.0	9.1	8.9	9.0	8.3	7.3	6.7	6.3	4.7	4.3	3.2	3.5	3.1	2.3	2.4	2.2	2.6	2.7	+0.1	-0.5
Crystal Methamphetamine (Ice) [i]	—	—	—	—	2.5	2.9	2.2	2.7	2.5	2.1	3.1	2.5	3.4	3.3	3.9	4.0	4.1	4.7	4.7	4.4	4.7	3.7	3.6	3.4	2.8	3.1	2.6	2.8	1.7	2.2	1.8	1.8	1.3	-0.5	-1.5 ss

(Table continued on next page.)

TABLE 5-1 (cont.)
Trends in Lifetime Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

Crystal Methamphetamine (Ice) [i]

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Sedatives (Barbiturates) [j,u]	11.1	9.7	8.9	7.9	8.7	8.2	7.4	6.5	6.4	6.7	6.6	6.5	6.9	7.4	8.1	7.8	8.0	8.7	9.7	10.0	9.5	9.8	10.6	9.5	8.6	7.9	7.2	9.5	9.0	8.3	7.4	6.4	7.3	+0.8	-2.2 sss
Sedatives, Adjusted [j,m]	16.7	15.0	13.2	12.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [j]	13.1	11.6	9.7	8.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers [d,j]	17.6	16.5	15.1	13.5	12.9	11.8	11.3	10.5	9.9	9.7	9.3	8.6	9.6	9.6	10.5	11.9	13.4	13.8	14.9	14.5	15.0	14.5	15.8	13.8	14.3	13.8	13.3	13.2	12.5	12.8	12.4	12.4	11.4	-1.0	-1.8 ss
Alcohol [n]	94.8	94.9	94.8	94.5	94.3	94.1	93.4	92.1	91.2	91.6	91.2	90.7	90.6	90.2	90.7	89.9	90.2	89.3	89.4	89.1	88.9	87.9	88.4	87.9	87.5	87.4	86.5	86.2	86.3	85.7	85.9	85.2	85.0	-0.2	-1.1
Been Drunk [o]	—	—	—	—	—	82.9	81.1	81.4	80.7	82.1	80.7	81.4	79.8	81.6	80.4	81.1	81.2	80.9	80.1	79.9	80.9	80.1	80.1	78.2	79.0	78.9	78.9	77.4	78.3	76.4	75.2	75.4	76.2	+0.8	-1.2
Flavored Alcoholic Beverages [p,cc]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	83.2	84.6	84.4	84.0	82.6	83.5	81.4	82.2	82.4	80.9	80.6	81.0	79.9	79.2	80.9	+1.7	+0.1
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping [i,aa,dd]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.3	26.9	34.3	37.0	+2.7	—
Vaping Marijuana [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.2	21.6	+4.4 ss	—
Vaping Nicotine [i,ee]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.8	27.5	+2.7	—
Vaping Just Flavoring [i,ff]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	22.1	+0.7	—
Steroids [q]	—	—	—	1.1	1.2	1.7	1.9	1.5	1.3	1.5	1.5	1.4	1.4	1.9	1.4	1.4	1.6	1.8	1.9	1.8	1.8	1.7	1.8	1.8	1.7	1.3	1.7	1.2	1.7	1.6	1.4	1.4	1.0	-0.4	-0.2

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

See footnotes following Table 5-4.

TABLE 5-2
Trends in Annual Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Any Illicit Drug [a]	41.9	39.3	36.3	32.8	30.7	27.0	28.3	28.4	28.4	29.8	29.2	29.2	29.9	30.3	30.8	32.1	32.4	33.0	33.7	32.8	32.1	32.5	33.8	33.3	33.2	34.7	34.0	36.7	37.5	39.2	39.7	41.2	42.8	+1.6	+6.2 sss
Any Illicit Drug other than Marijuana [a]	27.0	23.9	21.3	18.3	16.7	14.3	14.1	13.0	13.0	13.8	13.2	13.6	13.2	13.7	14.9	15.4	16.3	18.1	18.8	18.5	18.4	18.1	18.9	17.4	18.5	17.6	17.2	18.1	21.2	19.5	19.9	20.1	19.0	-1.1	+0.9
Marijuana	36.5	34.8	31.8	29.0	26.1	23.8	25.2	25.1	25.5	26.5	27.0	26.8	27.4	27.6	27.9	29.2	29.3	29.0	29.2	28.2	27.7	28.5	28.6	29.3	28.7	31.0	30.2	32.2	31.6	34.0	35.3	37.5	39.1	+1.6	+7.0 sss
Synthetic Marijuana [v]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.4	5.3	3.2	1.3	1.5	1.0	0.9	1.6	+0.6	-1.6 ss
Inhalants [b]	1.9	2.1	1.8	1.9	1.9	2.0	1.9	2.1	2.1	2.4	2.2	2.3	2.1	2.3	2.1	1.7	1.6	1.4	1.7	1.3	1.3	0.8	1.4	0.9	1.2	0.8	1.1	0.5	1.1	0.9	0.9	0.7	0.8	0.0	+0.3
Nitrites [c]	2.0	1.3	1.0	—	0.4	0.2	0.1	0.4	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens [d,y]	4.5	4.0	3.9	3.6	4.1	4.5	5.0	4.5	4.8	5.6	5.6	5.8	5.2	5.4	5.4	5.4	4.7	5.2	4.7	4.5	4.1	3.8	3.8	3.9	4.2	3.7	3.6	3.9	4.1	4.2	4.6	4.8	5.6	+0.8	+1.7 sss
LSD [y]	3.0	2.9	2.9	2.7	3.3	3.8	4.3	3.8	4.0	4.6	4.5	4.4	3.5	4.0	3.7	3.4	1.8	1.2	0.9	0.8	1.2	1.1	1.4	1.7	1.5	1.7	1.6	2.0	2.2	2.6	3.1	3.4	3.9	+0.6	+1.9 sss
Hallucinogens other than LSD [d,y]	2.5	2.1	1.9	1.8	1.7	1.7	1.9	1.9	2.0	2.5	2.8	3.1	3.0	3.0	3.4	3.5	4.0	4.9	4.5	4.2	3.8	3.6	3.4	3.3	3.7	3.2	2.9	3.2	3.1	3.0	3.0	3.0	3.3	+0.3	0.1
PCP [e]	0.8	0.4	0.4	—	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.5	0.6	0.6	0.3	0.6	0.3	0.3	0.1	0.6	0.2	0.3	0.4	0.1	0.2	0.3	0.0	0.2	0.1	0.0	0.4	0.1	0.7	+0.6	0.5
MDMA (Ecstasy, Molly) [z], original	—	—	—	1.4	1.5	0.8	1.0	0.8	0.7	1.6	1.7	2.1	2.9	3.6	7.2	7.5	6.2	4.5	3.5	3.0	3.0	2.5	3.3	3.1	3.5	3.6	4.1	4.2	4.8	—	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.1	4.4	5.1	3.6	3.9	+0.3	—
Salvia [w]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.5	3.6	2.2	1.4	0.9	1.2	0.6	0.8	0.5	0.7	+0.1	-0.2
Cocaine	19.7	15.7	13.8	10.8	8.6	6.2	5.7	4.7	4.3	4.4	4.1	4.6	4.9	5.4	5.4	5.8	5.8	6.6	7.1	6.9	6.6	6.2	6.0	5.2	4.7	4.7	4.1	3.9	5.0	5.7	4.9	5.3	6.0	+0.8	+2.1 sss
Crack [g]	3.2	3.1	3.1	2.5	1.6	1.2	1.4	1.3	1.1	1.1	1.1	1.0	1.1	1.4	1.2	1.3	1.0	1.0	1.3	1.2	1.1	1.0	0.9	0.7	0.5	0.6	0.5	0.3	0.4	0.4	0.0	0.2	0.2	0.0	-0.1
Other Cocaine [h]	—	13.6	11.9	10.3	8.1	5.4	5.1	3.9	3.6	3.9	3.8	4.3	4.5	4.8	4.8	5.3	5.6	6.1	6.4	6.3	5.9	5.6	5.5	5.0	4.8	4.3	4.0	1.0	4.8	5.4	5.9	5.9	6.2	+0.3	+2.5 sss
Heroin	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.2	0.4	0.3	0.4	0.4	0.3	0.5	0.6	0.5	0.5	0.5	0.6	0.4	0.5	0.4	0.4	0.3	-0.1	-0.4 s
With a Needle [i]	—	—	—	—	—	—	—	—	—	0.1	0.1	0.1	0.1	0.1	*	0.3	*	*	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.1	-0.2	-0.3
Without a Needle [i]	—	—	—	—	—	—	—	—	—	0.3	0.4	0.4	0.6	0.6	0.5	0.9	0.2	0.4	0.3	0.4	0.5	0.3	0.4	0.6	0.4	0.2	0.4	0.7	0.3	0.5	0.4	0.3	0.1	-0.2	-0.6 s
Narcotics other than Heroin [j,k]	3.1	3.1	2.7	2.8	2.7	2.5	2.5	2.2	2.5	3.0	2.9	3.3	3.4	3.8	4.1	5.0	7.1	8.5	9.0	8.7	9.1	8.7	9.1	8.4	9.0	7.9	7.3	7.0	6.3	5.2	5.2	4.0	3.4	-0.7	-3.6 sss
OxyContin [j,r]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.6	3.1	3.1	3.1	2.9	3.9	5.2	3.2	2.8	2.3	2.8	2.5	2.5	2.1	1.9	1.9	-0.1	-0.9 s
Vicodin [j,r]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.2	8.6	8.9	9.3	9.1	8.9	9.1	8.9	7.8	7.1	6.3	6.2	4.8	3.8	2.7	2.7	2.4	-0.2	-3.7 sss
Amphetamines, Adjusted [j,l]	10.6	8.7	7.3	5.8	5.2	4.3	4.1	4.0	4.5	4.6	4.2	4.6	4.5	4.7	5.4	5.8	5.9	5.8	6.2	5.1	5.6	5.6	5.3	6.0	7.1	7.2	7.8	7.5	8.0	7.9	7.2	7.8	7.5	-0.3	-0.3
Ritalin [j,r]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9	2.7	2.5	2.6	2.4	2.4	1.7	1.7	1.5	1.6	2.0	1.6	1.8	1.2	1.2	1.5	+0.3	-0.5
Adderall [j,r]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.8	7.0	6.6	7.4	7.0	7.8	7.7	7.2	8.3	9.1	+0.7	+2.1 s
Provigil [j,r]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	0.5	0.3	—	—	—	—	—	—	—	—	—
Methamphetamine [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8	2.5	2.8	2.5	2.7	2.8	2.4	1.9	1.5	1.0	0.9	0.7	0.5	1.0	0.6	0.5	0.7	0.4	0.6	1.2	+0.5	+0.5
Crystal Methamphetamine (Ice) [i]	—	—	—	—	0.4	0.3	0.4	0.8	0.9	1.2	0.9	0.9	1.1	0.9	1.2	1.1	1.4	1.3	1.5	1.6	1.1	1.1	0.8	0.8	0.5	0.5	0.6	0.8	0.3	0.5	0.1	0.7	0.4	-0.3	-0.4

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(List of drugs continued.)

(Table continued on next page.)

TABLE 5-2 (cont.)
Trends in Annual Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Bath Salts (synthetic stimulants) [o,gg]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	0.4	0.4	0.3	0.3	0.4	0.3	-0.1	-0.1
Sedatives (Barbiturates) [i,u]	2.3	2.1	1.8	1.7	1.9	1.8	1.6	1.9	1.8	2.1	2.2	2.4	2.5	2.8	3.4	3.7	3.9	3.9	4.4	4.2	3.9	4.2	4.7	3.8	3.3	3.2	2.7	3.4	3.2	2.7	2.6	2.2	2.5	+0.3	-1.0 ss
Sedatives, Adjusted [j,m]	3.0	2.5	2.1	1.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [j]	1.3	0.9	0.5	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers [d,j]	5.4	5.1	4.2	3.7	3.7	3.5	3.4	3.1	2.9	3.4	3.2	3.1	3.8	3.7	4.6	5.5	7.0	6.8	7.4	6.7	6.5	7.1	6.8	6.4	6.3	5.9	5.3	5.4	4.8	5.0	5.0	4.7	4.0	-0.7	-1.4 ss
Rohypnol [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.5	0.1	0.1	0.2	0.3	0.2	0.1	—	—	—	—	—	—	—	—	—	—	—
GHB [x]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.6	0.5	0.3	0.2	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	—	—	—	—	—
Ketamine [x,hh]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2	0.9	0.6	0.5	0.5	0.3	0.4	0.5	0.8	0.5	0.8	0.5	0.4	0.7	0.7	0.5	0.9	+0.4	+0.4
Alcohol [n]	88.6	89.4	88.6	88.1	87.4	86.9	86.2	85.3	83.7	84.7	84.0	84.3	84.0	84.1	84.0	84.3	84.9	83.3	84.4	83.8	84.4	84.0	83.6	83.8	82.7	83.5	82.5	82.5	82.3	81.2	82.1	81.2	81.6	+0.4	-0.9
Been Drunk [o]	—	—	—	—	—	62.0	60.9	61.1	58.8	61.6	59.9	63.2	59.6	63.2	60.6	63.1	61.8	62.9	63.8	63.5	65.7	65.8	66.0	65.5	64.8	64.0	64.6	63.1	63.5	61.2	61.0	60.9	62.6	+1.7	-0.5
Flavored Alcoholic Beverages [p]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	62.7	58.4	58.5	58.9	58.3	57.0	52.0	56.3	54.8	54.1	55.4	57.3	57.8	54.8	57.1	+2.3	+3.0
Alcoholic Beverages containing Caffeine [t,tt,jj]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.1	36.7	36.9	35.0	33.5	29.6	31.8	29.9	-1.9	-7.0 ss
Cigarettes	40.1	40.3	37.7	38.0	37.1	37.7	37.9	37.8	38.3	38.8	40.3	41.8	41.6	41.1	40.9	41.1	39.1	38.6	39.0	39.1	36.9	36.2	35.0	33.9	33.0	31.5	29.8	29.8	27.0	26.2	23.4	23.9	22.5	-1.4	-7.3 sss
Small Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.2	18.0	18.4	18.6	17.9	15.5	16.0	15.9	-0.1	-2.5
Tobacco using a Hookah [o,ii]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.1	19.1	20.4	23.3	19.2	14.8	12.2	13.3	+1.2	-7.1 sss
Any Vaping [l,kk]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.0	27.3	+4.3 s	—
Vaping Marijuana [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.6	15.6	+3.1 s	—
Vaping Nicotine [l,ll]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	18.2	+3.8 s	—
Vaping Just Flavoring [l,ff]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.9	9.9	0.0	—
Dissolvable Tobacco [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.6	0.3	0.5	0.4	0.5	0.8	0.4	-0.4	+0.1
Snus [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	5.7	4.8	4.8	4.8	3.6	4.6	3.8	-0.8	-1.0
Steroids [q]	—	—	—	0.5	0.3	0.5	0.4	0.3	0.4	0.5	0.3	0.5	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.3	0.7	0.4	0.7	0.8	0.2	0.4	0.5	0.7	0.5	0.4	0.3	0.4	+0.1	-0.1

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

See footnotes following Table 5-4.

TABLE 5-3
Trends in 30-Day Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Any Illicit Drug [a]	25.8	23.4	20.5	17.7	15.9	15.1	14.8	14.9	15.3	15.8	15.8	16.4	16.1	17.1	18.1	18.8	18.9	19.9	19.1	18.6	18.5	18.9	19.3	19.8	18.9	20.6	19.9	21.6	22.3	23.2	23.5	24.7	25.9	+1.1	+4.3 sss
Any Illicit Drug other than Marijuana [a]	13.0	10.7	9.5	7.5	6.0	5.4	5.5	4.9	5.3	5.7	4.7	5.5	5.5	6.0	6.4	7.0	7.7	8.3	8.5	8.2	8.1	8.6	8.9	8.5	8.6	8.4	7.8	8.3	9.9	8.7	9.2	8.7	8.0	-0.6	-0.3
Marijuana [mm]	22.0	20.7	17.9	15.5	13.9	13.5	13.3	13.4	14.1	14.0	15.1	15.0	14.9	15.6	16.1	16.7	16.9	17.3	16.5	15.8	15.7	16.0	16.0	17.0	16.1	18.3	17.7	19.0	19.2	20.1	21.6	23.0	24.1	+1.1	+5.1 sss
Inhalants [b]	0.4	0.6	0.6	0.5	0.6	0.5	0.6	0.7	0.5	0.7	0.5	0.5	0.7	0.8	0.5	0.4	0.5	0.3	0.3	0.2	0.3	0.2	0.4	0.2	0.1	0.1	0.3	0.1	0.3	0.2	0.3	0.4	0.3	-0.1	+0.1
Nitrites [c]	0.5	0.5	0.4	—	0.1	*	0.1	0.2	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hallucinogens [d,y]	1.3	1.2	1.1	1.1	0.9	1.1	1.5	1.2	1.4	1.7	1.2	1.5	1.4	1.3	1.2	1.2	0.9	1.2	0.9	0.8	0.7	0.9	0.9	0.8	1.0	0.9	0.6	1.0	0.9	1.1	0.8	0.9	1.2	+0.3	+0.2
LSD [y]	0.9	0.8	0.8	0.8	0.6	0.8	1.1	0.8	1.1	1.3	0.7	0.9	1.0	0.8	0.8	0.7	0.3	0.2	0.1	0.1	0.2	0.2	0.4	0.2	0.4	0.3	0.3	0.4	0.4	0.7	0.6	0.6	0.8	+0.2	+0.4 s
Hallucinogens other than LSD [d,y]	0.6	0.6	0.4	0.5	0.4	0.3	0.5	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.7	0.6	0.8	1.2	0.9	0.8	0.6	0.8	0.7	0.7	0.8	0.6	0.4	0.7	0.6	0.5	0.3	0.6	0.6	+0.1	-0.1
PCP [e]	0.2	0.1	0.3	—	0.2	0.1	0.2	0.2	0.1	*	0.1	0.1	0.2	0.2	*	*	0.1	0.1	0.1	*	*	*	0.1	*	*	0.1	*	0.2	0.1	*	0.1	0.1	0.4	+0.3	+0.2
MDMA (Ecstasy, Molly) [z], origina	—	—	—	0.4	0.2	0.1	0.3	0.3	0.2	0.4	0.3	0.6	0.8	1.3	1.9	1.8	1.3	0.8	0.6	0.6	0.7	0.5	0.6	0.6	0.8	0.7	1.0	1.1	1.3	—	—	—	—	—	—
Revised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.4	0.8	1.3	0.8	1.1	+0.3	—
Cocaine	8.2	6.0	5.7	3.8	2.4	2.0	1.8	1.4	1.3	1.5	1.2	1.5	1.7	1.9	1.7	2.2	2.2	2.4	2.2	2.2	2.3	2.1	1.9	1.8	1.4	1.5	1.3	1.5	1.8	1.7	1.8	1.9	2.1	+0.2	+0.6 s
Crack [g]	—	1.0	1.2	0.7	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	*	0.1	0.2	+0.1	+0.1
Other Cocaine [h]	—	4.8	4.8	3.4	2.1	1.8	1.7	1.1	1.0	1.3	1.1	1.5	1.5	1.6	1.5	1.8	2.0	2.1	2.1	1.9	1.9	2.0	1.7	1.6	1.5	1.4	1.3	1.3	1.8	1.6	2.0	1.9	2.3	+0.4	+1.0 ss
Heroin	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	*	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	-0.1	-0.2
Narcotics other than Heroin [j,k]	0.9	0.9	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.9	0.7	0.9	0.9	1.2	1.4	1.7	2.9	2.9	3.0	3.5	3.2	3.4	3.6	3.2	3.4	2.9	2.7	1.0	2.1	1.8	1.9	1.1	0.9	-0.2	-1.7 sss
Amphetamines, Adjusted [j,l]	4.0	3.2	2.7	2.1	1.9	1.5	1.5	1.5	1.7	1.7	1.5	1.7	1.7	1.9	2.3	2.4	2.5	2.5	2.4	2.1	2.2	2.3	2.2	2.5	2.9	3.0	3.2	3.0	3.5	3.1	2.9	3.1	2.7	-0.4	-0.5
Methamphetamine [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.7	1.0	1.0	0.7	0.6	0.7	0.5	0.6	0.3	0.3	0.2	0.3	0.4	0.2	0.3	0.3	0.2	0.2	0.4	+0.2	+0.2
Crystal Methamphetamine (Ice) [i]	—	—	—	—	—	*	0.1	0.3	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.1	0.4	0.3	-0.1	-0.1

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(Table continued on next page.)

TABLE 5-3 (cont.)
Trends in 30-Day Prevalence of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Sedatives (Barbiturates) [j,u]	0.7	0.7	0.7	0.5	0.6	0.5	0.5	0.6	0.6	0.8	0.8	0.9	0.9	1.1	1.3	1.7	1.5	1.5	1.8	1.7	1.5	1.6	1.9	1.2	1.1	1.1	1.1	1.2	1.0	0.9	1.1	0.6	0.9	+0.3	-0.3
Sedatives, Adjusted [j,m]	0.9	0.8	0.7	0.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [j]	0.3	0.2	0.1	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers [d,j]	1.8	1.6	1.4	1.2	1.1	0.9	1.0	1.0	0.8	1.1	0.7	1.1	1.2	1.3	1.8	2.1	2.8	2.4	2.7	2.6	2.3	2.8	2.7	2.8	2.2	2.3	1.9	1.9	1.9	1.7	1.9	1.4	1.3	-0.1	-0.6 s
Alcohol [n]	75.1	75.4	74.0	72.4	71.2	70.6	69.0	68.3	67.7	68.1	66.7	67.5	66.9	68.2	66.8	67.2	68.3	67.0	68.4	68.6	68.7	69.5	68.9	69.4	68.4	68.8	69.5	68.7	68.4	66.9	68.4	67.1	66.0	-1.2	-2.7 s
Been Drunk [o,nn]	—	—	—	—	—	35.4	35.6	34.2	34.3	33.0	33.2	35.6	34.2	37.7	35.7	36.8	37.1	37.8	39.0	39.0	42.1	41.4	40.7	40.5	39.4	39.5	39.1	37.7	39.3	34.2	36.6	36.1	35.9	-0.1	-1.7
Flavored Alcoholic Beverage [p]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.5	27.6	24.9	25.9	26.7	24.4	24.5	23.8	26.1	25.4	26.9	24.7	28.8	27.6	29.4	+1.8	+4.0
Cigarettes	31.1	30.9	28.9	28.6	27.7	28.2	28.3	28.0	28.0	29.2	30.1	29.9	30.9	30.3	30.1	30.2	29.2	28.4	29.2	28.6	27.0	26.2	24.6	23.3	22.4	21.3	19.7	20.0	17.5	16.6	14.2	15.3	12.3	-3.0 sss	-7.7 sss
Any Vaping [i,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	6.0	11.9	17.1	+5.2 sss	—
Vaping Marijuana [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.6	9.3	+2.7 s	—
Vaping Nicotine [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.5	10.6	+4.0 sss	—
Vaping Just Flavoring [i]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3	4.2	+0.9	—
Steroids [q]	—	—	—	0.2	0.1	0.2	0.1	*	0.1	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.4	0.2	0.3	0.5	0.2	0.1	0.1	0.3	0.1	0.2	0.2	0.3	+0.1	+0.2

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

See footnotes following Table 5-4.

TABLE 5-4
Trends in 30-Day Prevalence of Daily Use of Various Types of Drugs among Respondents of Modal Ages 19–28

(Entries are percentages.)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Approximate Weighted N =	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Marijuana [s]	4.1	4.2	3.3	3.2	2.5	2.3	2.3	2.4	2.8	3.3	3.3	3.8	3.7	4.4	4.2	5.0	4.5	5.3	5.0	4.9	5.0	5.0	5.1	5.4	5.3	6.1	5.6	6.2	6.9	6.8	7.6	7.8	8.0	+0.1	+1.7 ss
Cocaine	0.2	0.1	0.2	0.1	*	0.1	*	0.1	*	0.1	*	*	*	0.1	*	0.1	*	*	0.1	0.1	0.1	*	*	0.1	*	*	*	*	0.1	*	0.1	*	0.1	+0.1	+0.1
Amphetamines	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Alcohol																																			
Daily [n,s]	6.1	6.6	6.1	5.5	4.7	4.9	4.5	4.5	3.9	3.9	4.0	4.6	4.0	4.8	4.1	4.4	4.7	5.1	4.5	5.2	5.4	5.6	5.3	5.3	4.6	5.2	5.5	5.1	5.0	4.7	5.4	5.0	4.3	-0.7	-0.9
Been Drunk [o,s]	—	—	—	—	—	0.5	0.4	0.4	0.5	0.3	0.4	0.9	0.5	0.9	0.5	0.4	0.6	0.8	0.7	0.5	0.6	0.6	0.5	1.0	0.7	0.7	0.4	0.5	0.6	0.4	0.3	0.3	0.5	+0.1	0.0
5+ Drinks in a Row in																																			
Last 2 Weeks	36.1	36.2	35.2	34.8	34.3	34.7	34.2	34.4	33.7	32.6	33.6	34.4	34.1	35.8	34.7	35.9	35.9	35.8	37.1	37.0	37.6	37.8	37.9	36.7	35.9	36.5	35.5	35.1	33.5	31.9	32.3	31.8	31.2	-0.6	-3.9 sss
10+ Drinks in a Row in																																			
Last 2 Weeks [e]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.7	11.9	12.3	12.7	12.8	12.1	11.9	10.8	9.8	10.5	9.6	7.3	11.2	8.1	-3.1	-1.7
15+ Drinks in a Row in																																			
Last 2 Weeks [e]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	4.8	5.3	4.8	4.7	4.5	4.2	4.5	3.7	3.7	2.8	2.4	3.5	3.5	0.0	-0.2
Cigarettes																																			
Daily	25.2	24.8	22.7	22.4	21.3	21.7	20.9	20.8	20.7	21.2	21.8	20.6	21.9	21.5	21.8	21.2	21.2	20.3	20.8	19.6	18.6	17.3	16.7	15.0	14.8	13.8	12.8	12.1	10.7	9.7	8.2	8.8	7.0	-1.8 ss	-5.1 sss
1/2 Pack+/Day	20.2	19.8	17.7	17.3	16.7	16.0	15.7	15.5	15.3	15.7	15.3	14.6	15.6	15.1	15.1	14.6	14.2	13.9	13.5	12.5	11.9	11.1	10.2	9.3	9.3	7.5	7.6	7.0	6.6	5.7	4.9	4.7	3.8	-0.9	-3.2 sss

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

See footnotes on the following page.

TABLE 5-5
Trends in Annual and 30-Day Prevalence of an Illicit Drug Use Index [a]
among Respondents of Modal Ages 19–28
Total and by Gender

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change	2013–2018 change
Percentage who used in last 12 months																																			
Any Illicit Drug																																			
Total	41.9	39.3	36.3	32.8	30.7	27.0	28.3	28.4	28.4	29.8	29.2	29.2	29.9	30.3	30.8	32.1	32.4	33.0	33.7	32.8	32.1	32.5	33.8	33.3	33.2	34.7	34.0	36.7	37.5	39.2	39.7	41.2	42.7	+1.4	+6.2 sss
Males	45.3	42.6	39.5	35.7	33.6	30.0	31.4	31.1	32.3	32.1	31.6	31.9	33.6	33.9	34.4	34.9	35.6	36.0	37.0	35.3	35.9	35.4	37.4	35.3	38.1	38.3	37.7	38.4	40.6	42.9	43.0	43.8	44.2	+0.4	+5.8 ss
Females	39.0	36.5	33.6	30.5	28.3	24.5	25.8	26.1	25.3	28.1	27.3	27.1	27.1	27.6	28.2	30.1	30.2	31.0	31.4	31.1	29.5	30.7	31.4	32.0	29.9	32.4	31.5	35.4	35.3	36.7	37.5	39.5	41.6	+2.1	+6.2 sss
Any Illicit Drug other than Marijuana																																			
Total	27.0	23.9	21.3	18.3	16.7	14.3	14.1	13.0	13.0	13.8	13.2	13.6	13.2	13.7	14.9	15.4	16.3	18.1	18.8	18.5	18.4	18.1	18.9	17.4	18.5	17.6	17.2	18.1	21.2	19.5	19.9	20.1	19.1	-1.1	+0.9
Males	30.4	26.5	23.8	21.0	19.1	16.4	16.3	14.7	16.2	16.2	15.4	15.6	16.2	16.7	17.8	17.2	18.9	19.8	21.3	20.4	21.8	20.3	21.1	18.7	21.5	19.9	19.5	19.7	23.7	22.9	23.1	23.0	21.5	-1.4	+0.4
Females	24.0	21.6	19.4	16.2	14.7	12.5	12.2	11.6	10.5	12.0	11.4	12.0	11.0	11.5	12.9	14.1	14.6	17.0	17.1	17.3	16.0	16.7	17.5	16.6	16.5	16.2	15.7	17.1	19.4	17.2	17.7	18.2	17.4	-0.8	+1.3
Percentage who used in past 30 days																																			
Any Illicit Drug																																			
Total	25.8	23.4	20.5	17.7	15.9	15.1	14.8	14.9	15.3	15.8	15.8	16.4	16.1	17.1	18.1	18.8	18.9	19.9	19.1	18.6	18.5	18.9	19.3	19.8	18.9	20.6	19.9	21.6	22.3	23.2	23.5	24.8	25.8	+1.1	+4.3 sss
Males	29.9	27.1	23.7	21.1	18.8	18.3	17.9	17.4	19.5	18.6	19.0	19.8	20.1	20.0	21.5	21.9	22.8	22.4	23.1	22.0	22.5	22.7	22.8	22.4	23.9	24.5	23.8	25.4	24.7	26.9	26.6	28.9	27.1	-1.8	+1.7
Females	22.2	20.2	17.8	15.0	13.5	12.5	12.4	12.9	12.1	13.5	13.3	13.8	13.2	15.0	15.6	16.6	16.3	18.3	16.3	16.4	15.7	16.4	16.9	18.0	15.5	18.2	17.3	18.9	20.6	20.8	21.5	22.0	25.0	+2.9 s	+6.1 sss
Any Illicit Drug other than Marijuana																																			
Total	13.0	10.7	9.5	7.5	6.0	5.4	5.5	4.9	5.3	5.7	4.7	5.5	5.5	6.0	6.4	7.0	7.7	8.3	8.5	8.2	8.1	8.6	8.9	8.5	8.6	8.4	7.8	8.3	9.9	8.7	9.2	8.7	8.1	-0.6	-0.2
Males	15.2	12.3	10.6	9.1	6.8	6.6	6.5	5.9	7.1	6.8	5.7	6.8	7.1	7.3	7.8	8.1	8.5	9.2	10.6	9.2	10.2	10.0	10.0	8.5	10.0	10.0	9.0	9.4	11.4	10.7	10.8	10.2	9.2	-1.0	-0.4
Females	11.0	9.4	8.7	6.2	5.3	4.4	4.7	4.0	3.9	4.8	4.0	4.5	4.4	5.1	5.4	6.3	7.1	7.7	7.1	7.6	6.8	7.7	8.1	8.5	7.6	7.5	7.0	7.5	9.0	7.3	8.1	7.7	7.4	-0.3	0.0
Approximate Weighted N																																			
All Respondents																																			
Total	*6,900*	*6,800*	*6,700*	*6,600*	*6,700*	*6,600*	*6,800*	*6,700*	*6,500*	*6,400*	*6,300*	*6,400*	*6,200*	*6,000*	*5,700*	*5,800*	*5,300*	*5,300*	*5,700*	*5,400*	*5,100*	*4,800*	*4,900*	*4,900*	*4,900*	*4,600*	*4,600*	*4,400*	*4,200*	*4,000*	*3,700*	*3,600*	*3,600*		
Males	*3,200*	*3,100*	*3,000*	*2,900*	*3,000*	*3,000*	*3,000*	*3,000*	*2,900*	*2,800*	*2,700*	*2,800*	*2,700*	*2,600*	*2,400*	*2,400*	*2,200*	*2,200*	*2,300*	*2,200*	*2,100*	*1,900*	*2,000*	*2,000*	*2,000*	*1,800*	*1,900*	*900*	*1,700*	*1,600*	*1,500*	*1,500*	*1,500*		
Females	*3,700*	*3,700*	*3,700*	*3,700*	*3,700*	*3,600*	*3,700*	*3,700*	*3,600*	*3,600*	*3,600*	*3,600*	*3,500*	*3,400*	*3,300*	*3,400*	*3,100*	*3,100*	*3,400*	*3,200*	*3,000*	*2,900*	*2,900*	*2,900*	*2,900*	*2,800*	*2,700*	*1,300*	*2,500*	*2,400*	*2,200*	*2,100*	*2,100*		

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

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), methaqualone (until 1990), or tranquilizers not under a doctor's orders.

Footnotes for Tables 5-1 through 5-4

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001.
Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.
The illicit drugs not listed here show a daily prevalence of 0.2% or less in all years.
' * ' indicates a prevalence rate of less than 0.05%.
' — ' indicates data not available.

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), methaqualone (until 1990), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in four of the five questionnaire forms in 1986–1989; *N* is four fifths of *N* indicated. Data were based on five of the six questionnaire forms in 1990–1998; *N* is five sixths of *N* indicated. Data were based on three of six questionnaire forms in 1999–2017; *N* is three sixths of *N* indicated.

[c]This drug was asked about in one questionnaire form. *N* is one fifth of *N* indicated in 1986–1988 and one sixth of *N* indicated in 1990–1994.

[d]In 2001 the question text was changed on three of the six questionnaire forms. Other psychedelics was changed to other hallucinogens, and shrooms was added to the list of examples. For tranquilizers, Miltown was replaced with Xanax. Beginning in 2002 the remaining forms were changed to the new wording.

[e]This drug was asked about in one of the five questionnaire forms in 1986–1988; *N* is one fifth of *N* indicated. Data were based on one of six questionnaire forms in 1990–2017; *N* is one sixth of *N* indicated.

[f]This drug was asked about in two of the five questionnnaire forms in 1989; *N* is two fifths of *N* indicated. Data were based on two of the six questionnaire forms in 1990–2001; *N* is two sixths of *N* indicated. Data were based on three of the six questionnaire forms in 2002–2017; *N* is three sixths of *N* indicated.

[g]This drug was asked about in two of the five questionnaire forms in 1987–1989; *N* is two fifths of *N* indicated. Data were based on all six questionnaire forms in 1990–2001. Data were based on five of six questionnaire forms in 2002–2017; *N* is five sixths of *N* indicated.

[h]This drug was asked about in one of the five questionnaire forms in 1987–1989; *N* is one fifth of *N* indicated. Data were based on four of the six questionnaire forms in 1990–2017; *N* is four sixths of *N* indicated.

[i]This drug was asked about in two of the six questionnaire forms; *N* is two sixths of *N* indicated.

[j]Only drug use that was not under a doctor's orders is included here.

[k]In 2002 the question text was changed in three of the six questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced by Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is three sixths of *N* indicated. In 2003 the remaining forms were changed to the new wording. The data are based on all forms in 2003 and beyond.

[l]Based on the data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

[m]Sedatives, adjusted" data are a combination of barbiturate and methaqualone data.

[n]In 1993 and 1994, the question text was changed slightly in three of the six questionnaire forms to indicate that a drink meant more than just a few sips. Because this revision resulted in rather little change in reported prevalence in the surveys of high school graduates, the data for all forms combined are used in order to provide the most reliable estimate of change. After 1994 the new question text was used in all six of the questionnaire forms.

[o]This drug was asked about in three of the six questionnaire forms; *N* is three sixths of *N* indicated. For small cigars only, beginning in 2014 question asked on two of the six questionnaire forms; N is two sixths of N indicated.

[p]This drug was asked about in one of the six questionnaire forms; *N* is one sixth of *N* indicated.

[q]This drug was asked about in one of the five questionnaire forms in 1989; *N* is one fifth of *N* indicated. Data were based on two of the six questionnaire forms in 1990–2017; N is two sixths of *N* indicated.

[r]This drug was asked about in two of the six questionnaire forms in 2002 –2009; *N* is two sixths of *N* indicated. Data were based on three of the six questionnaire forms in 2010-2017. N is three sixths of N indicated.

[s]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes, measured as actual daily use, and 5+ drinks, measured as having five or more drinks in a row in the last two weeks.

[t]In 2012 the alcoholic beverage containing caffeine question text was changed to alcoholic beverage mixed with an energy drink. The data in 2011 and 2012 are not comparable due to this question change.

[u]In 2013 the question text was changed on all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. The data in 2012 and 2013 are not comparable due to this question change.

[v]This drug was asked about in two of the six questionnaire forms in 2011-2012; N is two sixths of N indicated. Data were based on three of the six questionaire forms in 2013-2017; N is three sixths of N indicated.

[w]This drug was asked about in one of the six questionnaire forms in 2009; N is one sixth of N indicated; Data were based on two of the six questionnaire forms in 2010-2011; N is two sixths of N indicated. Data were based on three of the six questionnaire forms in 2012-2017; N is three sixths of N indicated.

[x]This drug was asked about in two of the six questionnaire forms in 2002-2009; N is two sixths of N indicated; Data were based on three of the six questionnaire forms in 2010-2011; N is three sixths of N indicated. Data were based on two of the six questionnaire forms in 2012-2017; N is two sixths of N indicated.

[y]This drug was asked about in all available questionnaire forms until 2014. Beginning in 2014, data are based on five of the six questionnaire forms; N is five sixths of N indicated.

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

[z]This drug was asked about in two of the five questionnnaire forms in 1989; *N* is two fifths of *N* indicated. Data were based on two of the six questionnaire forms in 1990–2001; *N* is two sixths of *N* indicated. Data were based on three of the six questionnaire forms in 2002–2013; *N* is three sixths of *N* indicated. In 2014, a version of the question was added to an additional form that included "molly" in the description. In 2015 the remaining forms were changed to this updated wording. Data for both versions of the question are included here. Beginning in 2015, data based on four of th six questionnaire forms. *N* is four sixths of *N* indicated.

[aa]In 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

[bb]For the estimate of lifetime Narcotics other than Heroin in 2018, there was a significant difference (p<.01) between the typical mail condition (13.9%) and new web-push condition (10.9%) of survey administration.

[cc]For the estimate of lifetime Flavored Alcoholic Beverages in 2018, there was a significant difference (p<.01) between the typical mail condition (76.4%) and new web-push condition (85.5%) of survey administration.

[dd]For the estimate of lifetime Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (33.4%) and new web-push condition (40.4%) of survey administration.

[ee]For the estimate of lifetime Vaping Nicotine in 2018, there was a significant difference (p<.01) between the typical mail condition (23.8%) and new web-push condition (30.9%) of survey administration.

[ff]For the estimate of lifetime Vaping Just Flavoring in 2018, there was a significant difference (p<.05) between the typical mail condition (19.4%) and new web-push condition (24.5%) of survey administration.

[gg]For the estimate of annual Bath Salts in 2018, there was a significant difference (p<.05) between the typical mail condition (0.6%) and new web-push condition (0.0%) of survey administration.

[hh]For the estimate of annual Ketamine in 2018, there was a significant difference (p<.05) between the typical mail condition (1.6%) and new web-push condition (0.4%) of survey administration.

[ii]For the estimate of annual Tobacco with a Hookah in 2018, there was a significant difference (p<.05) between the typical mail condition (11.6%) and new web-push condition (14.9%) of survey administration.

[jj]For the estimate of annual Alcoholic Beverages containing Caffeine in 2018, there was a significant difference (p<.05) between the typical mail condition (34.6%) and new web-push condition (25.9%) of survey administration.

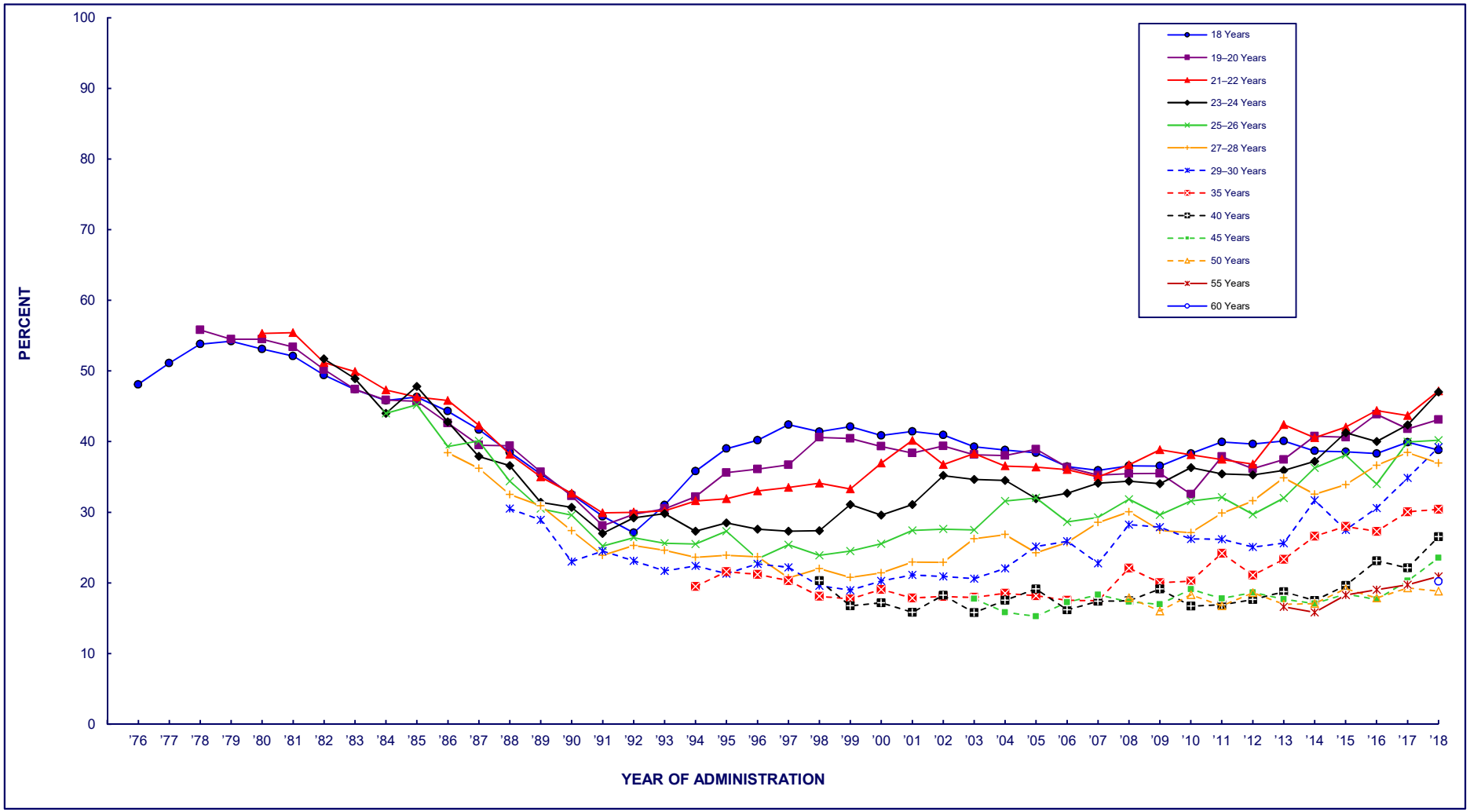
[kk]For the estimate of annual Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (24.3%) and new web-push condition (29.9%) of survey administration.

[ll]For the estimate of annual Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (15.6%) and new web-push condition (20.6%) of survey administration.

[mm]For the estimate of 30-day Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (22.5%) and new web-push condition (25.5%) of survey administration.

[nn]For the estimate of 30-day Been Drunk in 2018, there was a significant difference (p<.05) between the typical mail condition (38.8%) and new web-push condition (33.5%) of survey administration.

FIGURE 5-1
ANY ILLICIT DRUG
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-1 (cont.)
ANY ILLICIT DRUG
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	48.1												
1977	51.1												
1978	53.8	55.8											
1979	54.2	54.5											
1980	53.1	54.5	55.3										
1981	52.1	53.4	55.4										
1982	49.4	50.2	51.2	51.7									
1983	47.4	47.4	49.9	48.9									
1984	45.8	45.9	47.3	44.0	44.0								
1985	46.3	45.7	46.3	47.8	45.2								
1986	44.3	42.6	45.8	42.8	39.3	38.4							
1987	41.7	39.5	42.3	37.9	40.1	36.2							
1988	38.5	39.4	38.2	36.6	34.4	32.5	30.5						
1989	35.4	35.7	35.0	31.4	30.5	30.9	28.9						
1990	32.5	32.3	32.7	30.7	29.6	27.4	23.0						
1991	29.4	28.1	29.9	27.0	25.2	23.9	24.5						
1992	27.1	29.7	30.0	29.2	26.4	25.3	23.1						
1993	31.0	30.5	30.2	29.8	25.6	24.6	21.7						
1994	35.8	32.2	31.6	27.3	25.5	23.6	22.4	19.5					
1995	39.0	35.6	31.9	28.5	27.3	23.9	21.3	21.6					
1996	40.2	36.1	33.0	27.6	23.4	23.7	22.7	21.2					
1997	42.4	36.7	33.5	27.3	25.4	20.7	22.2	20.3					
1998	41.4	40.6	34.1	27.4	23.9	22.0	19.6	18.1	20.3				
1999	42.1	40.4	33.3	31.1	24.5	20.8	19.0	17.7	16.7				
2000	40.9	39.3	36.9	29.6	25.5	21.4	20.3	19.1	17.2				
2001	41.4	38.4	40.2	31.1	27.4	22.9	21.1	17.8	15.8				
2002	41.0	39.4	36.7	35.2	27.6	22.9	20.9	18.1	18.2				
2003	39.3	38.1	38.3	34.6	27.5	26.3	20.6	17.9	15.8	17.8			
2004	38.8	38.0	36.5	34.5	31.6	26.8	22.0	18.5	17.5	15.8			
2005	38.4	38.9	36.4	31.9	32.0	24.3	25.2	18.2	19.1	15.3			
2006	36.5	36.3	36.0	32.7	28.6	25.7	25.9	17.5	16.2	17.2			
2007	35.9	35.2	35.0	34.1	29.3	28.5	22.7	17.5	17.4	18.3			
2008	36.6	35.5	36.7	34.4	31.8	30.1	28.2	22.1	17.5	17.3	17.9		
2009	36.5	35.5	38.8	34.1	29.6	27.4	27.9	20.0	19.1	17.0	16.0		
2010	38.3	32.5	38.1	36.3	31.6	27.1	26.2	20.2	16.7	19.1	18.3		
2011	40.0	37.9	37.5	35.4	32.1	29.9	26.2	24.2	16.9	17.8	16.8		
2012	39.7	36.2	36.8	35.3	29.7	31.6	25.1	21.1	17.6	18.6	18.6		
2013	40.1	37.5	42.4	35.9	32.0	34.9	25.6	23.3	18.7	17.7	17.0	16.6	
2014	38.7	40.8	40.6	37.2	36.3	32.5	31.7	26.6	17.5	17.1	17.1	15.8	
2015	38.6	40.6	42.0	41.2	38.1	33.9	27.5	28.0	19.6	18.4	19.2	18.3	
2016	38.3	43.9	44.4	40.0	34.0	36.6	30.6	27.3	23.1	17.6	17.8	19.0	
2017	39.9	41.8	43.7	42.4	40.0	38.4	34.9	30.1	22.1	20.3	19.3	19.7	
2018	38.8	43.1	47.2	47.0	40.2	36.9	39.2	30.4	26.5	23.5	18.8	20.9	20.2

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

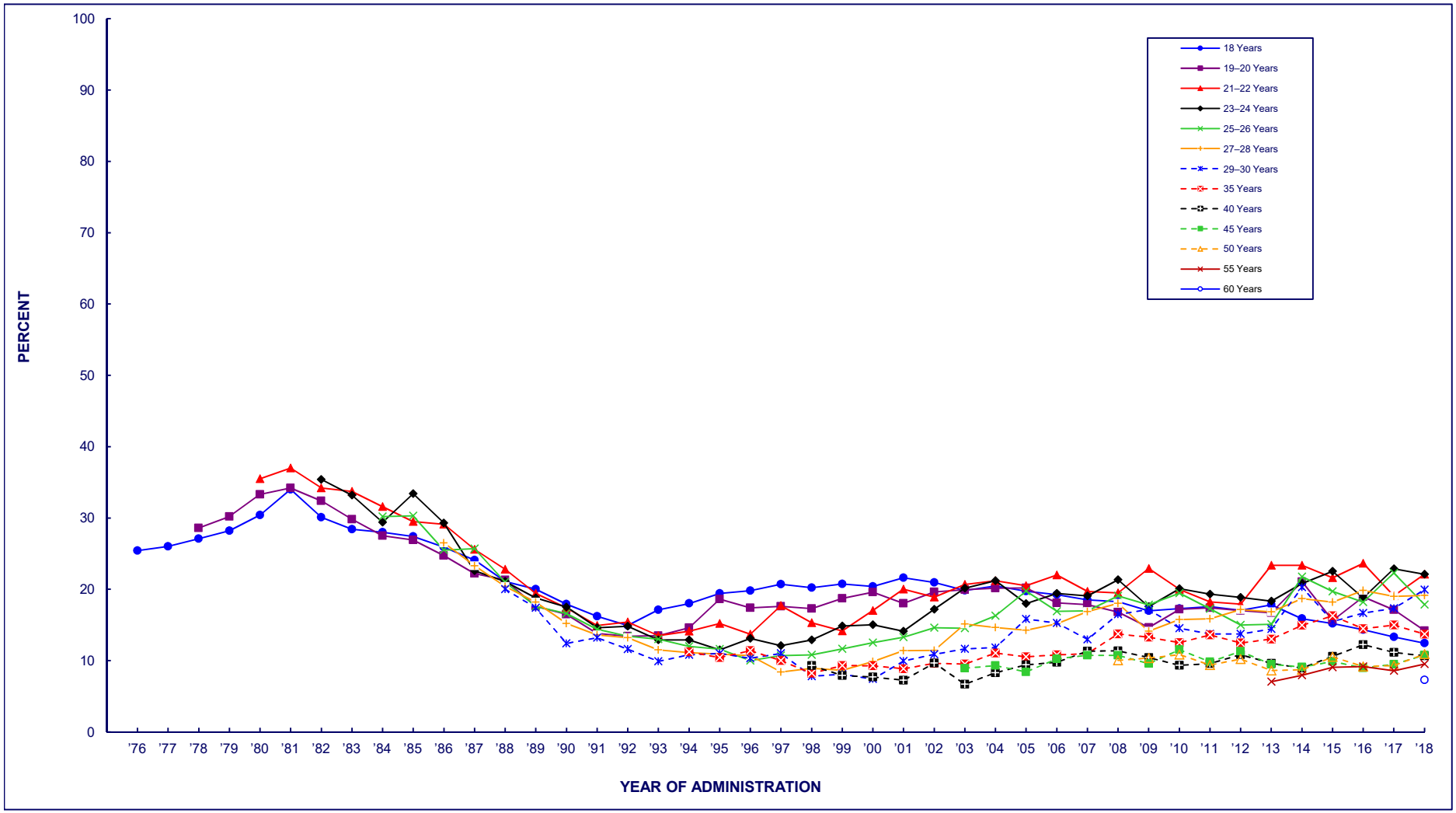
Notes. ' — ' indicates data not available.

FIGURE 5-2

ANY ILLICIT DRUG OTHER THAN MARIJUANA

Trends in Annual Prevalence

among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

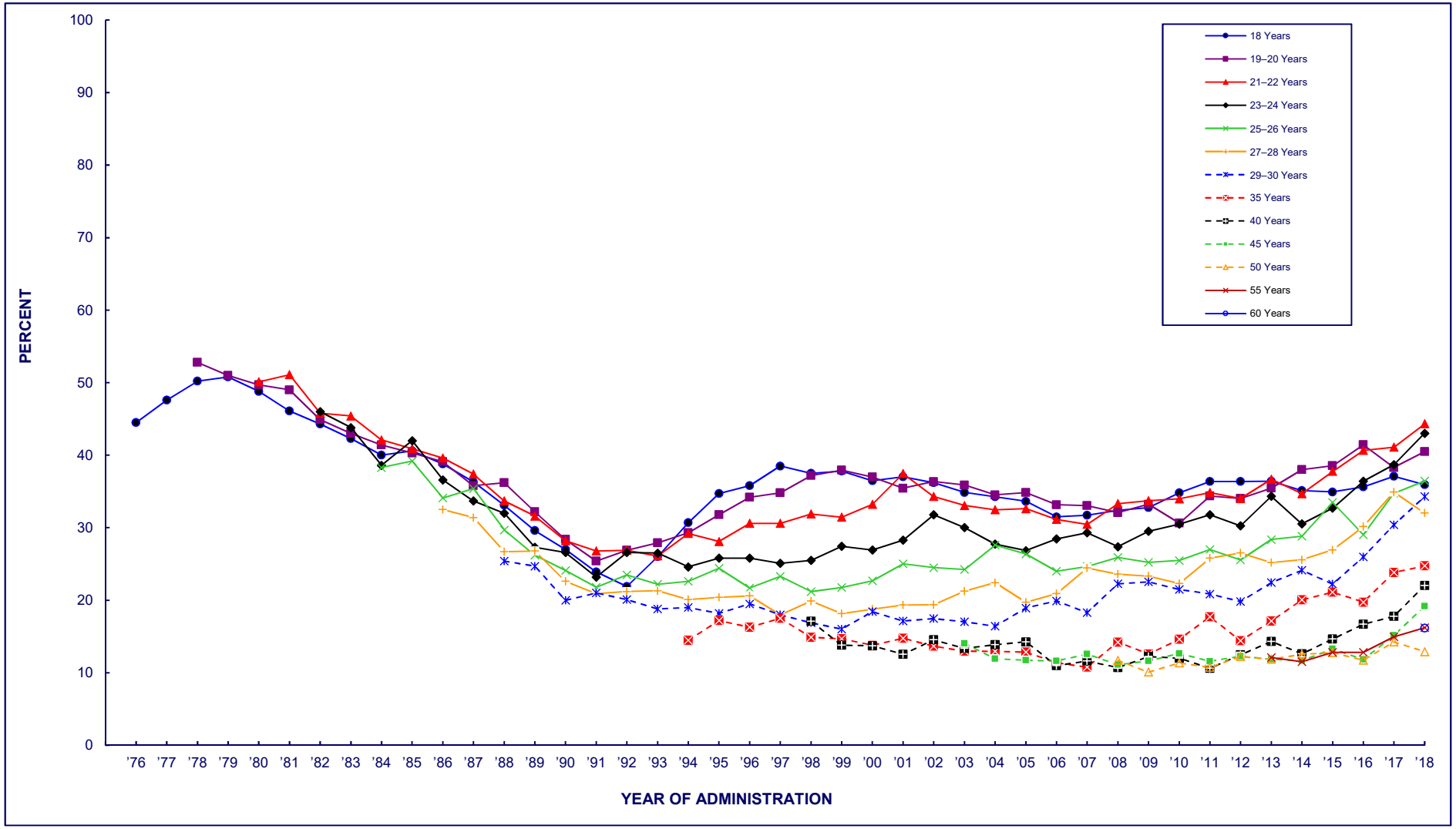
FIGURE 5-2 (cont.)
ANY ILLICIT DRUG OTHER THAN MARIJUANA
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	25.4												
1977	26.0												
1978	27.1	28.6											
1979	28.2	30.2											
1980	30.4	33.3	35.5										
1981	34.0	34.2	37.0										
1982	30.1	32.4	34.2	35.4									
1983	28.4	29.8	33.7	33.2									
1984	28.0	27.5	31.6	29.4	30.2								
1985	27.4	26.9	29.5	33.4	30.3								
1986	25.9	24.7	29.1	29.3	25.5	26.5							
1987	24.1	22.2	25.6	22.6	25.7	23.3							
1988	21.1	21.3	22.8	21.1	21.0	20.4	20.0						
1989	20.0	17.6	19.4	18.8	17.6	18.2	17.4						
1990	17.9	16.5	17.4	17.5	16.6	15.2	12.4						
1991	16.2	13.8	14.9	14.6	14.4	13.6	13.2						
1992	14.9	13.4	15.4	14.8	13.4	13.2	11.6						
1993	17.1	13.5	13.5	12.9	13.0	11.5	9.9						
1994	18.0	14.6	14.1	12.9	12.0	11.1	10.8	11.2					
1995	19.4	18.6	15.2	11.5	11.6	10.9	11.0	10.4					
1996	19.8	17.4	13.7	13.1	10.0	10.7	10.3	11.4					
1997	20.7	17.6	17.7	12.1	10.7	8.4	11.0	10.0					
1998	20.2	17.3	15.3	12.9	10.8	8.9	7.8	8.2	9.3				
1999	20.7	18.7	14.1	14.8	11.6	8.6	8.1	9.3	7.9				
2000	20.4	19.6	17.0	15.0	12.5	9.9	7.4	9.3	7.7				
2001	21.6	18.0	20.0	14.1	13.3	11.4	9.9	8.8	7.3				
2002	20.9	19.6	18.9	17.2	14.6	11.4	10.9	9.6	9.7				
2003	19.8	19.9	20.7	20.1	14.5	15.1	11.6	9.5	6.7	8.9			
2004	20.5	20.2	21.2	21.2	16.3	14.6	11.8	11.0	8.3	9.3			
2005	19.7	20.2	20.5	18.0	19.7	14.2	15.8	10.5	9.4	8.4			
2006	19.2	18.1	22.0	19.4	16.9	15.1	15.3	10.8	9.8	10.3			
2007	18.5	17.8	19.7	19.1	17.0	16.9	13.0	11.0	11.3	10.7			
2008	18.3	16.8	19.5	21.3	19.1	18.0	16.5	13.7	11.3	10.7	10.0		
2009	17.0	14.6	22.9	17.6	17.8	14.1	17.2	13.3	10.4	9.6	10.3		
2010	17.3	17.2	20.0	20.1	19.5	15.8	14.5	12.5	9.3	11.5	10.8		
2011	17.6	17.4	18.2	19.3	17.3	15.8	13.7	13.6	9.6	9.8	9.4		
2012	17.0	17.0	17.9	18.8	15.0	17.2	13.7	12.5	10.8	11.3	10.2		
2013	17.8	16.7	23.4	18.3	15.1	16.8	14.4	13.0	9.6	9.5	8.6	7.0	
2014	15.9	21.1	23.4	20.8	21.7	18.7	20.3	15.0	8.9	9.1	8.7	7.9	
2015	15.2	15.6	21.6	22.5	19.7	18.2	15.5	16.3	10.6	9.9	10.5	9.0	
2016	14.3	18.9	23.6	18.8	18.2	19.8	16.7	14.5	12.2	9.0	9.2	9.1	
2017	13.3	17.1	19.1	22.9	22.3	19.0	17.3	15.0	11.2	9.5	9.3	8.6	
2018	12.4	14.2	22.1	22.1	17.8	19.1	19.9	13.7	10.6	10.7	10.9	9.5	7.3

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

Notes. ' — ' indicates data not available.

FIGURE 5-3a
MARIJUANA
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

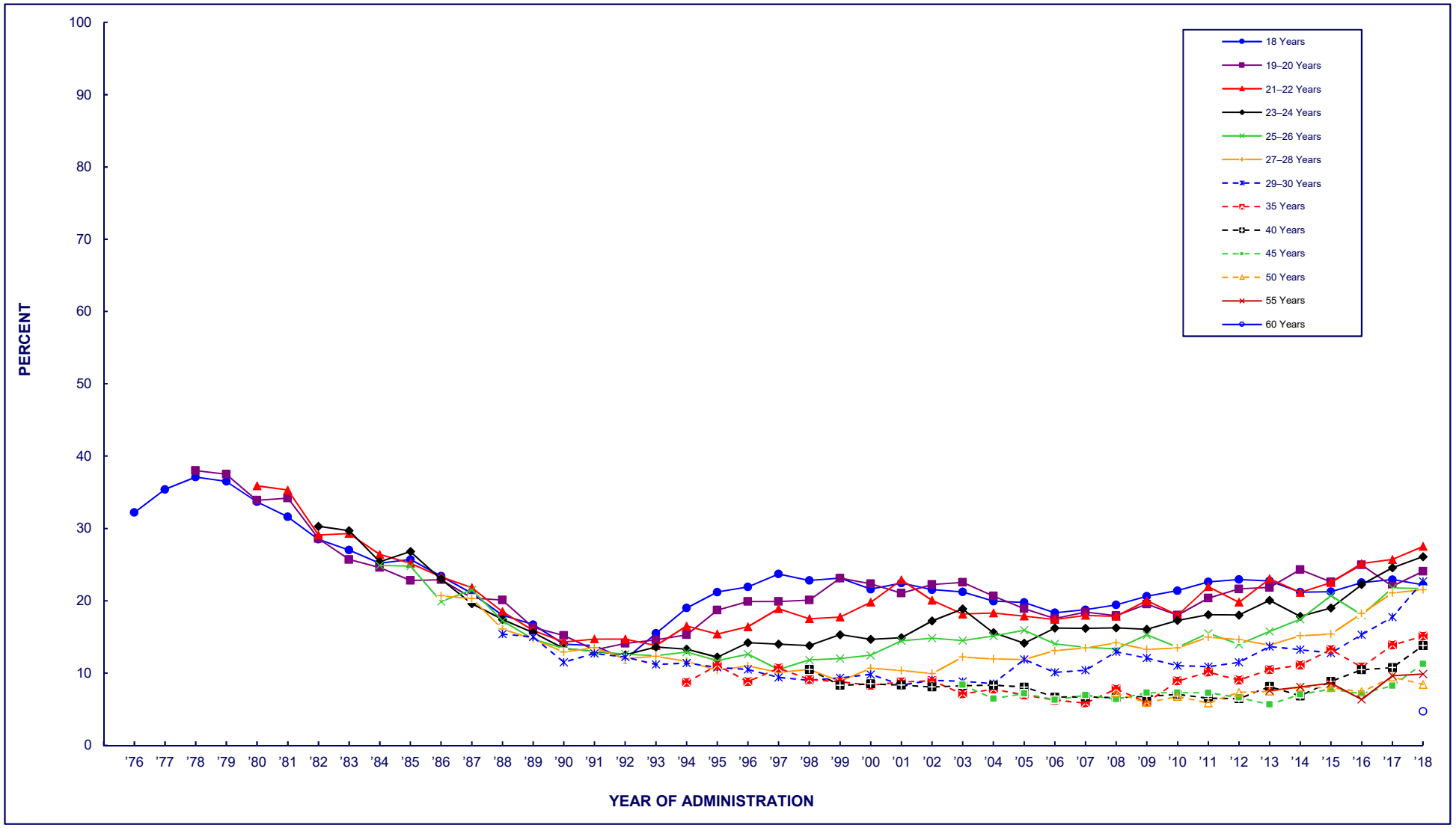
FIGURE 5-3a (cont.)
MARIJUANA
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	44.5												
1977	47.6												
1978	50.2	52.8											
1979	50.8	51.0											
1980	48.8	49.7	50.1										
1981	46.1	49.0	51.1										
1982	44.3	44.9	45.8	46.0									
1983	42.3	43.0	45.4	43.8									
1984	40.0	41.4	42.1	38.6	38.3								
1985	40.6	40.3	40.9	42.0	39.2								
1986	38.8	39.1	39.6	36.6	34.1	32.5							
1987	36.3	35.8	37.4	33.7	35.4	31.4							
1988	33.1	36.2	33.7	32.0	29.7	26.7	25.4						
1989	29.6	32.2	31.6	27.3	26.2	26.8	24.7						
1990	27.0	28.4	28.2	26.6	24.1	22.6	20.0						
1991	23.9	25.4	26.8	23.2	21.8	20.9	21.0						
1992	21.9	26.9	26.9	26.6	23.5	21.2	20.1						
1993	26.0	27.9	26.1	26.5	22.2	21.3	18.8						
1994	30.7	29.3	29.2	24.6	22.6	20.1	19.0	14.5					
1995	34.7	31.8	28.1	25.8	24.4	20.4	18.2	17.2					
1996	35.8	34.2	30.6	25.8	21.7	20.6	19.5	16.3					
1997	38.5	34.8	30.6	25.1	23.3	18.0	18.0	17.5					
1998	37.5	37.2	31.9	25.5	21.2	19.9	16.9	14.9	17.1				
1999	37.8	37.9	31.5	27.4	21.8	18.2	16.0	14.7	13.8				
2000	36.5	37.0	33.2	26.9	22.7	18.8	18.4	13.8	13.7				
2001	37.0	35.4	37.5	28.3	25.0	19.4	17.1	14.8	12.5				
2002	36.2	36.4	34.3	31.8	24.5	19.4	17.5	13.7	14.6				
2003	34.9	35.9	33.1	30.0	24.3	21.2	17.0	13.0	13.4	14.0			
2004	34.3	34.5	32.5	27.7	27.6	22.4	16.4	13.0	13.9	11.9			
2005	33.6	34.9	32.6	26.8	26.4	19.7	18.9	12.9	14.3	11.7			
2006	31.5	33.2	31.1	28.5	24.0	20.9	19.9	11.4	11.0	11.6			
2007	31.7	33.1	30.5	29.3	24.7	24.4	18.3	10.8	11.6	12.6			
2008	32.4	32.1	33.3	27.4	25.9	23.6	22.3	14.2	10.7	11.1	11.7		
2009	32.8	33.2	33.7	29.5	25.2	23.3	22.5	12.6	12.2	11.6	10.1		
2010	34.8	30.6	34.0	30.5	25.5	22.3	21.5	14.6	12.0	12.7	11.4		
2011	36.4	34.4	34.8	31.8	27.0	25.8	20.9	17.7	10.6	11.6	10.8		
2012	36.4	34.0	34.0	30.3	25.6	26.5	19.8	14.4	12.5	12.3	12.2		
2013	36.4	35.5	36.7	34.3	28.4	25.2	22.4	17.1	14.3	11.9	11.9	12.1	
2014	35.1	38.0	34.7	30.5	28.8	25.6	24.1	20.0	12.6	11.7	12.6	11.5	
2015	34.9	38.6	37.8	32.7	33.5	26.9	22.2	21.1	14.7	13.3	12.8	12.8	
2016	35.6	41.4	40.7	36.4	29.0	30.1	26.0	19.7	16.7	11.8	11.7	12.8	
2017	37.1	38.3	41.1	38.7	34.7	34.9	30.4	23.8	17.8	15.2	14.3	15.0	
2018	35.9	40.5	44.3	43.0	36.4	32.0	34.3	24.7	22.0	19.2	12.9	16.2	16.2

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

Notes. ' — ' indicates data not available.

FIGURE 5-3b
MARIJUANA
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

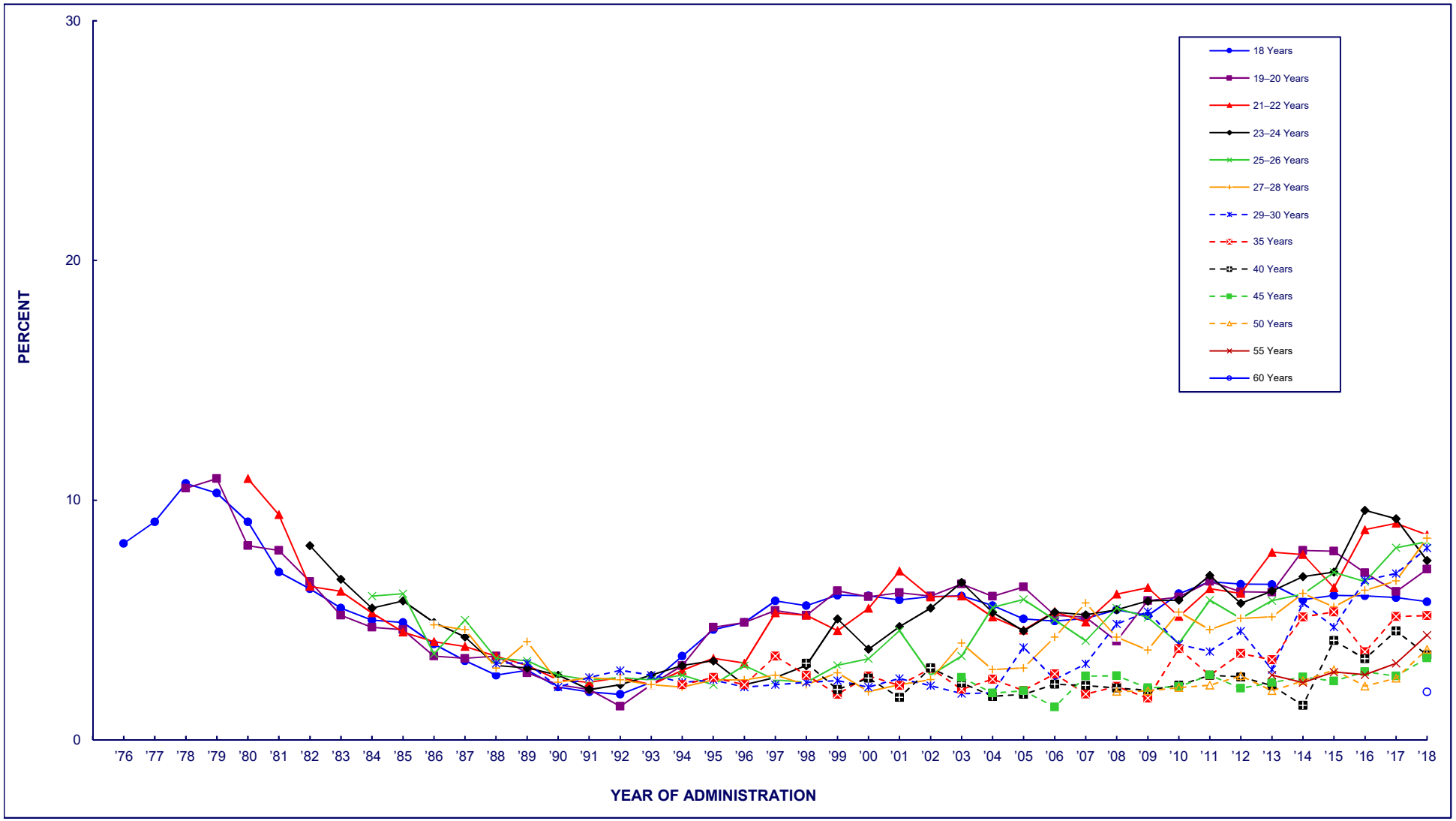
FIGURE 5-3b (cont.)
MARIJUANA
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	32.2												
1977	35.4												
1978	37.1	38.0											
1979	36.5	37.5											
1980	33.7	33.9	35.9										
1981	31.6	34.2	35.3										
1982	28.5	28.6	29.1	30.3									
1983	27.0	25.7	29.3	29.7									
1984	25.2	24.6	26.4	25.4	24.9								
1985	25.7	22.8	25.2	26.8	24.8								
1986	23.4	22.9	23.3	23.0	19.9	20.7							
1987	21.0	20.4	21.8	19.6	21.5	20.3							
1988	18.0	20.1	18.5	17.4	17.2	16.1	15.4						
1989	16.7	16.3	15.9	15.6	14.7	14.7	15.0						
1990	14.0	15.2	14.3	13.4	13.4	12.9	11.5						
1991	13.8	13.2	14.7	13.0	13.0	13.5	12.7						
1992	11.9	14.1	14.7	12.5	12.6	12.0	12.2						
1993	15.5	14.6	13.8	13.6	12.4	12.3	11.2						
1994	19.0	15.3	16.5	13.3	12.9	11.6	11.4	8.7					
1995	21.2	18.7	15.4	12.2	11.7	10.4	10.8	11.1					
1996	21.9	19.9	16.4	14.2	12.6	11.0	10.5	8.8					
1997	23.7	19.9	18.9	14.0	10.5	10.1	9.4	10.7					
1998	22.8	20.1	17.5	13.8	11.8	10.5	9.0	9.1	10.5				
1999	23.1	23.1	17.8	15.3	12.0	8.9	9.3	8.8	8.3				
2000	21.6	22.3	19.8	14.7	12.5	10.7	9.8	8.3	8.5				
2001	22.4	21.0	22.9	14.9	14.5	10.3	8.3	8.8	8.3				
2002	21.5	22.2	20.1	17.2	14.8	9.9	9.0	8.9	8.1				
2003	21.2	22.5	18.2	18.9	14.5	12.2	8.9	7.1	8.2	8.4			
2004	19.9	20.7	18.3	15.6	15.1	12.0	8.5	7.8	8.3	6.5			
2005	19.8	18.9	17.9	14.1	15.9	11.9	11.9	7.0	8.1	7.2			
2006	18.3	17.5	17.4	16.2	14.0	13.1	10.1	6.2	6.7	6.3			
2007	18.8	18.4	18.0	16.2	13.6	13.5	10.4	5.8	6.7	6.9			
2008	19.4	17.9	17.8	16.2	13.3	14.2	12.9	7.8	6.6	6.4	7.2		
2009	20.6	19.5	20.0	16.0	15.3	13.3	12.1	5.9	6.8	7.3	5.9		
2010	21.4	18.0	18.0	17.3	13.6	13.5	11.0	8.9	7.1	7.3	6.8		
2011	22.6	20.4	21.9	18.1	15.5	15.0	10.9	10.1	6.5	7.3	5.9		
2012	22.9	21.6	19.8	18.0	14.0	14.6	11.5	9.1	6.5	6.6	7.3		
2013	22.7	21.8	23.0	20.0	15.8	13.9	13.7	10.4	8.2	5.7	7.5	7.6	
2014	21.2	24.3	21.2	17.8	17.4	15.1	13.2	11.1	6.8	7.1	8.1	8.1	
2015	21.3	22.6	22.5	19.0	20.7	15.4	12.8	13.2	8.8	7.8	8.0	8.6	
2016	22.5	24.9	25.1	22.3	18.0	18.2	15.3	10.8	10.5	7.2	7.4	6.4	
2017	22.9	22.0	25.7	24.6	21.8	21.1	17.8	13.9	10.8	8.2	9.4	9.6	
2018	22.2	24.1	27.5	26.1	21.7	21.5	22.7	15.1	13.8	11.3	8.4	9.9	4.7

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

Notes. ' — ' indicates data not available.

FIGURE 5-3c
MARIJUANA
Trends in 30-Day Prevalence of Daily Use
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

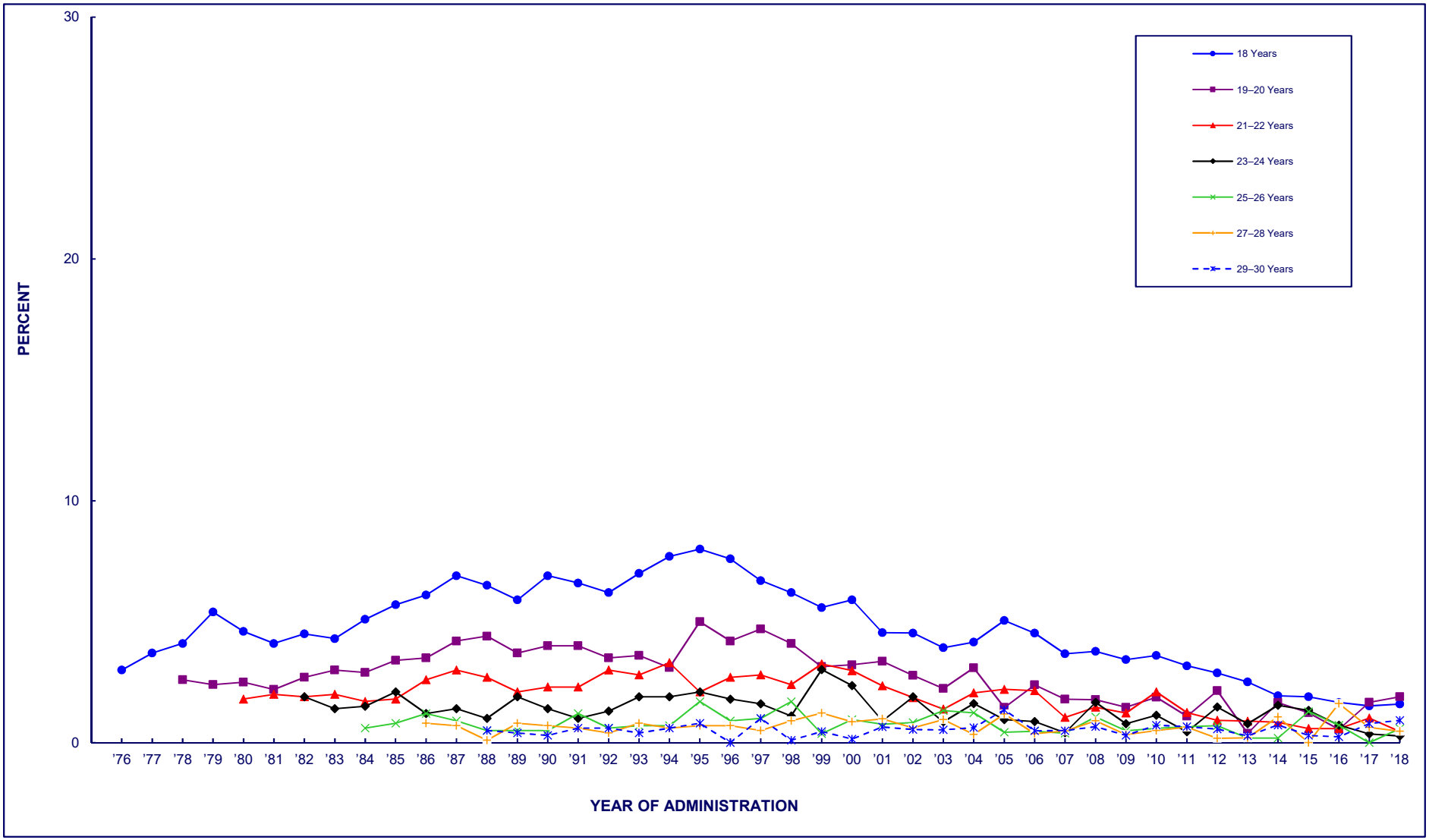
FIGURE 5-3c (cont.)
MARIJUANA
Trends in 30-Day Prevalence of Daily Use among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	8.2												
1977	9.1												
1978	10.7	10.5											
1979	10.3	10.9											
1980	9.1	8.1	10.9										
1981	7.0	7.9	9.4										
1982	6.3	6.6	6.4	8.1									
1983	5.5	5.2	6.2	6.7									
1984	5.0	4.7	5.3	5.5	6.0								
1985	4.9	4.6	4.5	5.8	6.1								
1986	4.0	3.5	4.1	4.9	3.6	4.8							
1987	3.3	3.4	3.9	4.3	5.0	4.6							
1988	2.7	3.5	3.5	3.1	3.4	3.0	3.2						
1989	2.9	2.8	3.1	3.0	3.3	4.1	3.2						
1990	2.2	2.3	2.5	2.7	2.7	2.4	2.2						
1991	2.0	2.1	2.4	2.1	2.5	2.6	2.6						
1992	1.9	1.4	2.6	2.3	2.6	2.5	2.9						
1993	2.4	2.3	2.3	2.7	2.5	2.3	2.7						
1994	3.5	3.1	2.9	3.1	2.7	2.2	2.4	2.3					
1995	4.6	4.7	3.4	3.3	2.3	2.5	2.5	2.6					
1996	4.9	4.9	3.2	2.3	3.1	2.5	2.2	2.3					
1997	5.8	5.4	5.3	2.6	2.5	2.7	2.3	3.5					
1998	5.6	5.2	5.2	3.1	2.4	2.3	2.4	2.7	3.2				
1999	6.0	6.2	4.6	5.1	3.1	2.8	2.5	1.9	2.1				
2000	6.0	6.0	5.5	3.8	3.4	2.0	2.2	2.7	2.6				
2001	5.8	6.1	7.0	4.7	4.6	2.3	2.6	2.3	1.8				
2002	6.0	6.0	6.0	5.5	2.7	2.5	2.3	3.0	3.0				
2003	6.0	6.5	6.0	6.6	3.5	4.0	1.9	2.1	2.4	2.6			
2004	5.6	6.0	5.1	5.3	5.5	2.9	2.0	2.5	1.8	2.0			
2005	5.0	6.4	4.6	4.5	5.9	3.0	3.9	2.1	1.9	2.1			
2006	5.0	5.2	5.3	5.3	5.0	4.3	2.5	2.8	2.3	1.4			
2007	5.1	5.1	4.9	5.2	4.1	5.7	3.2	1.9	2.3	2.7			
2008	5.4	4.1	6.1	5.4	5.5	4.3	4.8	2.2	2.2	2.7	2.0		
2009	5.2	5.8	6.3	5.8	5.1	3.7	5.4	1.7	2.1	2.2	2.0		
2010	6.1	6.0	5.1	5.8	4.0	5.3	4.0	3.8	2.3	2.2	2.2		
2011	6.6	6.6	6.3	6.9	5.8	4.6	3.7	2.7	2.7	2.7	2.3		
2012	6.5	6.2	6.1	5.7	5.1	5.1	4.5	3.6	2.6	2.2	2.7		
2013	6.5	6.2	7.8	6.2	5.8	5.1	2.9	3.3	2.3	2.4	2.1	2.7	
2014	5.8	7.9	7.7	6.8	6.1	6.1	5.7	5.1	1.4	2.6	2.5	2.4	
2015	6.0	7.9	6.3	7.0	7.0	5.5	4.7	5.3	4.1	2.5	2.9	2.8	
2016	6.0	7.0	8.8	9.6	6.6	6.2	6.7	3.7	3.4	2.8	2.2	2.7	
2017	5.9	6.2	9.0	9.2	8.0	6.6	6.9	5.1	4.5	2.7	2.6	3.2	
2018	5.8	7.1	8.6	7.5	8.3	8.4	8.0	5.2	3.5	3.4	3.8	4.4	2.0

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

Notes. ' — ' indicates data not available.

FIGURE 5-4
INHALANTS [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 30, [b] by Age Group



(Figure continued on next page.)

FIGURE 5-4 (cont.)
INHALANTS [a]
Trends in Annual Prevalence among Respondents of Modal Ages 18 through 30, [b] by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30
1976	3.0						
1977	3.7						
1978	4.1	2.6					
1979	5.4	2.4					
1980	4.6	2.5	1.8				
1981	4.1	2.2	2.0				
1982	4.5	2.7	1.9	1.9			
1983	4.3	3.0	2.0	1.4			
1984	5.1	2.9	1.7	1.5	0.6		
1985	5.7	3.4	1.8	2.1	0.8		
1986	6.1	3.5	2.6	1.2	1.2	0.8	
1987	6.9	4.2	3.0	1.4	0.9	0.7	
1988	6.5	4.4	2.7	1.0	0.5	0.1	0.5
1989	5.9	3.7	2.1	1.9	0.5	0.8	0.4
1990	6.9	4.0	2.3	1.4	0.5	0.7	0.3
1991	6.6	4.0	2.3	1.0	1.2	0.6	0.6
1992	6.2	3.5	3.0	1.3	0.6	0.4	0.6
1993	7.0	3.6	2.8	1.9	0.7	0.8	0.4
1994	7.7	3.1	3.3	1.9	0.7	0.6	0.6
1995	8.0	5.0	2.1	2.1	1.7	0.7	0.8
1996	7.6	4.2	2.7	1.8	0.9	0.7	*
1997	6.7	4.7	2.8	1.6	1.0	0.5	1.0
1998	6.2	4.1	2.4	1.1	1.7	0.9	0.1
1999	5.6	3.1	3.3	3.0	0.4	1.2	0.5
2000	5.9	3.2	3.0	2.4	1.0	0.9	0.1
2001	4.5	3.4	2.4	0.9	0.8	1.0	0.7
2002	4.5	2.8	1.9	1.9	0.8	0.6	0.5
2003	3.9	2.2	1.4	0.9	1.3	1.0	0.5
2004	4.2	3.1	2.1	1.6	1.2	0.3	0.6
2005	5.0	1.5	2.2	1.0	0.4	1.2	1.4
2006	4.5	2.4	2.1	0.9	0.5	0.4	0.5
2007	3.7	1.8	1.0	0.4	0.4	0.5	0.5
2008	3.8	1.8	1.5	1.7	1.1	0.9	0.7
2009	3.4	1.5	1.2	0.8	0.5	0.3	0.3
2010	3.6	1.9	2.1	1.1	0.6	0.5	0.7
2011	3.2	1.1	1.2	0.5	0.7	0.6	0.7
2012	2.9	2.1	0.9	1.5	0.7	0.2	0.6
2013	2.5	0.4	0.9	0.8	0.2	0.2	0.3
2014	1.9	1.7	0.8	1.5	0.2	1.1	0.7
2015	1.9	1.7	0.8	1.5	0.2	1.1	0.7
2016	1.7	0.6	0.6	0.7	0.7	1.6	0.2
2017	1.5	1.7	1.0	0.4	*	0.6	0.8
2018	1.6	1.9	0.5	0.3	0.6	0.5	0.9

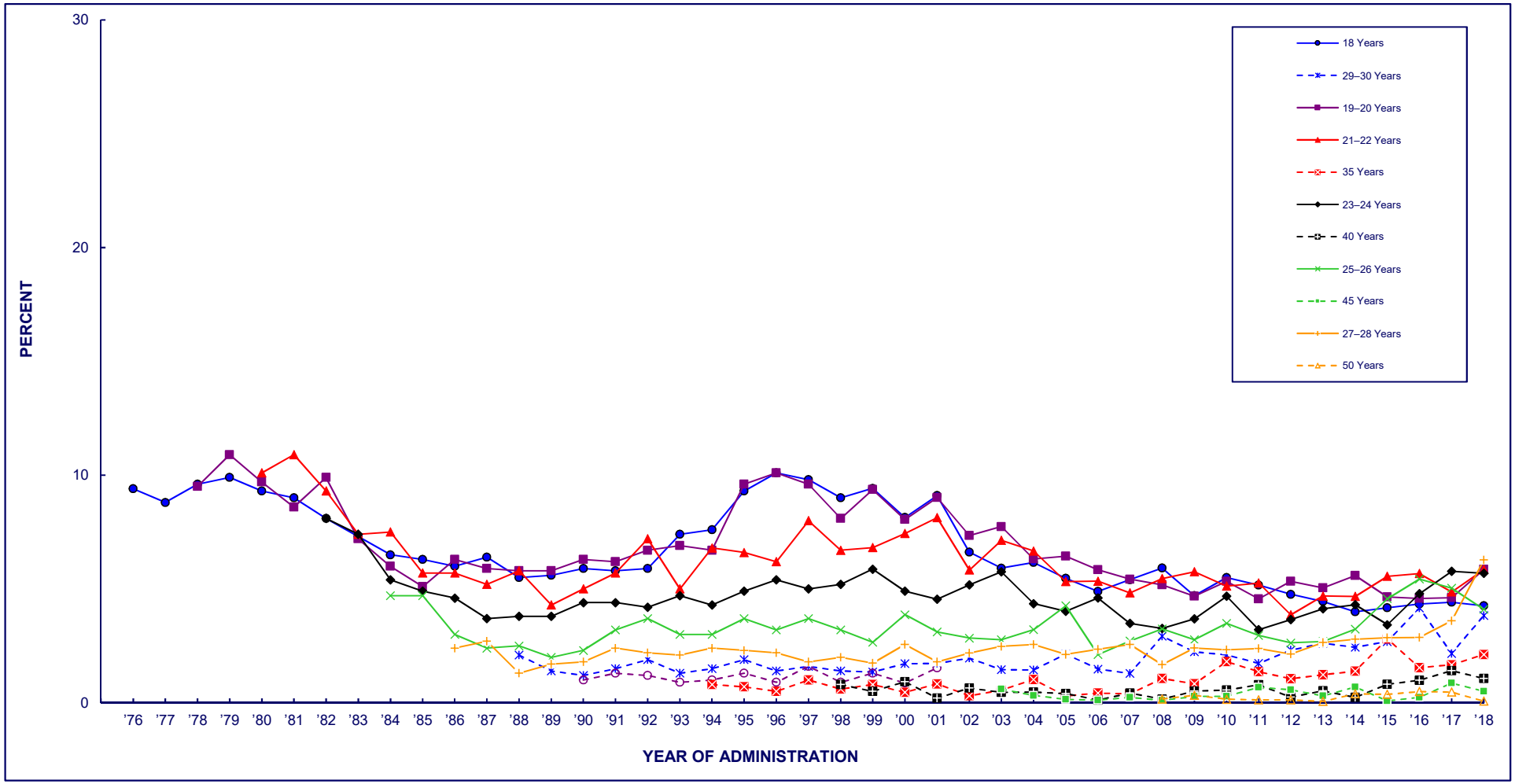
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not available.

[a]Unadjusted for the possible underreporting of amyl and butyl nitrites. Chapter 5,*Volume I*, shows that such an adjustment would flatten the trend for seniors considerably because the line was adjusted up more in the earlier years, when nitrite use was more prevalent. Questions about nitrite use were dropped from the follow-up questionnaires beginning in 1995.

[b]Questions about the use of inhalants were not included in the questionnaires for 35-, 40-, 45-, and 50-year-olds.

FIGURE 5-5
HALLUCINOGENS [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 50, [c] by Age Group



(Figure continued on next page.)

FIGURE 5-5 (cont.)
HALLUCINOGENS [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 50, [b] by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50
1976	9.4										
1977	8.8										
1978	9.6	9.5									
1979	9.9	10.9									
1980	9.3	9.7	10.1								
1981	9.0	8.6	10.9								
1982	8.1	9.9	9.3	8.1							
1983	7.3	7.2	7.4	7.4							
1984	6.5	6.0	7.5	5.4	4.7						
1985	6.3	5.1	5.7	4.9	4.7						
1986	6.0	6.3	5.7	4.6	3.0	2.4					
1987	6.4	5.9	5.2	3.7	2.4	2.7					
1988	5.5	5.8	5.8	3.8	2.5	1.3	2.1				
1989	5.6	5.8	4.3	3.8	2.0	1.7	1.4				
1990	5.9	6.3	5.0	4.4	2.3	1.8	1.2				
1991	5.8	6.2	5.7	4.4	3.2	2.4	1.5				
1992	5.9	6.7	7.2	4.2	3.7	2.2	1.9				
1993	7.4	6.9	5.0	4.7	3.0	2.1	1.3				
1994	7.6	6.7	6.8	4.3	3.0	2.4	1.5	0.8			
1995	9.3	9.6	6.6	4.9	3.7	2.3	1.9	0.7			
1996	10.1	10.1	6.2	5.4	3.2	2.2	1.4	0.5			
1997	9.8	9.6	8.0	5.0	3.7	1.8	1.6	1.0			
1998	9.0	8.1	6.7	5.2	3.2	2.0	1.4	0.6	0.8		
1999	9.4	9.4	6.8	5.9	2.7	1.7	1.4	0.8	0.5		
2000	8.1	8.0	7.4	4.9	3.9	2.6	1.7	0.5	0.9		
2001	9.1	9.0	8.1	4.6	3.1	1.8	1.7	0.8	0.2		
2002	6.6	7.3	5.8	5.2	2.8	2.2	2.0	0.3	0.7		
2003	5.9	7.7	7.1	5.8	2.8	2.5	1.5	0.6	0.5	0.6	
2004	6.2	6.3	6.7	4.4	3.2	2.6	1.4	1.0	0.5	0.3	
2005	5.5	6.4	5.3	4.0	4.3	2.1	2.1	0.3	0.4	0.1	
2006	4.9	5.8	5.3	4.6	2.1	2.4	1.5	0.4	0.1	0.1	
2007	5.4	5.4	4.8	3.5	2.7	2.6	1.3	0.4	0.4	0.2	
2008	5.9	5.2	5.5	3.3	3.2	1.7	2.9	1.1	0.2	0.1	0.2
2009	4.7	4.7	5.8	3.7	2.8	2.4	2.2	0.8	0.5	0.3	0.3
2010	5.5	5.3	5.1	4.7	3.5	2.3	2.1	1.8	0.6	0.3	0.2
2011	5.2	4.6	5.3	3.2	3.0	2.4	1.7	1.4	0.8	0.7	0.1
2012	4.8	5.3	3.9	3.7	2.6	2.1	2.3	1.1	0.2	0.6	0.1
2013	4.5	5.0	4.7	4.1	2.7	2.7	2.6	1.2	0.5	0.3	0.1
2014	4.0	5.6	4.7	4.3	3.2	2.8	2.4	1.4	0.2	0.7	0.4
2015	4.2	4.6	5.6	3.4	4.6	2.9	2.7	2.8	0.8	0.1	0.4
2016	4.3	4.6	5.7	4.8	5.4	2.9	4.2	1.5	1.0	0.2	0.5
2017	4.4	4.6	4.9	5.8	5.0	3.6	2.2	1.7	1.4	0.9	0.5
2018	4.3	5.9	5.9	5.7	4.1	6.3	3.8	2.1	1.1	0.5	0.1

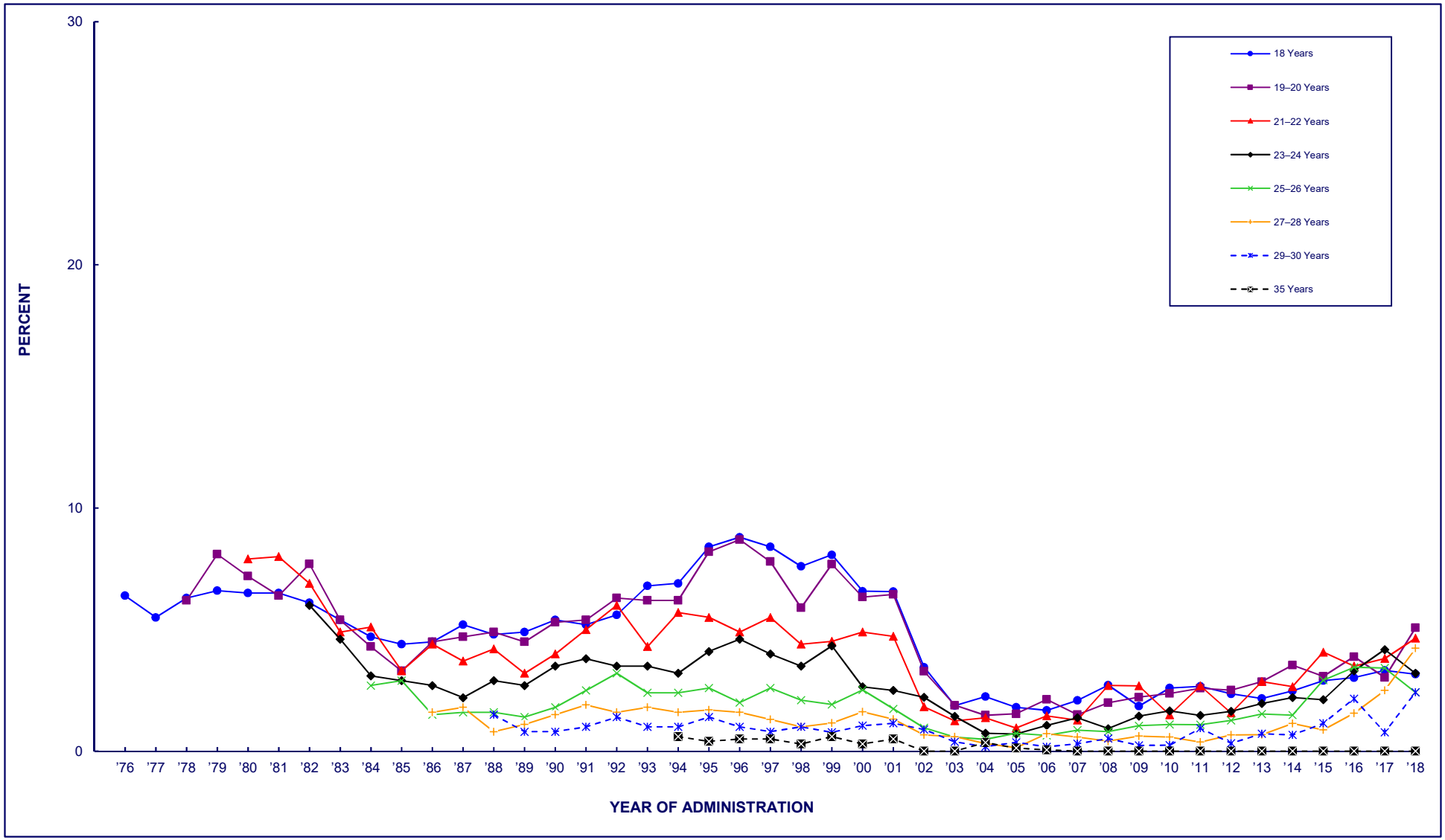
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available.

[a] Unadjusted for the possible underreporting of PCP.

[b] Questions about the use of hallucinogens were not included in the questionnaires for 55-year-olds.

FIGURE 5-6
LSD
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 35,[p] by Age Group



(Figure continued on next page.)

FIGURE 5-6 (cont.)
LSD
Trends in Annual Prevalence among Respondents of Modal Ages 18 through 35, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35 [b]
1976	6.4							
1977	5.5							
1978	6.3	6.2						
1979	6.6	8.1						
1980	6.5	7.2	7.9					
1981	6.5	6.4	8.0					
1982	6.1	7.7	6.9	6.0				
1983	5.4	5.4	4.9	4.6				
1984	4.7	4.3	5.1	3.1	2.7			
1985	4.4	3.3	3.3	2.9	2.9			
1986	4.5	4.5	4.4	2.7	1.5	1.6		
1987	5.2	4.7	3.7	2.2	1.6	1.8		
1988	4.8	4.9	4.2	2.9	1.6	0.8	1.5	
1989	4.9	4.5	3.2	2.7	1.4	1.1	0.8	
1990	5.4	5.3	4.0	3.5	1.8	1.5	0.8	
1991	5.2	5.4	5.0	3.8	2.5	1.9	1.0	
1992	5.6	6.3	6.0	3.5	3.2	1.6	1.4	
1993	6.8	6.2	4.3	3.5	2.4	1.8	1.0	
1994	6.9	6.2	5.7	3.2	2.4	1.6	1.0	0.6
1995	8.4	8.2	5.5	4.1	2.6	1.7	1.4	0.4
1996	8.8	8.7	4.9	4.6	2.0	1.6	1.0	0.5
1997	8.4	7.8	5.5	4.0	2.6	1.3	0.8	0.5
1998	7.6	5.9	4.4	3.5	2.1	1.0	1.0	0.3
1999	8.1	7.7	4.5	4.3	1.9	1.2	0.8	0.6
2000	6.6	6.3	4.9	2.6	2.5	1.6	1.0	0.3
2001	6.6	6.4	4.7	2.5	1.7	1.3	1.1	0.5
2002	3.5	3.3	1.8	2.2	1.0	0.7	0.9	*
2003	1.9	1.9	1.2	1.4	0.6	0.6	0.4	*
2004	2.2	1.5	1.4	0.7	0.5	0.3	0.2	0.4
2005	1.8	1.5	1.0	0.7	0.7	0.1	0.4	0.1
2006	1.7	2.1	1.4	1.1	0.6	0.7	0.2	0.1
2007	2.1	1.5	1.3	1.4	0.9	0.6	0.3	—
2008	2.7	2.0	2.7	0.9	0.8	0.4	0.5	—
2009	1.9	2.2	2.7	1.4	1.0	0.6	0.2	—
2010	2.6	2.4	1.5	1.7	1.1	0.6	0.2	—
2011	2.7	2.6	2.7	1.5	1.1	0.4	0.9	—
2012	2.4	2.5	1.6	1.6	1.3	0.7	0.3	—
2013	2.2	2.9	2.9	2.0	1.5	0.7	0.7	—
2014	2.5	3.5	2.7	2.2	1.5	1.1	0.7	—
2015	2.9	3.1	4.1	2.1	2.9	0.9	1.1	—
2016	3.0	3.9	3.5	3.3	3.5	1.6	2.2	—
2017	3.3	3.0	3.8	4.2	3.4	2.5	0.8	—
2018	3.2	5.1	4.6	3.2	2.4	4.2	2.4	—

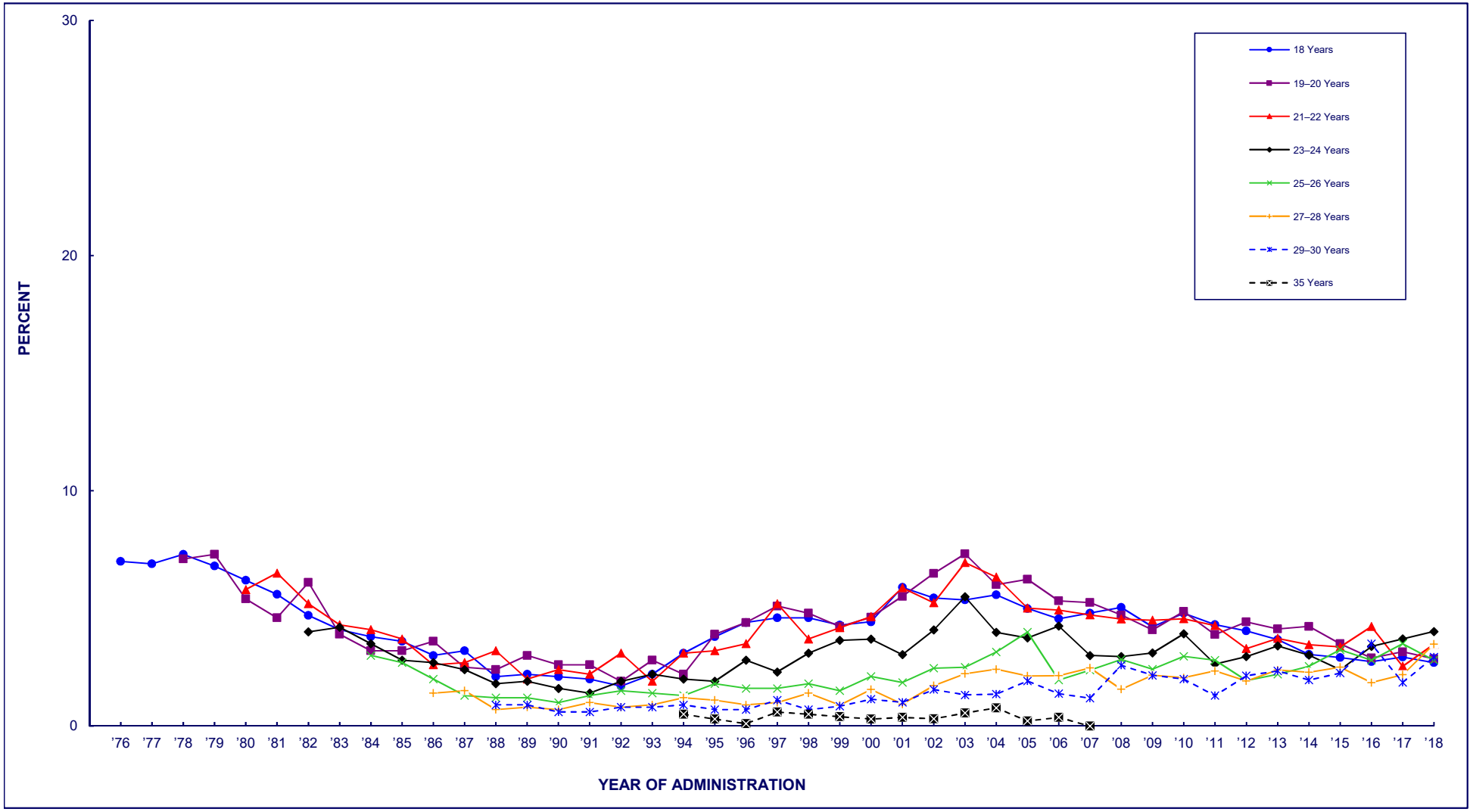
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not available.

[a]Beginning in 2002, respondents were followed through age 30 instead of age 32 as in past years.

[b]Questions about LSD use were not included in the questionnaires administered to the 40-, 45-, and 50-year-olds, or the 35-year-olds after 2006.

FIGURE 5-7
HALLUCINOGENS OTHER THAN LSD [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 35, by Age Group



(Figure continued on next page.)

FIGURE 5-7 (cont.)
HALLUCINOGENS OTHER THAN LSD [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 35, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35 [b]
1976	7.0							
1977	6.9							
1978	7.3	7.1						
1979	6.8	7.3						
1980	6.2	5.4	5.8					
1981	5.6	4.6	6.5					
1982	4.7	6.1	5.2	4.0				
1983	4.1	3.9	4.3	4.2				
1984	3.8	3.2	4.1	3.5	3.0			
1985	3.6	3.2	3.7	2.8	2.7			
1986	3.0	3.6	2.6	2.7	2.0	1.4		
1987	3.2	2.5	2.7	2.4	1.3	1.5		
1988	2.1	2.4	3.2	1.8	1.2	0.7	0.9	
1989	2.2	3.0	2.0	1.9	1.2	0.8	0.9	
1990	2.1	2.6	2.4	1.6	1.0	0.7	0.6	
1991	2.0	2.6	2.2	1.4	1.3	1.0	0.6	
1992	1.7	1.9	3.1	1.9	1.5	0.8	0.8	
1993	2.2	2.8	1.9	2.2	1.4	0.9	0.8	
1994	3.1	2.2	3.1	2.0	1.3	1.2	0.9	0.5
1995	3.8	3.9	3.2	1.9	1.8	1.1	0.7	0.3
1996	4.4	4.4	3.5	2.8	1.6	0.9	0.7	0.1
1997	4.6	5.1	5.2	2.3	1.6	1.0	1.1	0.6
1998	4.6	4.8	3.7	3.1	1.8	1.4	0.7	0.5
1999	4.3	4.2	4.2	3.6	1.5	0.9	0.8	0.4
2000	4.4	4.6	4.7	3.7	2.1	1.6	1.1	0.3
2001	5.9	5.5	5.9	3.0	1.9	0.9	1.0	0.4
2002	5.4	6.5	5.2	4.1	2.5	1.7	1.6	0.3
2003	5.4	7.3	6.9	5.5	2.5	2.2	1.3	0.6
2004	5.6	6.0	6.3	4.0	3.1	2.4	1.4	0.8
2005	5.0	6.2	5.0	3.7	4.0	2.1	1.9	0.2
2006	4.6	5.3	4.9	4.2	2.0	2.1	1.4	0.4
2007	4.8	5.2	4.7	3.0	2.4	2.5	1.2	—
2008	5.0	4.7	4.5	3.0	2.8	1.6	2.6	—
2009	4.2	4.1	4.5	3.1	2.4	2.2	2.2	—
2010	4.8	4.9	4.6	3.9	3.0	2.1	2.0	—
2011	4.3	3.9	4.3	2.6	2.8	2.3	1.3	—
2012	4.0	4.4	3.3	3.0	1.9	1.9	2.1	—
2013	3.7	4.1	3.7	3.4	2.2	2.4	2.3	—
2014	3.0	4.2	3.5	3.0	2.5	2.3	2.0	—
2015	2.9	3.5	3.4	2.4	3.2	2.5	2.3	—
2016	2.7	2.9	4.2	3.4	2.8	1.8	3.5	—
2017	2.9	3.2	2.5	3.7	3.5	2.2	1.9	—
2018	2.7	2.9	3.5	4.0	2.8	3.5	2.9	—

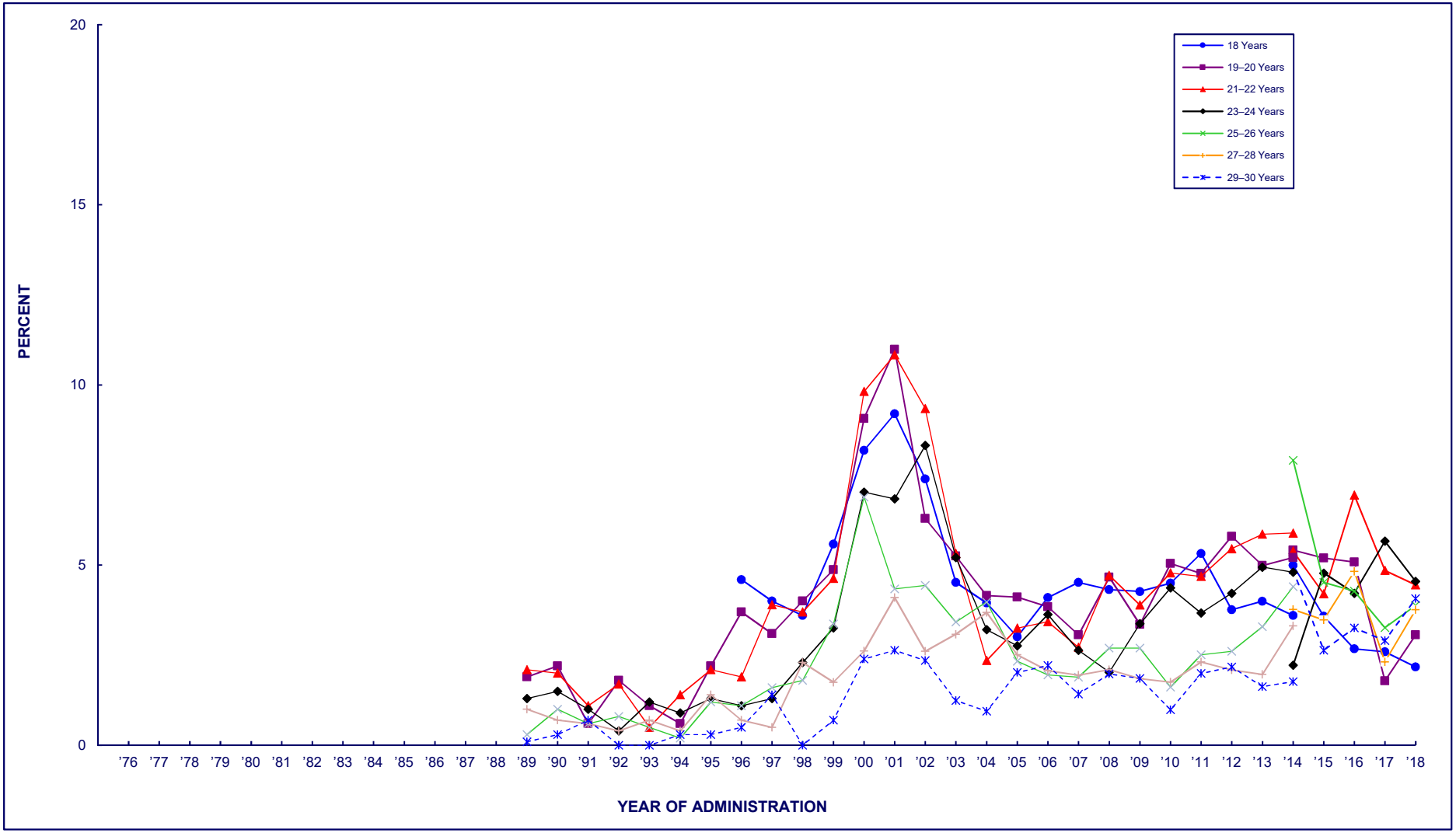
Source. The Monitoring the Future study, the University of Michigan.

Notes. '— ' indicates data not available.

[a]Unadjusted for the possible underreporting of PCP.

[b]Questions about the use of hallucinogens other than LSD were not included in the questionnaires administered to the 40-, 45-, and 50-year-olds, or the 35-year-olds after 2006.

FIGURE 5-8
MDMA (Ecstasy, Molly)
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 30, [a] by Age Group



(Figure continued on next page.)

FIGURE 5-8 (cont.)
MDMA (Ecstasy, Molly)
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 30, [a,b]
by Age Group

	Age 18		Ages 19–20		Ages 21–22		Ages 23–24		Ages 25–26		Ages 27–28		Ages 29–30	
Year	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised
1976														
1977														
1978														
1979														
1980														
1981														
1982														
1983														
1984														
1985														
1986														
1987														
1988														
1989			1.9		2.1		1.3		0.3		1.0		0.1	
1990			2.2		2.0		1.5		1.0		0.7		0.3	
1991			0.6		1.1		1.0		0.6		0.6		0.7	
1992			1.8		1.7		0.4		0.8		0.4		*	
1993			1.1		0.5		1.2		0.5		0.7		*	
1994			0.6		1.4		0.9		0.2		0.4		0.3	
1995			2.2		2.1		1.3		1.2		1.4		0.3	
1996	4.6		3.7		1.9		1.1		1.1		0.7		0.5	
1997	4.0		3.1		3.9		1.3		1.6		0.5		1.4	
1998	3.6		4.0		3.7		2.3		1.8		2.3		*	
1999	5.6		4.9		4.6		3.3		3.4		1.8		0.7	
2000	8.2		9.1		9.8		7.0		6.9		2.6		2.4	
2001	9.2		11.0		10.8		6.8		4.3		4.1		2.6	
2002	7.4		6.3		9.3		8.3		4.4		2.6		2.4	
2003	4.5		5.3		5.3		5.2		3.4		3.1		1.2	
2004	4.0		4.2		2.4		3.2		4.0		3.7		0.9	
2005	3.0		4.1		3.3		2.8		2.3		2.5		2.0	
2006	4.1		3.8		3.4		3.6		2.0		2.1		2.2	
2007	4.5		3.1		2.7		2.6		1.9		1.9		1.4	
2008	4.3		4.7		4.7		2.0		2.7		2.1		2.0	
2009	4.3		3.4		3.9		3.4		2.7		1.8		1.9	
2010	4.5		5.0		4.8		4.4		1.6		1.8		1.0	
2011	5.3		4.8		4.7		3.7		2.5		2.3		2.0	
2012	3.8		5.8		5.5		4.2		2.6		2.1		2.2	
2013	4.0		5.0		5.9		4.9		3.3		2.0		1.6	
2014	3.6	5.0	5.2	5.4	5.9	5.4	4.8	2.2	4.4	7.9	3.3	3.8	1.8	4.9
2015	—	3.6	—	5.2	—	4.2	—	4.8	—	4.5	—	3.5	—	2.6
2016	—	2.7	—	5.1	—	6.9	—	4.2	—	4.3	—	4.8	—	3.3
2017	—	2.6	—	1.8	—	4.8	—	5.7	—	3.3	—	2.3	—	2.9
2018	—	2.2	—	3.1	—	4.5	—	4.5	—	3.9	—	3.8	—	4.1

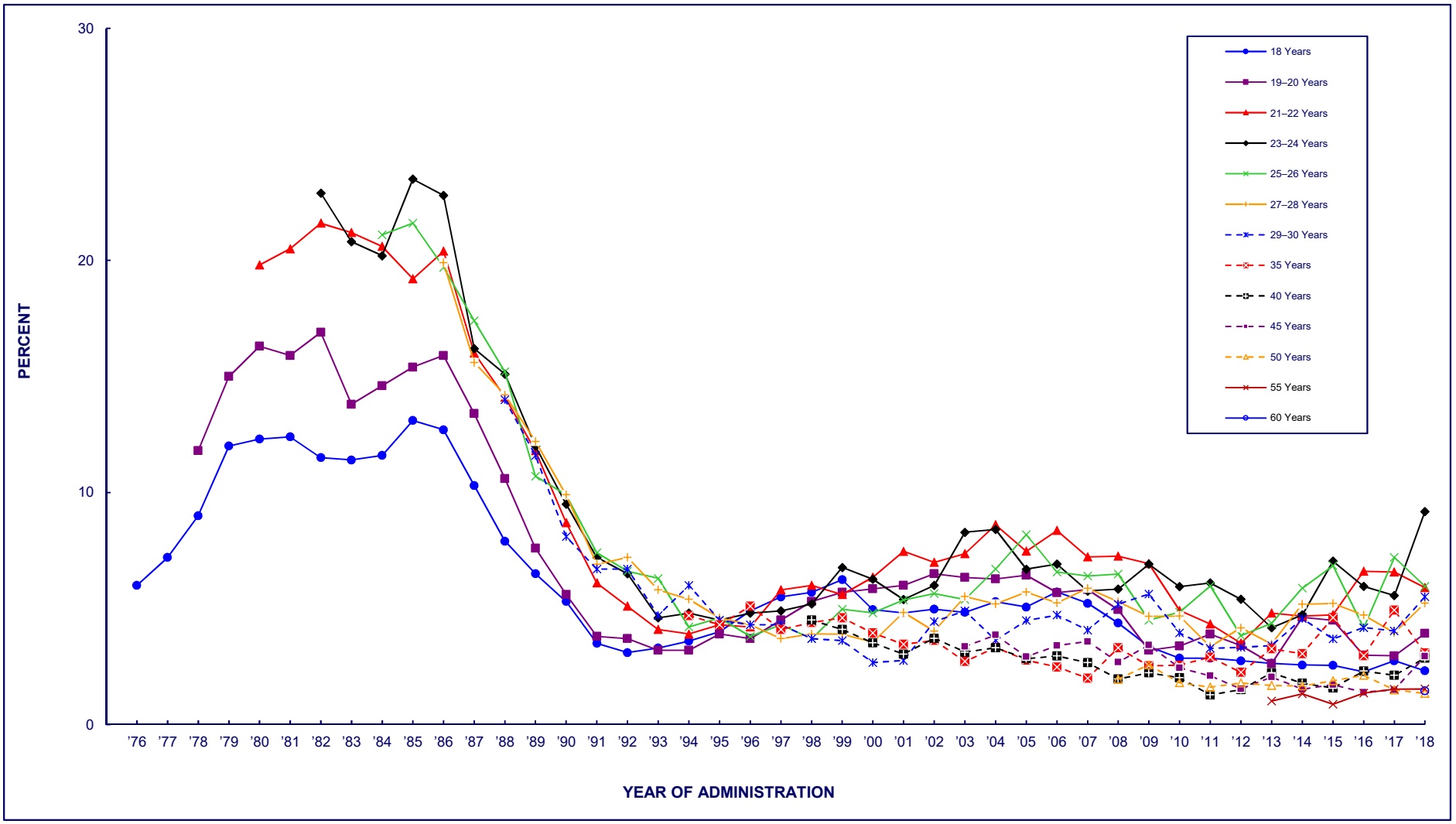
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not available.

[a]Questions about use of ecstasy (MDMA, Molly) were not included in the questionnaires administered to the 35-, 40-, 45-, and 50-year-olds.

[b]In 2014, a version of the question was added to an additional form that included "molly" in the description. In 2015 the remaining forms changed to this updated wording. Data for both versions of the question are included here.

FIGURE 5-9
COCAINE
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-9 (cont.)
COCAINE
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

353.0

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	6.0												
1977	7.2												
1978	9.0	11.8											
1979	12.0	15.0											
1980	12.3	16.3	19.8										
1981	12.4	15.9	20.5										
1982	11.5	16.9	21.6	22.9									
1983	11.4	13.8	21.2	20.8									
1984	11.6	14.6	20.6	20.2	21.1								
1985	13.1	15.4	19.2	23.5	21.6								
1986	12.7	15.9	20.4	22.8	19.7	19.9							
1987	10.3	13.4	16.0	16.2	17.4	15.6							
1988	7.9	10.6	14.1	15.1	15.2	14.2	14.0						
1989	6.5	7.6	11.8	12.0	10.7	12.2	11.6						
1990	5.3	5.6	8.7	9.5	9.9	9.9	8.1						
1991	3.5	3.8	6.1	7.2	7.4	6.9	6.7						
1992	3.1	3.7	5.1	6.5	6.6	7.2	6.7						
1993	3.3	3.2	4.1	4.6	6.3	5.8	4.7						
1994	3.6	3.2	3.9	4.8	4.2	5.4	6.0	4.7					
1995	4.0	3.9	4.3	4.5	4.6	4.6	4.5	4.3					
1996	4.9	3.7	4.2	4.8	3.8	4.3	4.3	5.1					
1997	5.5	4.5	5.8	4.9	4.3	3.7	4.3	4.1					
1998	5.7	5.3	6.0	5.2	3.7	3.9	3.7	4.4	4.5				
1999	6.2	5.7	5.6	6.8	5.0	3.9	3.6	4.6	4.1				
2000	5.0	5.8	6.3	6.3	4.8	3.6	2.7	3.9	3.5				
2001	4.8	6.0	7.5	5.4	5.4	4.8	2.8	3.5	3.0				
2002	5.0	6.5	7.0	6.0	5.6	4.0	4.4	3.6	3.7				
2003	4.8	6.3	7.4	8.3	5.4	5.5	4.9	2.7	3.1	3.4			
2004	5.3	6.3	8.6	8.4	6.7	5.2	3.6	3.3	3.3	3.9			
2005	5.1	6.4	7.5	6.7	8.2	5.7	4.5	2.8	2.8	2.9			
2006	5.7	5.7	8.4	6.9	6.6	5.2	4.7	2.5	3.0	3.4			
2007	5.2	5.8	7.2	5.8	6.4	5.9	4.1	2.0	2.7	3.6			
2008	4.4	5.0	7.3	5.8	6.5	5.3	5.2	3.3	2.0	2.7	2.0		
2009	3.4	3.2	6.9	6.9	4.5	4.7	5.6	2.5	2.2	3.4	2.6		
2010	2.9	3.4	4.9	5.9	4.8	4.7	4.0	2.6	2.0	2.4	1.8		
2011	2.9	3.9	4.3	6.1	6.0	3.4	3.3	2.9	1.3	2.1	1.6		
2012	2.7	3.4	3.5	5.4	3.8	4.2	3.3	2.3	1.5	1.5	1.8		
2013	2.6	2.6	4.8	4.2	4.4	3.5	3.4	3.3	2.2	2.0	1.7	1.0	
2014	2.6	4.6	4.7	4.7	5.9	5.2	4.6	3.1	1.8	1.5	1.7	1.3	
2015	2.5	4.5	4.7	7.0	6.9	5.2	3.7	4.6	1.6	1.7	1.9	0.9	
2016	2.3	3.0	6.6	6.0	4.2	4.7	4.2	3.0	2.3	1.4	2.1	1.4	
2017	2.7	3.0	6.6	5.6	7.2	4.0	4.0	4.9	2.1	1.5	1.5	1.5	
2018	2.3	3.9	5.9	9.2	6.0	5.2	5.5	3.1	2.9	2.9	1.3	1.5	1.5

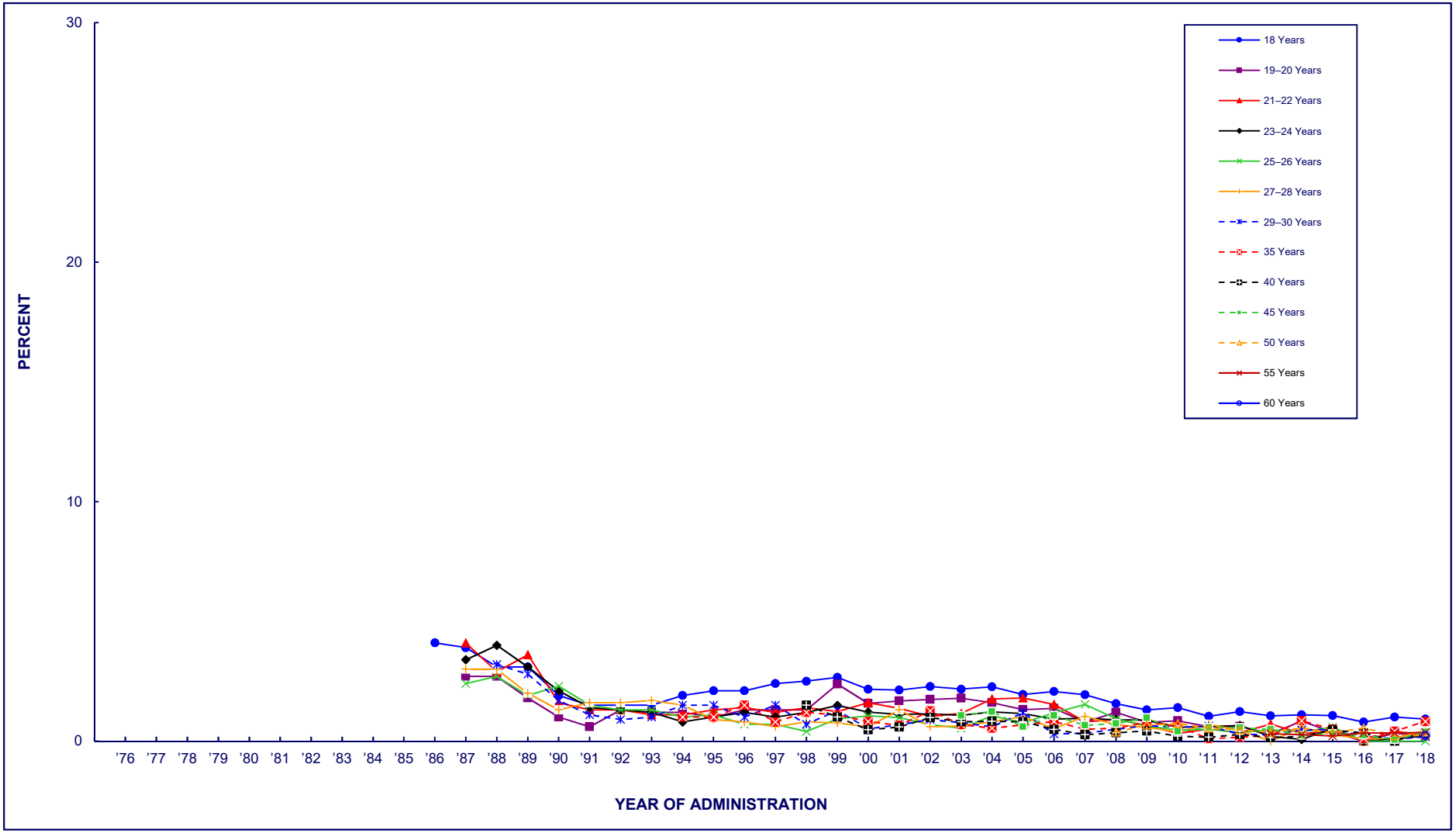
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available.

FIGURE 5-10

CRACK COCAINE

Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

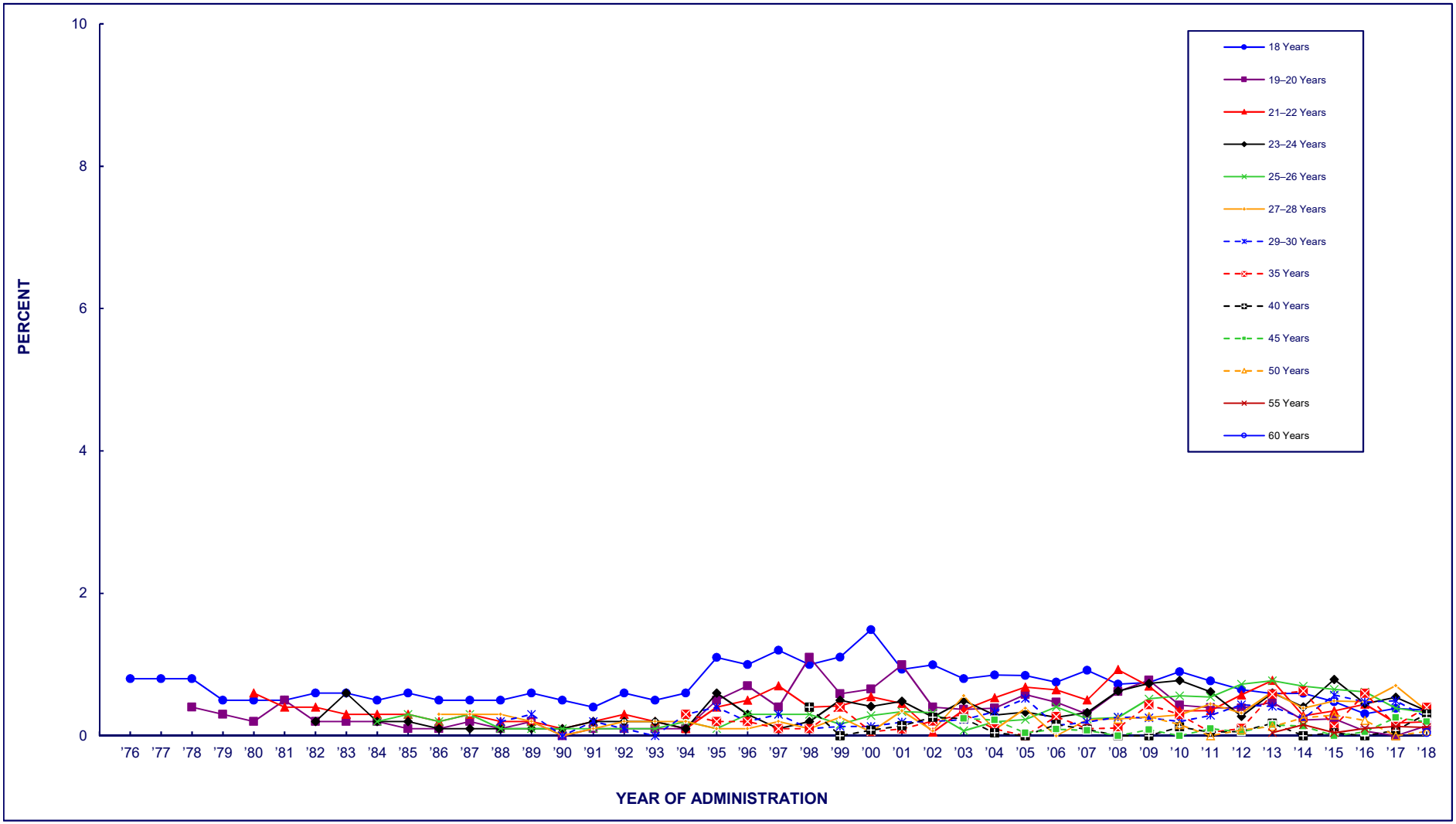
FIGURE 5-10 (cont.)
CRACK COCAINE
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986	4.1												
1987	3.9	2.7	4.1	3.4	2.4	3.0							
1988	3.1	2.7	2.9	4.0	2.7	3.0	3.2						
1989	3.1	1.8	3.6	3.1	1.9	2.0	2.8						
1990	1.9	1.0	1.6	2.1	2.3	1.3	1.7						
1991	1.5	0.6	1.3	1.4	1.5	1.6	1.1						
1992	1.5	1.3	1.3	1.3	1.3	1.6	0.9						
1993	1.5	1.2	1.1	1.2	1.3	1.7	1.0						
1994	1.9	1.2	1.1	0.8	1.0	1.5	1.5	1.0					
1995	2.1	1.0	1.3	1.0	1.1	0.9	1.5	1.0					
1996	2.1	1.3	1.4	1.2	0.7	0.8	1.0	1.5					
1997	2.4	1.3	1.2	1.0	0.7	0.6	1.5	0.8					
1998	2.5	1.3	1.4	1.2	0.4	0.8	0.7	1.2	1.5				
1999	2.7	2.4	1.2	1.5	0.9	0.8	1.3	1.1	1.0				
2000	2.2	1.6	1.6	1.2	1.1	0.6	0.5	0.8	0.5				
2001	2.1	1.7	1.4	1.1	1.0	1.3	0.7	0.7	0.6				
2002	2.3	1.7	1.0	1.1	0.7	0.6	0.9	1.3	1.0				
2003	2.2	1.8	1.2	1.1	0.5	0.6	0.8	0.7	0.8	1.1			
2004	2.3	1.6	1.8	1.2	1.1	0.8	0.6	0.5	0.8	1.2			
2005	1.9	1.3	1.8	1.1	0.8	1.0	1.2	0.7	0.8	0.6			
2006	2.1	1.4	1.5	0.9	1.2	0.5	0.3	0.8	0.5	1.1			
2007	1.9	0.8	0.8	1.0	1.5	1.0	0.3	0.5	0.3	0.7			
2008	1.6	1.2	0.9	0.9	0.9	0.7	0.5	0.5	0.4	0.7	0.4		
2009	1.3	0.8	0.7	0.9	0.6	0.6	0.7	0.8	0.4	1.0	0.7		
2010	1.4	0.8	0.3	0.6	0.5	0.4	0.6	0.6	0.2	0.4	0.7		
2011	1.0	0.6	0.5	0.6	0.5	0.7	0.6	0.1	0.2	0.6	0.5		
2012	1.2	0.6	0.3	0.6	0.4	0.4	0.3	0.2	0.3	0.6	0.5		
2013	1.1	0.3	0.7	0.2	0.5	*	0.3	0.2	0.1	0.5	0.4	0.3	
2014	1.1	0.8	0.3	0.1	0.4	0.6	0.5	0.9	0.2	0.2	0.5	0.3	
2015	1.1	0.4	0.4	0.5	0.6	0.3	0.5	0.5	0.5	0.3	0.3	0.2	
2016	0.8	*	*	*	*	0.1	0.2	0.1	0.3	0.2	0.5	0.3	
2017	1.0	0.3	0.4	0.1	*	0.1	0.1	0.4	*	0.1	0.2	0.3	
2018	0.9	0.2	0.2	0.2	*	0.4	0.2	0.8	0.4	0.4	0.2	0.4	0.2

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

Notes. ' — ' indicates data not available.

FIGURE 5-11
HEROIN
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

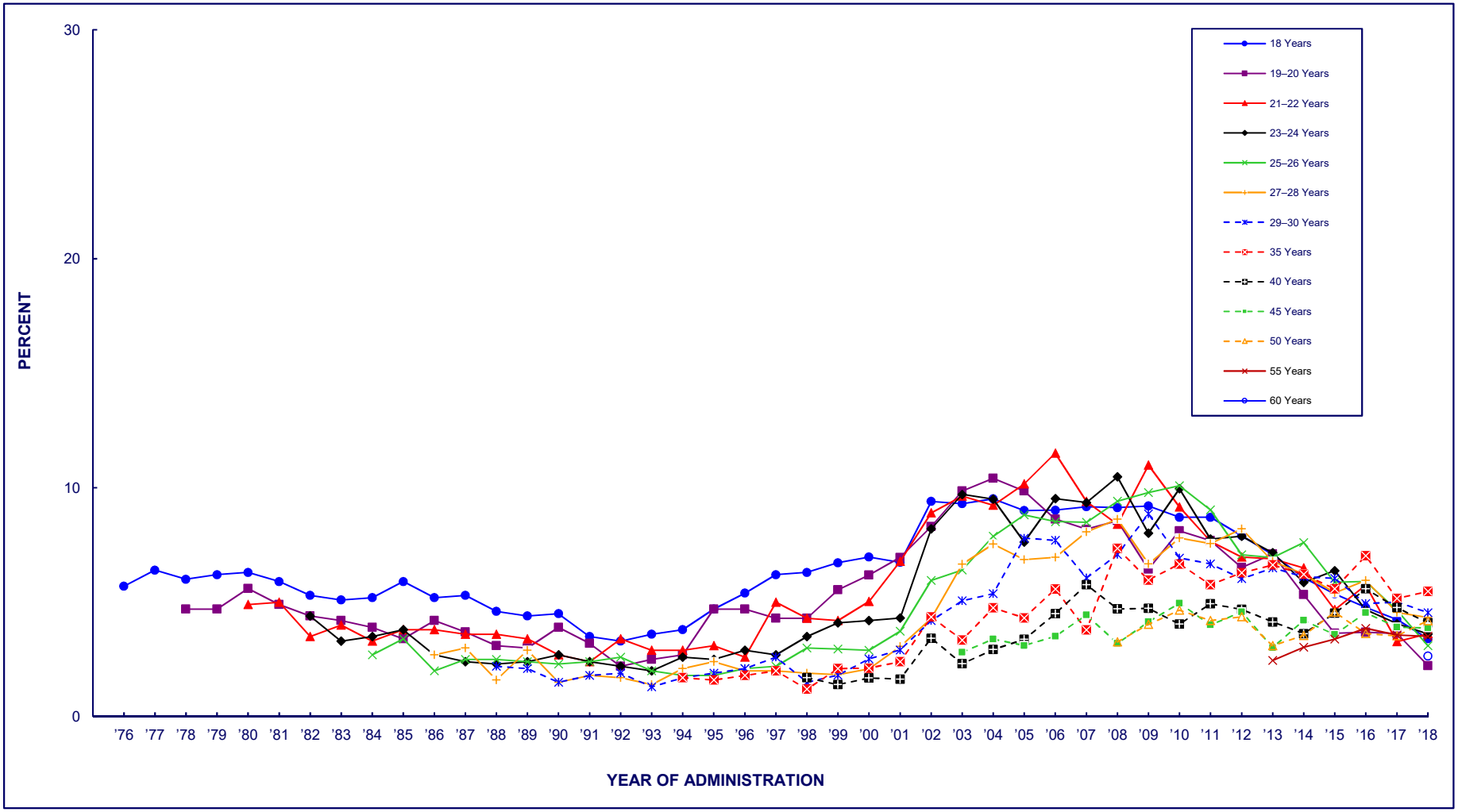
FIGURE 5-11 (cont.)
HEROIN
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	0.8												
1977	0.8												
1978	0.8	0.4											
1979	0.5	0.3											
1980	0.5	0.2	0.6										
1981	0.5	0.5	0.4										
1982	0.6	0.2	0.4	0.2									
1983	0.6	0.2	0.3	0.6									
1984	0.5	0.2	0.3	0.2	0.2								
1985	0.6	0.1	0.3	0.2	0.3								
1986	0.5	0.1	0.2	0.1	0.2	0.3							
1987	0.5	0.2	0.3	0.1	0.3	0.3							
1988	0.5	0.1	0.2	0.1	0.1	0.3	0.2						
1989	0.6	0.2	0.2	0.1	0.1	0.2	0.3						
1990	0.5	*	0.1	0.1	0.1	*	*						
1991	0.4	0.1	0.2	0.2	0.1	0.1	0.2						
1992	0.6	0.1	0.3	0.2	0.1	0.2	0.1						
1993	0.5	0.1	0.2	0.2	0.1	0.2	*						
1994	0.6	0.1	0.1	0.1	0.2	0.2	0.3	0.3					
1995	1.1	0.5	0.4	0.6	0.1	0.1	0.4	0.2					
1996	1.0	0.7	0.5	0.3	0.3	0.1	0.2	0.2					
1997	1.2	0.4	0.7	0.1	0.3	0.2	0.3	0.1					
1998	1.0	1.1	0.4	0.2	0.3	0.1	0.1	0.1	0.4				
1999	1.1	0.6	0.4	0.5	0.2	0.3	0.1	0.4	*				
2000	1.5	0.7	0.5	0.4	0.3	0.1	0.1	0.1	0.1				
2001	0.9	1.0	0.5	0.5	0.3	0.3	0.2	0.1	0.1				
2002	1.0	0.4	0.1	0.3	0.3	0.1	0.2	0.2	0.3				
2003	0.8	0.4	0.4	0.5	0.1	0.6	0.2	0.3	0.2	0.2			
2004	0.9	0.4	0.5	0.3	0.2	0.1	0.3	0.1	*	0.2			
2005	0.8	0.6	0.7	0.3	0.2	0.4	0.5	*	*	*			
2006	0.8	0.5	0.6	0.3	0.4	*	0.1	0.3	0.2	0.1			
2007	0.9	0.3	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.1			
2008	0.7	0.6	0.9	0.6	0.3	0.2	0.3	0.1	*	*	0.2		
2009	0.7	0.8	0.7	0.7	0.5	0.3	0.3	0.4	*	0.1	0.3		
2010	0.9	0.4	0.3	0.8	0.6	0.3	0.2	0.3	0.1	*	0.2		
2011	0.8	0.4	0.4	0.6	0.5	0.4	0.3	0.0	0.1	0.1	*		
2012	0.6	0.4	0.6	0.3	0.7	0.3	0.4	0.1	0.1	0.1	0.1		
2013	0.6	0.5	0.8	0.6	0.8	0.6	0.4	0.6	0.2	0.2	0.1	*	
2014	0.6	0.2	0.3	0.4	0.7	0.4	0.2	0.6	*	0.1	0.3	0.2	
2015	0.5	0.2	0.3	0.8	0.7	0.5	0.6	0.1	*	*	0.3	*	
2016	0.3	0.1	0.4	0.5	0.6	0.5	0.5	0.6	*	0.1	0.2	0.1	
2017	0.4	*	0.2	0.5	0.4	0.7	0.5	0.1	0.1	0.3	*	0.1	
2018	0.4	0.1	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.2	0.1	0.1	*

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

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not availa

FIGURE 5-12
NARCOTICS OTHER THAN HEROIN [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-12 (cont.)
NARCOTICS OTHER THAN HEROIN [a]
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

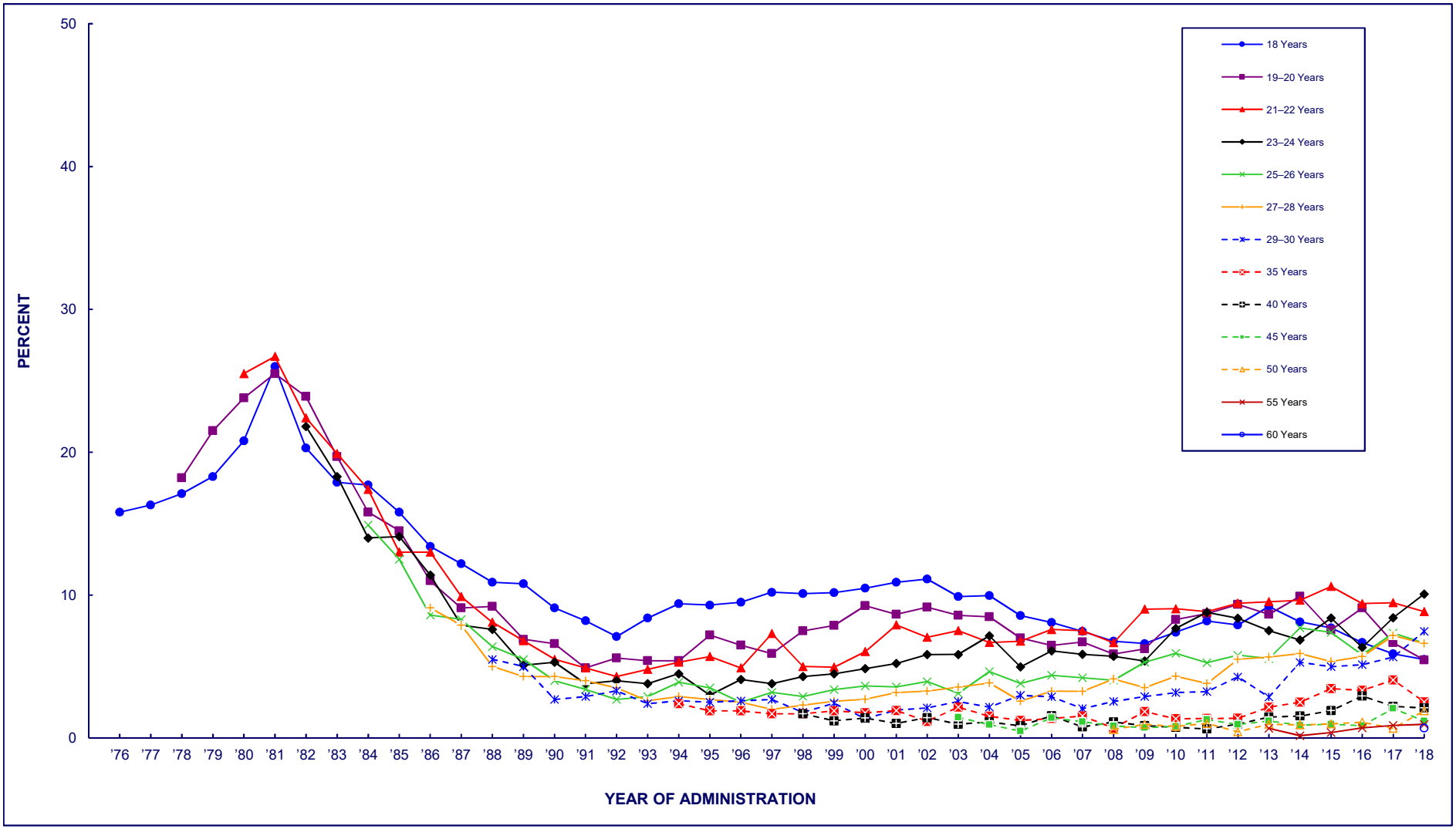
Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	5.7												
1977	6.4												
1978	6.0	4.7											
1979	6.2	4.7											
1980	6.3	5.6	4.9										
1981	5.9	4.9	5.0										
1982	5.3	4.4	3.5	4.4									
1983	5.1	4.2	4.0	3.3									
1984	5.2	3.9	3.3	3.5	2.7								
1985	5.9	3.4	3.8	3.8	3.4								
1986	5.2	4.2	3.8	2.7	2.0	2.7							
1987	5.3	3.7	3.6	2.4	2.5	3.0							
1988	4.6	3.1	3.6	2.3	2.5	1.6	2.2						
1989	4.4	3.0	3.4	2.4	2.4	2.9	2.1						
1990	4.5	3.9	2.7	2.7	2.3	1.5	1.5						
1991	3.5	3.2	2.4	2.4	2.4	1.8	1.8						
1992	3.3	2.2	3.4	2.2	2.6	1.7	1.9						
1993	3.6	2.5	2.9	2.0	2.0	1.4	1.3						
1994	3.8	2.7	2.9	2.6	1.8	2.1	1.7	1.7					
1995	4.7	4.7	3.1	2.5	1.8	2.4	1.9	1.6					
1996	5.4	4.7	2.6	2.9	2.1	2.0	2.1	1.8					
1997	6.2	4.3	5.0	2.7	2.2	2.0	2.6	2.0					
1998	6.3	4.3	4.3	3.5	3.0	1.9	1.5	1.2	1.7				
1999	6.7	5.5	4.2	4.1	3.0	1.8	1.8	2.1	1.4				
2000	7.0	6.2	5.0	4.2	2.9	2.1	2.5	2.1	1.7				
2001	6.7	7.0	6.8	4.3	3.7	3.1	2.9	2.4	1.6				
2002	9.4	8.3	8.9	8.2	6.0	4.3	4.2	4.4	3.4				
2003	9.3	9.9	9.6	9.7	6.4	6.7	5.1	3.4	2.3	2.8			
2004	9.5	10.4	9.2	9.5	7.9	7.5	5.4	4.8	2.9	3.4			
2005	9.0	9.9	10.2	7.6	8.8	6.9	7.8	4.3	3.4	3.1			
2006	9.0	8.6	11.5	9.5	8.5	7.0	7.7	5.6	4.5	3.5			
2007	9.2	8.2	9.4	9.4	8.5	8.1	6.1	3.8	5.8	4.4			
2008	9.1	8.6	8.4	10.5	9.4	8.6	7.1	7.4	4.7	3.2	3.3		
2009	9.2	6.4	11.0	8.0	9.8	6.7	8.9	6.0	4.7	4.1	4.0		
2010	8.7	8.1	9.2	10.0	10.1	7.8	6.9	6.7	4.0	5.0	4.7		
2011	8.7	7.7	7.7	7.8	9.0	7.6	6.7	5.8	4.9	4.0	4.2		
2012	7.9	6.5	7.0	7.9	7.1	8.2	6.0	6.3	4.7	4.6	4.4		
2013	7.1	7.1	6.9	7.2	6.9	6.8	6.5	6.6	4.1	3.0	3.1	2.5	
2014	6.1	5.3	6.5	5.9	7.6	6.2	6.1	6.2	3.6	4.2	3.5	3.0	
2015	5.4	3.6	4.7	6.4	5.9	5.4	6.0	5.6	4.5	3.6	4.6	3.4	
2016	4.8	3.7	5.8	4.7	5.9	5.9	4.9	7.0	5.6	4.5	3.6	3.9	
2017	4.2	3.6	3.3	4.1	4.7	4.6	5.0	5.2	4.8	3.9	3.5	3.6	
2018	3.4	2.2	3.6	3.6	3.1	4.3	4.5	5.5	4.1	3.9	4.2	3.5	2.6

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

Notes. ' — ' indicates data not available.

[a]In 2002 the question text was changed on half of the questionnaire forms for 18- to 30-year-olds. The list of examples of narcotics other than heroin was updated. Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced by Vicodin, OxyContin, and Percocet. The 2001 data presented here are based on all forms. The 2002 data are based on the changed forms only. In 2003 the remaining forms were changed to the new wording. The data are based on all forms in 2003. Beginning in 2002 data were based on the changed question text for 35- and 40-year-olds.

FIGURE 5-13
AMPHETAMINES
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-13 (cont.)
AMPHETAMINES
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	15.8												
1977	16.3												
1978	17.1	18.2											
1979	18.3	21.5											
1980	20.8	23.8	25.5										
1981	26.0	25.5	26.7										
1982	20.3	23.9	22.4	21.8									
1983	17.9	19.7	19.9	18.3									
1984	17.7	15.8	17.4	14.0	14.9								
1985	15.8	14.5	13.0	14.1	12.5								
1986	13.4	11.0	13.0	11.4	8.6	9.1							
1987	12.2	9.1	9.9	7.9	8.3	7.9							
1988	10.9	9.2	8.1	7.6	6.4	5.0	5.5						
1989	10.8	6.9	6.8	5.1	5.5	4.3	5.0						
1990	9.1	6.6	5.5	5.3	4.0	4.3	2.7						
1991	8.2	4.9	4.9	3.8	3.4	4.0	2.9						
1992	7.1	5.6	4.3	4.0	2.7	3.5	3.3						
1993	8.4	5.4	4.8	3.8	2.9	2.6	2.4						
1994	9.4	5.4	5.3	4.5	3.9	2.9	2.6	2.4					
1995	9.3	7.2	5.7	3.0	3.5	2.7	2.5	1.9					
1996	9.5	6.5	4.9	4.1	2.5	2.5	2.6	1.9					
1997	10.2	5.9	7.3	3.8	3.2	2.0	2.7	1.7					
1998	10.1	7.5	5.0	4.3	2.9	2.3	1.8	1.7	1.7				
1999	10.2	7.9	5.0	4.5	3.4	2.6	2.4	1.9	1.2				
2000	10.5	9.3	6.0	4.8	3.6	2.7	1.4	1.8	1.4				
2001	10.9	8.7	7.9	5.2	3.6	3.2	1.9	1.9	1.0				
2002	11.1	9.1	7.1	5.8	3.9	3.3	2.1	1.2	1.4				
2003	9.9	8.6	7.5	5.8	3.1	3.6	2.6	2.2	1.0	1.4			
2004	10.0	8.5	6.7	7.1	4.6	3.9	2.2	1.5	1.1	0.9			
2005	8.6	7.0	6.8	5.0	3.8	2.6	3.0	1.2	0.8	0.5			
2006	8.1	6.5	7.6	6.1	4.4	3.3	2.9	1.4	1.6	1.4			
2007	7.5	6.7	7.5	5.9	4.2	3.3	2.1	1.5	0.8	1.1			
2008	6.8	5.9	6.7	5.7	4.0	4.1	2.6	0.7	1.1	0.9	0.6		
2009	6.6	6.2	9.0	5.4	5.3	3.5	2.9	1.9	0.9	0.7	1.0		
2010	7.4	8.3	9.0	7.7	5.9	4.3	3.2	1.3	0.7	0.8	0.8		
2011	8.2	8.7	8.8	8.8	5.3	3.8	3.2	1.4	0.6	1.3	1.0		
2012	7.9	9.3	9.4	8.4	5.8	5.5	4.3	1.4	1.0	1.0	0.4		
2013	9.2	8.6	9.5	7.5	5.6	5.7	2.9	2.2	1.5	1.2	1.0	0.7	
2014	8.1	9.9	9.6	6.9	7.7	5.9	5.3	2.5	1.5	0.9	0.9	0.2	
2015	7.7	7.6	10.6	8.4	7.4	5.4	5.0	3.5	1.9	1.0	1.0	0.4	
2016	6.7	9.1	9.4	6.3	5.8	5.7	5.1	3.3	2.9	0.9	1.1	0.7	
2017	5.9	6.7	9.5	8.4	7.3	7.2	5.7	4.1	2.2	2.1	0.7	0.9	
2018	5.5	5.5	8.8	10.1	6.6	6.6	7.5	2.5	2.1	1.2	1.9	1.0	0.7

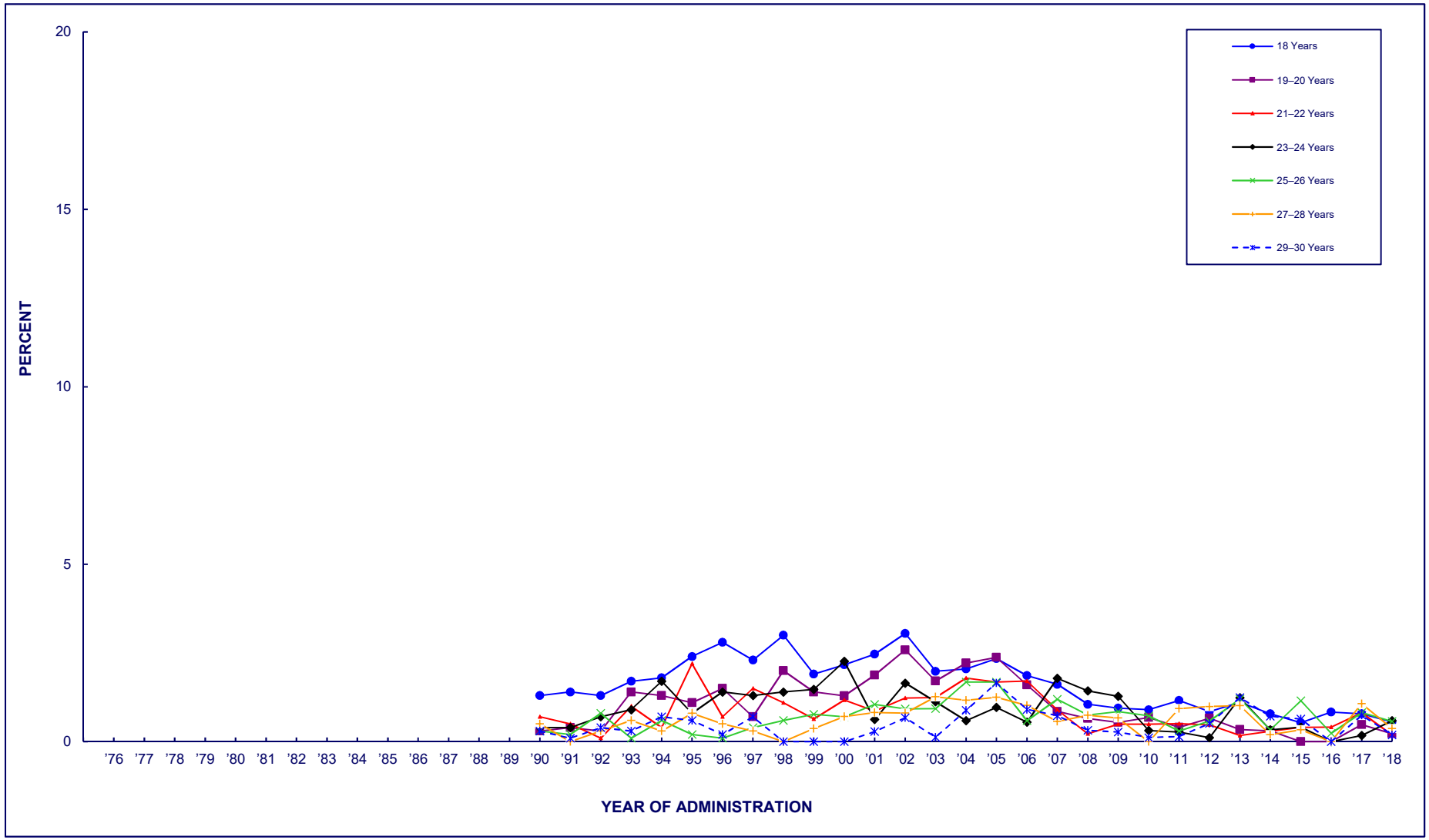
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available.

FIGURE 5-14

CRYSTAL METHAMPHETAMINE (ICE)

Trends in Annual Prevalence among Respondents of Modal Ages 18 through 30, [a] by Age Group



(Figure continued on next page.)

FIGURE 5-14 (cont.)
CRYSTAL METHAMPHETAMINE (ICE)
Trends in Annual Prevalence among Respondents of Modal Ages 18 through 30, [a] by Age Group

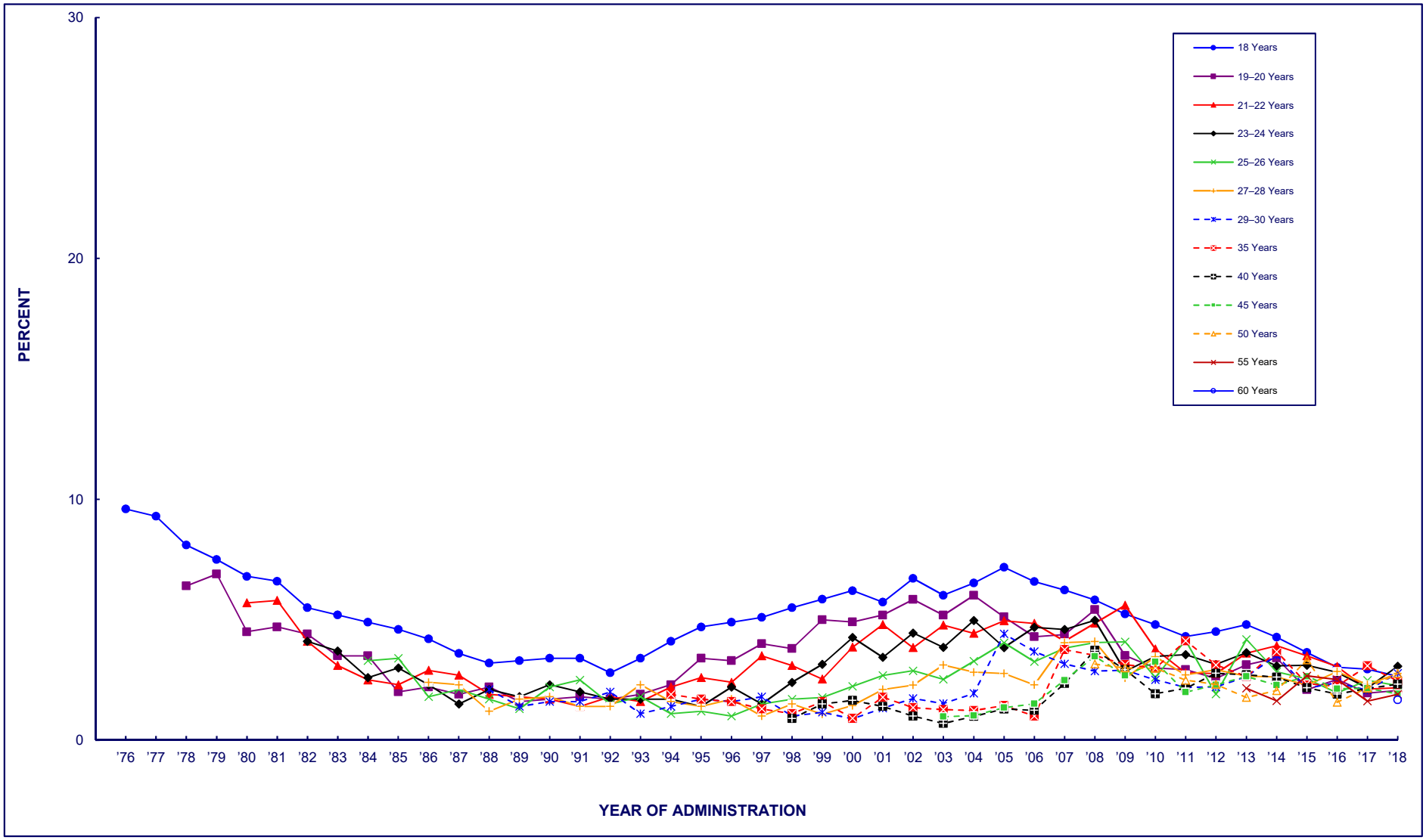
Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30
1976							
1977							
1978							
1979							
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988							
1989							
1990	1.3	0.3	0.7	0.4	0.3	0.5	0.3
1991	1.4	0.4	0.5	0.4	0.2	*	0.1
1992	1.3	0.3	0.1	0.7	0.8	0.3	0.4
1993	1.7	1.4	1.0	0.9	0.1	0.6	0.3
1994	1.8	1.3	0.4	1.7	0.6	0.3	0.7
1995	2.4	1.1	2.2	0.8	0.2	0.8	0.6
1996	2.8	1.5	0.7	1.4	0.1	0.5	0.2
1997	2.3	0.7	1.5	1.3	0.4	0.3	0.7
1998	3.0	2.0	1.1	1.4	0.6	*	*
1999	1.9	1.4	0.6	1.5	0.8	0.4	*
2000	2.2	1.3	1.2	2.3	0.7	0.7	*
2001	2.5	1.9	0.9	0.6	1.1	0.8	0.3
2002	3.0	2.6	1.2	1.6	0.9	0.8	0.7
2003	3.0	2.6	1.2	1.6	0.9	0.8	0.7
2004	2.0	1.7	1.2	1.1	0.9	1.3	0.1
2005	2.3	2.4	1.7	1.0	1.7	1.3	1.7
2006	1.9	1.6	1.7	0.5	0.6	1.0	0.9
2007	1.6	0.9	0.9	1.8	1.2	0.6	0.7
2008	1.1	0.7	0.2	1.4	0.8	0.7	0.3
2009	0.9	0.5	0.5	1.3	0.8	0.7	0.3
2010	0.9	0.7	0.5	0.3	0.7	*	0.1
2011	1.2	0.4	0.5	0.3	0.3	0.9	0.1
2012	0.8	0.7	0.5	0.1	0.6	1.0	0.5
2013	1.1	0.3	0.2	1.2	1.2	1.0	1.2
2014	0.8	0.3	0.3	0.3	0.3	0.2	0.7
2015	0.5	*	0.4	0.4	1.2	0.3	0.6
2016	0.8	*	0.4	*	0.2	*	*
2017	0.8	0.5	0.8	0.2	0.8	1.1	0.7
2018	0.6	0.2	0.2	0.6	0.6	0.4	0.2

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

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not available.

[a]Questions about use of crystal methamphetamine were not included in the questionnaires administered to the 35-, 40-, 45-, and 50-year-olds.

FIGURE 5-15
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

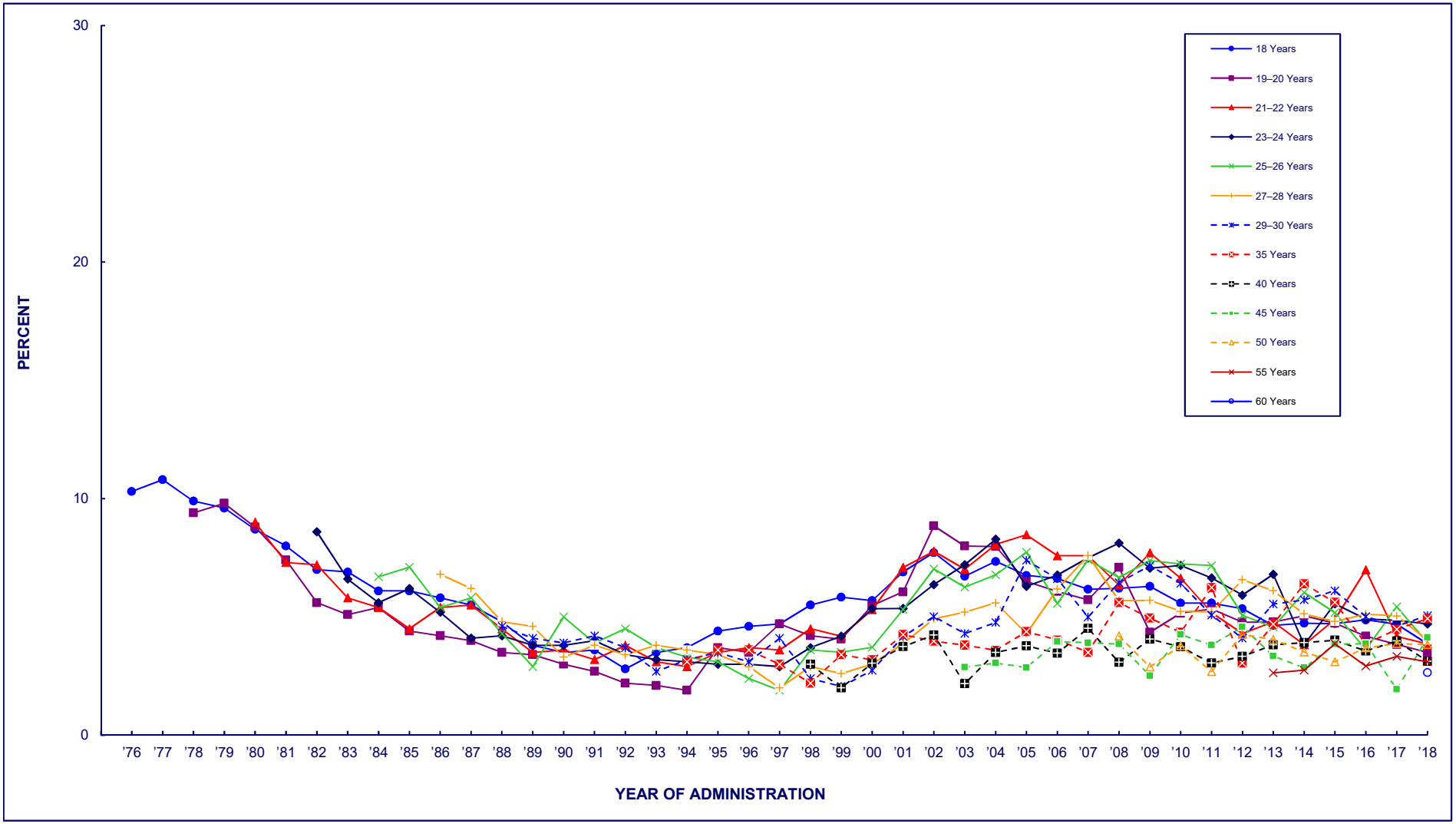
FIGURE 5-15 (cont.)
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	9.6												
1977	9.3												
1978	8.1	6.4											
1979	7.5	6.9											
1980	6.8	4.5	5.7										
1981	6.6	4.7	5.8										
1982	5.5	4.4	4.1	4.1									
1983	5.2	3.5	3.1	3.7									
1984	4.9	3.5	2.5	2.6	3.3								
1985	4.6	2.0	2.3	3.0	3.4								
1986	4.2	2.2	2.9	2.3	1.8	2.4							
1987	3.6	1.9	2.7	1.5	2.1	2.3							
1988	3.2	2.2	1.9	2.1	1.7	1.2	2.1						
1989	3.3	1.6	1.8	1.8	1.3	1.7	1.4						
1990	3.4	1.7	1.7	2.3	2.2	1.8	1.6						
1991	3.4	1.8	1.4	2.0	2.5	1.4	1.6						
1992	2.8	1.7	1.8	1.7	1.5	1.4	2.0						
1993	3.4	1.9	1.6	1.7	1.8	2.3	1.1						
1994	4.1	2.3	2.2	1.7	1.1	1.6	1.4	1.9					
1995	4.7	3.4	2.6	1.4	1.2	1.4	1.7	1.7					
1996	4.9	3.3	2.4	2.2	1.0	1.7	1.6	1.6					
1997	5.1	4.0	3.5	1.5	1.5	1.0	1.8	1.3					
1998	5.5	3.8	3.1	2.4	1.7	1.5	1.0	1.1	0.9				
1999	5.8	5.0	2.5	3.2	1.8	1.1	1.2	1.6	1.5				
2000	6.2	4.9	3.9	4.3	2.2	1.4	0.9	0.9	1.6				
2001	5.7	5.2	4.8	3.4	2.7	2.1	1.3	1.8	1.4				
2002	6.7	5.8	3.8	4.4	2.9	2.3	1.7	1.4	1.0				
2003	6.0	5.2	4.8	3.9	2.5	3.1	1.5	1.3	0.7	1.0			
2004	6.5	6.0	4.4	5.0	3.3	2.8	1.9	1.2	1.0	1.0			
2005	7.2	5.1	5.0	3.8	4.0	2.8	4.4	1.4	1.3	1.4			
2006	6.6	4.3	4.8	4.7	3.3	2.3	3.7	1.0	1.2	1.5			
2007	6.2	4.4	4.1	4.6	3.8	4.0	3.2	3.8	2.4	2.5			
2008	5.8	5.4	4.9	5.0	4.0	4.1	2.9	3.5	3.7	3.5	3.2		
2009	5.2	3.5	5.6	2.9	4.1	2.6	2.9	3.1	2.9	2.7	3.0		
2010	4.8	3.0	3.8	3.5	2.6	3.5	2.5	3.0	1.9	3.2	3.0		
2011	4.3	2.9	2.8	3.5	4.1	2.7	2.2	4.1	2.2	2.0	2.5		
2012	4.5	2.6	2.8	3.1	1.9	2.9	2.2	3.1	2.8	2.3	2.3		
2013	4.8	3.1	3.6	3.6	4.2	2.7	2.6	2.6	2.7	2.7	1.8	2.2	
2014	4.3	3.4	3.9	3.1	2.8	2.6	3.5	3.7	2.6	2.3	2.1	1.6	
2015	3.6	2.1	3.5	3.1	2.5	2.3	2.2	2.3	2.2	2.7	3.3	2.7	
2016	3.0	2.5	3.1	2.8	2.0	2.9	2.4	2.2	1.9	2.1	1.6	2.5	
2017	2.9	2.0	2.1	2.2	2.5	2.3	2.1	3.1	2.1	2.2	2.2	1.6	
2018	2.7	2.1	2.2	3.1	2.3	2.8	2.8	2.5	2.3	1.9	2.8	1.9	1.7

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

Notes. ' — ' indicates data not available.

FIGURE 5-16
TRANQUILIZERS
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-16 (cont.)
TRANQUILIZERS
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	10.3												
1977	10.8												
1978	9.9	9.4											
1979	9.6	9.8											
1980	8.7	8.8	9.0										
1981	8.0	7.4	7.3										
1982	7.0	5.6	7.2	8.6									
1983	6.9	5.1	5.8	6.6									
1984	6.1	5.4	5.4	5.6	6.7								
1985	6.1	4.4	4.5	6.2	7.1								
1986	5.8	4.2	5.4	5.2	5.4	6.8							
1987	5.5	4.0	5.5	4.1	5.8	6.2							
1988	4.8	3.5	4.5	4.2	4.3	4.8	4.6						
1989	3.8	3.4	3.5	3.8	2.9	4.6	4.1						
1990	3.5	3.0	3.6	3.8	5.0	3.3	3.9						
1991	3.6	2.7	3.2	4.0	3.9	3.8	4.2						
1992	2.8	2.2	3.8	3.4	4.5	3.4	3.7						
1993	3.5	2.1	3.1	3.2	3.7	3.8	2.7						
1994	3.7	1.9	2.9	3.1	3.3	3.6	3.2	3.1					
1995	4.4	3.7	3.5	3.0	3.1	3.4	3.5	3.6					
1996	4.6	3.5	3.7	3.0	2.4	2.9	3.1	3.6					
1997	4.7	4.7	3.6	2.9	1.9	2.0	4.1	3.0					
1998	5.5	4.2	4.5	3.7	3.6	2.9	2.4	2.2	3.0				
1999	5.8	4.1	4.2	4.2	3.5	2.6	2.1	3.4	2.0				
2000	5.7	5.5	5.3	5.3	3.7	3.0	2.7	3.2	3.0				
2001	6.9	6.1	7.1	5.4	5.3	3.9	4.2	4.3	3.7				
2002	7.7	8.8	7.8	6.4	7.0	4.9	5.0	4.0	4.2				
2003	6.7	8.0	7.0	7.2	6.3	5.2	4.3	3.8	2.2	2.9			
2004	7.3	8.0	8.1	8.3	6.8	5.6	4.8	3.6	3.5	3.1			
2005	6.8	6.5	8.5	6.3	7.7	4.3	7.4	4.4	3.8	2.9			
2006	6.6	6.1	7.6	6.8	5.6	6.2	6.6	4.0	3.5	4.0			
2007	6.2	5.7	7.6	7.5	7.4	7.6	5.0	3.5	4.5	3.9			
2008	6.2	7.1	6.3	8.1	6.7	5.7	6.5	5.6	3.1	3.8	4.2		
2009	6.3	4.3	7.7	7.1	7.4	5.7	7.2	5.0	4.1	2.5	2.9		
2010	5.6	5.2	6.6	7.2	7.2	5.2	6.4	4.4	3.7	4.3	3.8		
2011	5.6	5.3	5.2	6.6	7.2	5.2	5.1	6.2	3.0	3.8	2.7		
2012	5.3	4.8	4.3	5.9	5.1	6.6	4.1	3.1	3.3	4.6	4.3		
2013	4.6	4.8	4.8	6.8	4.6	6.1	5.5	4.7	3.8	3.3	4.1	2.6	
2014	4.7	5.0	3.8	3.8	6.0	5.1	5.7	6.4	3.9	2.9	3.5	2.7	
2015	4.7	4.7	4.9	5.6	5.2	4.8	6.1	5.6	4.0	3.8	3.1	3.9	
2016	4.9	4.2	7.0	4.9	3.6	5.1	5.0	3.9	3.6	3.9	3.7	2.9	
2017	4.7	3.8	4.2	4.9	5.4	5.0	4.6	4.5	4.0	1.9	3.9	3.3	
2018	3.9	3.5	3.9	4.7	3.9	4.0	5.1	4.9	3.1	4.1	3.8	3.1	2.6

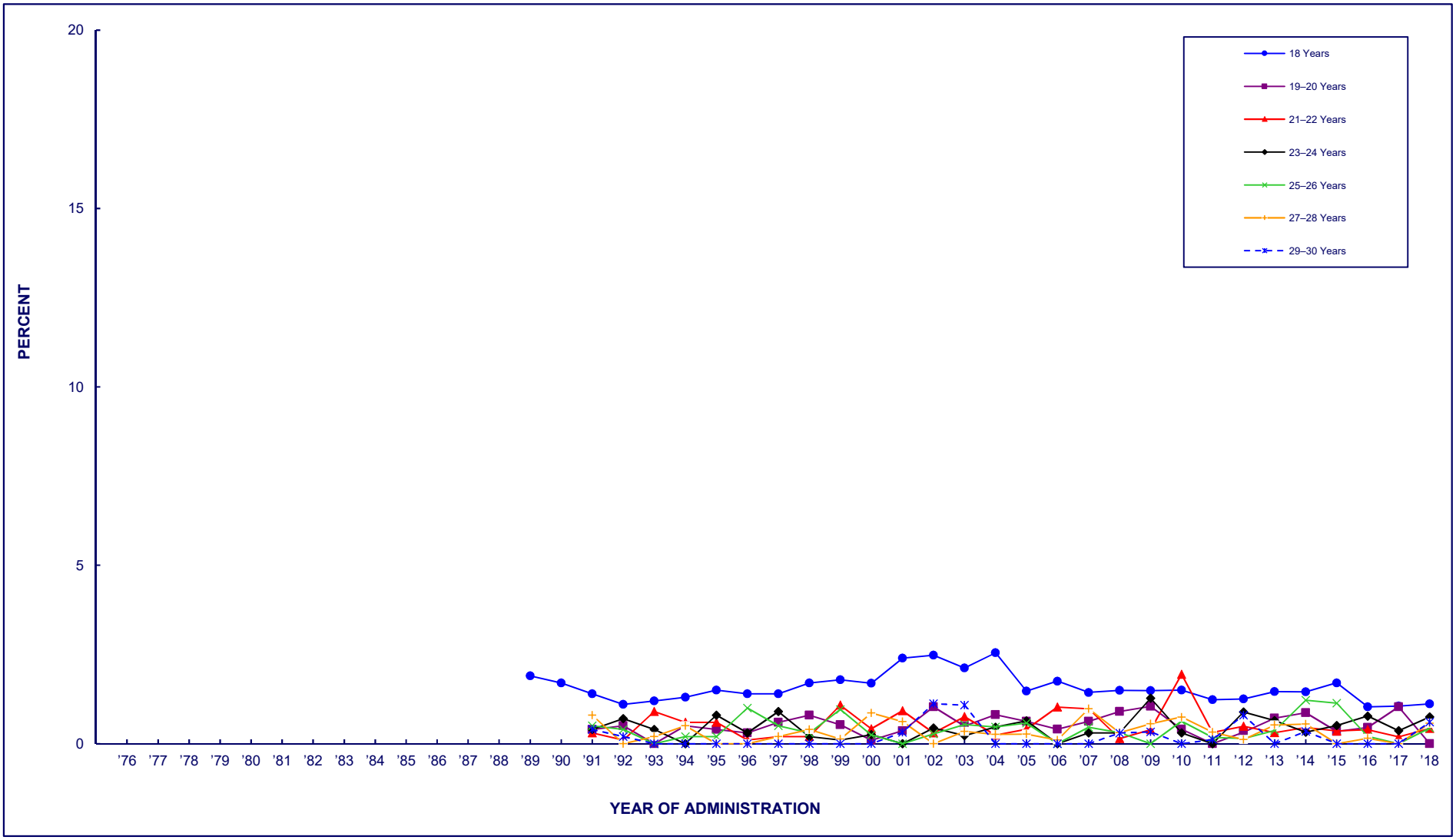
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available.

FIGURE 5-17

STEROIDS

Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 30, [a] by Age Group



(Figure continued on next page.)

FIGURE 5-17 (cont.)
STEROIDS
Trends in Annual Prevalence among Respondents of Modal Ages 18 through 30, [a] by Age Group

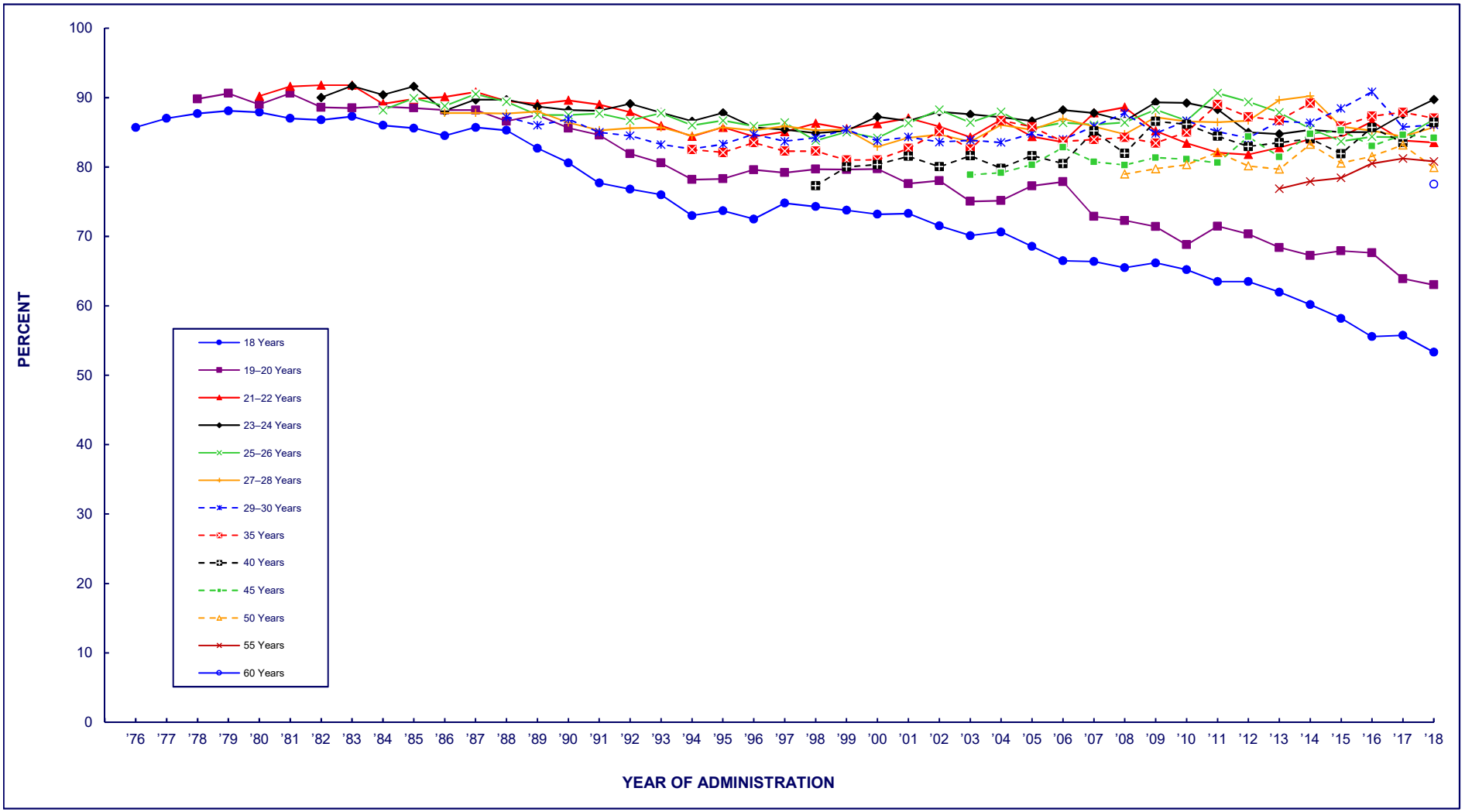
Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30
1976							
1977							
1978							
1979							
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988							
1989	1.9						
1990	1.7						
1991	1.4	0.4	0.3	0.4	0.5	0.8	0.4
1992	1.1	0.5	0.1	0.7	0.4	*	0.2
1993	1.2	*	0.9	0.4	*	0.2	*
1994	1.3	0.5	0.6	*	0.2	0.5	*
1995	1.5	0.4	0.6	0.8	0.2	*	*
1996	1.4	0.3	0.1	0.3	1.0	*	*
1997	1.4	0.6	0.2	0.9	0.5	0.2	*
1998	1.7	0.8	0.2	0.2	0.3	0.4	*
1999	1.8	0.5	1.1	0.1	1.0	0.1	*
2000	1.7	0.1	0.4	0.3	0.2	0.9	*
2001	2.4	0.4	0.9	*	*	0.6	0.3
2002	2.5	1.0	0.3	0.4	0.3	*	1.1
2003	2.1	0.5	0.8	0.2	0.5	0.3	1.1
2004	2.5	0.8	0.2	0.5	0.5	0.3	*
2005	1.5	0.6	0.4	0.6	0.6	0.3	*
2006	1.8	0.4	1.0	*	*	0.1	*
2007	1.4	0.6	1.0	0.3	0.5	1.0	*
2008	1.5	0.9	0.1	0.3	0.3	0.3	0.3
2009	1.5	1.0	0.4	1.3	*	0.6	0.3
2010	1.5	0.4	1.9	0.3	0.6	0.7	*
2011	1.2	*	0.3	*	0.2	0.3	0.1
2012	1.3	0.3	0.5	0.9	0.1	0.1	0.8
2013	1.5	0.7	0.3	0.6	0.4	0.5	*
2014	1.5	0.9	0.5	0.3	1.2	0.5	0.3
2015	1.7	0.3	0.4	0.5	1.1	*	*
2016	1.0	0.5	0.4	0.8	0.2	0.1	*
2017	1.1	1.0	0.2	0.4	*	*	*
2018	1.1	*	0.4	0.8	0.4	0.6	0.6

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

Notes. ' * ' indicates a percentage of less than 0.05%. ' — ' indicates data not availa

[a]Questions about the use of steroids were not included in the questionnaires administered to the 35-, 40-, 45-, and 50-year-olds.

FIGURE 5-18a
ALCOHOL
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

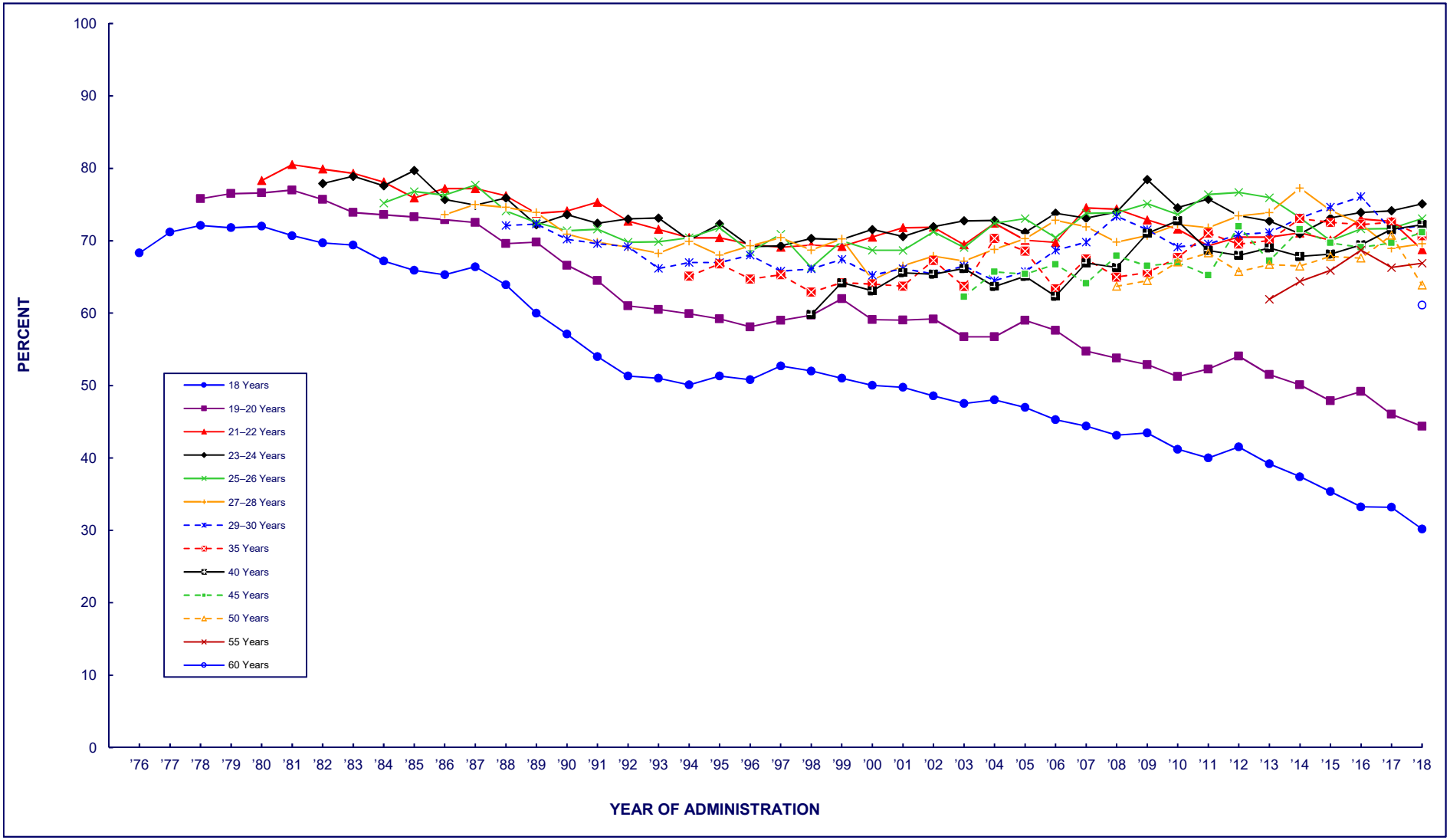
FIGURE 5-18a (cont.)
ALCOHOL
Trends in Annual Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	85.7												
1977	87.0												
1978	87.7	89.8											
1979	88.1	90.6											
1980	87.9	89.0	90.2										
1981	87.0	90.6	91.6										
1982	86.8	88.6	91.8	90.0									
1983	87.3	88.5	91.8	91.7									
1984	86.0	88.7	89.1	90.4	88.2								
1985	85.6	88.5	89.8	91.6	89.9								
1986	84.5	88.2	90.1	88.1	88.8	87.8							
1987	85.7	88.2	90.8	89.7	90.5	87.8							
1988	85.3	86.6	89.5	89.7	89.4	87.7	87.2						
1989	82.7	87.5	89.1	88.7	87.5	88.0	86.0						
1990	80.6	85.6	89.6	88.2	87.5	86.4	86.9						
1991	77.7	84.6	89.0	88.1	87.7	85.3	85.0						
1992	76.8	81.9	87.9	89.1	86.7	85.6	84.5						
1993	76.0	80.6	85.9	87.8	87.8	85.7	83.2						
1994	73.0	78.2	84.4	86.6	86.0	84.5	82.6	82.5					
1995	73.7	78.3	85.7	87.8	86.7	85.7	83.3	82.1					
1996	72.5	79.6	84.4	85.7	85.9	85.3	84.7	83.5					
1997	74.8	79.2	85.1	85.4	86.4	85.9	83.7	82.3					
1998	74.3	79.7	86.3	84.9	83.8	85.3	84.2	82.3	77.3				
1999	73.8	79.6	85.5	85.2	85.0	85.4	85.4	81.0	80.0				
2000	73.2	79.7	86.2	87.2	84.2	82.9	83.7	81.0	80.3				
2001	73.3	77.6	87.0	86.7	86.3	84.2	84.3	82.7	81.5				
2002	71.5	78.0	85.8	88.0	88.3	84.7	83.6	85.1	80.0				
2003	70.1	75.0	84.3	87.6	86.4	83.6	83.9	82.6	81.6	78.9			
2004	70.6	75.2	86.8	87.2	87.9	86.1	83.5	86.7	79.8	79.2			
2005	68.6	77.3	84.4	86.6	85.6	85.3	84.8	85.8	81.6	80.3			
2006	66.5	77.9	83.6	88.2	86.4	86.9	84.0	83.7	80.5	82.8			
2007	66.4	72.9	87.8	87.8	86.1	85.8	85.9	84.0	85.2	80.7			
2008	65.5	72.3	88.6	86.6	86.4	84.7	87.8	84.3	82.0	80.3	79.0		
2009	66.2	71.4	85.2	89.3	88.2	87.2	84.8	83.5	86.6	81.3	79.7		
2010	65.2	68.8	83.4	89.2	86.7	86.6	86.7	85.0	86.1	81.1	80.3		
2011	63.5	71.5	82.1	88.3	90.6	86.4	85.1	89.0	84.4	80.6	82.1		
2012	63.5	70.3	81.8	85.0	89.4	86.7	84.2	87.2	83.0	84.4	80.2		
2013	62.0	68.4	82.8	84.7	87.9	89.6	86.6	86.7	83.5	81.5	79.7	76.9	
2014	60.2	67.3	84.0	85.3	85.5	90.2	86.4	89.2	84.1	84.8	83.3	77.9	
2015	58.2	67.9	84.3	85.0	83.7	85.8	88.4	85.9	81.9	85.3	80.6	78.4	
2016	55.6	67.6	86.5	85.0	84.4	85.2	90.8	87.3	85.7	83.0	81.5	80.5	
2017	55.7	63.9	83.8	87.6	84.3	84.4	85.7	87.9	83.5	84.6	83.2	81.2	
2018	53.3	63.0	83.5	89.7	86.8	85.7	86.1	87.0	86.4	84.2	79.9	80.8	77.5

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

Notes. ' — ' indicates data not available.

FIGURE 5-18b
ALCOHOL
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

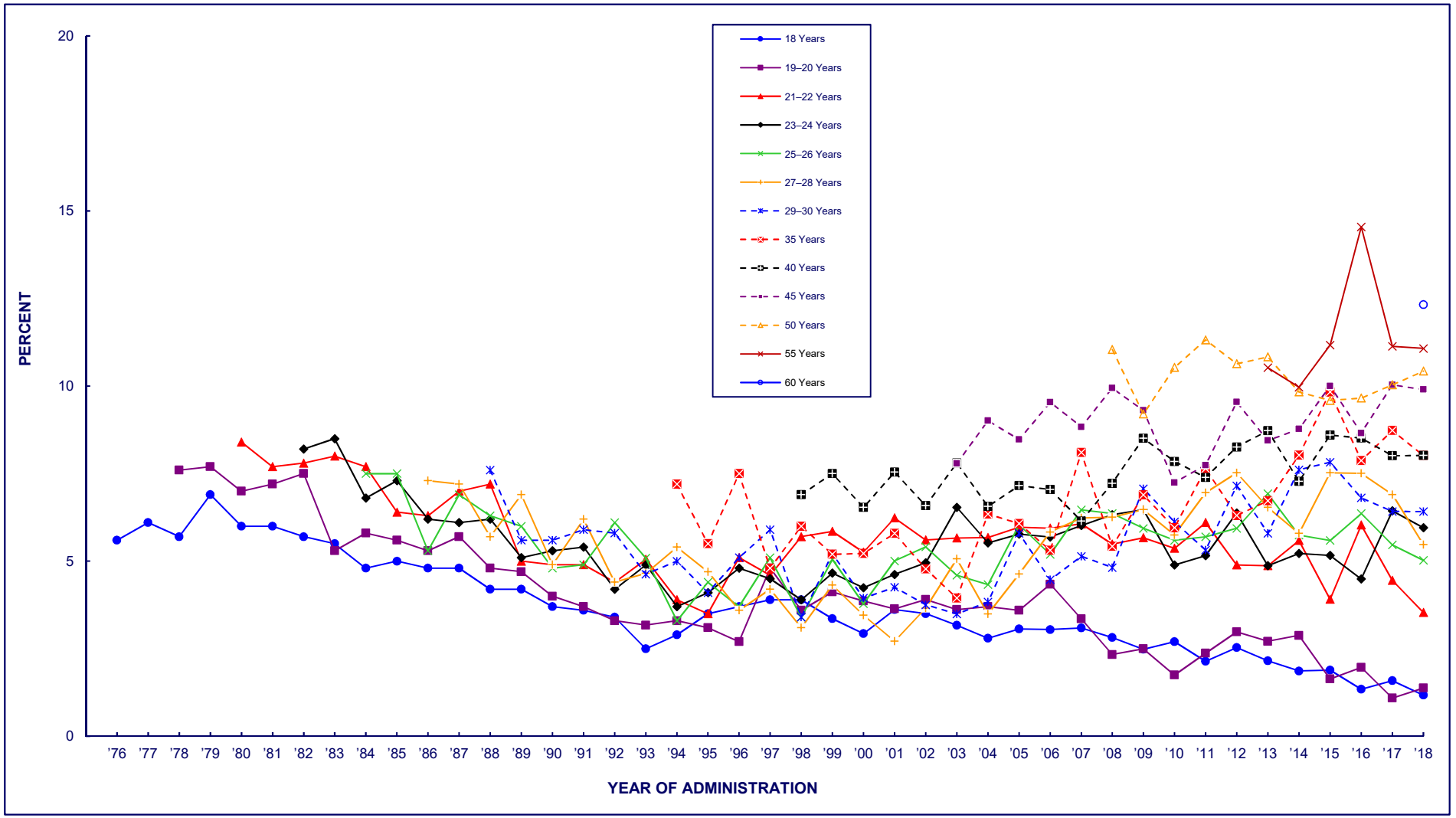
FIGURE 5-18b (cont.)
ALCOHOL
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	68.3												
1977	71.2												
1978	72.1	75.8											
1979	71.8	76.5											
1980	72.0	76.6	78.3										
1981	70.7	77.0	80.5										
1982	69.7	75.7	79.9	77.9									
1983	69.4	73.9	79.3	78.9									
1984	67.2	73.6	78.1	77.6	75.2								
1985	65.9	73.3	75.9	79.7	76.8								
1986	65.3	72.9	77.2	75.7	76.3	73.6							
1987	66.4	72.5	77.2	74.9	77.7	75.0							
1988	63.9	69.6	76.2	75.9	74.1	74.6	72.1						
1989	60.0	69.8	73.8	72.2	72.5	73.9	72.3						
1990	57.1	66.6	74.1	73.6	71.4	70.9	70.2						
1991	54.0	64.5	75.3	72.4	71.6	69.8	69.6						
1992	51.3	61.0	72.7	73.0	69.8	69.1	69.2						
1993	51.0	60.5	71.6	73.1	69.9	68.3	66.2						
1994	50.1	59.9	70.4	70.1	70.4	69.9	67.0	65.1					
1995	51.3	59.2	70.4	72.3	71.8	68.0	67.0	66.8					
1996	50.8	58.1	69.5	69.2	68.5	69.3	68.0	64.7					
1997	52.7	59.0	69.1	69.3	70.9	70.4	65.8	65.3					
1998	52.0	59.7	69.4	70.3	66.3	68.7	66.1	62.9	59.8				
1999	51.0	62.0	69.2	70.2	70.0	70.2	67.4	64.2	64.2				
2000	50.0	59.1	70.5	71.5	68.7	64.6	65.2	64.0	63.1				
2001	49.8	59.0	71.8	70.6	68.7	66.5	66.2	63.7	65.6				
2002	48.6	59.2	71.9	71.9	71.2	67.9	65.4	67.3	65.4				
2003	47.5	56.7	69.5	72.7	69.1	67.2	66.5	63.7	66.2	62.2			
2004	48.0	56.7	72.4	72.8	72.4	68.8	64.5	70.3	63.7	65.7			
2005	47.0	59.0	70.1	71.2	73.0	70.3	65.7	68.5	65.1	65.4			
2006	45.3	57.6	69.7	73.8	70.4	72.8	68.7	63.3	62.3	66.7			
2007	44.4	54.7	74.5	73.1	73.8	71.9	69.8	67.5	66.9	64.1			
2008	43.1	53.8	74.4	74.0	73.9	69.8	73.4	65.0	66.3	67.9	63.7		
2009	43.5	52.9	72.9	78.4	75.1	70.7	71.5	65.6	71.0	66.5	64.5		
2010	41.2	51.2	71.6	74.6	73.6	72.2	69.1	67.7	72.7	67.0	67.1		
2011	40.0	52.3	69.3	75.7	76.4	71.8	69.6	71.1	68.6	65.2	68.3		
2012	41.5	54.1	70.5	73.5	76.7	73.4	70.8	69.5	68.0	72.0	65.7		
2013	39.2	51.5	70.5	72.7	75.9	73.9	71.1	70.0	69.0	67.2	66.7	61.9	
2014	37.4	50.1	71.1	71.0	73.2	77.3	73.2	73.1	67.8	71.6	66.5	64.4	
2015	35.3	47.9	70.1	73.1	70.0	74.2	74.7	72.5	68.1	69.7	67.8	65.9	
2016	33.2	49.2	73.0	73.9	71.6	72.3	76.1	72.2	69.4	69.1	67.6	68.7	
2017	33.2	46.0	72.7	74.1	71.7	68.9	71.5	72.5	71.5	69.7	70.8	66.3	
2018	30.2	44.4	68.8	75.1	73.0	69.6	72.1	70.7	72.2	71.2	63.9	66.9	61.1

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

Notes. ' — ' indicates data not available.

FIGURE 5-18c
ALCOHOL
Trends in 30-Day Prevalence of Daily Use
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

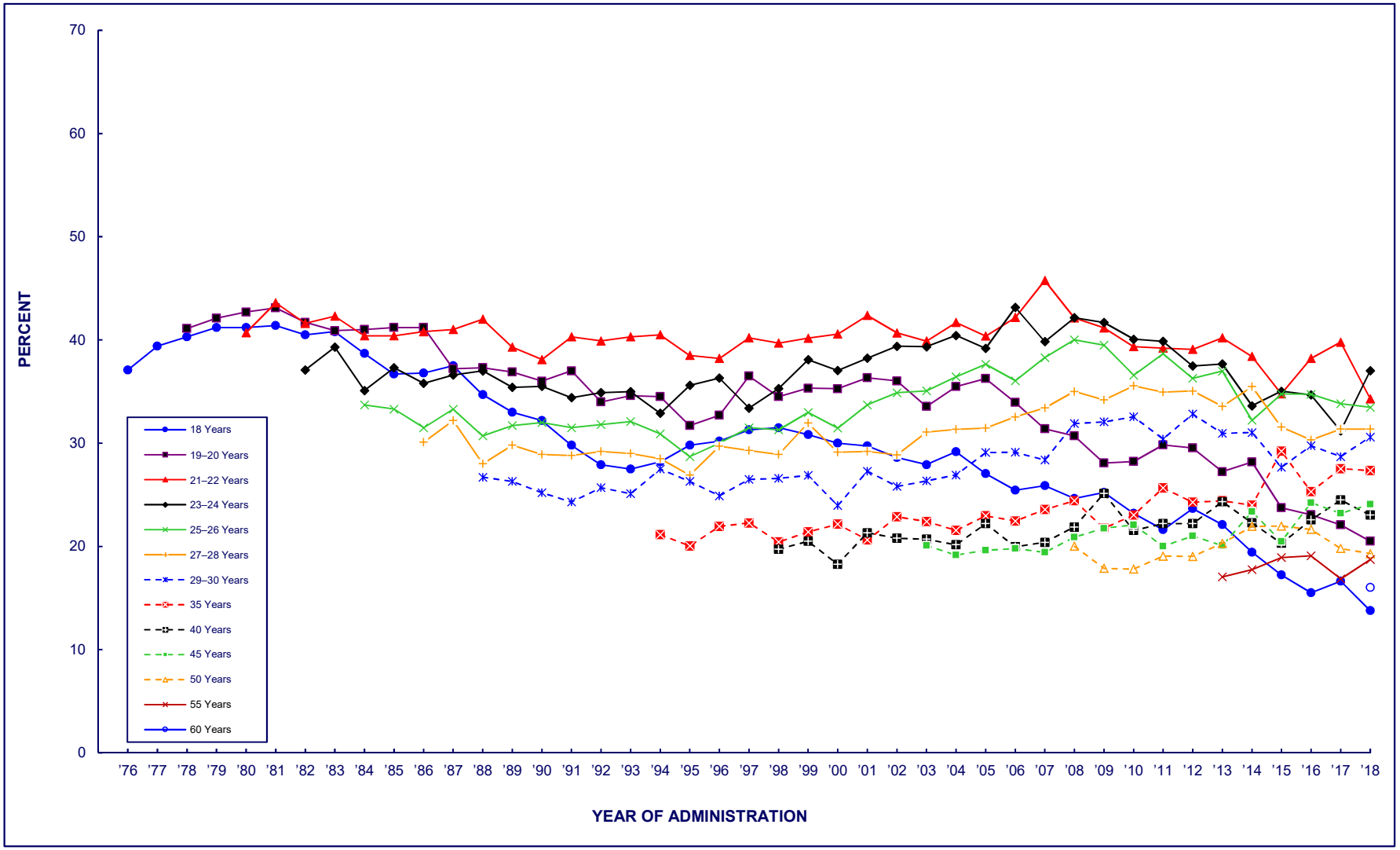
FIGURE 5-18c (cont.)
ALCOHOL
Trends in 30-Day Prevalence of Daily Use among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	5.6												
1977	6.1												
1978	5.7	7.6											
1979	6.9	7.7											
1980	6.0	7.0	8.4										
1981	6.0	7.2	7.7										
1982	5.7	7.5	7.8	8.2									
1983	5.5	5.3	8.0	8.5									
1984	4.8	5.8	7.7	6.8	7.5								
1985	5.0	5.6	6.4	7.3	7.5								
1986	4.8	5.3	6.3	6.2	5.3	7.3							
1987	4.8	5.7	7.0	6.1	6.9	7.2							
1988	4.2	4.8	7.2	6.2	6.3	5.7	7.6						
1989	4.2	4.7	5.0	5.1	6.0	6.9	5.6						
1990	3.7	4.0	4.9	5.3	4.8	4.9	5.6						
1991	3.6	3.7	4.9	5.4	4.9	6.2	5.9						
1992	3.4	3.3	4.4	4.2	6.1	4.4	5.8						
1993	2.5	3.2	5.1	4.9	5.1	4.7	4.6						
1994	2.9	3.3	3.9	3.7	3.3	5.4	5.0	7.2					
1995	3.5	3.1	3.5	4.1	4.4	4.7	4.1	5.5					
1996	3.7	2.7	5.1	4.8	3.7	3.6	5.1	7.5					
1997	3.9	4.8	4.6	4.5	5.1	4.2	5.9	4.8					
1998	3.9	3.6	5.7	3.9	3.4	3.1	3.4	6.0	6.9				
1999	3.4	4.1	5.9	4.7	5.1	4.3	5.2	5.2	7.5				
2000	2.9	3.9	5.3	4.2	3.8	3.5	3.9	5.2	6.5				
2001	3.6	3.6	6.2	4.6	5.0	2.7	4.3	5.8	7.5				
2002	3.5	3.9	5.6	5.0	5.4	3.7	3.8	4.8	6.6				
2003	3.2	3.6	5.7	6.5	4.6	5.1	3.5	3.9	7.8	7.8			
2004	2.8	3.7	5.7	5.5	4.3	3.5	3.8	6.3	6.6	9.0			
2005	3.1	3.6	6.0	5.8	6.0	4.6	5.8	6.1	7.2	8.5			
2006	3.0	4.3	5.9	5.7	5.2	5.8	4.5	5.3	7.0	9.5			
2007	3.1	3.4	6.1	6.0	6.5	6.2	5.1	8.1	6.1	8.8			
2008	2.8	2.3	5.5	6.3	6.4	6.3	4.8	5.4	7.2	9.9	11.0		
2009	2.5	2.5	5.7	6.5	5.9	6.5	7.1	6.9	8.5	9.3	9.2		
2010	2.7	1.8	5.4	4.9	5.6	5.7	6.1	6.0	7.8	7.2	10.5		
2011	2.1	2.4	6.1	5.2	5.7	7.0	5.3	7.6	7.4	7.7	11.3		
2012	2.5	3.0	4.9	6.4	5.9	7.5	7.2	6.3	8.3	9.5	10.6		
2013	2.2	2.7	4.9	4.9	6.9	6.5	5.8	6.7	8.7	8.4	10.8	10.5	
2014	1.9	2.9	5.6	5.2	5.7	5.8	7.6	8.0	7.3	8.8	9.8	10.0	
2015	1.9	1.6	3.9	5.2	5.6	7.5	7.8	9.8	8.6	10.0	9.6	11.2	
2016	1.3	2.0	6.0	4.5	6.4	7.5	6.8	7.9	8.5	8.7	9.7	14.5	
2017	1.6	1.1	4.4	6.4	5.5	6.9	6.4	8.7	8.0	10.0	10.0	11.1	
2018	1.2	1.4	3.5	6.0	5.0	5.5	6.4	8.0	8.0	9.9	10.4	11.1	12.3

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

Notes. ' — ' indicates data not available.

FIGURE 5-18d
ALCOHOL
Trends in 2-Week Prevalence of Having 5 or More Drinks in a Row among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

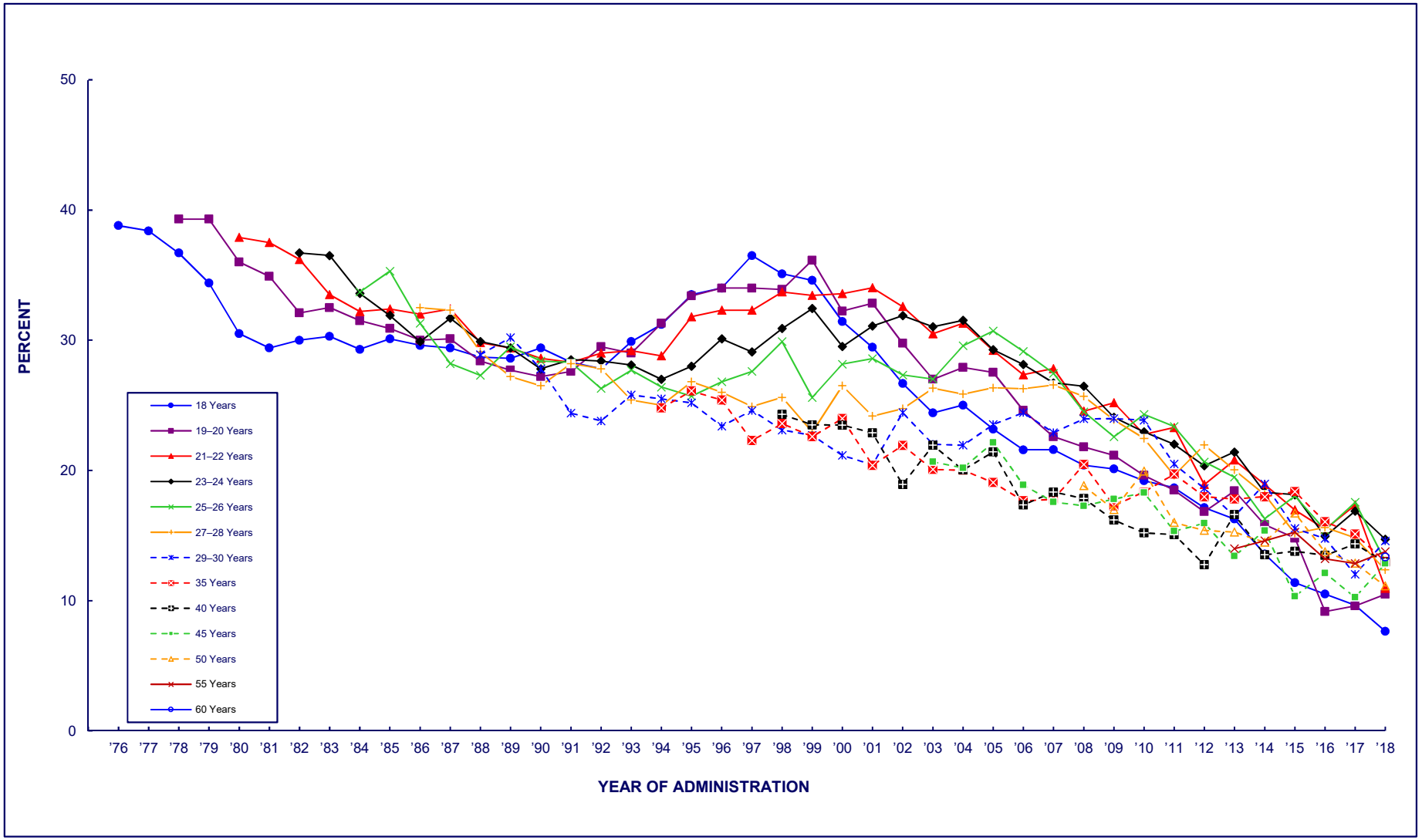
FIGURE 5-18d (cont.)
ALCOHOL
Trends in 2-Week Prevalence of Having 5 or More Drinks in a Row among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	37.1												
1977	39.4												
1978	40.3	41.1											
1979	41.2	42.1											
1980	41.2	42.7	40.7										
1981	41.4	43.1	43.6										
1982	40.5	41.7	41.6	37.1									
1983	40.8	40.9	42.3	39.3									
1984	38.7	41.0	40.4	35.1	33.7								
1985	36.7	41.2	40.4	37.3	33.3								
1986	36.8	41.2	40.8	35.8	31.5	30.1							
1987	37.5	37.2	41.0	36.6	33.3	32.2							
1988	34.7	37.3	42.0	37.0	30.7	28.0	26.7						
1989	33.0	36.9	39.3	35.4	31.7	29.8	26.3						
1990	32.2	36.0	38.1	35.5	32.0	28.9	25.2						
1991	29.8	37.0	40.3	34.4	31.5	28.8	24.3						
1992	27.9	34.0	39.9	34.9	31.8	29.2	25.7						
1993	27.5	34.6	40.3	35.0	32.1	29.0	25.1						
1994	28.2	34.5	40.5	32.9	30.9	28.5	27.5	21.1					
1995	29.8	31.7	38.5	35.6	28.7	26.9	26.3	20.0					
1996	30.2	32.7	38.2	36.3	30.0	29.7	24.9	21.9					
1997	31.3	36.5	40.2	33.4	31.5	29.3	26.5	22.3					
1998	31.5	34.5	39.7	35.3	31.3	28.9	26.6	20.4	19.7				
1999	30.8	35.3	40.2	38.1	33.0	32.0	26.9	21.4	20.5				
2000	30.0	35.3	40.6	37.0	31.5	29.1	24.0	22.2	18.3				
2001	29.7	36.3	42.4	38.2	33.7	29.2	27.3	20.6	21.3				
2002	28.6	36.0	40.7	39.4	34.9	28.9	25.8	22.9	20.8				
2003	27.9	33.6	39.9	39.3	35.1	31.1	26.4	22.4	20.7	20.1			
2004	29.2	35.5	41.7	40.4	36.4	31.3	26.9	21.6	20.2	19.2			
2005	27.1	36.3	40.4	39.2	37.7	31.5	29.1	23.0	22.2	19.6			
2006	25.4	33.9	42.2	43.2	36.0	32.5	29.1	22.5	20.0	19.8			
2007	25.9	31.4	45.8	39.8	38.3	33.4	28.4	23.6	20.4	19.4			
2008	24.6	30.7	42.1	42.2	40.0	35.0	31.9	24.4	21.9	20.9	20.0		
2009	25.2	28.1	41.2	41.7	39.5	34.2	32.1	21.8	25.1	21.8	17.9		
2010	23.2	28.2	39.3	40.1	36.6	35.6	32.6	23.0	21.6	22.1	17.8		
2011	21.6	29.8	39.2	39.9	38.7	35.0	30.4	25.7	22.2	20.0	19.1		
2012	23.7	29.5	39.1	37.5	36.3	35.1	32.8	24.3	22.2	21.0	19.0		
2013	22.1	27.2	40.2	37.7	37.0	33.6	30.9	24.4	24.3	20.1	20.3	17.0	
2014	19.4	28.2	38.4	33.6	32.2	35.5	31.0	24.0	22.3	23.4	21.9	17.7	
2015	17.2	23.7	34.8	35.0	34.8	31.6	27.7	29.2	20.3	20.5	22.0	18.9	
2016	15.5	23.1	38.2	34.7	34.7	30.3	29.8	25.3	22.6	24.2	21.7	19.1	
2017	16.6	22.1	39.8	31.2	33.8	31.4	28.7	27.5	24.5	23.2	19.8	16.9	
2018	13.8	20.5	34.3	37.0	33.5	31.4	30.6	27.3	23.0	24.1	19.3	18.7	16.0

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

Notes. ' — ' indicates data not available.

FIGURE 5-19a
CIGARETTES
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

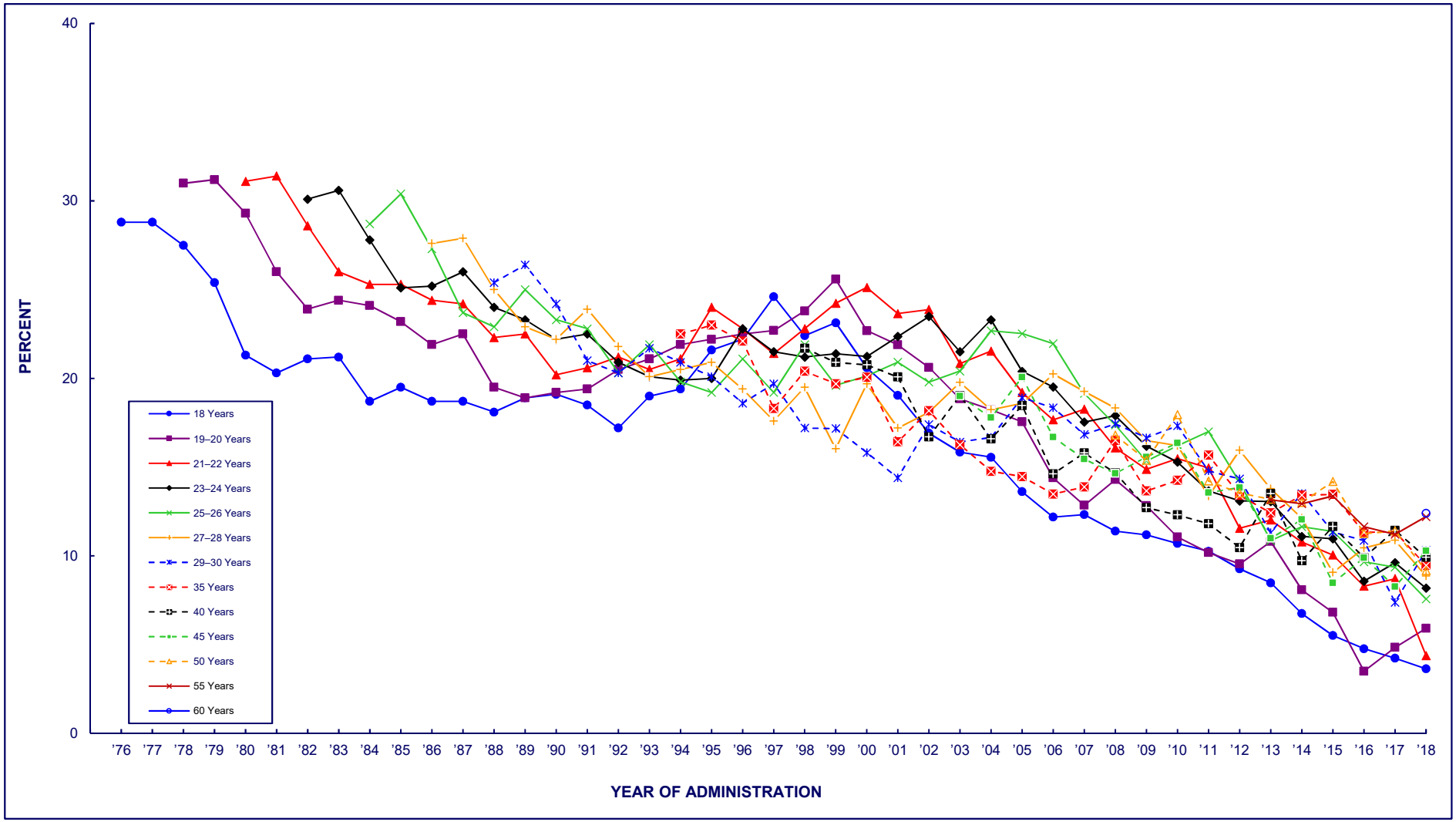
FIGURE 5-19a (cont.)
CIGARETTES
Trends in 30-Day Prevalence
among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	38.8												
1977	38.4												
1978	36.7	39.3											
1979	34.4	39.3											
1980	30.5	36.0	37.9										
1981	29.4	34.9	37.5										
1982	30.0	32.1	36.2	36.7									
1983	30.3	32.5	33.5	36.5									
1984	29.3	31.5	32.2	33.6	33.7								
1985	30.1	30.9	32.4	31.9	35.3								
1986	29.6	30.0	32.0	29.9	31.3	32.5							
1987	29.4	30.1	32.4	31.7	28.2	32.3							
1988	28.7	28.4	29.8	29.9	27.3	29.1	28.9						
1989	28.6	27.7	29.4	29.4	29.5	27.2	30.2						
1990	29.4	27.2	28.6	27.8	28.4	26.5	27.8						
1991	28.3	27.6	28.3	28.5	28.3	28.2	24.4						
1992	27.8	29.5	29.0	28.4	26.3	27.8	23.8						
1993	29.9	29.0	29.2	28.1	27.7	25.4	25.8						
1994	31.2	31.3	28.8	27.0	26.4	25.0	25.5	24.8					
1995	33.5	33.4	31.8	28.0	25.7	26.8	25.2	26.1					
1996	34.0	34.0	32.3	30.1	26.8	26.0	23.4	25.4					
1997	36.5	34.0	32.3	29.1	27.6	24.9	24.6	22.3					
1998	35.1	33.9	33.7	30.9	29.9	25.6	23.1	23.6	24.3				
1999	34.6	36.1	33.4	32.4	25.6	22.9	22.7	22.6	23.5				
2000	31.4	32.2	33.6	29.5	28.2	26.5	21.2	24.0	23.5				
2001	29.5	32.8	34.0	31.1	28.6	24.2	20.4	20.4	22.9				
2002	26.7	29.8	32.6	31.9	27.3	24.7	24.4	21.9	18.9				
2003	24.4	27.0	30.5	31.0	27.0	26.3	22.0	20.1	21.9	20.7			
2004	25.0	27.9	31.3	31.5	29.6	25.9	21.9	20.0	20.0	20.2			
2005	23.2	27.5	29.2	29.3	30.7	26.3	23.5	19.1	21.4	22.1			
2006	21.6	24.6	27.3	28.1	29.1	26.3	24.4	17.7	17.3	18.9			
2007	21.6	22.6	27.8	26.7	27.5	26.6	22.9	17.8	18.3	17.6			
2008	20.4	21.8	24.5	26.5	24.5	25.7	24.0	20.4	17.8	17.3	18.8		
2009	20.1	21.2	25.2	24.1	22.6	23.9	24.0	17.3	16.2	17.8	17.0		
2010	19.2	19.6	22.8	23.0	24.3	22.5	23.9	18.3	15.2	18.3	19.9		
2011	18.7	18.5	23.3	22.0	23.4	19.6	20.5	19.7	15.1	15.3	16.0		
2012	17.1	16.8	18.9	20.4	20.7	22.0	18.6	18.0	12.8	15.9	15.4		
2013	16.3	18.4	20.8	21.4	19.5	20.0	16.5	17.8	16.6	13.4	15.3	14.0	
2014	13.6	15.8	18.9	18.3	16.3	18.1	19.0	18.0	13.5	15.4	14.5	14.6	
2015	11.4	14.8	17.0	18.1	18.0	15.2	15.5	18.4	13.8	10.3	16.7	15.3	
2016	10.5	9.2	15.5	14.9	15.4	15.6	14.8	16.1	13.5	12.1	13.7	13.2	
2017	9.7	9.6	17.3	16.9	17.6	14.8	12.0	15.1	14.3	10.3	12.9	12.9	
2018	7.6	10.5	10.9	14.7	13.0	12.4	14.6	13.0	12.9	12.9	11.1	13.8	13.4

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

Notes. ' — ' indicates data not available.

FIGURE 5-19b
CIGARETTES
Trends in 30-Day Prevalence of Daily Use
among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-19b (cont.)
CIGARETTES
Trends in 30-Day Prevalence of Daily Use among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	28.8												
1977	28.8												
1978	27.5	31.0											
1979	25.4	31.2											
1980	21.3	29.3	31.1										
1981	20.3	26.0	31.4										
1982	21.1	23.9	28.6	30.1									
1983	21.2	24.4	26.0	30.6									
1984	18.7	24.1	25.3	27.8	28.7								
1985	19.5	23.2	25.3	25.1	30.4								
1986	18.7	21.9	24.4	25.2	27.3	27.6							
1987	18.7	22.5	24.2	26.0	23.7	27.9							
1988	18.1	19.5	22.3	24.0	22.9	25.0	25.4						
1989	18.9	18.9	22.5	23.3	25.0	22.9	26.4						
1990	19.1	19.2	20.2	22.2	23.3	22.2	24.2						
1991	18.5	19.4	20.6	22.5	22.8	23.9	21.0						
1992	17.2	20.5	21.2	20.9	20.3	21.8	20.3						
1993	19.0	21.1	20.5	20.1	21.9	20.1	21.7						
1994	19.4	21.9	21.1	19.9	19.8	20.5	20.9	22.5					
1995	21.6	22.2	24.0	20.0	19.2	20.9	20.1	23.0					
1996	22.2	22.5	22.8	22.8	21.1	19.4	18.6	22.1					
1997	24.6	22.7	21.4	21.5	19.2	17.6	19.7	18.3					
1998	22.4	23.8	22.8	21.2	21.9	19.5	17.2	20.4	21.7				
1999	23.1	25.6	24.2	21.4	19.6	16.0	17.2	19.7	20.9				
2000	20.6	22.7	25.1	21.2	20.1	19.7	15.8	20.1	20.8				
2001	19.0	21.9	23.6	22.4	20.9	17.2	14.4	16.4	20.1				
2002	16.9	20.6	23.9	23.5	19.8	18.1	17.4	18.2	16.7				
2003	15.8	18.8	20.8	21.5	20.4	19.8	16.4	16.3	19.0	19.0			
2004	15.6	18.2	21.5	23.3	22.7	18.2	16.7	14.8	16.6	17.8			
2005	13.6	17.6	19.2	20.4	22.5	18.6	18.9	14.5	18.5	20.1			
2006	12.2	14.4	17.7	19.5	22.0	20.2	18.3	13.5	14.6	16.7			
2007	12.3	12.9	18.3	17.5	19.2	19.3	16.8	13.9	15.8	15.4			
2008	11.4	14.3	16.1	17.9	17.4	18.3	17.4	16.5	14.7	14.6	16.8		
2009	11.2	12.8	14.9	16.2	15.3	16.5	16.7	13.7	12.7	15.6	15.4		
2010	10.7	11.1	15.5	15.3	16.2	16.2	17.3	14.3	12.3	16.4	18.0		
2011	10.3	10.2	15.0	13.7	17.0	13.4	14.8	15.7	11.8	13.6	14.2		
2012	9.3	9.5	11.5	13.1	14.1	16.0	14.3	13.4	10.5	13.8	13.5		
2013	8.5	10.8	12.0	13.1	10.9	13.8	11.3	12.4	13.5	11.0	13.2	13.2	
2014	6.7	8.1	10.8	11.1	11.6	12.1	13.5	13.4	9.7	12.0	13.0	12.9	
2015	5.5	6.8	10.0	11.0	11.4	9.1	11.3	13.5	11.6	8.5	14.2	13.4	
2016	4.8	3.5	8.3	8.6	9.7	10.4	10.9	11.3	9.9	9.9	11.3	11.6	
2017	4.2	4.8	8.7	9.6	9.4	10.9	7.4	11.4	11.4	8.3	11.4	11.2	
2018	3.6	5.9	4.4	8.2	7.6	8.9	10.3	9.5	9.9	10.3	9.2	12.2	12.4

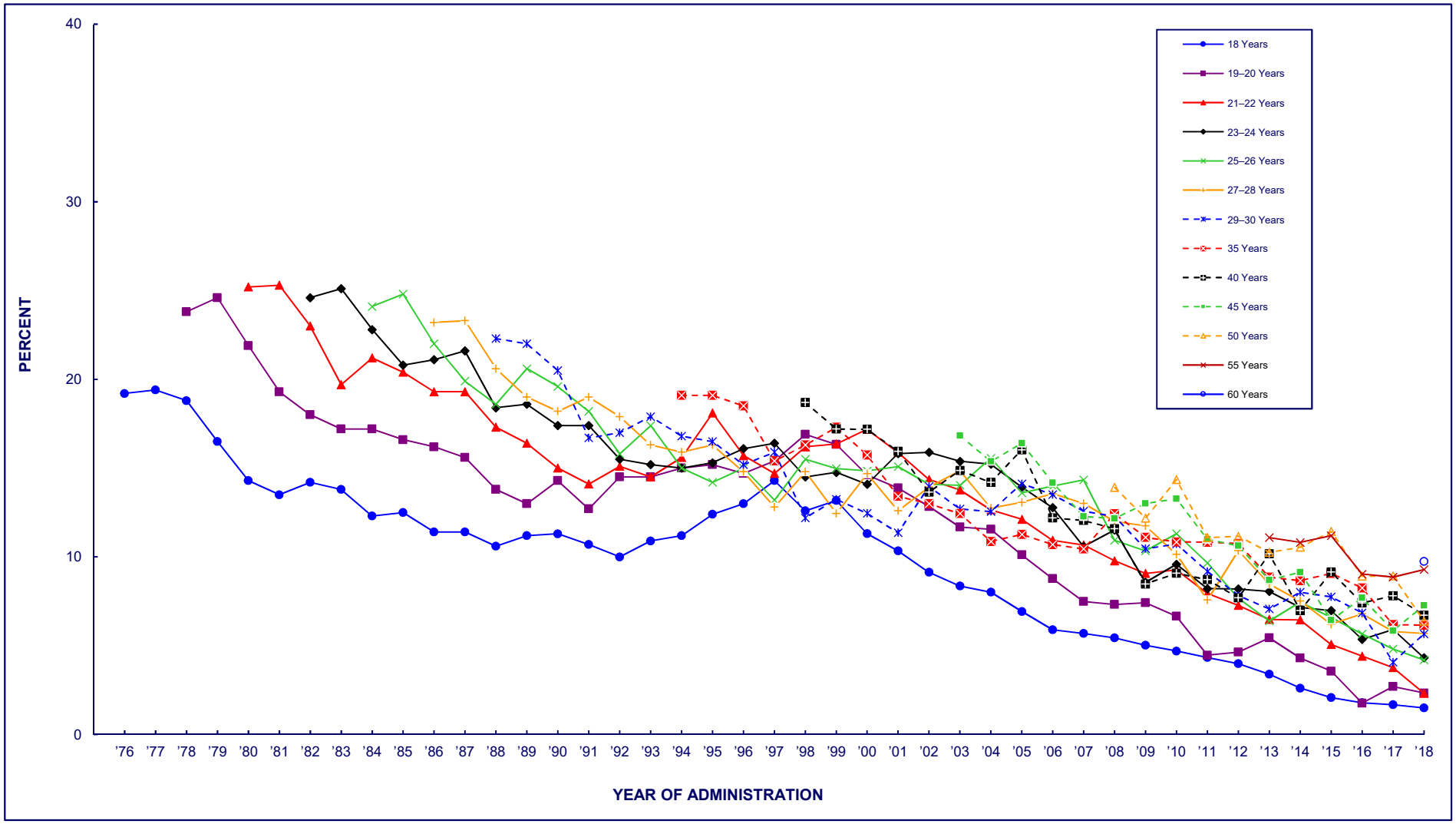
Source. The Monitoring the Future study, the University of Michigan.

Notes. ' — ' indicates data not available.

FIGURE 5-19c

CIGARETTES

Trends in 30-Day Prevalence of Smoking a Half Pack or More per Day among Respondents of Modal Ages 18 through 60, by Age Group



(Figure continued on next page.)

FIGURE 5-19c (cont.)
CIGARETTES
Trends in 30-Day Prevalence of Smoking a Half Pack or More per Day among Respondents of Modal Ages 18 through 60, by Age Group

Year	Age 18	Ages 19–20	Ages 21–22	Ages 23–24	Ages 25–26	Ages 27–28	Ages 29–30	Age 35	Age 40	Age 45	Age 50	Age 55	Age 60
1976	19.2												
1977	19.4												
1978	18.8	23.8											
1979	16.5	24.6											
1980	14.3	21.9	25.2										
1981	13.5	19.3	25.3										
1982	14.2	18.0	23.0	24.6									
1983	13.8	17.2	19.7	25.1									
1984	12.3	17.2	21.2	22.8	24.1								
1985	12.5	16.6	20.4	20.8	24.8								
1986	11.4	16.2	19.3	21.1	22.0	23.2							
1987	11.4	15.6	19.3	21.6	19.9	23.3							
1988	10.6	13.8	17.3	18.4	18.6	20.6	22.3						
1989	11.2	13.0	16.4	18.6	20.6	19.0	22.0						
1990	11.3	14.3	15.0	17.4	19.6	18.2	20.5						
1991	10.7	12.7	14.1	17.4	18.2	19.0	16.7						
1992	10.0	14.5	15.1	15.5	15.8	17.9	17.0						
1993	10.9	14.5	14.5	15.2	17.4	16.3	17.9						
1994	11.2	15.0	15.6	15.0	15.0	15.9	16.8	19.1					
1995	12.4	15.2	18.1	15.3	14.2	16.3	16.5	19.1					
1996	13.0	14.7	15.7	16.1	15.0	14.8	15.2	18.5					
1997	14.3	15.4	14.7	16.4	13.2	12.8	15.9	15.4					
1998	12.6	16.9	16.2	14.5	15.5	14.8	12.2	16.3	18.7				
1999	13.2	16.3	16.4	14.8	15.0	12.4	13.2	17.3	17.2				
2000	11.3	14.6	17.2	14.1	14.8	14.7	12.5	15.7	17.2				
2001	10.3	13.9	15.9	15.8	15.1	12.6	11.4	13.4	15.9				
2002	9.1	12.8	14.4	15.9	14.1	13.9	14.0	13.0	13.6				
2003	8.4	11.7	13.8	15.4	14.0	14.8	12.7	12.4	14.9	16.8			
2004	8.0	11.6	12.7	15.2	15.6	12.8	12.5	10.9	14.2	15.4			
2005	6.9	10.1	12.1	13.9	13.6	13.1	14.1	11.3	16.0	16.4			
2006	5.9	8.8	10.9	12.8	14.0	13.6	13.5	10.7	12.2	14.2			
2007	5.7	7.5	10.7	10.6	14.3	13.0	12.6	10.5	12.1	12.3			
2008	5.4	7.3	9.8	11.5	10.9	12.0	12.3	12.4	11.6	12.2	13.9		
2009	5.0	7.4	9.1	8.6	10.3	11.8	10.5	11.1	8.5	13.0	12.2		
2010	4.7	6.7	9.3	9.6	11.3	10.1	10.7	10.8	9.1	13.3	14.4		
2011	4.3	4.5	7.9	8.2	9.7	7.6	9.2	10.8	8.7	11.0	11.1		
2012	4.0	4.6	7.3	8.2	7.7	10.4	7.8	10.8	7.7	10.6	11.2		
2013	3.4	5.4	6.5	8.1	6.4	8.5	7.1	8.9	10.2	8.7	10.3	11.1	
2014	2.6	4.3	6.4	7.1	7.5	7.5	8.0	8.7	7.0	9.1	10.5	10.8	
2015	2.1	3.6	5.1	7.0	6.6	6.2	7.7	9.1	9.2	6.4	11.4	11.2	
2016	1.8	1.8	4.4	5.4	5.7	6.8	6.9	8.3	7.4	7.7	8.9	9.0	
2017	1.7	2.7	3.8	5.9	4.8	5.8	4.1	6.2	7.8	5.8	8.9	8.9	
2018	1.5	2.3	2.3	4.3	4.2	5.7	5.7	6.2	6.7	7.3	6.4	9.3	9.7

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

Notes. ' — ' indicates data not available.

Chapter 6

ATTITUDES AND BELIEFS ABOUT DRUGS AMONG YOUNG ADULTS

One of the most important theoretical contributions of MTF has been to demonstrate the extent to which attitudes and beliefs about drugs can help explain the use of drugs. Earlier volumes in this monograph series, as well as other publications from the study, have demonstrated that shifts in certain attitudes and beliefs—in particular the degree of risk of harm perceived to be associated with use of a particular drug—are important in explaining changes in actual drug-using behavior. Indeed, on a number of occasions in these volumes and elsewhere we have accurately predicted such changes in use by using perceived risk as a *leading indicator of use.*[1] In this chapter, we review trends in these attitudes and beliefs held by young adults since 1980.

PERCEIVED HARMFULNESS OF DRUGS

Figures 6-1 through 6-32 present three separate trend lines for four-year age strata: Respondents who are one to four years beyond high school (modal ages 19-22), five to eight years beyond high school (modal ages 23-26), and nine to twelve years beyond high school (modal ages 27-30). For comparison purposes, data are also included for the high school senior classes, listed as modal age 18. Figures 6-1 to 6-3 present trends in the percentages of young adults aged 18 to 30 who perceive a "great risk" of harm (physically or in other ways) associated with three different levels of marijuana use—trying it once or twice (experimental), using it occasionally, and using it regularly.[2] Subsequent figures do the same for selected levels of use of various other licit and illicit drugs. Table 6-1 provides the tabular information underlying the figures.

For most of the life of the study, these questions were contained in one questionnaire form only, limiting the numbers of follow-up cases. Accordingly, we have used the four-year age bands to increase the available sample sizes to about 250-600 weighted cases per year for each age band, thereby improving the reliability of the estimates. (The numbers of weighted cases are given at the end of Table 6-1. The actual numbers of respondents are somewhat larger.) Still, these are relatively small sample sizes for young adults compared to those available regarding attitudes for 8th, 10th, and 12th graders, and thus the change estimates are relatively less stable.

Beginning with 2012 we expanded the numbers of forms from which these data are drawn; this increased the sample sizes from that point forward, thus improving the reliability of both the point estimates and the trend estimates. Because the questions are contained in different numbers of

[1] See also: Bachman, J. G., Johnston, L. D., O'Malley, P. M., & Humphrey, R. H. (1988). Explaining the recent decline in marijuana use: Differentiating the effects of perceived risks, disapproval, and general lifestyle factors. *Journal of Health and Social Behavior, 29,* 92–112; Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). Explaining the recent decline in cocaine use among young adults: Further evidence that perceived risks and disapproval lead to reduced drug use. *Journal of Health and Social Behavior, 31,* 173–184; Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1998). Explaining recent increases in students' marijuana use: Impacts of perceived risks and disapproval, 1976 through 1996. *American Journal of Public Health, 88,* 887–892; Johnston, L. D. (1981). Characteristics of the daily marijuana user. In R. de Silva, R. L. DuPont, & G. K. Russell (Eds.), *Treating the marijuana-dependent person* (pp. 12–15). New York: The American Council on Marijuana; Johnston, L. D. (1985). The etiology and prevention of substance use: What can we learn from recent historical changes? In C. L. Jones & R. J. Battjes (Eds.), *Etiology of drug abuse: Implications for prevention* (NIDA Research Monograph No. 56, DHHS Publication No. ADM 85 1335, pp. 155–177). Rockville, MD: National Institute on Drug Abuse; Keyes, K. M., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., Bachman, J. G., Li, G., & Hasin, D. (2011).The social norms of birth cohorts and adolescent marijuana use in the United States, 1976-2007. *Addiction, 106*(10), 1790-1800.

[2] Beginning in 2018, the wording of this question was changed such that "smoke marijuana" was changed to "use marijuana."

forms for the different drugs, the sample sizes vary between drugs, as is noted in the tables. For each question, we include data from all available forms.

Because of the nature of the MTF design, trend data are available for a longer period for 19-22 year olds (since 1980) than for 23-26 year olds (since 1984) or 27-30 year olds (since 1988). Also displayed in Table 6-1 are comparison data for 12th graders, shown here as 18 year olds, from 1980 onward. (See also Table 8-3 in *Volume I* for the longer-term trends in 12th graders' levels of perceived risk.) Questions about these attitudes and beliefs are not included in the questionnaires for respondents over age 30 due to the length limitations imposed by using a single questionnaire form for respondents ages 35 and older.

As noted earlier in this volume, for 2018 data collections of 19-30 year olds, MTF randomly assigned half to receive the typical mail survey protocol and half to be pushed to web-based surveys (see Chapter 3). In comparing the attitudes between the two conditions, there were very few significant differences (about 3% of the over 500 comparisons) and thus we combined estimates as a weighted average for 2018. Exceptions (i.e., when there are significant differences between the two conditions) are noted in Tables 6-1 and 6-2.

- Table 6-1 and Figures 6-1 to 6-32 illustrate considerable differences in the degree of risk of harm young adults have associated with various drugs. In general, the results closely have paralleled the distinctions in degree of risk across various drugs made by 12th graders.

- ***Marijuana*** was seen as the least risky of the illicit drugs, although sharp distinctions were made between different levels of marijuana use (Table 6-1, Figures 6-1 through 6-3). In 2018, experimental use of marijuana (i.e., trying it once or twice) was perceived as being of great risk by only 6% to 8% of all high school graduates ages 19-30, whereas regular use was perceived to carry great risk by a considerably higher percentage (21-25%). Since 2006, there have been very substantial declines in perceived risk of regular marijuana use; in 2006, 55-58% of all four age groups saw great risk, and by 2018, 21-25% did so. These substantial declines suggest a possible period effect that has affected all age groups, indicative of a wide-ranging cultural change towards marijuana use. This change likely instigated and was further reinforced by increasing discussion about marijuana and the enactment of legislation at the state level liberalizing marijuana laws, including for medical use and for recreational use by adults. While actual law changes are specific to individual states, the discussions are prominent nationwide, and we believe have a direct effect on perceived risk across the nation. Levels of *perceived risk of regular marijuana use* in 2017 and 2018 were *the lowest observed* since each of the young adult age groups was included in the study, going back to 1980 in the case of 19-22 year olds. In 2018, the level significantly declined 5.2 percentage points to 22.1% for the 19-22 year olds; it declined nonsignificantly 2.2 percentage points to 21.1% for 23-26 year olds; for 27-30 year olds, it was level at 24.8%. And likely not coincidentally, prevalence of daily marijuana use in 2018 was at a new high among young adults at 8.0% (as discussed in Chapter 5).

- In the mid-1980s and early 1990s, fewer of the older age groups attached great risk to regular use of ***marijuana*** than did the younger respondents (Figure 6-3). Indeed, there was a regular negative ordinal relationship between age and perceived risk for some years after

1980, when the first such comparisons were available. Although at first this looked like an age effect, the MTF design allowed us to recognize it as a cohort effect; the younger cohorts initially perceived marijuana as more dangerous than the older cohorts did and persisted in such beliefs as they grew older. Newer cohorts, however, showed lower levels of perceived risk that they then carried up the age spectrum. As a result, in the past few years, age differences have been slight.

The decline in perceived risk in regular use that began in the 1990s was greater in the younger age bands, including grades 8 and 10, and least among the 27-30 year olds. We believe that much of the eventual decline in perceived risk in the older age bands resulted directly from replacement of earlier cohorts by later, less concerned ones. The credibility of this view is strengthened by the 1993-1995 reversal of the relationship between age and perceived risk of regular use. This reversal is consistent with an underlying cohort effect and could not simply reflect an association between age and a regular change in these attitudes. The decline in perceived risk of regular marijuana use ended in a somewhat staggered fashion—among 12th graders in 1999, among 19-22 year olds in 2001, among 23-26 year olds in 2002, and among 27-30 year olds in 2004. This was also indicative of a cohort effect playing out in these attitudes. In 2007 all four age strata showed declines of three to four percentage points in perceived risk of regular marijuana use; although no one of these declines was statistically significant taken alone, the consistency across all four groups suggests that the shift was real. Since then the declines have continued, though somewhat erratically; but all four age groups showed substantial declines between 2006 and 2018 in perceived risk of regular marijuana use, suggesting a possible period effect. Indeed, the age bands 18, 23-26, and 27-30 all showed significant one-year declines in perceived risk of regular marijuana use from 2014 to 2015, with continuing (but nonsignificant) declines for all age groups in 2016, and continuing significant declines in the older two age groups and nonsignificant declines in the two younger age groups in 2017. In 2018, as mentioned above, there was a significant decline in the 19-22 age group, a nonsignificant decline for the 23-26 age group, and essentially no change for the 27-30 age group. Thus, for the two younger age groups, the 2018 levels are at all-time lows, with the level remaining at an all-time low from 2017 for the oldest age group.

- Young adults (ages 19-30) viewed experimental use of any of the ***other illicit drugs*** as distinctly riskier than the experimental use of marijuana (which was at 6% to 8% in 2018). About 30-37% of young adults thought trying ***sedatives (barbiturates)*** involved great risk; the corresponding figures were 33-34% for ***amphetamines,*** 34-39% for ***LSD,*** 52-54% for ***narcotics other than heroin,*** 44-47% for ***MDMA (ecstasy and Molly),*** 45-49% for ***cocaine powder,*** and 73-78% for ***heroin.*** Note that two classes of prescription drugs, sedatives and amphetamines, have among the lowest levels of perceived risk among this set. (Perceived risk of tranquilizers is not asked, but likely would rank low as well.)

- Items about perceived risk of ***synthetic marijuana*** use were added to the questionnaires in 2012 (Figures 6-4 and 6-5). These drugs are sold over the counter in small packets containing plant material that has been sprayed with any number of chemicals with chemical structures similar to cannabinoids. The percent seeing great risk in trying synthetic marijuana in the three young adult age bands were 29-31% in 2012 and 40-46%

in 2018, reflecting a clear increase in perceived risk in all four age groups over that interval. Following increases of 3 to 8 percentage points in perceived risk for all three young adult age groups between 2015 and 2016, it leveled or changed nonsignificantly for each of these age groups between 2016 and 2018; thus, 2018 levels of perceived risk are at or near their highest for all three since 2012. Correspondingly, as discussed in Chapter 5, use of synthetic marijuana has fallen precipitously since 2012 as perceived risk has risen.

- Perceived risk of experimental use of ***LSD*** continued a nonsignificant decline in 2018 for all four age groups, except for the 23-26 age group, which showed a nonsignificant increase; proportions seeing great risk of harm in experimental use were 29%, 34%, 36%, and 39%, respectively. The older age groups have been more likely to see LSD as dangerous (Figures 6-6 and 6-7). These age distinctions became sharper through about 2001 for experimental use, as perceived risk declined more in the younger age groups, indicating some important cohort changes in these attitudes, quite likely as a result of generational forgetting of the dangers of LSD. Generational forgetting is a phenomenon wherein younger replacement cohorts no longer carried the beliefs—nor had the direct or vicarious experience upon which those beliefs were based—that the older cohorts had at that age. (The implications of generational forgetting for prevention are discussed in the last section of this chapter.) The distinctions continued to grow for regular use of LSD through 2015 as perceived risk at age 18 continued a long-term uneven decline. From 2015 through 2018, perceived risk started to decline for the older age group too, reducing the age gap in perceived risk.

- Perceived risk of experimenting with ***MDMA (ecstasy*** and, more recently, ***Molly)*** increased nonsignificantly in 2018 for 19-22 and 23-26 year olds, to 45% and 44%, respectively; it declined nonsignificantly for 27-30 year olds to 47% (Figure 6-18). These questions were introduced in the follow-up surveys in 1989, but were not asked of 12th graders until 1997 (due to concerns about introducing the secondary school students to a drug with such an alluring name). At the beginning of the 1990s, all young adult age groups viewed ecstasy as a fairly dangerous drug, even for experimentation. But, again, the different age bands showed diverging trends during the 1990s, with the oldest two age bands continuing to see ecstasy as quite dangerous, but the 19-22 year olds (and very likely the 12th graders, for whom we did not have data until 1997) coming to see it as less so. In 2000, 38% of 12th graders saw great risk in trying ecstasy versus 49% of 27-30 year olds; in 2001, the corresponding figures were 46% and 54%. In fact, three of the four age groups showed appreciable increases in perceived risk of ecstasy use in 2001, which led us to predict a decline in use. The increase in perceived risk continued in 2002 in the two youngest age strata, and their use of ecstasy did, indeed, begin to decline, and decline sharply (see chapter 5). Perceived risk of using once or twice continued to rise among those 18 years old, whose levels exceeded the levels seen in the other age bands from 2004 through 2009. Since about 2010, perceived risk of trying ecstasy has generally converged among the age groups, showing some uneven change for young adults and a leveling for 12th graders. In 2018, perceived risk ranged from 44% to 48% for all four age groups (Figure 6-18).

- Perceived risk of ***salvia*** use (Table 6-1) was included for the first time in 2012 in the young adult questionnaires; the percent seeing great risk in trying salvia ranged from 19% to 23%

among the young adults in 2012 and from 19% to 27% in 2018. Among 12th graders, however, in the same period there was a decline in perceived risk from 14% in 2012 to 10% in 2018 (see Volume I[3]).

- Recent years showed little systematic change in perceived risk of ***cocaine*** use among young adults and not a great deal of difference in this belief among the different age groups (Figures 6-9 through 6-11). In 2018, perceived risk of experimental use declined nonsignificantly for all age groups except for a nonsignificant increase for 23-26 year olds; among the four groups in 2018, it ranged from 48% to 56%. Regarding previous trends, a decline in perceived risk of trying cocaine and occasional use began among 19-22 year olds after 1994, among 23-26 year olds after 1999, and among 27-30 year olds after 2001, suggesting a cohort effect in this belief (Figures 6-9 and 6-10). Young adults generally reported somewhat higher perceived risk with respect to regular cocaine use than did 12th graders (Figure 6-11). The age differences were smaller for occasional and experimental use. Since the early 1990s, perceived risk of regular use of cocaine gradually declined among 12th graders, likely due to generational forgetting of the dangers of this drug, and resulted in an increasing gap between them and the older age groups (Figure 9-10).

  To illustrate cohort effects in the trends, we note that between 1980 and 1986, among 12th graders and the young adult age groups, the danger associated with using cocaine on a regular basis grew considerably -- by 13 and 17 percentage points, respectively. Interestingly, these changed beliefs did not translate into changed behavior until the perceived risk associated with experimental and occasional use began to rise sharply after 1986. When these two measures rose, a sharp decline in actual use occurred. We hypothesized that respondents saw only these lower levels of use as relevant to them and, therefore, saw themselves as vulnerable only to the dangers of such use. (No one starts out planning to be a heavy user; further, in the early 1980s, cocaine was not believed to be addictive among many.) Based on this hypothesis, we included the additional question about occasional use in 1986, just in time to capture a sharp increase in perceived risk later that year. This increase occurred largely in response to the growing media frenzy about cocaine—and crack cocaine, in particular—and to the widely publicized, cocaine-related deaths of several public figures (most notably Len Bias, a collegiate basketball star and a top National Basketball Association draft pick). After stabilizing for a few years, perceived risk began to fall off around 1992 among 12th graders, but not among the older age groups, again suggesting that lasting cohort differences were emerging. Now, over 30 years later, none of the young adult age groups has had much exposure to the cocaine epidemic of the mid-1980s, which likely explains why there no longer is much age-related difference in the level of perceived risk, except with regards to regular use, for which 12th graders have been showing a declining level of perceived risk, unlike any of the young adult strata (Figure 6-11). This likely reflects a generational forgetting of the dangers of cocaine by cohorts that are further and further from the peak of the cocaine epidemic in the mid-1980s.

- Perceived harmfulness of ***crack*** use has tended to be very high and was lowest among 12th graders for many years through 2012 (Figures 6-12 through 6-14); we no longer ask these

[3] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

questions of young adults. High school seniors have been considerably less likely than any of the older age groups to view occasional and regular use of crack cocaine as dangerous. Trend data (available since 1987) on the risks perceived to be associated with crack use showed increases in 1987-1990 for all age groups, followed by relatively little change in the older age strata. During the 1990s, twelfth graders showed decreases in the perceived risk of experimental use of crack—perhaps reflecting the onset of generational forgetting of its dangers—leaving them as perceiving considerably less risk than the older groups. The young adult age groups showed a staggered decline in this measure, with 19-22 year olds showing a decline after 1994, 23-26 year olds since 1996, and 27-30 year olds after 2001. As a result, the several ages differed more in their levels of perceived risk of crack use, until declines in the older age groups after about 2002. Given this lack of historical or age variation, questions about perceived risk of crack use were dropped from the young adult questionnaires in 2012 to make room for such questions about other drugs.

- Perceived risk of trying ***amphetamines*** (Figure 6-23) continued to show uneven change across the four age groups in 2018, decreasing nonsignificantly for the two younger age groups, increasing significantly for the 23-26 year olds, and increasing nonsignificantly for 27-30 year olds; perceived risk in 2018 was 30%, 33%, 34%, and 33%, respectively. Regarding earlier trends, perceived risk increased in all four age strata very gradually from 1980, when first measured, through 2010, with little difference among them. In 2011 it dropped in all strata and then held level thereafter through 2016 when it ranged from 31% to 34% across the four age groups. (Note that in 2011, we changed examples of amphetamines from "uppers, pep pills, bennies, speed" to "uppers, speed, Adderall, Ritalin, etc.", which appears to account for the change in 2011.) Across the years, there was more difference among the age groups with regard to the risk attached to regular amphetamine use (Figure 6-24), with the older two strata generally seeing greater risk than the younger two strata, and especially the 12th graders. The younger two strata showed an increase in perceived risk during the 1980s and then some fallback in the early 1990s, before stabilizing. The sharp decline observed for experimental use after 2010 was also seen for regular use from 2009 to 2011 among 12th graders and from 2011 through 2012 among all of the young adult strata; since then, change has been uneven for the four age groups. Across the past decade, perceived risk of regular use has shown decline, sometimes an uneven decline, for all four age groups through 2018.

- Perceived risk questions for ***Adderall*** (Table 6-1) were added to the young adult questionnaires for the first time in 2012. They showed that perceived risk of using once or twice ranged from 29% to 30% in the three young adult age bands in 2012. Perceived risk decreased and showed an uneven modest change over the years, with few consistent differences across the range bands. It decreased nonsignificantly in 2018 for the 18 year olds and the two older age groups, and increased nonsignificantly for 19-22 year olds; the range in 2018 was 30% to 37%.

- Measures of perceived risk of ***crystal methamphetamine (ice)*** use are no longer included for young adults (Table 6-1). These measures were introduced in 1990, and the results showed what might be an important reason for its lack of rapid spread. More than half of all 12th graders and young adults perceived it as quite dangerous even to try, perhaps

because it was likened to crack in many media accounts. (Both drugs come in crystal form, both are burned and the fumes inhaled, both are stimulants, and both can produce a strong dependence.) There was rather little age-related difference in perceived risk associated with use of crystal methamphetamine in 1990 and 1991, although the two youngest age groups were somewhat higher. But as perceived risk fell considerably among 12th graders (and eventually among 19-22 year olds) and held steady or rose in the oldest two age groups, an age-related difference emerged. Twelfth graders have fairly consistently had the lowest level of perceived risk since 2002. Since about 2003 or 2004, perceived risk has risen some among all of the age strata, narrowing the age-related differences that had emerged for a few years. In 2011 perceived risk of trying this drug stood at 67% among 12th graders and at 73-75% in all of the older strata. Given this lack of variation in recent years and low levels of actual use, these questions were discontinued in the young adult (but not in the secondary school) surveys in 2012 to make room for such questions about other drugs.

- In 2012 perceived risk questions about the use of ***bath salts***, over-the-counter synthetic stimulants, were added to the questionnaires (Table 6-1). That year fairly high proportions of the young adults saw great risk of harm in even trying bath salts (45-49%), but considerably fewer of the 18 year olds did (33%). Perceived risk has increased dramatically for bath salts in all four age strata, with increases ranging from 18 percentage points among 12th graders to 19 to 28 percentage points in the three young adult age strata. In 2018 even trying bath salts once or twice was seen as dangerous by between 63% and 77% in the young adult age strata, very high levels. (Some of this shift occurred because fewer respondents chose the "Can't say, drug unfamiliar" option, suggesting that more of them were familiar with the drug and the risks associated with it.)

- Perceived risk of experimental use of ***heroin*** (Figure 6-22) has shown long-term gradual increases for all age groups, though it appears to have leveled in the past few years among 12th graders, with 2018 percentages being 62%, 73%, 76%, and 78%, respectively. Across the years, young adults have consistently been more cautious than 12th graders about ***heroin*** use, suggesting some age effect (Figures 6-20 through 6-22). In general, there has been relatively little change over the years in the proportions of all age groups seeing *regular* heroin use as dangerous, with the great majority of each group (over 80%) consistently holding this viewpoint.[4] However, with regard to perceived risk of experimental use of heroin, there was a long-term gradual rise in all age strata from the mid-1980s through 2015, with it showing some leveling since (Figure 6-20). From 1980 to 1986 there was a downward shift among 12th graders in the proportion seeing great risk associated with trying heroin (a trend that began in 1975 noted in *Volume I*) and some decline among 19-22 year olds. Following this decline, young adults showed a gradually increasing caution about heroin use in the latter half of the 1980s—possibly due to heroin injection being associated with the spread of HIV—followed by a leveling through most of the 1990s (note that young adult data does not extend back equally far for all young adult age groups). In 2018, as in all previous years, more young adults than 12th graders saw experimental and occasional heroin use as risky (Figures 6-20 and 6-21); and this difference has grown some

[4] As we note in Volume 1, in 2018, 81% of 12th grade students perceived great risk in regular heroin use, which is a lower bound for the range of 80% to 90% where it has fluctuated throughout the study.

since the early 1990s with regard to regular use, suggesting some generational forgetting of the dangers by the 12th graders (Figure 6-22).

It is noteworthy for public health purposes that in 1996 and 1997, young adults' perceived risk of experimental use of heroin increased some, as happened among 12th graders (as well as among 8th and 10th graders). These various trends could reflect, in chronological order, (a) the lesser attention paid to heroin by the media during the late 1970s and early 1980s as cocaine took center stage; (b) the subsequent great increase in attention paid to intravenous heroin use in the latter half of the 1980s due to the recognition of its importance in the spread of HIV/AIDS; (c) the emergence in the 1990s of heroin so pure that people no longer needed to use a needle to administer it; and (d) the subsequent increased attention given to heroin by the media (partly as a result of some overdose deaths by public figures and partly prompted by the emergence of "heroin chic" in the design industry), as well as through an anti-heroin media campaign launched by the Partnership for a Drug-Free America in June 1996.

- Perceived risk questions about ***narcotics other than heroin*** (without medical supervision) were first asked of the young adults in 2012; between 43% and 47% of the three age groups saw great risk of harm in experimenting with such drugs. They have shown little systematic change since then through 2017 (with none of the one-year changes being significant), and then increased nonsignificantly by 6 to 8 percentage points for the three young adult age groups in 2018 (ranging from 52% to 54%) (Table 6-1). Many more see regular use as having great risk of harm (between 78% and 80% in 2018) with rather little systematic change since 2012; all three young adult age groups showed nonsignificant increases in 2018. As with heroin use discussed above, young adults have tended to see use of narcotics other than heroin as more risky than have 12th graders. It may seem surprising, given the heavy public attention paid to narcotic drugs in recent years that perceived risk has not risen. On the other hand, it is quite high relative to many of the controlled substances and perhaps there was a rise prior to 2012.

- In 2018, a minority of young adults saw ***binge drinking*** (having 5 or more drinks in a row) on weekends as dangerous (39-40%), as did a slightly larger proportion of 12th graders (45%; Figure 6-30). None of the changes in 2018 were significant, which has been true for the past several years for one-year changes, and there have been few differences among the young adult age groups. Regarding earlier trends, the belief that binge drinking carries great risk increased over the 1980s in these age groups, rising among 12th graders from 36% in 1980 to 49% in 1992. Among 19-22 year olds, it rose from a low of 30% in 1981 to 42% in 1992; the increases among the older groups were smaller. The increase in this belief could well help to explain the important decline in actual binge drinking, and could in turn be explained by the media campaigns against drunk driving in the 1980s and the increase in the drinking age in a number of states.[5] Following a staggered pattern, perceived risk of harmfulness reached a peak among 18 year olds in 1992, among 19-22 year olds in

[5] See O'Malley, P. M., & Johnston, L. D. (1999). Drinking and driving among U.S. high school seniors: 1984–1997. *American Journal of Public Health, 89,* 678–684; O'Malley, P. M., & Johnston, L. D. (2003). Unsafe driving by high school seniors: National trends from 1976 to 2001 in tickets and accidents after use of alcohol, marijuana and other illegal drugs. *Journal of Studies on Alcohol, 64,* 305–312; and O'Malley, P. M., & Johnston, L. D. (2013). Driving after drug use or alcohol use by American high school seniors, 2001-2011. *American Journal of Public Health, 103*(11), 2027-2034.

1993, among 23-26 year olds in 1994, and among 27-30 year olds in 1995, suggesting some cohort effect in this important belief. This staggered pattern of additional peaks occurred again in 1996 for 18 year olds, in 1998 for 19-22 year olds, and in 1999 for the two older groups. It also appears that this cohort effect followed a period effect of increased perceived risk that took place for all age groups earlier in the 1980s. From 1998 through 2018, perceived risk of binge drinking has not changed much among the 19-30 age groups but has risen slightly among the 18 year olds.

- The perception that having ***one or two drinks per day*** is dangerous continues to be low for all four age groups, with 2018 percentages of 23%, 18%, 17%, and 17%, respectively (Figure 6-28); none of the changes in 2018 were significant. Regarding trends, between 1980 and 1991, a very gradually increasing proportion of all four age groups viewed this as being risky, but then they all showed a parallel decrease in perceived risk of this behavior through at least 2000. It seems likely that the earlier increase was due to the general rising concern about the consequences of alcohol use, particularly drunk driving, and that the subsequent decline in perceived risk was due at least in part to increasing reports of cardiovascular health benefits of light-to-moderate daily alcohol consumption. From about 2001 through 2018, there has been little systematic change in this belief in any of the age strata, and there has been little difference by age across the entire 35-plus-year interval. However, since 1980, 18 year olds have consistently seen the least risk from heavy daily drinking and the most risk from weekend binge drinking (Figures 6-29 and 6-30).

- In 2018, more than four fifths (82-85%) of young adults perceived regular ***pack-a-day or more cigarette smoking*** as entailing high risk (Figure 6-31), with none of the changes in 2018 being significant. In recent years, 18 year olds consistently showed lower perceived risk than young adults did (and as reported in *Volume I*, 10th graders were still lower and 8th graders lowest). Clearly, there is an age effect in young people coming to understand the dangers of smoking. Unfortunately, it appears that much of the learning about the risks of smoking happens *after* smoking initiation has occurred and many young people have already become addicted. These beliefs about smoking risks have strengthened very gradually in all age groups from senior year forward during the years we have monitored them (see Table 6-1 and Figure 6-31). The parallel changes in these beliefs across the different age groups indicate a period effect, suggesting that all of the age groups responded to common influences in the larger culture. These influences are discussed at length in *Volume I*[6] in chapter 8 on attitudes and beliefs. The rise in perceived risk slowed between 2002 and 2011, with only slight increases, mainly in the two youngest age strata. Changes since 2011 have been minimal.

- In 2014 items concerning perceived risk of using ***e-cigarettes*** regularly were added to the 12th grade and young adult surveys. These levels contrast starkly with the 82%-85% seen for cigarette smoking. In 2014, regular e-cigarette use was seen as dangerous by 14% of the 12th graders and 17% to 22% of the young adults (Table 6-1). Perceived risk increased for all age groups in 2015 and again in 2016, with 18% of the 12th graders and 28% to 31% of the young adults reporting regular use as dangerous (2015 to 2016 increases were

[6] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

significant for 19-22 and 23-26 year olds); however, these increases appear to have stalled for all age groups in 2017 and 2018, with percentages of 18% for 12th graders and 25% to 33% for three young adult strata in 2018.

- The regular use of ***smokeless tobacco*** was seen as dangerous by 48-57% of young adults and 40% of 12th graders in 2018, revealing a strong ordinal association with age—the older the age, the higher the perceived risk. These beliefs gradually strengthened from 1986 through about 2001 in all age groups covered (Figure 6-32 and Table 6-1), particularly among the two older age groups. As with cigarettes, the change appears to reflect a secular trend (period effect) because of its parallel occurrence in all age groups. Perceived risk has not changed among the young adults in any systematic fashion since 2001; these data are based on only one form, so year-to-year nonsignificant fluctuations can appear to be relatively large.

PERSONAL DISAPPROVAL OF DRUG USE

For most of the life of the study, follow-up respondents were asked the same questions asked of 12th graders in one of the six questionnaire forms concerning the extent to which they personally disapprove of various drug-using behaviors among "people (who are 18 or older)." Trends in the answers of young adults in the three age bands of 19 to 22, 23 to 26, and 27 to 30 are contained in Table 6-2. Comparison data for 12th graders are also provided for 1980 onward. (See Table 8-6 in *Volume I* for the longer-term trends in 12th graders' levels of disapproval associated with using the various drugs.) As with the perceived risk questions, starting in 2012 the estimates were based on all questionnaire forms on which each disapproval question was located in order to increase sample size and, therefore, reduce sampling error. Each question is footnoted in Table 6-2 to indicate on how many forms it was contained in 2012 and thereafter. All summaries below pertain to Table 6-2.

- In general, disapproval levels of adult use of the various drugs ranked similarly across substances for both 12th graders and young adults. The great majority of young adults disapproved of using, or even experimenting with, all of the ***illicit drugs other than marijuana.*** For example, 93% or more of young adults in 2018 disapproved of *regular* use of each of the following drugs: ***LSD, cocaine, heroin,*** and ***sedatives (barbiturates).*** Fully 67% to 97% of young adults disapproved of even *experimenting* with each of these same drugs. Many of these attitudes differed rather little as a function of age group in 2018.

- For ***marijuana***, disapproval tends to be lower; nevertheless, the clear majority of young adults disapproved of regular marijuana use in 2018 (61% to 62%), as did the majority of 12th graders (67%). Over a third of young adults (35% to 39%) and about half of 12th graders (49%) disapproved of occasional use of marijuana in 2018. Disapproval of experimental marijuana use in 2018 was 26% to 30% for young adults and 41% for 12th graders. These 2018 percentages in disapproval of marijuana represent *declines* for young adults regarding occasional and regular marijuana use (significant declines for 19-22 and 23-26 year olds, see Table 6-2); they are all at *all-time lows* since 1980. For 12th graders, the 2018 percentages represent nonsignificant one-year increases, serving to widen the gap between 12th graders and young adults in disapproval of marijuana use. With the exception

of 2018, however, disapproval of marijuana use at any level has been in decline among 12th graders longer term.

Among drugs measured, marijuana use has shown the widest fluctuations in disapproval over time, fluctuations that generally parallel the changes in perceived risk (though sometimes with a one-year lag, with the change in perceived risk coming first). The most fluctuation has occurred among the younger age groups (Table 6-2). Among 12th graders, disapproval of regular marijuana use increased substantially in the 1980s, peaked in the early 1990s, declined some in the 1990s, and then leveled around 1998 with little change for some years thereafter. Since 2009, however, 12th graders have shown a fair decline in disapproval, falling from 80% in 2009 to 67% in 2018. The 19-22 year olds had a quite similar pattern, with a recent decline from 81% in 2009 to 61% in 2018. Among 23-26 year olds, some declines started later in the 1990s but were modest until about 2007, when disapproval of regular marijuana use fell from 85% to 61% in 2018. Thus since 2007 there has been a considerable decline in disapproval of regular (and occasional) marijuana use in all four age groups; the pattern is consistent with a secular trend, which would alert us to a possible increase in marijuana use. Indeed, such an increase in use has been occurring among 19-28 year olds since 2010 through 2018 (see Table 5-2).

- Disapproval of experimental use of ***LSD*** has been declining among 12th graders and young adults in recent years, reaching all-time lows in 2016 and 2017. However, in 2018, it rebounded nonsignificantly for 12th graders (81%), 19-22 year olds (79%), and 27-30 year olds (72%); it declined nonsignificantly for 23-26 year olds (67%). Still, the majority disapprove of such experimental use, which has been true since 1980, when these data were first available. Beginning around 1990, all age groups decreased some in their disapproval of trying LSD (starting from very high levels of disapproval at 90-91%). The decline was steepest among 12th graders, but there was a reversal in this group's disapproval in 1997, and then an increase through 2006. Disapproval in the older age groups declined less and in staggered fashion; this trend showed some evidence of a reversal among 19-22 year olds and 23-26 year olds since 2001 and 2002, respectively. The pattern again suggested lasting cohort differences in these attitudes. From about 2010 through 2017, disapproval levels generally showed consistent declines, reaching the all-time lows in 2016 and 2017 (ranging from 72% to 78%); the 2018 percentages suggest this decline has stalled for most age groups. Disapproval of regular LSD use has been near the top of the scale for more than three decades, ranging from 92% to 99%.

- In 2018, experimenting with ***MDMA*** (***ecstasy***, ***Molly***) was disapproved of by 85% of 12th graders and by 79% to 81% of the young adults; none of the changes in 2018 were significant, as has been the case for one-year changes in the last few years (Table 6-2). First measured among young adults in 2001, disapproval of MDMA use was positively associated with age in the early 2000s. In 2001 disapproval of trying ecstasy was quite high, and from 2001 to 2010, disapproval rose to even higher levels in all age groups, with little systematic change since then. Due to the advent of Molly—reputedly a stronger form of MDMA than ecstasy—the question for young adults was changed to MDMA in 2015 with both ecstasy and Molly given as examples (there was no evidence that the addition of Molly as an example had the effect of raising the disapproval level, as might have been

expected; indeed, there was a slight, nonsignificant decline in disapproval of occasional use in 2015).

- Disapproval of all three levels of ***heroin*** use (experimental, occasional, and regular use) has remained very high and fairly stable since MTF began, though there was a very gradual increase in disapproval in all age strata from the mid-1980s through around 2005, followed by a leveling. In 2018, disapproval of occasional and regular use was 96% to 98% in all age groups; disapproval of trying heroin was 95% to 97% across the age groups. For public health purposes, a noteworthy minor exception to the general pattern of trends for disapproval of heroin use was a little slippage in disapproval of experimental use that occurred among 12th graders (but not young adults) from 1991 through 1996 (from 96% to 92%)a period during which heroin usage rates were rising.

- Disapproval of regular ***cocaine*** use rose gradually among 19-22 year olds, from 89% in 1981 to 99% in 1990, with little change thereafter (97% in 2018), and the older young adult age groups had similar trends (Table 6-2). In fact, all three young adult age bands were 97% in disapproving of regular use in 2018. Disapproval of even experimental cocaine use is also quite high, with 2018 percentages being 89%, 87%, 77%, and 79%, respectively across the four age groups, representing nonsignificant changes since 2017. Regarding long-term trends, disapproval of experimental use increased during the 1980s, peaking first among 12th graders at 94% in 1991. It then peaked in 1995 among 19-22 year olds (at 94%) and 23-26 year olds (at 92%). Finally, it peaked in 1999 at 90% among 27-30 year olds, suggesting both a period and a cohort effect at work. All age groups had some modest falloff in disapproval since those peak levels were attained. The last five years have shown uneven declines for the two older age groups. This recent decline in disapproval among older young adults could signal some future resurgence in cocaine use.

- Disapproval of experimenting with ***amphetamines*** was at or near all-time lows in 2018 for the two older age groups (68% and 73%, respectively), representing nonsignificant declines from 2017. It also decreased nonsignificantly for 19-22 year olds (74%) and 12th graders (81%). Regarding long-term trends, disapproval of experimental use rose gradually in the 1980s as use was falling; thereafter, disapproval leveled in the mid-80% range through 2010, with almost no difference among the age strata. For example, trying amphetamines once or twice was disapproved of by 73-74% of 19-26 year olds in 1984, compared to 84% by 1990. After a long period of level disapproval, all strata showed a slight drop in disapproval in 2011, followed by another leveling for most age groups, followed by another sharp drop of 10 percentage points in 2014 among 19-22 year old age group (which contains most of the college students). In the past few years, there has been some further decline, with each young adult age group reaching lowest levels since the early 1980s in 2016 or 2018; for 12th graders, the 2018 percentage was the lowest over the past two decades.

  Disapproval of regular use started out very high among all age strata in the early 1980s and rose even higher by the early 1990s, where it remained for all age strata until 2011; after that there was a slight decline, but a leveling by 2012 that has largely continued into 2018 with disapproval above 90% for all age groups.

Some of the decline and age-group differences in disapproval of amphetamine use in all four age groups since 2010 is likely explained by a change in the question wording. Adderall and Ritalin were included in the question for the first time in 2011 as examples of amphetamines. There had been very little difference among the various age strata in either their levels or trends in disapproval until the significant decline in 2014, which brought the college-age group (19-22 year olds) considerably below the other age groups in their disapproval of experimenting with amphetamines. In 2018, disapproval was lowest among 23-26 year olds at 68%, similar among the other two young adult age groups (73% to 74%), and highest for 12th graders (81%).

- Disapproval of experimental use of ***sedatives (barbiturates)*** was at 87%, 81%, 76%, and 78% across the four age groups, respectively, in 2018, continuing its modest decline over the past five years for all age groups. The 2018 decline was significant for 19-22 year olds. Over the years, disapproval of sedatives has moved very much in parallel with that for amphetamines**.** Disapproval increased significantly during the 1980s, accompanied by declining use. Disapproval of trying sedatives was at 84-85% in 1984 compared to 89-91% by 1990. Disapproval of sedative use slipped some among 12th graders after 1992 and among 19-22 year olds after 1994, with the 23-26 year olds following suit after 1996, and the 27-30 year old stratum in 2004. This pattern of staggered change again suggests cohort effects, reflecting lasting cohort differences in these attitudes. In 2018, disapproval of experimental use of sedatives stood between 76% and 87%, while disapproval of regular use was close to 100%.

- In the past several years, the trends for disapproval of ***alcohol use*** have shown little systematic change. However, the longer-term story for disapproval of alcohol use is quite an interesting one, in that changes in the minimum drinking age seem to have led to modest changes in norms for the affected cohorts. Between 1980 and 1992, an increasing proportion of 12th graders favored *total abstention*; the percent who disapproved of drinking even just one or two drinks rose from 16% in 1980 to 33% in 1992. This figure fell back slightly over the years and stood at 31% in 2018. Among 19-22 year olds there was a modest increase in disapproving of any use between 1985 and 1989 (from 15% to 22%), where it held for some years; it remained at 18% in 2018. For the two oldest age groups, there has been rather little change in these attitudes so far, ranging from 12% to 15% in 2018. These differing trends may reflect the fact that during the 1980s, the drinking age was raised in a number of states so that by 1987 it was 21 in all states; this change would have had the greatest effect on 12th graders, who may have incorporated the legal restrictions into their normative structure and, as they entered young adulthood, brought these new norms with them. But the changes may be exhibited only among respondents in the cohorts that were underage after the time that the new law raising the minimum drinking age went into effect.

  Disapproval of ***having one or two drinks nearly every day*** has not shown any such cohort effects, because all age groups have generally moved in parallel, at similar levels of disapproval through 2004. The three youngest age bands (which include 12th graders through 26 year olds) showed an increase in disapproval of having one to two drinks daily up until about 1990 suggesting some secular trending (little data were yet available on the

oldest age group), but disapproval has declined a fair amount in all of the age groups since then. Starting in 2004, a bit of a gap opened up between 12th graders and young adults that has remained through 2018, as 12th graders showed some increase and then leveling in disapproval of having one to two drinks daily and young adults, especially the oldest group, continued to show declines. In 2018, disapproval was 75% for 12th graders (representing a significant increase from 2017) and 62%, 57%, and 51% for the three older age groups, respectively (representing nonsignificant change from 2017).

The pattern of cross-time changes in disapproval of ***light daily drinking*** (having one or two drinks nearly every day) for young adults closely parallels what was observed for the perceived risk associated with light daily drinking. This holds especially in terms of overall declines among the older group, though the level of disapproval was much higher for heavy than for light daily use, as would be expected (above 90% in 2018 for all age groups). Declines in both variables among the young adults may well be due to widely publicized reports that some cardiovascular benefits may result from having one or two drinks per day.

- Disapproval of ***binge drinking*** on weekends has shown quite a bit of variation over the years as well as age differences. In 2018, disapproval was 76% for 12th graders (representing an all-time high and a significant increase from 2017) and 65% to 69% for the young adults (representing nonsignificant change from 2017). Trends have been uneven over the years, but in general, disapproval has slowly increased for 12th graders from the most recent low of 63% in 1999 to 76% in 2018, has slowly increased for 19-22 year olds from the most recent low of 58% in 2002 to 69% in 2018, has shown little systematic change for 23-26 year olds since 1984 (ranging between 56% and 71%), and has slowly decreased for 27-30 year olds from the most recent high of 74% in 2004 to 65% in 2018. Thus, age group differences have been widening in recent years.

  It is important to note that the age-based trends in disapproval often mirrored the corresponding trends in prevalence of heavy drinking. In particular, from the early 1980s for the two youngest age groups there was a considerable increase in disapproval that continued through 1992 for 12th graders (who then showed some drop-off) and through 1996 among 19-22 year olds (who then also showed some drop-off). As Figure 5-18d illustrates, the prevalence of occasions of heavy drinking declined substantially among 12th graders and 19-22 year olds between 1981 and the early 1990s, as norms became more restrictive. There was little or no change in disapproval among the 27-30 year olds, either in their levels of disapproval or in their rates of occasions of heavy drinking, until the early 2000s, when their disapproval began to drop and occasions of heavy drinking began to increase.

- Disapproval of pack-or-more-a-day ***cigarette smoking*** was at or near all-time highs in 2018, at 89%, 87%, 84%, and 83% across the four age groups, respectively. Notably, the increase in 2018 for 12th graders was significant. Regarding long-term trends, 12th graders showed some increase in disapproval of pack-or-more-a-day smoking between 1982 (69%) and 1992 (74%). Their disapproval fell through 1997 (to 67%) as their smoking increased; disapproval then increased for several years (to 82% in 2006) before leveling and then

increasing through 2018 (89%), as smoking declined. The 19-22 year olds showed a similar increase in disapproval from 66% in 1982 to 87% in 2018. All four age strata showed some upward drift in their level of disapproval of smoking since about 1999 (reaching 83-89% in 2018), suggesting a secular change in attitudes during this period.

COHORT DIFFERENCES AND THEIR IMPLICATIONS FOR PREVENTION AND THEORY

An important theoretical point to be made, based on the strong evidence reported here for cohort effects in perceived risk and disapproval of many of the drugs under study, is that among the causes of cohort differences in actual use are lasting cohort differences in these critical *attitudes* and *beliefs.* In other words, *the attitudes and beliefs brought into adulthood from adolescence tend to persevere and continue to shape individual and population drug use over the life course.*

A second point has to do with the causes of these attitudinal cohort effects. We noted earlier that the older respondents are more likely than the younger ones to see as dangerous the use of LSD, heroin, narcotics other than heroin, amphetamines, cocaine, and sedatives (barbiturates). Some years ago, Lloyd Johnston proposed a framework for a theory of drug epidemics in which direct learning (from personal use) and vicarious learning (from observing use by others in both the immediate and mass media environments) play important roles in changing these key attitudes.[7] To the extent that the data on perceived risk represent cohort effects (enduring differences between class cohorts), these findings would be consistent with this theoretical perspective. Clearly, use of these particular drugs was greater when the older cohorts were growing up, and public attention and concern regarding the consequences of these drugs were greatest in the 1970s and early to mid-1980s. In the early 1970s, LSD was alleged to cause brain and chromosomal damage, as well as bad trips, flashbacks, and behavior that could prove dangerous. Methamphetamine use was discouraged with the slogan "speed kills." In addition, there was an epidemic of heroin use in the early 1970s. In the early 1980s there was an epidemic of cocaine use, and it reached a pinnacle in 1986 with the widely reported deaths of sports stars and others from cocaine. Later cohorts (through the mid-1990s, at least) were not exposed to those experiences while growing up, and thus did not see the risks in the same way as the older cohorts did. While there may have been a secular trend toward greater perceived risk for drugs in general, in the case of LSD there may have also been an operating cohort effect (with younger cohorts seeing less danger) offsetting the secular trend among 12th graders; the net effect was a decrease in 12th graders' perceived risk of LSD use after 1980.

This vicarious learning explanation has a very practical implication for national strategy for preventing future epidemics. Because fewer in their immediate social circles and fewer public role models may be using these drugs and exhibiting the adverse consequences of use during certain historical periods, future cohorts of youth may have less opportunity to learn about the adverse consequences of these drugs in the normal course of growing up. Unless those hazards are convincingly communicated to them in *other ways*—for example, through school prevention

[7] Johnston, L. D. (1991). Toward a theory of drug epidemics. In L. Donohew, H. E. Sypher, & W. J. Bukoski (Eds.), Persuasive communication and drug abuse prevention (pp. 93–131). Hillsdale, NJ: Lawrence Erlbaum.

programs, by their parents, and through the mass media, including public service advertising—they will become more susceptible to a new epidemic of use of the same or similar drugs.

For example, in *Volume I,*[8] we reported an increase in use of several drugs in 8th, 10th, and 12th grades in 1994 through 1997. This increase suggests that this form of generational forgetting may well have occurred during those years. For the cohorts that follow such a rise in use, there is once again an increased opportunity for vicarious learning from the adverse experiences of those around them, but by that time, members of affected cohorts have had to learn the hard way what consequences await those who become involved with the various drugs. In the early 2000s we saw drug use subside to some degree, which once again created the conditions for generational forgetting of the dangers of many of these drugs. Over the past few years, we have seen substantial softening of attitudes among teens and young adults regarding marijuana, and also some softening in attitudes toward occasional or regular use of MDMA (ecstasy, Molly), LSD, and cocaine, which suggests a real possibility of future increases in use among young adults.

[8] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

TABLE 6-1
Trends in Harmfulness as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Try marijuana once or twice [f]	18	10.0	13.0	11.5	12.7	14.7	14.8	15.1	18.4	19.0	23.6	23.1	27.1	24.5	21.9	19.5	16.3	15.6	14.9	16.7
	19–22	8.3	7.8	9.7	9.7	12.8	11.2	13.0	12.9	16.8	16.9	17.8	19.1	19.7	19.4	18.8	13.3	16.9	14.8	13.4
	23–26	—	—	—	—	9.6	10.0	12.4	14.5	16.0	14.0	17.7	14.0	15.0	13.0	15.0	15.8	18.5	15.1	16.7
	27–30	—	—	—	—	—	—	—	—	14.6	16.0	17.0	15.7	15.1	14.0	14.8	16.1	16.2	16.1	16.4
Use marijuana occasionally [f,n]	18	14.7	19.1	18.3	20.6	22.6	24.5	25.0	30.4	31.7	36.5	36.9	40.6	39.6	35.6	30.1	25.6	25.9	24.7	24.4
	19–22	13.9	14.2	16.9	16.7	21.7	20.6	22.4	23.0	28.7	29.1	30.1	30.2	29.5	30.3	31.3	25.5	25.6	22.0	22.0
	23–26	—	—	—	—	15.8	16.3	20.9	20.8	26.8	25.3	30.4	26.2	27.4	24.0	25.5	27.7	27.3	26.4	26.8
	27–30	—	—	—	—	—	—	—	—	24.2	25.7	28.7	27.4	27.5	26.8	28.1	28.3	28.1	26.0	25.8
Use marijuana regularly [f]	18	50.4	57.6	60.4	62.8	66.9	70.4	71.3	73.5	77.0	77.5	77.8	78.6	76.5	72.5	65.0	60.8	59.9	58.1	58.5
	19–22	43.9	47.8	52.4	58.4	62.2	66.8	67.6	69.4	72.4	74.9	73.0	75.0	69.3	69.2	65.0	62.1	61.3	60.7	53.4
	23–26	—	—	—	—	52.9	57.5	59.4	65.3	68.3	72.1	71.0	70.9	67.3	64.1	63.2	64.2	62.7	64.1	62.7
	27–30	—	—	—	—	—	—	—	—	67.5	69.1	69.2	67.5	68.8	69.4	65.6	69.2	67.3	65.0	63.6
Try synthetic marijuana once or twice [g]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take synthetic marijuana occasionally [g]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try LSD once or twice [h]	18	43.9	45.5	44.9	44.7	45.4	43.5	42.0	44.9	45.7	46.0	44.7	46.6	42.3	39.5	38.8	36.4	36.2	34.7	37.4
	19–22	44.8	44.4	45.0	44.7	46.0	44.3	47.6	49.4	49.2	49.5	49.3	48.0	45.6	42.4	42.3	40.3	44.4	40.1	38.7
	23–26	—	—	—	—	48.3	46.9	47.9	51.5	53.7	50.7	52.0	50.1	49.7	49.0	46.8	45.8	46.1	46.6	45.7
	27–30	—	—	—	—	—	—	—	—	53.3	55.6	54.6	52.5	53.0	51.5	53.5	52.5	50.1	52.0	52.0
Take LSD regularly [h]	18	83.0	83.5	83.5	83.2	83.8	82.9	82.6	83.8	84.2	84.3	84.5	84.3	81.8	79.4	79.1	78.1	77.8	76.6	76.5
	19–22	83.4	85.3	86.2	86.0	84.5	86.4	87.1	85.6	85.4	85.5	85.8	86.6	87.0	81.3	81.0	80.5	82.4	83.6	78.6
	23–26	—	—	—	—	89.0	86.6	88.7	90.0	89.2	89.0	88.2	89.1	87.3	85.3	87.5	86.3	84.7	85.6	82.1
	27–30	—	—	—	—	—	—	—	—	89.1	91.2	92.0	87.1	88.5	89.0	89.2	88.4	87.0	87.2	90.5
Try PCP once or twice [h]	18	—	—	—	—	—	—	—	55.6	58.8	56.6	55.2	51.7	54.8	50.8	51.5	49.1	51.0	48.8	46.8
	19–22	—	—	—	—	—	—	—	63.6	63.8	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	64.8	63.2	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	65.9	—	—	—	—	—	—	—	—	—	—
Try ecstasy (MDMA, Molly) once or twice [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	34.5
	19–22	—	—	—	—	—	—	—	—	—	45.2	47.1	48.8	46.4	45.0	51.1	48.3	46.7	45.5	42.7
	23–26	—	—	—	—	—	—	—	—	—	49.5	47.2	47.4	45.5	41.9	50.6	49.3	50.4	50.5	47.7
	27–30	—	—	—	—	—	—	—	—	—	44.9	48.7	47.7	44.2	51.7	47.3	50.0	50.6	48.8	50.4
Take ecstasy (MDMA, Molly) occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try salvia once or twice [d,k]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take salvia occasionally [k,y]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try cocaine once or twice [h]	18	31.3	32.1	32.8	33.0	35.7	34.0	33.5	47.9	51.2	54.9	59.4	59.4	56.8	57.6	57.2	53.7	54.2	53.6	54.6
	19–22	31.4	30.4	33.3	28.7	33.1	33.2	35.5	45.9	51.9	51.5	58.1	58.7	56.1	60.5	63.8	57.7	61.9	55.5	55.4
	23–26	—	—	—	—	31.3	31.1	35.9	48.0	47.1	51.3	51.5	50.5	53.5	54.1	56.0	58.7	57.2	63.1	60.2
	27–30	—	—	—	—	—	—	—	—	45.3	53.0	51.6	52.6	51.8	54.7	53.5	56.4	53.6	54.6	60.5
Take cocaine occasionally [h,o]	18	—	—	—	—	—	—	54.2	66.8	69.2	71.8	73.9	75.5	75.1	73.3	73.7	70.8	72.1	72.4	70.1
	19–22	—	—	—	—	—	—	53.8	61.3	67.1	72.6	74.6	72.6	74.9	75.4	78.0	73.4	76.6	76.1	71.2
	23–26	—	—	—	—	—	—	50.9	62.6	63.2	69.9	69.9	70.3	69.9	72.8	70.3	76.0	71.3	76.5	74.2
	27–30	—	—	—	—	—	—	—	—	62.6	66.6	66.6	69.1	69.9	69.1	69.9	70.0	67.8	73.8	73.2
Take cocaine regularly [h]	18	69.2	71.2	73.0	74.3	78.8	79.0	82.2	88.5	89.2	90.2	91.1	90.4	90.2	90.1	89.3	87.9	88.3	87.1	86.3
	19–22	65.2	69.3	71.5	75.2	75.1	82.9	82.0	88.0	90.3	89.1	93.9	93.5	92.9	91.7	92.2	91.5	92.2	91.6	88.7
	23–26	—	—	—	—	75.6	76.9	83.0	88.9	90.9	91.2	91.2	92.7	89.9	91.9	92.6	93.3	90.6	93.2	92.9
	27–30	—	—	—	—	—	—	—	—	88.9	92.0	91.4	90.9	92.0	91.6	92.1	91.3	91.6	92.7	93.0

(Years Cont.)

(Table continued on next page.)

TABLE 6-1 (cont.)
Trends in Harmfulness as Perceived by
Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017– 2018 change
Try marijuana once or twice [f]	18	15.7	13.7	15.3	16.1	16.1	15.9	16.1	17.8	18.6	17.4	18.5	17.1	15.6	14.8	14.5	12.5	12.3	12.9	11.9	12.1	+0.2
	19–22	12.5	14.3	11.9	13.3	17.1	15.3	15.6	14.4	10.8	17.4	13.2	16.8	13.4	12.9	11.8	9.3	10.6	9.4	9.8	8.3	-1.5
	23–26	16.4	13.1	13.0	15.1	15.3	13.6	13.0	13.9	13.0	12.5	10.6	12.7	10.5	10.1	9.7	9.6	9.5	9.0	6.9	6.2	-0.6
	27–30	16.1	14.4	17.3	16.2	18.0	13.8	14.5	14.5	16.6	11.4	12.3	11.5	12.4	12.5	10.2	8.8	7.9	7.3	6.9	8.1	+1.2
Use marijuana occasionally [f,n]	18	23.9	23.4	23.5	23.2	26.6	25.4	25.8	25.9	27.1	25.8	27.4	24.5	22.7	20.6	19.5	16.4	15.8	17.1	14.1	14.3	+0.1
	19–22	19.8	25.8	18.0	21.0	24.1	23.2	24.3	22.1	22.3	23.6	23.1	19.9	19.6	20.6	19.1	15.4	15.6	13.0	13.3	11.1	-2.2
	23–26	26.4	24.9	20.5	24.5	22.2	22.7	21.6	22.3	20.2	18.5	18.1	19.3	15.5	17.1	14.4	14.8	13.7	14.1	9.7	9.2	-0.5
	27–30	25.3	25.8	25.0	30.2	27.9	25.1	24.8	21.8	25.6	21.6	21.7	18.6	19.3	19.7	16.0	14.8	12.1	11.1	9.9	10.8	+0.9
Use marijuana regularly [f]	18	57.4	58.3	57.4	53.0	54.9	54.6	58.0	57.9	54.8	51.7	52.4	46.8	45.7	44.1	39.5	36.1	31.9	31.1	29.0	26.7	-2.2
	19–22	55.2	58.0	49.6	56.7	57.8	57.2	55.3	54.5	50.4	51.6	46.4	49.8	43.0	43.5	39.4	35.1	33.3	30.0	27.3	22.1	-5.2 ss
	23–26	60.1	60.3	55.1	53.7	56.7	54.2	53.6	55.9	52.5	52.4	43.0	47.1	39.3	40.1	35.9	34.5	30.6	30.2	23.3	21.1	-2.2
	27–30	66.1	64.0	61.7	63.5	64.7	59.3	57.0	54.9	51.5	51.2	47.4	48.5	42.2	43.5	40.3	35.3	30.6	29.4	24.7	24.8	+0.1
Try synthetic marijuana once or twice [g]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	23.5	25.9	32.5	33.0	35.6	33.0	30.4	-2.6
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	30.6	33.1	36.1	39.3	42.6	42.7	40.4	-2.3
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	29.1	29.4	38.5	40.4	45.1	40.8	45.0	+4.2
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	32.7	35.1	37.3	45.4	41.7	45.8	+4.1
Take synthetic marijuana occasionally [g]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	32.7	36.2	39.4	40.9	43.9	40.0	37.1	-2.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	38.5	40.1	44.5	47.6	53.9	52.6	50.0	-2.7
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	37.3	38.6	47.2	49.5	53.0	50.8	56.4	+5.6
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	36.3	41.0	43.1	46.6	53.2	52.2	54.4	+2.3
Try LSD once or twice [h]	18	34.9	34.3	33.2	36.7	36.2	36.2	36.5	36.1	37.0	33.9	37.1	35.6	34.7	33.1	34.9	35.5	33.2	31.7	30.0	29.0	-1.0
	19–22	38.1	37.9	37.5	35.3	39.7	39.2	38.7	43.5	40.9	46.5	38.5	40.9	43.5	43.5	40.3	40.1	39.4	36.5	34.5	34.3	-0.2
	23–26	49.3	44.9	48.5	45.7	43.8	40.7	39.9	38.1	42.8	43.8	43.0	48.7	44.1	47.2	43.0	42.4	38.0	42.5	32.1	36.4	+4.3
	27–30	49.9	46.4	46.7	44.9	47.5	47.2	47.9	44.9	44.6	42.4	41.7	41.5	45.2	45.8	45.2	45.6	47.6	43.7	41.3	38.5	-2.8
Take LSD regularly [h]	18	76.1	75.9	74.1	73.9	72.3	70.2	69.9	69.3	67.3	63.6	67.8	65.3	65.5	66.8	66.8	62.7	60.7	58.2	56.1	55.2	-0.9
	19–22	82.2	81.6	79.2	81.1	78.6	78.4	77.8	78.9	77.5	73.9	74.8	72.8	74.4	78.0	76.6	74.7	72.7	75.7	65.1	64.7	-0.3
	23–26	85.4	84.1	86.0	85.3	84.3	83.5	80.8	82.0	80.3	80.2	82.0	83.1	81.4	78.9	79.0	76.0	71.7	73.9	68.7	70.1	+1.4
	27–30	87.8	85.3	86.9	85.3	87.5	83.9	87.9	82.2	85.7	82.9	80.2	87.0	83.0	83.2	83.8	80.3	79.9	73.2	71.7	71.7	0.0
Try PCP once or twice [h]	18	44.8	45.0	46.2	48.3	45.2	47.1	46.6	47.0	48.0	47.4	49.7	52.4	53.9	51.6	53.9	53.8	54.4	55.1	53.6	51.7	-1.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try ecstasy (MDMA, Molly) once or twice [h,m]	18	35.0	37.9	45.7	52.2	56.3	57.7	60.1	59.3	58.1	57.0	53.3	50.6	49.0	49.4	47.5	47.8	49.5	48.8	49.1	48.2	-0.9
	19–22	37.6	37.9	40.5	46.8	50.1	52.3	53.8	51.0	50.3	51.4	51.4	50.7	49.9	45.9	52.4	50.7	47.7	51.2	43.9	45.2	+1.3
	23–26	50.0	46.7	45.7	45.6	45.9	44.9	51.2	46.4	51.4	46.3	46.4	47.5	54.2	43.7	49.1	56.5	48.8	50.5	43.2	43.7	+0.5
	27–30	50.9	48.9	53.6	52.0	58.8	49.1	50.2	46.5	51.9	43.5	43.5	52.0	51.3	44.3	51.4	52.0	54.5	52.1	51.3	46.6	-4.7
Take ecstasy (MDMA, Molly) occasionally [h,m]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	72.5	77.8	81.7	78.3	80.0	82.5	79.3	81.9	79.2	76.2	71.6	76.7	75.3	72.9	66.9	72.1	64.2	67.6	+3.4
	23–26	—	—	72.5	71.9	73.6	77.4	77.2	77.0	78.7	78.6	76.2	79.1	76.9	76.6	69.8	77.6	69.1	69.1	69.8	62.5	-7.3
	27–30	—	—	75.2	76.5	79.9	76.9	74.7	70.4	72.0	71.3	71.4	69.7	77.8	75.0	76.8	71.6	73.1	69.0	71.0	64.7	-6.3
Try salvia once or twice [d,k]	18	—	—	—	—	—	—	—	—	—	—	—	39.8	38.7	13.8	12.9	14.1	13.1	13.0	10.2	9.8	-0.5
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5	21.4	25.9	23.7	23.8	23.6	18.9	-4.7
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	18.6	19.6	24.5	23.5	30.9	21.0	26.5	+5.5
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8	20.6	18.4	21.7	25.2	21.3	25.8	+4.4
Take salvia occasionally [k,y]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	23.1	21.3	20.0	17.6	16.3	13.8	12.0	-1.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	29.2	30.6	32.6	32.6	28.3	29.8	23.5	-6.4
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	26.6	25.5	31.1	31.2	38.6	33.6	35.1	+1.5
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	24.7	25.7	25.4	28.8	32.3	29.2	35.7	+6.6
Try cocaine once or twice [h]	18	52.1	51.1	50.7	51.2	51.0	50.7	50.5	52.5	51.3	50.3	53.1	52.8	54.0	51.6	54.4	53.7	51.1	52.7	49.5	47.9	-1.6
	19–22	52.8	56.7	48.9	55.5	55.0	55.5	55.6	54.0	55.8	56.7	54.9	56.8	56.2	57.0	56.3	56.3	57.4	55.8	51.2	50.2	-0.9
	23–26	62.6	63.1	62.4	61.0	55.4	52.1	53.0	52.5	56.9	55.0	56.6	56.7	54.9	60.3	50.9	57.3	49.1	55.2	48.1	47.9	-0.3
	27–30	61.7	59.9	60.9	58.8	56.4	61.4	56.5	58.1	54.8	56.1	52.0	51.6	54.7	51.8	53.8	50.1	53.1	53.2	50.1	56.4	+6.2
Take cocaine occasionally [h,o]	18	70.1	69.5	69.9	68.3	69.1	67.2	66.7	69.8	68.8	67.1	71.4	67.8	69.7	69.0	70.2	68.1	66.3	68.6	64.6	62.1	-2.5
	19–22	68.0	72.4	70.0	69.9	70.3	70.2	72.1	71.0	71.5	72.4	67.2	72.9	70.3	78.0	76.5	74.9	76.4	71.5	73.3	70.2	-3.1
	23–26	77.8	76.2	74.2	75.4	68.3	74.1	70.4	68.5	70.9	67.2	74.9	71.6	71.6	76.9	75.8	75.8	69.5	70.7	67.3	68.4	+1.2
	27–30	75.4	76.5	78.1	74.3	72.6	75.3	76.2	74.6	72.1	73.9	65.4	71.5	71.0	73.2	77.9	70.7	71.5	69.6	71.9	71.2	-0.6
Take cocaine regularly [h]	18	85.8	86.2	84.1	84.5	83.0	82.2	82.8	84.6	83.3	80.7	84.4	81.7	83.8	82.6	83.3	80.6	79.1	78.3	74.9	75.2	+0.3
	19–22	88.5	90.7	85.1	88.3	87.4	87.1	89.2	86.2	86.7	87.0	88.6	87.9	86.3	92.3	91.4	89.7	90.4	89.6	92.2	88.5	-3.6
	23–26	92.7	92.9	91.1	91.5	88.5	91.5	88.0	90.9	88.0	86.5	89.2	90.9	88.0	91.2	91.2	92.4	86.4	92.0	85.5	87.1	+1.6
	27–30	92.4	92.3	94.5	91.2	92.9	91.3	94.0	90.0	89.9	91.1	88.8	92.7	87.2	91.2	91.7	88.7	90.0	91.6	89.5	88.8	-0.7

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(List of drugs continued.)

TABLE 6-1 (cont.)
Trends in Harmfulness as Perceived by
Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Try crack once or twice [h]	18	—	—	—	—	—	—	—	57.0	62.1	62.9	64.3	60.6	62.4	57.6	58.4	54.6	56.0	54.0	52.2
	19–22	—	—	—	—	—	—	—	59.4	67.3	68.5	69.4	66.9	65.4	63.5	70.1	61.9	65.2	62.0	59.3
	23–26	—	—	—	—	—	—	—	59.1	63.5	69.8	67.3	66.9	67.1	64.2	69.3	64.8	68.6	64.7	67.3
	27–30	—	—	—	—	—	—	—	—	66.5	64.9	68.7	66.8	64.3	68.8	65.6	66.4	66.7	68.5	66.5
Take crack occasionally [h]	18	—	—	—	—	—	—	—	70.4	73.2	75.3	80.4	76.5	76.3	73.9	73.8	72.8	71.4	70.3	68.7
	19–22	—	—	—	—	—	—	—	75.0	77.3	81.8	82.3	82.7	81.9	83.6	84.3	78.8	83.5	79.1	79.1
	23–26	—	—	—	—	—	—	—	70.3	74.0	79.9	81.1	83.9	84.4	81.6	83.2	81.4	85.9	80.8	84.2
	27–30	—	—	—	—	—	—	—	—	76.4	76.7	82.6	81.8	79.1	83.6	78.6	81.1	81.3	85.3	81.7
Take crack regularly [h]	18	—	—	—	—	—	—	—	84.6	84.8	85.6	91.6	90.1	89.3	87.5	89.6	88.6	88.0	86.2	85.3
	19–22	—	—	—	—	—	—	—	89.6	91.1	94.1	94.9	95.6	93.4	96.2	96.0	94.2	94.7	93.3	92.8
	23–26	—	—	—	—	—	—	—	88.0	89.2	91.5	94.2	95.4	94.1	93.4	94.9	95.5	96.1	91.4	95.6
	27–30	—	—	—	—	—	—	—	—	89.6	89.5	95.3	94.4	93.3	93.5	93.0	94.0	94.3	96.0	94.3
Try cocaine powder once or twice [i]	18	—	—	—	—	—	—	—	45.3	51.7	53.8	53.9	53.6	57.1	53.2	55.4	52.0	53.2	51.4	48.5
	19–22	—	—	—	—	—	—	—	44.0	48.6	51.1	54.5	52.7	56.2	49.7	62.0	55.8	57.1	53.8	53.0
	23–26	—	—	—	—	—	—	—	41.0	43.6	48.4	48.9	47.4	45.9	45.6	52.5	48.9	57.2	53.6	54.1
	27–30	—	—	—	—	—	—	—	—	42.0	45.1	46.2	43.3	42.3	49.9	47.1	48.2	48.9	49.1	49.8
Take cocaine powder occasionally [i]	18	—	—	—	—	—	—	—	56.8	61.9	65.8	71.1	69.8	70.8	68.6	70.6	69.1	68.8	67.7	65.4
	19–22	—	—	—	—	—	—	—	58.0	59.0	63.2	70.0	69.9	72.6	70.6	75.4	73.0	77.4	70.7	73.0
	23–26	—	—	—	—	—	—	—	50.0	53.2	62.2	63.3	67.0	65.8	64.0	68.8	68.8	76.1	72.8	77.0
	27–30	—	—	—	—	—	—	—	—	53.6	52.7	60.9	59.2	61.2	64.3	61.0	65.9	68.2	69.7	68.5
Take cocaine powder regularly [i]	18	—	—	—	—	—	—	—	81.4	82.9	83.9	90.2	88.9	88.4	87.0	88.6	87.8	86.8	86.0	84.1
	19–22	—	—	—	—	—	—	—	86.6	87.6	91.3	92.5	93.8	92.1	94.0	94.9	93.5	93.8	92.8	91.5
	23–26	—	—	—	—	—	—	—	82.9	84.1	88.5	92.4	93.8	91.3	92.4	92.8	92.1	94.8	90.8	93.7
	27–30	—	—	—	—	—	—	—	—	85.1	86.7	92.7	91.1	91.5	92.5	90.7	92.7	91.7	93.0	92.3
Try heroin once or twice [g,p]	18	52.1	52.9	51.1	50.8	49.8	47.3	45.8	53.6	54.0	53.8	55.4	55.2	50.9	50.7	52.8	50.9	52.5	56.7	57.8
	19–22	57.8	56.8	54.4	52.5	58.7	51.0	55.5	57.9	58.9	59.6	58.3	59.9	59.8	58.9	60.8	58.9	61.0	63.9	60.7
	23–26	—	—	—	—	58.2	59.2	60.8	66.6	65.4	62.3	64.1	62.4	63.7	65.0	63.3	64.1	63.5	67.3	67.3
	27–30	—	—	—	—	—	—	—	—	66.0	69.7	67.5	66.1	66.5	69.3	69.6	66.4	66.4	67.9	69.7
Take heroin occasionally [g,q]	18	70.9	72.2	69.8	71.8	70.7	69.8	68.2	74.6	73.8	75.5	76.6	74.9	74.2	72.0	72.1	71.0	74.8	76.3	76.9
	19–22	77.5	77.8	73.6	74.5	74.9	73.6	77.2	77.6	77.5	79.8	80.8	80.2	81.6	78.8	79.0	77.9	82.1	84.7	80.4
	23–26	—	—	—	—	81.2	80.7	78.9	84.5	82.4	80.8	83.4	84.4	81.5	82.1	80.8	85.3	82.4	86.5	83.9
	27–30	—	—	—	—	—	—	—	—	86.0	86.8	85.3	84.3	84.9	86.2	86.8	83.1	83.8	85.8	86.6
Take heroin regularly [g]	18	86.2	87.5	86.0	86.1	87.2	86.0	87.1	88.7	88.8	89.5	90.2	89.6	89.2	88.3	88.0	87.2	89.5	88.9	89.1
	19–22	87.2	89.9	87.5	88.6	86.8	90.2	90.7	90.2	89.6	90.8	91.2	91.5	92.2	89.2	91.2	89.9	94.0	93.7	92.4
	23–26	—	—	—	—	92.0	90.1	90.6	92.8	91.5	91.3	91.0	92.6	91.3	91.6	93.0	93.5	92.7	94.4	93.4
	27–30	—	—	—	—	—	—	—	—	92.7	93.5	93.0	90.7	91.3	92.6	93.8	92.4	92.1	93.8	95.0
Try narcotics other than heroin once or twice [h,x]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take narcotics other than heroin regularly [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try amphetamines once or twice [b,h,r]	18	29.7	26.4	25.3	24.7	25.4	25.2	25.1	29.1	29.6	32.8	32.2	36.3	32.6	31.3	31.4	28.8	30.8	31.0	35.3
	19–22	24.6	24.6	27.8	24.8	26.9	23.9	27.1	27.4	31.7	28.9	35.6	32.8	34.5	33.3	36.3	32.9	36.8	30.1	31.7
	23–26	—	—	—	—	29.6	29.4	29.4	34.1	33.2	32.5	35.3	31.0	32.7	32.6	32.9	34.3	34.9	37.8	40.9
	27–30	—	—	—	—	—	—	—	—	35.2	37.5	36.9	36.5	36.2	34.0	37.5	36.0	36.2	34.5	37.6
Take amphetamines regularly [b,h]	18	69.1	66.1	64.7	64.8	67.1	67.2	67.3	69.4	69.8	71.2	71.2	74.1	72.4	69.9	67.0	65.9	66.8	66.0	67.7
	19–22	71.9	69.9	68.3	69.9	68.4	68.5	72.3	72.0	73.9	71.3	74.0	77.1	73.5	73.5	71.6	72.2	75.8	72.3	71.9
	23–26	—	—	—	—	75.8	77.2	75.6	78.2	77.4	76.7	77.8	79.4	76.4	76.2	73.6	80.5	78.5	79.1	77.5
	27–30	—	—	—	—	—	—	—	—	80.6	82.9	83.3	79.4	80.3	79.8	78.4	77.7	75.6	77.4	81.1
Try crystal methamphetamine (ice) [h]	18	—	—	—	—	—	—	—	—	—	—	—	61.6	61.9	57.5	58.3	54.4	55.3	54.4	52.7
	19-22	—	—	—	—	—	—	—	—	—	—	57.8	58.6	57.7	57.5	61.4	58.9	61.1	56.4	55.8
	23–26	—	—	—	—	—	—	—	—	—	—	56.5	56.0	55.6	52.0	61.0	57.8	64.1	60.7	58.2
	27–30	—	—	—	—	—	—	—	—	—	—	59.6	57.2	52.7	60.3	57.9	58.5	59.1	59.8	59.9

(Table continued on next page.)

TABLE 6-1 (cont.)
Trends in Harmfulness as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017– 2018 change
Try crack once or twice [h]	18	48.2	48.4	49.4	50.8	47.3	47.8	48.4	47.8	47.3	47.5	48.4	50.2	51.7	52.0	55.6	54.5	53.6	53.9	51.6	51.3	-0.2
	19–22	56.1	52.9	54.1	54.1	55.1	56.8	56.6	55.3	51.9	54.9	54.9	53.7	56.6	—	—	—	—	—	—	—	—
	23–26	64.6	63.2	59.8	60.9	58.5	56.4	60.6	54.7	58.4	50.5	50.6	58.4	61.6	—	—	—	—	—	—	—	—
	27–30	65.0	62.9	69.3	67.4	66.0	62.6	61.9	56.8	64.1	56.2	56.2	62.2	60.4	—	—	—	—	—	—	—	—
Take crack occasionally [h]	18	67.3	65.8	65.4	65.6	64.0	64.5	63.8	64.8	63.6	65.2	64.7	64.3	66.2	66.5	69.5	68.5	67.8	66.2	65.3	64.4	-0.9
	19–22	75.5	74.9	72.3	75.3	75.3	76.0	75.0	72.8	77.7	75.7	75.7	73.6	74.8	—	—	—	—	—	—	—	—
	23–26	81.6	84.0	80.1	82.2	77.1	76.4	78.6	76.8	79.8	75.2	75.2	77.7	82.8	—	—	—	—	—	—	—	—
	27–30	79.8	81.6	84.4	81.5	81.9	82.1	79.5	82.8	79.1	77.3	77.3	80.1	79.6	—	—	—	—	—	—	—	—
Take crack regularly [h]	18	85.4	85.3	85.8	84.1	83.2	83.5	83.3	82.8	82.6	83.4	84.0	83.8	83.9	84.0	85.4	82.0	81.2	81.9	79.8	79.8	0.0
	19–22	92.3	91.1	89.6	91.1	93.8	93.3	92.5	90.3	90.3	93.6	93.6	93.1	90.8	—	—	—	—	—	—	—	—
	23–26	94.4	95.6	93.4	94.7	92.2	92.5	93.1	93.3	93.1	91.8	91.8	93.7	94.1	—	—	—	—	—	—	—	—
	27–30	95.2	93.5	96.8	94.2	94.4	94.0	95.2	94.1	93.6	93.1	93.1	93.9	92.6	—	—	—	—	—	—	—	—
Try cocaine powder once or twice [i]	18	46.1	47.0	49.0	49.5	46.2	45.4	46.2	45.8	45.1	45.1	46.5	48.2	48.0	48.1	49.9	49.9	49.0	49.3	45.1	44.9	-0.2
	19–22	47.9	48.0	47.1	47.9	49.4	48.7	50.2	48.7	46.8	48.3	48.3	44.4	51.3	52.2	51.3	52.8	52.9	52.6	50.4	49.2	-1.3
	23–26	53.8	53.2	53.9	52.5	50.8	46.0	53.3	45.8	48.1	44.1	44.2	43.9	47.4	52.5	47.4	48.9	49.2	48.4	47.0	44.8	-2.2
	27–30	49.7	52.2	53.3	54.4	56.6	52.5	52.9	49.0	53.6	47.2	47.2	52.1	48.3	53.5	48.3	51.2	49.8	48.5	45.5	47.2	+1.7
Take cocaine powder occasionally [i]	18	64.2	64.7	63.2	64.4	61.4	61.6	60.8	61.9	59.9	61.6	62.6	62.6	64.2	62.6	65.4	64.8	62.8	62.9	60.1	59.8	-0.3
	19–22	69.3	69.3	64.4	68.9	69.3	68.6	68.1	66.4	67.1	68.5	68.5	63.7	64.5	69.4	64.5	69.7	70.3	68.2	67.8	67.6	-0.3
	23–26	70.8	76.0	70.5	73.7	67.9	64.6	69.9	66.7	69.9	64.5	64.5	65.5	68.2	73.0	68.2	65.9	66.6	64.1	63.9	63.4	-0.5
	27–30	70.1	71.3	73.5	71.9	71.7	71.5	71.7	73.1	69.3	64.9	65.0	68.9	68.8	71.0	68.8	67.3	64.8	64.2	62.7	64.3	+1.5
Take cocaine powder regularly [i]	18	84.6	85.5	84.4	84.2	82.3	81.7	82.7	82.1	81.5	82.5	83.4	81.8	83.3	83.3	83.9	81.5	80.1	80.7	78.8	77.6	-1.2
	19–22	92.4	90.7	89.8	91.0	92.0	91.6	90.7	89.1	89.5	92.3	92.3	90.7	91.0	88.3	90.2	88.6	89.6	89.8	87.3	87.3	-0.1
	23–26	93.6	94.2	92.2	93.4	89.1	89.4	91.2	92.9	92.3	90.5	90.5	91.0	93.8	90.6	88.7	86.1	88.1	87.3	88.4	87.6	-0.8
	27–30	93.1	91.5	94.0	93.3	94.1	93.1	93.9	92.4	92.5	90.1	90.2	92.1	91.5	92.2	90.9	89.2	91.4	89.2	85.3	87.3	+2.1
Try heroin once or twice [g,p]	18	56.0	54.2	55.6	56.0	58.0	56.6	55.2	59.1	58.4	55.5	59.3	58.3	59.1	59.4	61.7	62.8	64.0	64.5	63.0	61.8	-1.2
	19–22	63.5	63.2	64.0	63.1	64.6	67.3	66.5	65.0	69.6	67.7	67.3	64.2	66.5	66.8	68.9	66.1	70.4	70.5	70.9	73.4	+2.5
	23–26	68.0	70.7	71.9	69.8	70.6	67.5	69.2	67.0	68.3	70.1	69.2	75.6	71.3	74.8	69.2	70.8	72.0	74.2	73.7	76.2	+2.5
	27–30	70.1	67.4	68.2	70.9	72.3	68.4	74.4	70.8	70.2	70.2	67.6	69.6	69.1	70.4	72.7	71.7	74.5	72.6	74.3	77.8	+3.5
Take heroin occasionally [g,q]	18	77.3	74.6	75.9	76.6	78.5	75.7	76.0	79.1	76.2	75.3	79.7	74.8	77.2	78.0	78.2	77.9	78.0	78.7	74.6	75.0	+0.3
	19–22	82.5	82.0	83.6	82.2	84.9	85.1	83.8	84.3	85.4	84.5	83.3	81.3	82.9	82.1	85.0	83.3	85.8	85.9	86.3	84.2	-2.0
	23–26	88.5	86.6	88.4	90.0	88.3	86.7	87.5	85.2	86.5	88.0	87.8	90.0	88.6	84.2	85.1	85.9	86.0	87.4	87.1	87.6	+0.6
	27–30	87.1	86.5	86.4	87.9	87.4	88.6	91.2	88.3	88.5	87.7	87.7	90.1	85.8	86.2	88.6	83.7	88.2	85.0	89.4	87.6	-1.8
Take heroin regularly [g]	18	89.9	89.2	88.3	88.5	89.3	86.8	87.5	89.7	87.8	86.4	89.9	85.5	87.9	88.6	87.6	85.7	84.8	85.4	83.3	81.4	-1.8
	19–22	92.8	94.0	91.3	92.6	93.9	94.3	94.9	94.2	93.6	92.3	92.6	90.8	91.8	93.8	93.5	94.0	93.3	93.2	94.9	93.5	-1.5
	23–26	93.7	94.8	95.9	96.3	96.5	96.0	94.8	95.8	93.1	95.7	94.5	97.1	94.2	92.5	95.0	96.2	92.5	95.3	94.8	94.5	-0.2
	27–30	93.7	94.2	94.5	95.9	94.9	95.0	97.3	95.3	94.8	95.4	93.9	97.2	94.7	93.6	96.2	96.1	95.6	94.5	95.9	94.1	-1.8
Try narcotics other than heroin once or twice [h,x]	18	—	—	—	—	—	—	—	—	—	—	—	40.4	39.9	38.4	43.1	42.7	44.1	43.6	42.0	43.2	+1.1
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	47.3	46.1	49.8	50.6	49.9	47.8	54.0	+6.2
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	45.3	44.1	45.2	46.4	45.8	45.7	53.3	+7.6
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	43.0	47.3	48.5	45.6	45.8	43.7	52.0	+8.2
Take narcotics other than heroin regularly [h]	18	—	—	—	—	—	—	—	—	—	—	—	74.9	75.5	73.9	75.8	72.7	73.9	72.4	70.8	71.6	+0.8
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	70.3	74.9	76.0	76.2	76.2	73.2	78.3	+5.2
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	78.2	75.6	75.8	75.6	76.3	77.8	80.4	+2.5
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	76.2	75.7	76.0	74.9	76.7	78.1	79.5	+1.4
Try amphetamines once or twice [b,h,r]	18	32.2	32.6	34.7	34.4	36.8	35.7	37.7	39.5	41.3	39.2	41.9	40.6	34.8	34.3	36.3	34.1	34.0	31.1	31.9	29.2	-2.7
	19–22	33.7	35.0	34.2	38.1	40.2	36.8	38.3	40.0	38.4	42.1	39.3	40.8	34.7	31.9	33.8	32.8	34.5	32.2	36.8	33.0	-3.8
	23–26	41.8	39.9	41.6	38.0	38.3	33.2	39.1	37.0	38.0	40.8	40.7	42.2	31.4	37.8	31.4	37.4	33.5	34.0	26.1	34.2	+8.1 s
	27–30	36.3	39.4	38.5	39.0	40.5	39.2	38.2	39.7	37.4	36.5	36.2	38.5	36.9	35.3	34.0	30.4	32.1	30.5	31.6	33.4	+1.8
Take amphetamines regularly [b,h]	18	66.4	66.3	67.1	64.8	65.6	63.9	67.1	68.1	68.1	65.4	69.0	63.6	58.7	60.0	59.5	55.1	54.3	51.3	50.0	51.1	+1.1
	19–22	72.4	73.4	71.1	72.7	75.0	72.4	74.1	72.1	73.8	74.2	74.7	76.9	66.1	69.8	63.9	65.3	63.8	61.5	60.4	58.0	-2.4
	23–26	78.7	79.0	77.7	77.9	80.1	75.1	80.1	78.3	77.0	76.5	73.9	80.8	69.7	68.3	64.9	68.5	59.0	65.8	57.8	61.1	+3.3
	27–30	82.6	80.8	79.9	79.8	81.5	77.6	78.9	78.9	77.6	78.9	80.1	81.3	75.1	73.5	67.8	65.6	65.1	62.6	64.9	66.0	+1.1
Try crystal methamphetamine (ice) [h]	18	51.2	51.3	52.7	53.8	51.2	52.4	54.6	59.1	60.2	62.2	63.4	64.9	66.5	67.8	72.2	70.2	70.0	70.0	69.3	67.1	-2.2
	19-22	50.6	49.2	52.5	56.5	60.0	60.3	63.1	63.5	65.0	70.0	70.0	70.7	74.2	—	—	—	—	—	—	—	—
	23–26	61.3	60.1	59.2	57.7	58.6	55.9	63.9	63.9	66.6	65.6	65.6	70.1	74.6	—	—	—	—	—	—	—	—
	27–30	61.0	59.7	66.4	62.5	66.6	62.8	62.6	64.9	67.9	62.0	62.0	70.2	72.9	—	—	—	—	—	—	—	—

(List of drugs continued.)

TABLE 6-1 (cont.)
Trends in Harmfulness as Perceived by
Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Try bath salts (synthetic stimulants) once or twice [h,v]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try bath salts (synthetic stimulants) occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try Adderall once or twice [h,w]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take Adderall occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try sedatives/ barbiturates once or twice [c,h,s,t]	18	30.9	28.4	27.5	27.0	27.4	26.1	25.4	30.9	29.7	32.2	32.4	35.1	32.2	29.2	29.9	26.3	29.1	26.9	29.0
	19–22	27.6	26.4	30.5	25.4	29.9	25.0	30.7	29.6	32.7	30.5	36.4	33.5	33.5	33.4	35.0	30.5	34.1	31.4	27.7
	23–26	—	—	—	—	32.2	29.9	30.2	35.5	35.8	32.9	37.9	31.8	33.5	32.8	34.0	34.8	35.8	37.3	40.3
	27–30	—	—	—	—	—	—	—	—	37.2	38.7	39.0	37.0	38.2	36.5	40.5	36.6	37.2	35.7	36.7
Take sedatives/ barbiturates regularly [c,h,u]	18	72.2	69.9	67.6	67.7	68.5	68.3	67.2	69.4	69.6	70.5	70.2	70.5	70.2	66.1	63.3	61.6	60.4	56.8	56.3
	19–22	74.0	73.3	72.7	71.3	71.6	71.7	74.5	73.0	74.0	71.7	75.5	75.5	73.6	71.1	69.4	66.4	70.7	69.5	65.1
	23–26	—	—	—	—	77.4	77.0	74.9	79.9	79.8	76.6	80.5	77.7	76.3	75.0	74.3	77.6	77.1	75.2	73.9
	27–30	—	—	—	—	—	—	—	—	81.5	83.7	84.0	79.6	78.6	80.2	78.3	77.7	74.1	77.1	79.9
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) [i]	18	3.8	4.6	3.5	4.2	4.6	5.0	4.6	6.2	6.0	6.0	8.3	9.1	8.6	8.2	7.6	5.9	7.3	6.7	8.0
	19–22	3.0	3.4	3.1	2.3	4.7	3.1	5.4	3.5	3.9	5.9	6.1	5.4	5.8	6.6	6.5	4.5	3.3	3.2	4.2
	23–26	—	—	—	—	5.5	3.0	6.5	6.6	4.2	5.1	5.7	4.4	5.6	3.2	4.5	4.3	4.8	4.4	4.4
	27–30	—	—	—	—	—	—	—	—	5.0	6.3	4.4	6.6	5.6	4.7	4.1	6.7	4.7	4.0	6.2
Take one or two drinks nearly every day [i]	18	20.3	21.6	21.6	21.6	23.0	24.4	25.1	26.2	27.3	28.5	31.3	32.7	30.6	28.2	27.0	24.8	25.1	24.8	24.3
	19–22	22.7	22.9	23.2	23.2	25.0	26.3	27.3	26.1	26.5	28.1	30.1	29.1	30.2	28.0	27.5	24.0	23.0	24.2	22.1
	23–26	—	—	—	—	27.8	27.4	26.9	30.2	29.1	27.8	31.1	30.4	31.6	25.9	26.2	26.1	22.0	20.2	21.0
	27–30	—	—	—	—	—	—	—	—	27.4	31.7	32.2	31.7	30.9	28.0	27.4	27.2	24.0	24.8	20.8
Take four or five drinks nearly every day [i]	18	65.7	64.5	65.5	66.8	68.4	69.8	66.5	69.7	68.5	69.8	70.9	69.5	70.5	67.8	66.2	62.8	65.6	63.0	62.1
	19–22	71.2	72.7	73.3	72.7	76.2	74.1	74.0	76.4	72.8	75.7	76.1	75.5	71.8	72.1	70.3	72.5	68.5	71.4	70.4
	23–26	—	—	—	—	76.7	77.9	80.1	77.2	81.8	76.9	79.7	80.2	78.0	76.7	77.5	75.2	72.0	75.1	69.3
	27–30	—	—	—	—	—	—	—	—	79.3	81.7	84.7	79.1	79.9	79.1	76.6	82.2	76.1	79.3	75.7
Have five or more drinks once or twice each weekend [i]	18	35.9	36.3	36.0	38.6	41.7	43.0	39.1	41.9	42.6	44.0	47.1	48.6	49.0	48.3	46.5	45.2	49.5	43.0	42.8
	19–22	34.2	30.1	33.5	36.6	37.9	40.2	34.6	36.7	36.9	42.4	40.6	40.8	41.8	42.4	41.9	39.9	40.7	36.6	42.0
	23–26	—	—	—	—	38.4	39.7	39.1	39.8	35.8	37.7	40.2	39.3	37.6	36.2	40.2	37.9	39.1	37.4	41.1
	27–30	—	—	—	—	—	—	—	—	41.0	42.3	44.1	42.2	45.1	42.9	43.2	44.6	41.5	40.0	40.2
Smoke one or more packs of cigarettes per day [f]	18	63.7	63.3	60.5	61.2	63.8	66.5	66.0	68.6	68.0	67.2	68.2	69.4	69.2	69.5	67.6	65.6	68.2	68.7	70.8
	19–22	66.5	61.7	64.0	62.1	69.1	71.4	70.4	70.6	71.0	73.4	72.5	77.9	72.6	76.0	71.2	71.6	73.8	76.3	77.2
	23–26	—	—	—	—	71.1	70.1	75.7	73.6	75.5	71.4	78.5	75.3	76.3	78.4	76.4	76.0	76.0	77.6	76.5
	27–30	—	—	—	—	—	—	—	—	72.8	75.2	77.8	75.4	77.6	75.0	75.3	75.6	73.0	80.3	80.9
Use electronic cigarettes (e-cigarettes) regularly	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use smokeless tobacco regularly [h]	18	—	—	—	—	—	—	25.8	30.0	33.2	32.9	34.2	37.4	35.5	38.9	36.6	33.2	37.4	38.6	40.9
	19–22	—	—	—	—	—	—	29.7	34.1	31.1	37.1	33.5	38.9	40.1	43.3	37.6	42.3	40.9	46.5	47.4
	23–26	—	—	—	—	—	—	37.0	38.5	35.8	37.9	40.1	38.9	41.6	44.6	42.9	46.6	47.2	46.2	48.4
	27–30	—	—	—	—	—	—	—	—	42.8	42.8	43.8	44.3	44.1	47.3	46.3	44.2	43.6	50.2	52.6
Approximate Weighted N Per Form =	18	*3,234*	*3,604*	*3,557*	*3,305*	*3,262*	*3,250*	*3,020*	*3,315*	*3,276*	*2,796*	*2,553*	*2,549*	*2,684*	*2,759*	*2,591*	*2,603*	*2,449*	*2,579*	*2,564*
	19–22	*590*	*585*	*583*	*585*	*579*	*547*	*581*	*570*	*551*	*565*	*552*	*533*	*527*	*480*	*490*	*500*	*469*	*464*	*431*
	23–26					*540*	*512*	*545*	*531*	*527*	*498*	*511*	*505*	*518*	*503*	*465*	*446*	*438*	*420*	*413*
	27–30									*513*	*587*	*490*	*486*	*482*	*473*	*443*	*450*	*422*	*434*	*416*

(Years Cont.)

(Table continued on next page.)

TABLE 6-1 (cont.)
Trends in Harmfulness as Perceived by
Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying "great risk" [a]

Q. How much do you think people risk harming themselves (physically or in other ways), if they . . .	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017– 2018 change
Try bath salts (synthetic stimulants) once or twice [h,v]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	33.2	59.5	59.2	57.5	54.9	51.3	50.7	-0.6
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	44.5	62.7	68.8	65.2	69.6	68.4	63.3	-5.1
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	46.7	66.3	67.3	69.4	70.9	68.6	74.8	+6.2
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	48.7	64.5	73.7	72.4	73.3	72.1	77.0	+4.8
Take bath salts (synthetic stimulants) occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	45.0	69.9	68.8	67.4	64.2	61.5	60.7	-0.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	52.6	70.1	76.1	75.3	78.8	78.6	72.5	-6.1
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	54.0	75.3	76.7	77.7	78.7	78.8	81.8	+3.0
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	55.9	71.5	78.4	77.4	80.7	81.4	85.4	+4.0
Try Adderall once or twice [h,w]	18	—	—	—	—	—	—	—	—	—	—	—	33.3	31.2	27.2	31.8	33.6	34.3	32.5	32.0	34.0	+2.0
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	30.0	27.7	31.5	27.5	30.6	32.9	32.0	-1.0
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	32.9	32.2	29.8	32.9	27.5	30.1	+2.6
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	29.4	32.7	35.9	33.2	37.0	32.4	36.8	+4.4
Take Adderall occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	41.6	40.8	35.3	38.8	41.5	41.6	40.9	40.6	40.1	-0.5
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	38.8	39.8	41.8	40.2	43.0	45.4	47.3	+1.8
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	39.7	44.8	44.9	41.3	42.5	37.1	42.6	+5.6
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	44.1	45.0	45.3	44.2	47.7	46.5	49.3	+2.7
Try sedatives/ barbiturates once or twice [c,h,s,t]	18	26.1	25.0	25.7	26.2	27.9	24.9	24.7	28.0	27.9	25.9	29.6	28.0	27.8	27.8	29.4	29.6	28.9	27.4	26.9	26.3	-0.6
	19–22	28.5	30.3	30.0	30.7	32.7	26.7	26.9	28.9	28.1	31.9	26.2	28.7	30.1	32.8	30.5	32.7	32.1	33.5	37.1	30.6	-6.5
	23–26	39.4	37.0	38.5	34.7	36.5	22.2	29.8	26.3	25.9	28.4	31.1	36.2	28.8	35.9	31.8	34.8	33.9	31.3	30.6	29.7	-0.9
	27–30	35.2	36.3	40.9	37.3	38.6	31.4	31.7	28.8	28.0	27.8	27.5	27.4	34.4	28.7	31.9	25.0	34.2	34.8	30.4	37.2	+6.8
Take sedatives/ barbiturates regularly [c,h,u]	18	54.1	52.3	50.3	49.3	49.6	54.0	54.1	56.8	55.1	50.2	54.7	52.1	52.4	53.9	53.3	50.5	50.6	47.0	44.0	45.1	+1.1
	19–22	64.7	64.6	61.8	64.5	63.8	60.2	64.4	61.3	63.2	64.0	59.4	64.6	63.6	68.2	64.7	66.9	63.0	63.8	64.6	59.6	-5.0
	23–26	75.1	73.8	73.1	73.1	72.8	63.9	67.0	67.6	64.8	66.8	64.4	69.6	64.9	71.4	67.6	72.3	64.5	65.2	62.9	68.8	+5.9
	27–30	80.7	75.5	78.2	75.4	79.0	70.1	75.2	68.0	70.0	70.4	69.0	71.1	71.4	70.7	72.6	64.2	67.0	66.6	64.4	71.6	+7.2
Try one or two drinks of an alcoholic beverage (beer, wine, liquor) [i]	18	8.3	6.4	8.7	7.6	8.4	8.6	8.5	9.3	10.5	10.0	9.4	10.8	9.4	8.7	9.9	8.6	10.3	9.5	9.3	10.2	+0.9
	19–22	5.7	5.4	4.8	6.6	7.5	5.1	3.8	7.7	5.1	7.9	4.1	6.8	7.2	6.4	5.8	5.7	4.9	4.9	6.5	5.9	-0.6
	23–26	6.6	3.5	5.5	5.1	5.7	4.7	5.3	5.1	4.8	6.5	5.7	5.5	4.0	3.5	4.3	5.4	5.1	3.9	4.1	3.3	-0.9
	27–30	5.9	4.7	5.5	3.1	6.9	4.6	7.3	4.2	6.2	3.4	4.1	4.7	6.6	4.8	4.0	3.8	3.5	3.4	3.3	3.8	+0.5
Take one or two drinks nearly every day [i]	18	21.8	21.7	23.4	21.0	20.1	23.0	23.7	25.3	25.1	24.2	23.7	25.4	24.6	23.7	23.1	21.1	21.5	21.6	21.6	22.8	+1.2
	19–22	23.9	22.1	19.6	22.7	19.8	21.3	22.1	22.0	19.0	24.4	20.6	20.8	20.1	23.1	20.0	22.4	19.9	18.6	17.8	18.3	+0.5
	23–26	26.0	21.7	23.5	23.4	19.1	22.9	19.9	22.5	21.2	21.0	21.1	20.8	14.4	18.4	18.8	17.5	17.2	17.4	15.4	16.8	+1.5
	27–30	25.3	22.0	22.7	21.7	21.4	21.8	23.7	20.2	21.5	21.5	20.6	18.2	16.9	19.8	17.4	16.5	15.9	15.9	15.4	17.1	+1.7
Take four or five drinks nearly every day [i]	18	61.1	59.9	60.7	58.8	57.8	59.2	61.8	63.4	61.8	60.8	62.4	61.1	62.3	63.6	62.4	61.2	59.1	59.1	58.7	59.1	+0.4
	19–22	69.9	69.9	64.5	71.1	66.4	65.3	63.0	66.6	68.8	68.5	67.1	65.6	67.4	69.6	68.7	67.9	70.2	70.4	65.1	66.8	+1.8
	23–26	72.8	71.7	75.8	74.9	71.1	74.2	71.2	72.4	70.2	70.0	67.8	68.3	69.9	73.1	69.7	69.2	71.2	70.7	70.1	70.0	-0.1
	27–30	75.1	77.4	72.8	76.2	70.6	72.1	77.5	73.0	76.5	77.1	71.6	71.6	73.8	71.2	68.3	72.6	69.4	71.1	70.0	70.5	+0.5
Have five or more drinks once or twice each weekend [i]	18	43.1	42.7	43.6	42.2	43.5	43.6	45.0	47.6	45.8	46.3	48.0	46.3	47.6	48.8	45.8	45.4	46.9	48.4	45.7	44.7	-0.9
	19–22	37.2	38.9	37.2	37.8	40.4	38.1	37.5	37.2	43.4	41.7	35.2	40.7	40.1	41.6	40.6	43.8	41.8	43.6	39.6	40.3	+0.7
	23–26	40.2	34.9	39.0	36.8	36.3	37.9	36.8	38.4	39.7	37.0	36.2	35.8	33.6	39.5	40.2	38.7	40.8	39.7	37.8	38.6	+0.8
	27–30	41.9	37.9	41.6	40.6	42.5	40.5	44.0	39.1	40.4	40.4	40.1	38.6	42.0	41.6	37.2	41.2	40.6	39.6	42.0	40.2	-1.8
Smoke one or more packs of cigarettes per day [f]	18	70.8	73.1	73.3	74.2	72.1	74.0	76.5	77.6	77.3	74.0	74.9	75.0	77.7	78.2	78.2	78.0	75.9	76.5	74.9	73.9	-1.1
	19–22	75.7	77.1	76.6	80.6	77.8	81.1	80.5	80.8	79.3	79.5	80.3	79.7	81.5	82.3	82.8	82.8	83.5	84.8	83.8	82.4	-1.3
	23–26	80.9	79.7	83.9	85.1	83.6	84.1	81.6	86.4	80.7	83.6	82.0	83.2	84.8	83.1	82.9	82.8	85.1	84.2	84.3	84.9	+0.6
	27–30	80.7	78.4	82.7	80.6	82.0	81.7	84.1	83.8	84.3	86.6	83.6	89.3	86.6	84.6	84.1	83.9	85.9	85.4	86.3	84.2	-2.1
Use electronic cigarettes (e-cigarettes) regularly [l]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	16.2	18.2	16.1	18.0	+2.0
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.8	21.6	27.7	26.6	25.4	-1.1
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.7	23.0	28.6	28.2	31.4	+3.2
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.0	27.6	30.8	32.3	33.0	+0.7
Use smokeless tobacco regularly [h]	18	41.1	42.2	45.4	42.6	43.3	45.0	43.6	45.9	44.0	42.9	40.8	41.2	42.6	44.3	41.6	40.7	38.5	38.1	38.4	40.2	+1.8
	19–22	47.0	52.0	48.4	53.6	50.8	49.9	47.6	46.4	48.9	48.7	44.6	45.8	46.0	56.7	52.8	47.8	47.8	48.7	51.4	47.8	-3.6
	23–26	53.1	49.8	59.8	61.4	58.9	57.8	55.8	59.1	55.3	51.0	52.2	54.2	53.7	59.4	53.5	53.4	47.3	52.5	54.6	50.6	-4.0
	27–30	53.6	49.9	53.2	56.7	58.2	55.7	58.9	57.5	61.4	61.7	53.6	59.2	62.5	59.6	58.5	51.6	57.1	59.8	55.8	57.3	+1.5
Approximate Weighted N Per Form =	18	*2,306*	*2,130*	*2,173*	*2,198*	*2,466*	*2,491*	*2,512*	*2,407*	*2,450*	*2,389*	*2,290*	*2,440*	*2,408*	*2,331*	*2,098*	*2,067*	*2,174*	*1,992*	*2,175*	*2,243*	
	19–22	*447*	*424*	*430*	*395*	*402*	*447*	*412*	*411*	*375*	*377*	*393*	*363*	*374*	*345*	*337*	*314*	*315*	*270*	*281*	*283*	
	23–26	*418*	*400*	*392*	*382*	*401*	*426*	*408*	*361*	*351*	*375*	*345*	*363*	*366*	*323*	*337*	*319*	*296*	*284*	*264*	*267*	
	27–30	*400*	*377*	*384*	*369*	*380*	*388*	*374*	*358*	*344*	*350*	*337*	*343*	*319*	*335*	*320*	*282*	*312*	*259*	*284*	*266*	

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

TABLE 6-2
Trends in Proportions Disapproving of Drug Use among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage disapproving [e]

Q. Do you disapprove of people (who are 18 or older) doing each of the following?	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Trying marijuana once or twice [j,z]	18	39.0	40.0	45.5	46.3	49.3	51.4	54.6	56.6	60.8	64.6	67.8	68.7	69.9	63.3	57.6	56.7	52.5	51.0	51.6
	19–22	38.2	36.1	37.0	42.0	44.1	46.6	51.6	52.8	55.8	62.4	59.6	60.4	57.8	60.6	63.5	57.1	55.4	56.2	55.9
	23–26	—	—	—	—	41.2	38.6	42.6	49.1	48.7	52.5	57.5	58.8	55.0	54.6	52.3	51.9	56.3	54.5	55.3
	27–30	—	—	—	—	—	—	—	—	49.0	50.9	53.8	54.6	51.9	56.8	55.7	57.5	54.1	59.0	55.7
Using marijuana occasionally [j]	18	49.7	52.6	59.1	60.7	63.5	65.8	69.0	71.6	74.0	77.2	80.5	79.4	79.7	75.5	68.9	66.7	62.9	63.2	64.4
	19–22	49.6	49.1	51.3	56.0	60.4	62.6	66.7	67.2	69.5	77.3	76.3	77.0	74.8	75.8	76.9	70.4	68.9	70.2	67.8
	23–26	—	—	—	—	54.8	52.8	57.0	64.9	63.4	69.4	73.7	73.3	74.0	71.9	70.9	68.1	72.5	69.2	70.4
	27–30	—	—	—	—	—	—	—	—	65.3	67.1	68.9	73.0	67.2	72.2	69.4	72.5	70.5	74.5	72.4
Using marijuana regularly [j,aa]	18	74.6	77.4	80.6	82.5	84.7	85.5	86.6	89.2	89.3	89.8	91.0	89.3	90.1	87.6	82.3	81.9	80.0	78.8	81.2
	19–22	74.3	77.2	80.0	81.8	84.9	86.7	89.2	88.7	89.1	91.2	93.1	91.3	89.5	90.2	90.1	86.8	87.7	88.1	85.3
	23–26	—	—	—	—	80.6	81.3	83.3	87.4	86.9	90.4	91.0	89.6	90.2	92.1	90.3	90.1	88.9	88.1	87.5
	27–30	—	—	—	—	—	—	—	—	87.6	87.5	89.7	89.6	87.2	89.4	88.7	91.9	89.9	92.1	89.2
Trying LSD once or twice [h]	18	87.3	86.4	88.8	89.1	88.9	89.5	89.2	91.6	89.8	89.7	89.8	90.1	88.1	85.9	82.5	81.1	79.6	80.5	82.1
	19–22	87.4	84.8	85.9	88.4	88.1	89.1	90.4	90.0	90.9	89.3	90.5	88.4	84.6	88.5	86.8	84.2	83.0	83.1	80.8
	23–26	—	—	—	—	87.3	87.1	88.0	89.9	91.4	91.0	90.7	89.1	88.8	86.9	87.3	87.1	86.7	87.9	84.1
	27–30	—	—	—	—	—	—	—	—	91.0	87.2	89.7	87.9	85.6	88.8	88.2	87.4	88.7	88.7	87.3
Taking LSD regularly [h]	18	96.7	96.8	96.7	97.0	96.8	97.0	96.6	97.8	96.4	96.4	96.3	96.4	95.5	95.8	94.3	92.5	93.2	92.9	93.5
	19–22	98.2	97.4	97.7	97.6	97.6	98.8	98.5	98.0	98.1	97.5	99.1	97.5	97.0	97.8	97.7	96.8	97.0	97.4	96.3
	23–26	—	—	—	—	99.2	98.0	98.5	99.0	98.0	98.4	98.3	98.4	98.3	98.1	97.7	96.7	97.7	96.1	97.6
	27–30	—	—	—	—	—	—	—	—	98.8	97.1	98.9	98.9	97.5	98.5	98.7	98.6	98.1	97.5	97.4
Trying ecstasy (MDMA, Molly) once or twice [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	82.2	82.5
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taking ecstasy (MDMA, Molly) occasionally [h]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trying cocaine once or twice [h]	18	76.3	74.6	76.6	77.0	79.7	79.3	80.2	87.3	89.1	90.5	91.5	93.6	93.0	92.7	91.6	90.3	90.0	88.0	89.5
	19–22	73.0	69.3	69.9	74.1	72.5	77.6	78.9	82.3	85.3	88.8	90.1	91.2	90.6	92.7	93.9	94.2	92.0	91.7	89.9
	23–26	—	—	—	—	70.2	70.5	72.1	80.0	82.9	85.5	88.3	88.0	87.3	89.2	89.2	91.8	90.7	91.5	89.0
	27–30	—	—	—	—	—	—	—	—	82.1	81.0	85.5	86.9	83.9	85.7	86.6	86.6	88.3	89.2	90.3
Taking cocaine regularly [h]	18	91.1	90.7	91.5	93.2	94.5	93.8	94.3	96.7	96.2	96.4	96.7	97.3	96.9	97.5	96.6	96.1	95.6	96.0	95.6
	19–22	91.6	89.3	91.9	94.6	95.0	96.3	97.0	97.2	97.9	97.4	98.9	97.9	98.4	97.8	98.8	98.2	97.9	98.0	97.8
	23–26	—	—	—	—	95.7	95.3	97.3	98.1	97.6	98.3	98.4	98.5	98.7	98.4	98.8	97.7	97.8	96.9	98.5
	27–30	—	—	—	—	—	—	—	—	98.1	97.0	99.3	99.0	97.2	98.7	99.0	98.9	98.5	97.9	97.8
Trying heroin once or twice [h]	18	93.5	93.5	94.6	94.3	94.0	94.0	93.3	96.2	95.0	95.4	95.1	96.0	94.9	94.4	93.2	92.8	92.1	92.3	93.7
	19–22	96.3	95.4	95.6	95.2	95.1	96.2	96.8	96.3	97.1	96.4	98.3	95.9	95.9	96.3	96.6	95.6	95.2	95.6	95.1
	23–26	—	—	—	—	96.7	94.9	96.4	97.1	97.4	96.7	96.8	96.9	96.3	95.4	96.5	95.9	96.1	95.2	94.6
	27–30	—	—	—	—	—	—	—	—	97.9	95.8	97.5	96.6	94.8	97.3	94.7	96.3	96.0	96.9	95.9
Taking heroin occasionally [h]	18	96.7	97.2	96.9	96.9	97.1	96.8	96.6	97.9	96.9	97.2	96.7	97.3	96.8	97.0	96.2	95.7	95.0	95.4	96.1
	19–22	98.6	97.8	98.3	98.3	98.6	98.7	98.3	98.3	98.3	97.9	99.2	98.2	98.1	98.1	98.3	97.7	97.9	97.8	98.2
	23–26	—	—	—	—	99.2	98.2	98.8	99.1	98.4	98.3	98.1	99.0	98.7	98.4	98.6	97.7	98.7	97.4	97.5
	27–30	—	—	—	—	—	—	—	—	99.2	97.3	99.0	98.9	97.0	98.9	98.7	98.9	98.0	98.7	97.6
Taking heroin regularly [h]	18	97.6	97.8	97.5	97.7	98.0	97.6	97.6	98.1	97.2	97.4	97.5	97.8	97.2	97.5	97.1	96.4	96.3	96.4	96.6
	19–22	99.2	98.5	98.6	98.7	98.7	99.1	98.9	98.6	98.4	98.3	99.5	98.5	98.3	98.4	98.8	98.4	98.3	98.1	98.3
	23–26	—	—	—	—	99.4	98.8	99.1	99.4	98.7	98.7	98.5	99.3	99.2	98.9	98.8	98.7	98.9	97.6	98.5
	27–30	—	—	—	—	—	—	—	—	99.4	97.6	99.4	99.0	97.8	99.0	99.4	99.1	98.6	98.4	98.1

(Years Cont.)

(Table continued on next page.)

TABLE 6-2 (cont.)
Trends in Proportions Disapproving of Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. Do you disapprove of people (who are 18 or older) doing each of the following?	Age Group	Percentage disapproving [e]																				2017–2018 change
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Trying marijuana once or twice [j,z]	18	48.8	52.5	49.1	51.6	53.4	52.7	55.0	55.6	58.6	55.5	54.8	51.6	51.3	48.8	49.1	48.0	45.5	43.1	39.0	41.1	+2.1
	19–22	54.0	55.2	49.3	48.7	54.2	48.3	50.3	51.2	47.6	52.7	46.7	50.5	49.0	46.0	44.2	39.7	37.4	36.7	33.6	29.7	-3.9
	23–26	55.7	54.8	51.2	52.4	47.8	53.4	47.7	47.5	54.6	46.2	44.9	42.5	38.8	40.9	38.1	37.8	34.6	36.3	29.2	26.0	-3.2
	27–30	52.6	58.0	54.4	56.9	54.9	55.4	52.1	52.0	50.9	49.3	49.3	48.5	46.5	42.7	38.7	35.1	33.0	31.5	27.8	30.0	+2.1
Using marijuana occasionally [j]	18	62.5	65.8	63.2	63.4	64.2	65.4	67.8	69.3	70.2	67.3	65.6	62.0	60.9	59.1	58.9	56.7	52.9	50.5	46.7	49.2	+2.6
	19–22	66.4	70.7	64.6	62.3	68.0	64.3	67.9	62.6	64.1	63.3	59.8	61.3	61.7	58.2	54.9	50.7	50.0	45.9	42.7	38.1	-4.6 s
	23–26	71.1	68.6	67.4	64.0	63.8	69.3	65.6	62.2	68.0	64.5	62.4	59.1	53.1	55.8	51.3	51.3	49.1	46.8	41.5	35.2	-6.3 ss
	27–30	71.5	72.2	70.9	69.1	71.2	69.1	68.2	68.7	67.5	63.7	63.7	62.7	63.7	58.3	55.0	50.0	47.3	44.0	39.8	39.1	-0.7
Using marijuana regularly [j,aa]	18	78.6	79.7	79.3	78.3	78.7	80.7	82.0	82.2	83.3	79.6	80.3	77.7	77.5	77.8	74.5	73.4	70.7	68.5	64.7	66.7	+2.1
	19–22	84.5	86.6	84.5	82.8	84.8	82.7	84.4	82.5	83.7	83.6	80.8	80.7	78.1	77.0	75.7	71.3	71.0	70.6	67.3	61.1	-6.2 ss
	23–26	86.1	83.9	86.4	81.7	82.3	87.4	84.3	81.9	85.3	84.3	80.2	78.3	76.4	76.7	73.6	71.4	70.4	68.8	65.0	60.8	-4.2 s
	27–30	90.0	89.5	89.3	88.8	87.7	88.6	86.3	86.4	86.8	86.0	84.4	81.7	83.2	77.8	75.9	75.0	71.8	69.0	63.5	61.9	-1.6
Trying LSD once or twice [h]	18	83.0	82.4	81.8	84.6	85.5	87.9	87.9	88.0	87.8	85.5	88.2	86.5	86.3	87.2	86.6	85.0	81.7	82.4	78.0	80.5	+2.5
	19–22	83.2	82.3	81.4	83.7	86.2	85.0	87.6	85.4	88.5	86.5	83.0	86.7	83.3	84.0	83.5	77.8	75.5	70.3	72.5	78.5	+6.0
	23–26	84.8	80.3	83.0	79.2	80.1	84.0	84.0	84.5	87.6	81.8	85.0	82.6	80.1	83.3	79.7	79.8	76.8	73.9	73.9	66.5	-7.4
	27–30	86.6	87.2	85.7	82.7	85.6	82.5	82.2	82.0	84.1	82.7	84.5	85.1	85.1	82.4	81.4	82.2	77.9	80.0	71.8	72.2	+0.4
Taking LSD regularly [h]	18	94.3	94.2	94.0	94.0	94.4	94.6	95.6	95.9	94.9	93.5	95.3	94.3	94.9	95.2	95.3	94.7	92.5	92.4	92.7	93.4	+0.7
	19–22	97.0	96.8	96.5	96.9	98.4	97.3	98.9	97.8	97.7	96.8	96.8	96.6	96.5	96.0	96.7	97.0	95.2	95.4	93.9	95.9	+2.0
	23–26	98.0	97.0	97.1	97.9	96.9	97.1	98.7	97.0	98.4	97.4	98.2	96.5	95.9	97.4	96.1	95.8	96.6	93.1	95.9	95.5	-0.4
	27–30	97.9	98.6	98.2	98.0	98.2	98.2	97.2	96.7	97.2	97.1	98.6	98.6	97.1	97.3	97.2	97.3	96.0	96.4	94.0	92.8	-1.1
Trying ecstasy (MDMA, Molly) once or twice [h,m]	18	82.1	81.0	79.5	83.6	84.7	87.7	88.4	89.0	87.8	88.2	88.2	86.3	83.9	87.1	84.9	83.1	84.5	84.0	85.1	85.6	+0.4
	19–22	—	—	81.5	80.3	87.2	83.5	90.3	87.5	88.5	89.5	89.1	91.4	85.9	87.9	83.9	83.7	79.7	83.2	78.2	81.1	+2.8
	23–26	—	—	80.6	80.6	80.2	83.1	83.9	83.9	87.4	83.9	85.0	86.9	85.1	85.2	79.9	83.6	79.1	82.8	79.9	80.5	+0.6
	27–30	—	—	84.2	84.0	86.3	83.2	82.4	82.2	81.8	82.7	83.0	81.9	86.6	83.7	84.5	81.9	84.6	81.5	78.6	79.2	+0.6
Taking ecstasy (MDMA, Molly) occasionally [h,m]	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	92.8	91.8	95.6	93.8	96.7	94.0	95.3	94.8	95.2	95.3	91.8	94.4	92.3	94.6	90.7	90.2	93.1	92.7	-0.4
	23–26	—	—	90.5	91.8	92.1	93.3	94.4	93.7	94.3	94.0	95.4	94.3	92.5	93.3	92.1	93.5	90.7	91.6	91.7	88.4	-3.3
	27–30	—	—	91.7	93.0	94.3	91.0	92.1	93.4	92.8	94.1	93.6	92.6	94.5	93.5	93.0	93.9	93.2	92.0	88.1	88.7	+0.6
Trying cocaine once or twice [h]	18	89.1	88.2	88.1	89.0	89.3	88.6	88.9	89.1	89.6	89.2	90.8	90.5	91.1	91.0	92.3	90.0	89.0	88.4	88.0	88.9	+0.9
	19–22	90.9	89.9	87.7	87.9	89.3	87.7	92.3	88.2	89.2	85.8	87.8	87.1	90.1	89.7	90.5	86.7	86.0	84.3	85.6	86.8	+1.2
	23–26	91.3	87.1	90.1	85.8	86.4	87.4	88.3	84.4	87.6	84.5	86.2	86.0	82.7	86.0	85.7	84.8	82.9	77.5	80.8	77.4	-3.3
	27–30	90.4	89.4	90.3	88.5	91.5	88.0	87.0	85.8	87.7	87.4	88.3	87.3	87.0	85.6	82.5	85.0	79.1	83.7	75.8	78.6	+2.8
Taking cocaine regularly [h]	18	94.9	95.5	94.9	95.0	95.8	95.4	96.0	96.1	96.2	94.8	96.5	96.0	96.0	96.8	96.7	96.3	95.2	94.8	94.8	95.8	+1.1
	19–22	97.6	98.0	97.2	97.0	98.2	98.5	98.7	98.9	99.0	97.6	97.6	97.6	97.2	97.6	97.4	97.8	97.8	97.2	97.0	97.1	+0.1
	23–26	98.3	97.8	97.5	97.5	97.6	98.1	98.9	97.3	98.1	98.0	98.7	97.6	97.3	98.8	97.8	97.7	97.5	94.5	97.0	96.7	-0.2
	27–30	98.8	98.7	98.4	97.8	98.8	98.8	97.8	97.2	97.9	97.3	99.0	99.0	98.4	98.5	98.0	97.6	98.0	96.9	96.1	97.0	+0.9
Trying heroin once or twice [h]	18	93.5	93.0	93.1	94.1	94.1	94.2	94.3	93.8	94.8	93.3	94.7	93.9	94.3	95.8	95.6	94.7	94.2	94.1	93.7	95.0	+1.2
	19–22	95.5	94.1	94.2	95.0	96.4	95.9	98.8	95.6	97.6	95.7	95.5	95.8	96.7	95.9	96.3	96.5	96.1	94.9	96.8	95.7	-1.1
	23–26	96.3	93.1	95.0	94.8	95.0	95.0	96.1	93.7	97.2	95.6	94.9	94.5	95.5	95.7	94.7	97.2	96.5	93.4	96.6	96.9	+0.4
	27–30	96.7	95.9	96.4	94.4	97.6	94.9	95.6	93.9	96.4	96.2	95.4	96.3	95.7	95.9	94.8	95.3	95.2	95.9	95.5	96.3	+0.8
Taking heroin occasionally [h]	18	95.7	96.0	95.4	95.6	95.9	96.4	96.3	96.2	96.8	95.3	96.9	96.2	96.3	97.0	96.9	96.6	95.3	95.5	95.5	96.4	+0.8
	19–22	97.2	98.0	97.9	97.9	98.3	98.9	99.4	98.2	98.8	97.3	97.9	97.5	97.7	97.4	98.0	97.8	97.5	97.4	97.7	97.9	+0.2
	23–26	98.5	98.2	97.8	97.5	97.2	98.5	98.3	97.7	98.8	98.3	98.5	97.1	99.0	99.0	98.1	98.1	98.1	96.6	97.7	97.7	0.0
	27–30	98.8	98.6	98.4	98.6	98.7	98.1	97.7	97.1	98.1	98.2	98.6	99.3	98.1	97.9	97.7	97.3	98.0	98.3	97.4	98.2	+0.8
Taking heroin regularly [h]	18	96.4	96.6	96.2	96.2	97.1	97.1	96.7	96.9	97.1	95.9	97.4	96.4	96.7	97.4	97.4	97.1	96.4	95.7	95.9	96.8	+0.9
	19–22	98.2	98.5	98.2	98.3	98.8	99.0	99.2	98.9	99.1	98.3	98.1	97.6	97.9	98.3	98.4	97.9	98.1	97.6	97.7	98.0	+0.4
	23–26	98.7	98.8	98.4	98.3	98.6	98.9	98.9	98.0	99.0	99.1	99.2	97.6	99.3	99.1	98.3	98.9	98.1	97.0	98.4	97.9	-0.6
	27–30	98.8	98.7	98.7	98.4	99.3	98.8	99.1	97.5	98.2	98.4	99.0	99.3	98.6	98.3	97.9	97.6	98.5	98.9	98.0	98.5	+0.6

(List of drugs continued.)

TABLE 6-2 (cont.)
Trends in Proportions Disapproving of Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage disapproving [e]

Q. Do you disapprove of people (who are 18 or older) doing each of the following?	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Trying amphetamines once or twice [b,h,bb]	18	75.4	71.1	72.6	72.3	72.8	74.9	76.5	80.7	82.5	83.3	85.3	86.5	86.9	84.2	81.3	82.2	79.9	81.3	82.5
	19–22	74.5	70.5	68.9	74.0	73.0	75.6	78.9	79.9	81.8	85.3	84.4	83.9	83.8	87.2	88.3	85.0	84.4	83.3	84.6
	23–26	—	—	—	—	74.2	74.2	74.6	80.3	83.5	83.3	84.1	84.8	83.4	84.8	82.7	86.0	86.4	85.7	83.5
	27–30	—	—	—	—	—	—	—	—	83.5	81.0	84.3	83.7	80.9	83.5	82.0	83.1	85.8	86.3	85.9
Taking amphetamines regularly [b,h]	18	93.0	91.7	92.0	92.6	93.6	93.3	93.5	95.4	94.2	94.2	95.5	96.0	95.6	96.0	94.1	94.3	93.5	94.3	94.0
	19–22	94.8	93.3	94.3	93.4	94.9	96.6	96.9	95.1	97.5	96.8	97.5	97.7	96.7	97.3	97.9	96.8	97.2	97.8	96.7
	23–26	—	—	—	—	96.6	95.9	96.6	97.0	97.2	98.1	97.9	97.9	97.7	98.4	97.7	97.0	97.9	97.0	98.0
	27–30	—	—	—	—	—	—	—	—	98.1	96.5	98.6	97.8	96.8	97.7	99.0	98.9	98.2	98.1	97.7
Trying sedatives/ barbiturates once or twice [c,h]	18	83.9	82.4	84.4	83.1	84.1	84.9	86.8	89.6	89.4	89.3	90.5	90.6	90.3	89.7	87.5	87.3	84.9	86.4	86.0
	19–22	83.5	82.3	83.8	85.1	85.2	86.1	88.3	87.5	90.1	92.0	91.1	90.4	88.8	90.7	91.1	90.5	89.1	86.6	85.8
	23–26	—	—	—	—	84.0	84.5	84.4	89.8	90.7	89.4	88.8	87.9	88.8	88.5	88.0	89.3	88.3	88.3	87.4
	27–30	—	—	—	—	—	—	—	—	90.5	88.3	88.4	88.8	86.6	88.9	87.6	88.0	89.4	88.8	88.4
Taking sedatives/ barbiturates regularly [c,h,cc]	18	95.4	94.2	94.4	95.1	95.1	95.5	94.9	96.4	95.3	95.3	96.4	97.1	96.5	97.0	96.1	95.2	94.8	95.3	94.6
	19–22	96.6	95.6	97.3	96.5	96.6	98.1	98.0	97.0	97.9	97.7	98.7	98.0	97.9	98.2	98.7	97.7	97.9	97.7	97.7
	23–26	—	—	—	—	98.4	98.5	97.7	98.6	98.3	98.3	98.5	98.5	98.6	98.5	98.5	97.4	98.4	97.4	98.5
	27–30	—	—	—	—	—	—	—	—	98.4	97.1	99.1	98.5	97.7	98.4	99.1	99.0	98.5	97.9	97.7
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor) [j,dd]	18	16.0	17.2	18.2	18.4	17.4	20.3	20.9	21.4	22.6	27.3	29.4	29.8	33.0	30.1	28.4	27.3	26.5	26.1	24.5
	19–22	14.8	14.5	13.9	15.5	15.3	15.4	16.9	16.0	18.4	22.4	17.6	22.2	16.9	20.8	22.2	22.0	22.0	18.3	21.5
	23–26	—	—	—	—	17.4	16.1	13.2	17.7	13.7	17.5	18.6	19.5	17.4	18.1	17.6	16.5	18.0	15.8	18.6
	27–30	—	—	—	—	—	—	—	—	19.5	19.1	18.7	18.8	17.9	19.5	18.6	18.2	16.1	17.4	15.2
Taking one or two drinks nearly every day [j]	18	69.0	69.1	69.9	68.9	72.9	70.9	72.8	74.2	75.0	76.5	77.9	76.5	75.9	77.8	73.1	73.3	70.8	70.0	69.4
	19–22	67.8	69.7	71.3	73.3	74.3	71.3	77.4	75.3	76.5	80.0	79.7	77.1	76.0	75.0	78.0	74.7	73.5	73.2	70.3
	23–26	—	—	—	—	71.4	73.7	71.6	72.7	74.6	74.4	77.6	76.9	75.5	74.2	73.3	69.7	70.6	68.4	70.2
	27–30	—	—	—	—	—	—	—	—	76.0	73.9	73.3	76.1	69.5	73.5	72.4	71.8	71.4	71.8	69.8
Taking four or five drinks nearly every day [j]	18	90.8	91.8	90.9	90.0	91.0	92.0	91.4	92.2	92.8	91.6	91.9	90.6	90.8	90.6	89.8	88.8	89.4	88.6	86.7
	19–22	95.2	93.4	94.6	94.6	94.6	94.8	94.9	95.7	94.8	96.1	95.8	96.4	95.5	95.1	96.2	95.5	94.2	93.9	92.4
	23–26	—	—	—	—	96.2	95.0	95.5	96.9	94.3	95.9	96.9	96.1	95.7	95.7	95.7	95.2	96.5	93.8	96.1
	27–30	—	—	—	—	—	—	—	—	97.4	94.6	96.1	95.3	94.8	94.8	96.4	96.7	96.4	96.2	95.0
Having five or more drinks once or twice each weekend [j]	18	55.6	55.5	58.8	56.6	59.6	60.4	62.4	62.0	65.3	66.5	68.9	67.4	70.7	70.1	65.1	66.7	64.7	65.0	63.8
	19–22	57.1	56.1	58.2	61.0	59.7	59.4	60.3	61.6	64.1	66.3	67.1	62.4	65.6	63.5	68.1	66.0	69.2	66.5	63.2
	23–26	—	—	—	—	66.2	68.3	66.5	67.5	65.2	63.2	66.9	64.6	69.6	66.8	66.9	65.3	70.9	66.6	69.5
	27–30	—	—	—	—	—	—	—	—	73.9	71.4	73.1	72.1	68.4	73.4	73.5	73.7	72.4	73.0	71.1
Smoking one or more packs of cigarettes per day [j]	18	70.8	69.9	69.4	70.8	73.0	72.3	75.4	74.3	73.1	72.4	72.8	71.4	73.5	70.6	69.8	68.2	67.2	67.1	68.8
	19–22	68.7	68.1	66.3	71.6	69.0	70.5	71.4	72.7	73.8	75.6	73.7	73.2	72.6	72.8	75.3	69.8	72.2	74.3	72.3
	23–26	—	—	—	—	69.9	68.7	67.5	69.7	66.4	71.1	71.5	77.2	73.6	72.9	70.3	72.2	73.0	71.7	73.9
	27–30	—	—	—	—	—	—	—	—	72.8	69.4	73.5	71.2	70.7	73.8	72.3	73.9	72.7	74.3	71.7
Approximate Weighted N Per Form =	18	*3,261*	*3,610*	*3,651*	*3,341*	*3,254*	*3,265*	*3,113*	*3,302*	*3,311*	*2,799*	*2,566*	*2,547*	*2,645*	*2,723*	*2,588*	*2,603*	*2,399*	*2,601*	*2,545*
	19–22	*588*	*573*	*605*	*579*	*586*	*551*	*605*	*587*	*560*	*567*	*569*	*533*	*530*	*489*	*474*	*465*	*480*	*470*	*446*
	23–26					*542*	*535*	*560*	*532*	*538*	*516*	*524*	*495*	*538*	*514*	*475*	*466*	*449*	*423*	*401*
	27–30									*526*	*509*	*513*	*485*	*512*	*462*	*442*	*450*	*430*	*453*	*449*

(Table continued on next page.)

TABLE 6-2 (cont.)
Trends in Proportions Disapproving of Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. Do you disapprove of people (who are 18 or older) doing each of the following?	Age Group	Percentage disapproving [e]																				2017–2018 change
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Trying amphetamines once or twice [b,h,bb]	18	81.9	82.1	82.3	83.8	85.8	84.1	86.1	86.3	87.3	87.2	88.2	88.1	84.1	83.9	84.9	83.1	81.4	82.1	81.9	81.0	-0.8
	19–22	84.9	83.8	82.1	81.4	86.3	82.1	88.2	84.9	84.8	86.7	85.4	86.9	80.5	81.3	83.7	73.6	76.4	70.9	80.0	74.3	-5.6
	23–26	84.5	82.4	83.9	83.5	79.9	81.6	81.3	79.0	85.8	79.7	84.4	84.1	76.5	80.7	77.3	81.4	76.9	72.9	75.5	67.9	-7.6
	27–30	86.4	84.5	86.0	86.4	84.9	82.4	81.3	81.1	84.5	83.7	82.9	84.3	81.1	81.9	81.5	80.8	74.6	78.6	73.8	73.4	-0.4
Taking amphetamines regularly [b,h]	18	93.7	94.1	93.4	93.5	94.0	93.9	94.8	95.3	95.4	94.2	95.6	94.9	92.9	93.9	93.2	93.0	92.2	92.2	92.0	92.8	+0.8
	19–22	97.5	96.1	97.3	96.4	97.1	97.1	98.4	97.5	98.6	96.2	96.8	96.2	92.1	94.1	94.4	92.8	94.0	93.3	93.6	92.3	-1.3
	23–26	97.0	97.6	96.8	96.3	97.2	95.9	98.3	96.2	97.6	97.3	98.1	96.8	94.8	95.9	94.6	92.4	93.7	90.4	94.4	91.7	-2.7
	27–30	98.2	98.5	97.6	97.4	98.1	98.0	97.6	96.4	98.4	97.2	98.1	98.0	97.5	95.8	96.8	96.3	94.8	94.6	94.6	95.4	+0.9
Trying sedatives/ barbiturates once or twice [c,h]	18	86.6	85.9	85.9	86.6	87.8	83.7	85.4	85.3	86.5	86.1	87.7	87.6	87.3	88.2	88.9	88.5	87.4	86.5	85.9	86.9	+0.9
	19–22	86.6	84.2	85.2	84.2	87.7	81.8	86.6	83.4	82.7	82.1	84.7	85.2	85.4	88.0	88.6	86.3	87.1	80.3	87.6	81.0	-6.6 s
	23–26	87.3	85.2	86.9	86.8	81.8	80.3	81.6	80.5	84.3	77.7	83.3	80.9	80.6	83.8	84.4	84.4	84.5	82.1	80.9	75.9	-5.0
	27–30	87.6	87.3	88.5	86.9	89.2	81.8	78.7	80.1	83.5	80.5	82.5	80.3	83.3	83.1	82.6	82.5	81.2	79.2	75.9	78.3	+2.4
Taking sedatives/ barbiturates regularly [c,h,cc]	18	94.7	95.2	94.5	94.7	94.4	94.2	95.2	95.1	94.6	94.3	95.8	94.7	95.1	96.1	95.8	95.0	94.7	94.8	94.4	95.3	+0.9
	19–22	97.3	97.4	96.9	97.8	98.5	96.6	98.3	98.1	98.3	96.7	96.7	96.3	96.7	96.4	96.5	97.8	96.7	95.4	96.6	95.2	-1.4
	23–26	97.6	97.4	97.0	97.1	97.1	96.1	98.0	96.3	97.8	96.7	98.4	95.7	98.1	97.3	97.2	96.6	95.7	94.9	95.5	95.0	-0.5
	27–30	98.5	98.1	98.4	97.2	98.4	98.1	96.5	95.6	97.4	97.4	98.4	98.6	97.0	97.7	97.1	97.4	97.7	98.0	95.9	96.4	+0.5
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor) [j,dd]	18	24.6	25.2	26.6	26.3	27.2	26.0	26.4	29.0	31.0	29.8	30.6	30.7	28.7	25.4	27.3	29.2	28.9	28.8	27.2	31.3	+4.1
	19–22	18.3	18.4	16.3	18.3	20.1	20.7	22.3	17.8	17.3	20.5	19.1	23.7	21.6	21.4	19.6	17.9	17.5	18.3	17.7	17.8	+0.1
	23–26	19.1	19.9	15.9	18.1	13.0	16.3	13.5	14.7	14.9	12.5	16.0	15.4	10.9	14.1	13.5	14.2	12.8	15.5	14.7	11.6	-3.1
	27–30	15.9	14.8	15.9	18.4	15.4	18.8	16.1	15.0	14.2	11.9	11.5	13.3	11.8	14.7	13.2	11.7	12.1	11.4	11.5	14.6	+3.0
Taking one or two drinks nearly every day [j]	18	67.2	70.0	69.2	69.1	68.9	69.5	70.8	72.8	73.3	74.5	70.5	71.5	72.8	70.8	71.9	71.7	71.1	71.8	70.8	74.7	+3.9 s
	19–22	67.3	66.7	68.3	63.9	66.9	68.1	64.6	68.2	65.1	65.2	67.4	68.4	71.0	65.7	64.0	61.6	63.3	64.2	62.1	61.7	-0.4
	23–26	73.4	66.3	66.5	62.7	65.0	61.7	64.4	62.0	62.4	66.4	62.0	62.5	55.7	53.9	54.4	53.3	53.4	58.6	53.9	57.3	+3.4
	27–30	67.9	65.9	68.9	70.9	63.1	66.7	60.5	62.0	65.8	59.5	63.7	61.4	61.7	55.6	51.3	52.0	54.8	50.0	50.0	50.8	+0.8
Taking four or five drinks nearly every day [j]	18	86.9	88.4	86.4	87.5	86.3	87.8	89.4	90.6	90.5	89.8	89.7	88.8	90.8	90.1	90.6	91.9	89.7	91.1	90.7	91.7	+1.0
	19–22	92.4	92.8	94.2	92.6	92.5	92.2	93.2	92.9	92.9	94.0	93.6	92.2	93.9	91.9	92.1	91.1	92.1	92.0	92.6	92.9	+0.3
	23–26	95.1	94.3	93.5	93.7	92.6	93.1	94.8	92.9	95.6	94.9	94.6	93.9	94.7	92.8	91.8	91.4	92.4	93.6	91.4	93.0	+1.6
	27–30	97.2	95.3	96.1	95.4	95.6	96.0	92.8	92.7	95.0	93.9	96.0	94.3	95.8	92.1	92.1	93.4	91.8	91.2	90.5	91.8	+1.4
Having five or more drinks once or twice each weekend [j]	18	62.7	65.2	62.9	64.7	64.2	65.7	66.5	68.5	68.8	68.9	67.6	68.8	70.0	70.1	71.6	72.6	71.9	74.2	72.5	75.8	+3.3 s
	19–22	63.5	65.1	58.3	57.5	61.9	59.4	60.1	59.3	59.1	63.4	62.3	62.7	65.4	64.7	66.3	64.7	66.6	68.6	65.4	68.6	+3.1
	23–26	68.1	66.2	66.0	61.2	65.5	60.9	64.5	59.7	62.4	63.0	59.5	61.7	55.9	63.0	63.3	62.0	62.6	69.4	64.4	65.0	+0.6
	27–30	73.1	73.1	73.0	70.9	71.5	73.8	67.5	67.3	71.5	66.4	65.8	67.5	64.9	63.3	65.0	64.1	66.1	64.0	65.8	65.3	-0.5
Smoking one or more packs of cigarettes per day [j]	18	69.5	70.1	71.6	73.6	74.8	76.2	79.8	81.5	80.7	80.5	81.8	81.0	83.0	83.7	82.6	85.0	84.1	85.3	86.6	89.0	+2.4 s
	19–22	70.1	73.1	73.2	73.4	73.4	74.8	81.5	77.2	81.0	80.4	81.8	82.9	83.8	79.5	81.0	80.6	82.7	85.7	85.4	86.8	+1.5
	23–26	73.8	72.7	77.3	74.8	75.7	76.2	74.8	74.1	76.2	77.9	77.3	77.9	80.3	78.2	77.8	80.0	80.3	83.5	85.0	84.0	-0.9
	27–30	71.0	78.6	75.2	78.8	76.2	77.6	77.3	73.9	81.1	74.5	80.9	79.6	79.5	79.1	79.9	79.9	82.2	82.2	81.1	82.6	+1.6
Approximate Weighted N Per Form =	18	*2,310*	*2,150*	*2,144*	*2,160*	*2,442*	*2,455*	*2,460*	*2,377*	*2,450*	*2,314*	*2,233*	*2,449*	*2,384*	*2,301*	*2,147*	*2,078*	*2,193*	*2,000*	*2,129*	*2,267*	
	19–22	*449*	*416*	*413*	*402*	*396*	*431*	*378*	*378*	*333*	*365*	*368*	*364*	*340*	*356*	*280*	*316*	*264*	*252*	*225*	*271*	
	23–26	*397*	*389*	*404*	*346*	*385*	*403*	*374*	*364*	*325*	*335*	*328*	*347*	*309*	*334*	*312*	*308*	*284*	*271*	*234*	*264*	
	27–30	*429*	*395*	*368*	*359*	*346*	*370*	*367*	*330*	*355*	*339*	*325*	*334*	*306*	*312*	*301*	*304*	*262*	*258*	*276*	*285*	

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

Footnotes for Tables 6-1 through 6-2

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001.
Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.
The illicit drugs not listed here show a daily prevalence of 0.2% or less in all years.
' * ' indicates a prevalence rate of less than 0.05%.
' — ' indicates data not available.

[a]Answer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

[b]In 2011 the list of examples was changed from upper, pep pills, bennies, and speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

[c]In 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers.
These changes likely explain the discontinuity in the 2003 and 2004 results.

[d]For 12th graders only: In 2011 the question on perceived risk of using salvia once or twice appeared at the end of a questionnaire form. In 2012 the question was moved to an earlier section of the same form. A question on perceived risk of using salvia occasionally was also added following the question on perceived risk of trying salvia once or twice. These changes likely explain the discontinuity in the 2012 result.

[e]Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

[f]Age 18 data based on one questionnaire form for all years reported. For ages 19-30 only: Prior to 2012, data based on one questionnaire form. In 2012 and following data based on five questionnaire forms.

[g]Age 18 data based on one questionnaire form for all years reported. For ages 19-30 only: Prior to 2012, data based on one questionnaire form. In 2012 and following data based on two questionnaire forms.

[h]Data based on one questionnaire form.

[i]Age 18 data based on one questionnaire form for all years reported. For ages 19-30 only: Prior to 2012, data based on one questionnaire form. In 2012 and following data based on three questionnaire forms.

[j]Age 18 data based on one questionnaire form for all years reported. For ages 19-30 only: Prior to 2012, data based on one questionnaire form. In 2012 and following data based on four questionnaire forms.

[k]Age 18 data based on one questionnaire form for all years reported. For ages 19-30 only: Prior to 2012, data based on one questionnaire form. In 2012 and 2013 two questionnaire forms. Data based on one questionnaire form in 2014 and following.

[l]Data based on two questionnaire forms for all years reported.

[m]Beginning in 2014 for Age 18 and 2015 for the other age groups, "molly" was added to the questions on perceived risk of using MDMA. The same change was made to the questions on disapproval of MDMA use for all age groups in 2015. Data for the two versions of the questions are not comparable due to this change in the question text.

[n]For the estimate of Perceived Risk of Using Marijuana Occasionally in 2018, there was a significant difference (p<.05) among those age 27-30 between the typical mail condition (12.8%) and new web-push condition (8.9%) of survey administration.

[o]For the estimate of Perceived Risk of Using Cocaine Occasionally in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (74.8%) and new web-push condition (62.8%) of survey administration.

[p]For the estimate of Perceived Risk of Trying Heroin Once or Twice in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (71.4%) and new web-push condition (80.5%) of survey administration.

[q]For the estimate of Perceived Risk of Using Heroin Occasionally in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (84.4%) and new web-push condition (90.5%) of survey administration.

[r]For the estimate of Perceived Risk of Trying Amphetamines Once or Twice in 2018, there was a significant difference (p<.05) among those age 27-30 between the typical mail condition (27.1%) and new web-push condition (38.8%) of survey administration.

[s]For the estimate of Perceived Risk of Trying Sedatives/Barbiturates Once or Twice in 2018, there was a significant difference (p<.05) among those age 19-22 between the typical mail condition (23.4%) and new web-push condition (36.4%) of survey administration.

[t]For the estimate of Perceived Risk of Trying Sedatives/Barbiturates Once or Twice in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (22.4%) and new web-push condition (36.0%) of survey administration.

[u]For the estimate of Perceived Risk of Using Sedatives/Barbiturates Regularly in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (62.4%) and new web-push condition (74.3%) of survey administration.

[y]For the estimate of Perceived Risk of Trying Bath Salts Once or Twice in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (68.0%) and new web-push condition (80.6%) of survey administration.

[w]For the estimate of Perceived Risk of Trying Adderall Once or Twice in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (22.7%) and new web-push condition (36.1%) of survey administration.

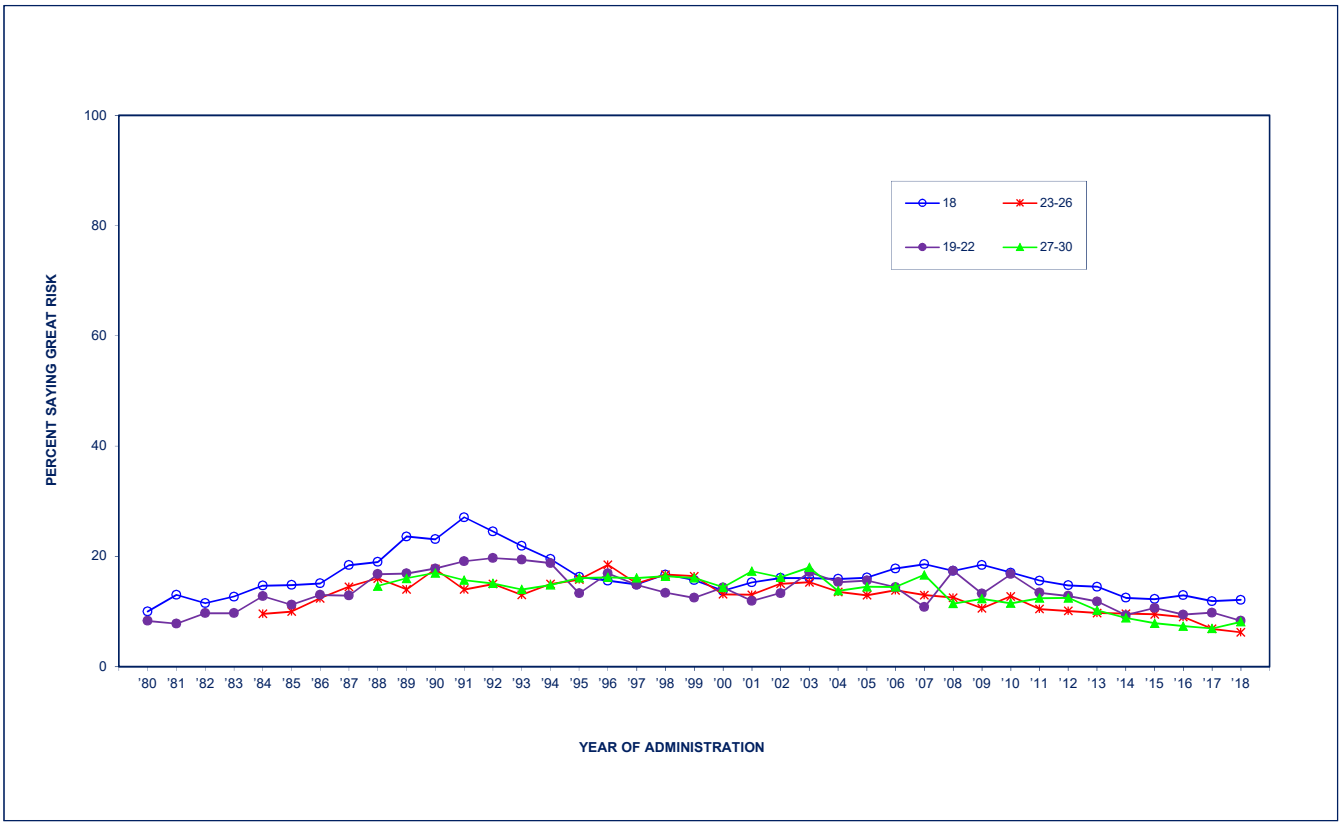
[x]For the estimate of Perceived Risk of Trying Narcotics Other Than Heroin Once or Twice in 2018, there was a significant difference (p<.05) among those age 23-26 between the typical mail condition (46.3%) and new web-push condition (59.2%) of survey administration.

[y]For the estimate of Perceived Risk of Using Salvia Occasionally in 2018, there was a significant difference (p<.05) among those age 19-22 between the typical mail condition (17.3%) and new web-push condition (28.5%) of survey administration.

Footnotes for Tables 6-1 through 6-2 (cont.)

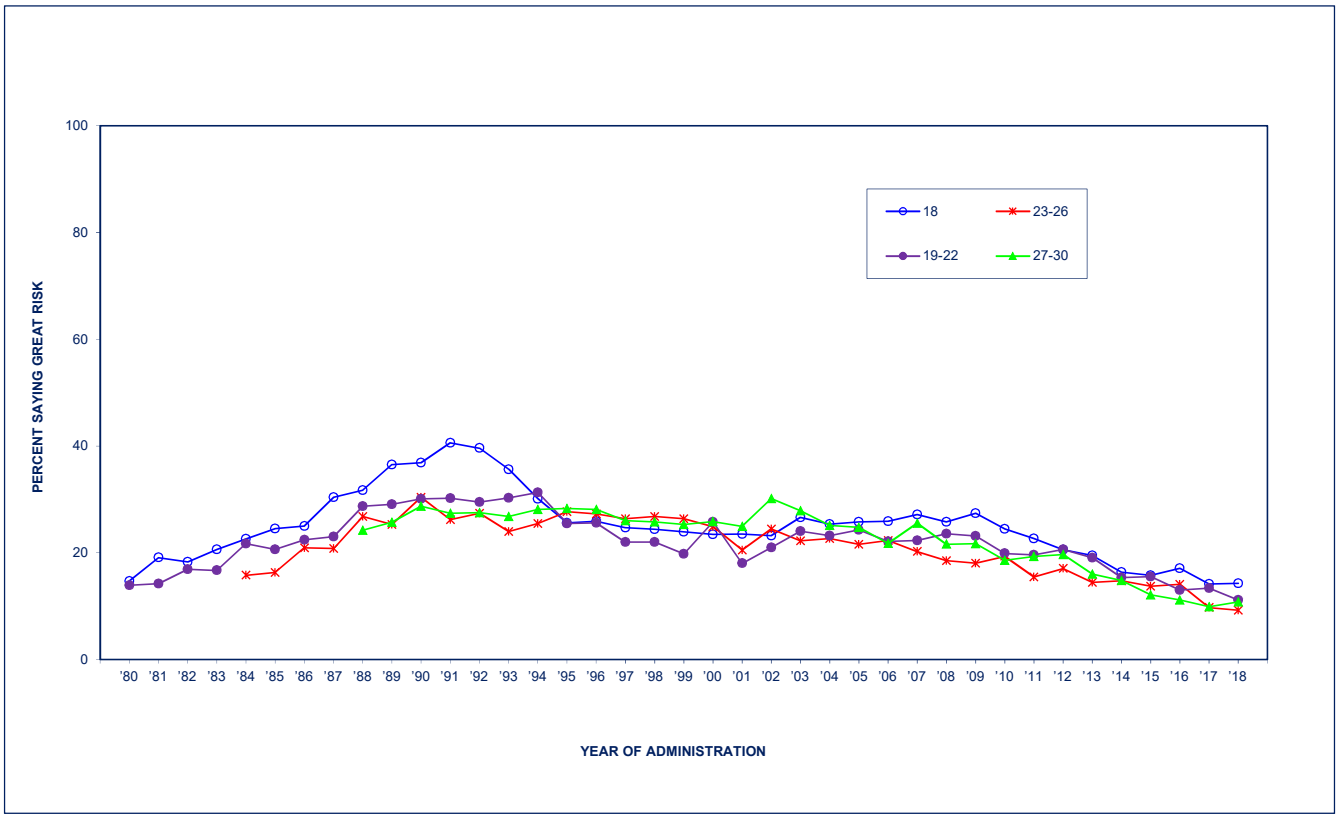
[z]For the estimate of Disapproval of Trying Marijuana Once or Twice in 2018, there was a significant difference (p<.05) among those age 27-30 between the typical mail condition (32.6%) and new web-push condition (27.4%) of survey administration.
[aa]For the estimate of Disapproval of Using Marijuana Regularly in 2018, there was a significant difference (p<.05) among those age 19-22 between the typical mail condition (65.1%) and new web-push condition (57.8%) of survey administration.
[bb]For the estimate of Disapproval of Trying Amphetamines Once or Twice in 2018, there was a significant difference (p<.01) among those age 19-22 between the typical mail condition (83.1%) and new web-push condition (67.9%) of survey administration.
[cc]For the estimate of Disapproval of Using Sedatives/Barbiturates Regularly in 2018, there was a significant difference (p<.05) among those age 27-30 between the typical mail condition (98.7%) and new web-push condition (93.8%) of survey administration.
[dd]For the estimate of Disapproval of Trying Alcohol Once or Twice in 2018, there was a significant difference (p<.01) among those age 27-30 between the typical mail condition (17.3%) and new web-push condition (12.0%) of survey administration.

FIGURE 6-1
Trends in Harmfulness of MARIJUANA Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Trying Once or Twice



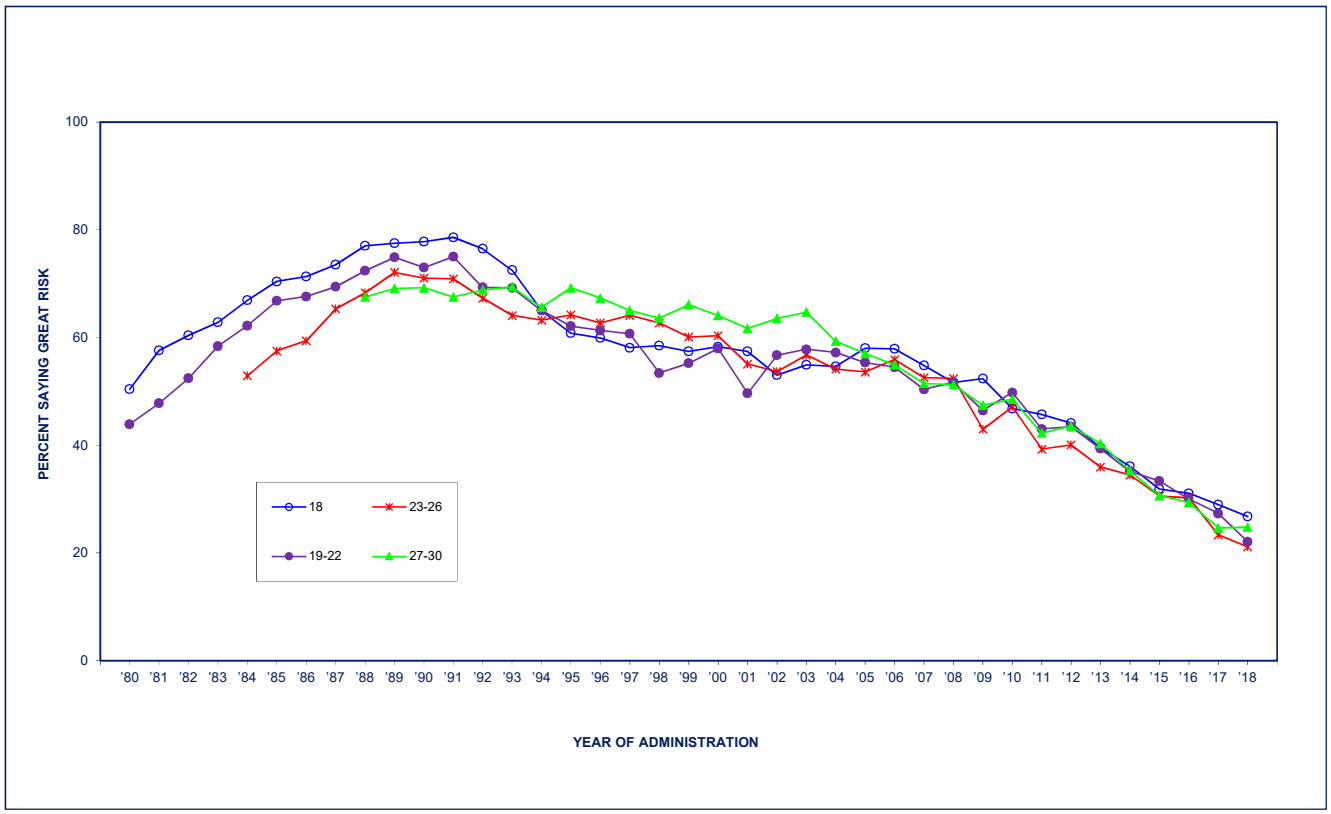
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-2
Trends in Harmfulness of MARIJUANA Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Occasional Use



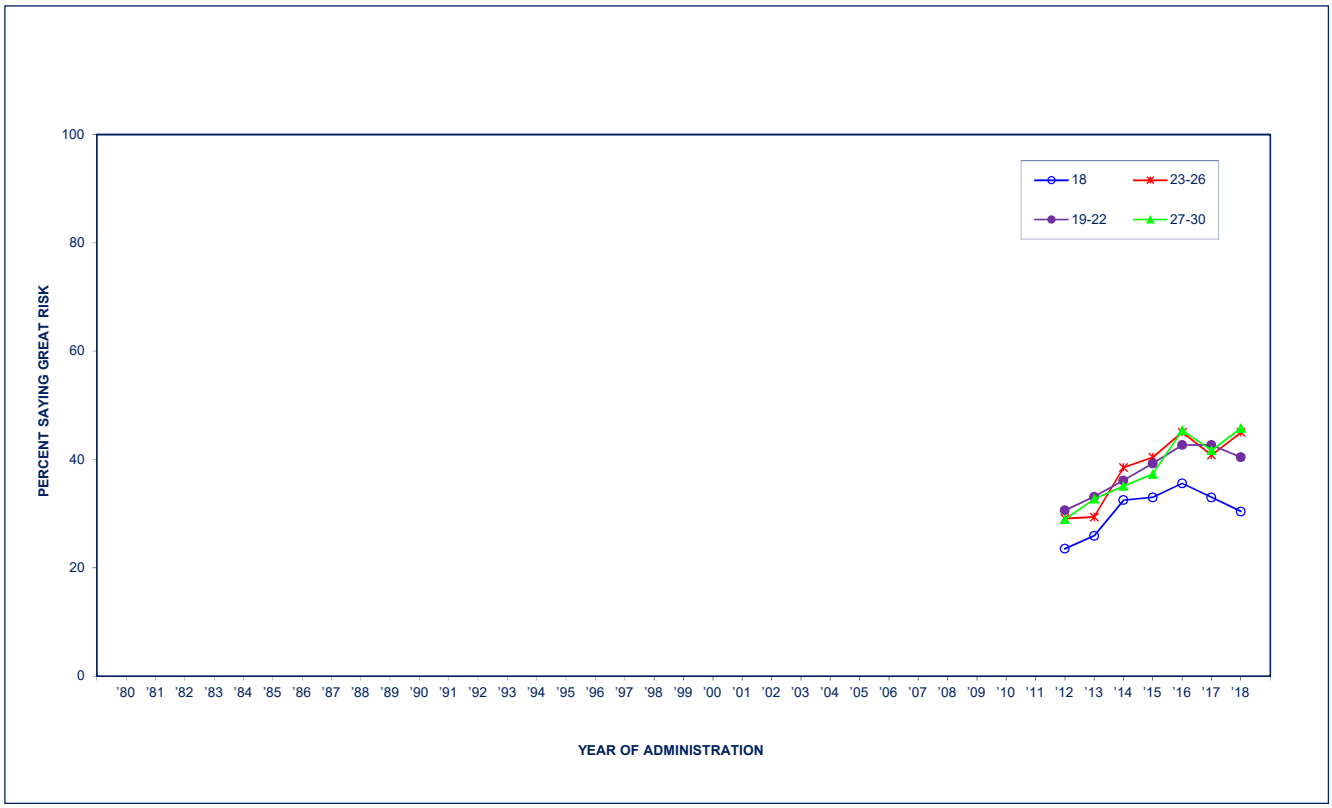
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-3
Trends in Harmfulness of MARIJUANA Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



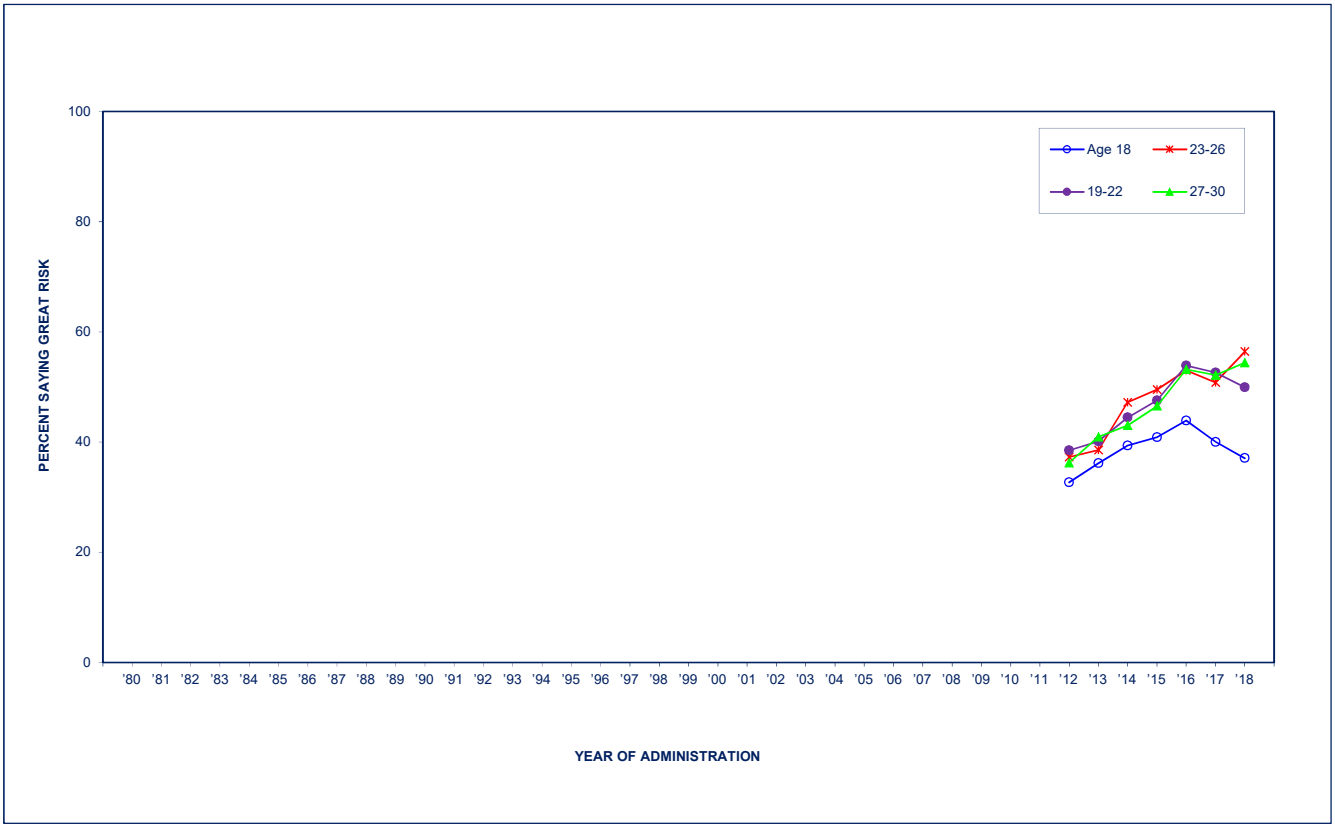
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-4
Trends in Harmfulness of SYNTHETIC MARIJUANA Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



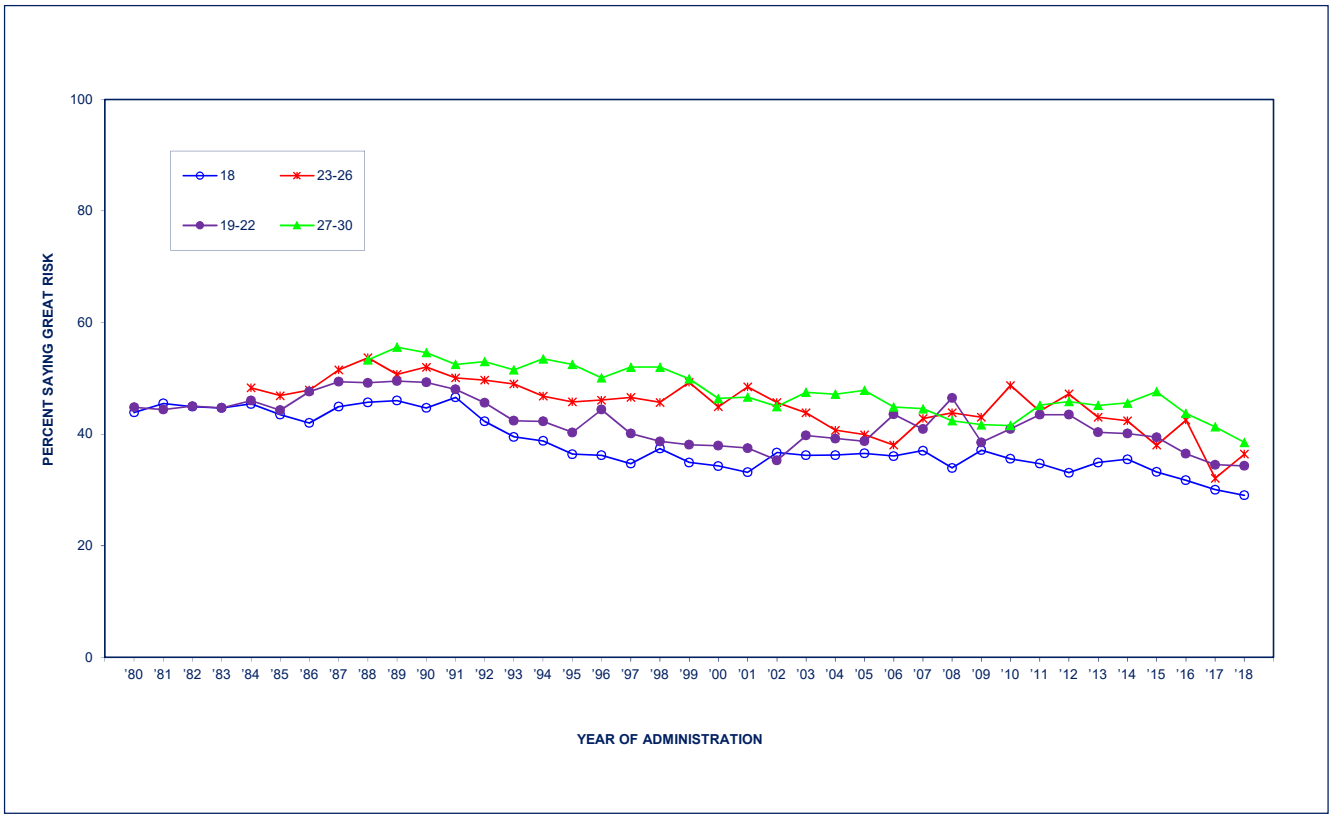
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-5
Trends in Harmfulness of SYNTHETIC MARIJUANA Use as Perceived by Respondents in Modal Age Groups of 19–22, 23–26, and 27–30
Occasional Use



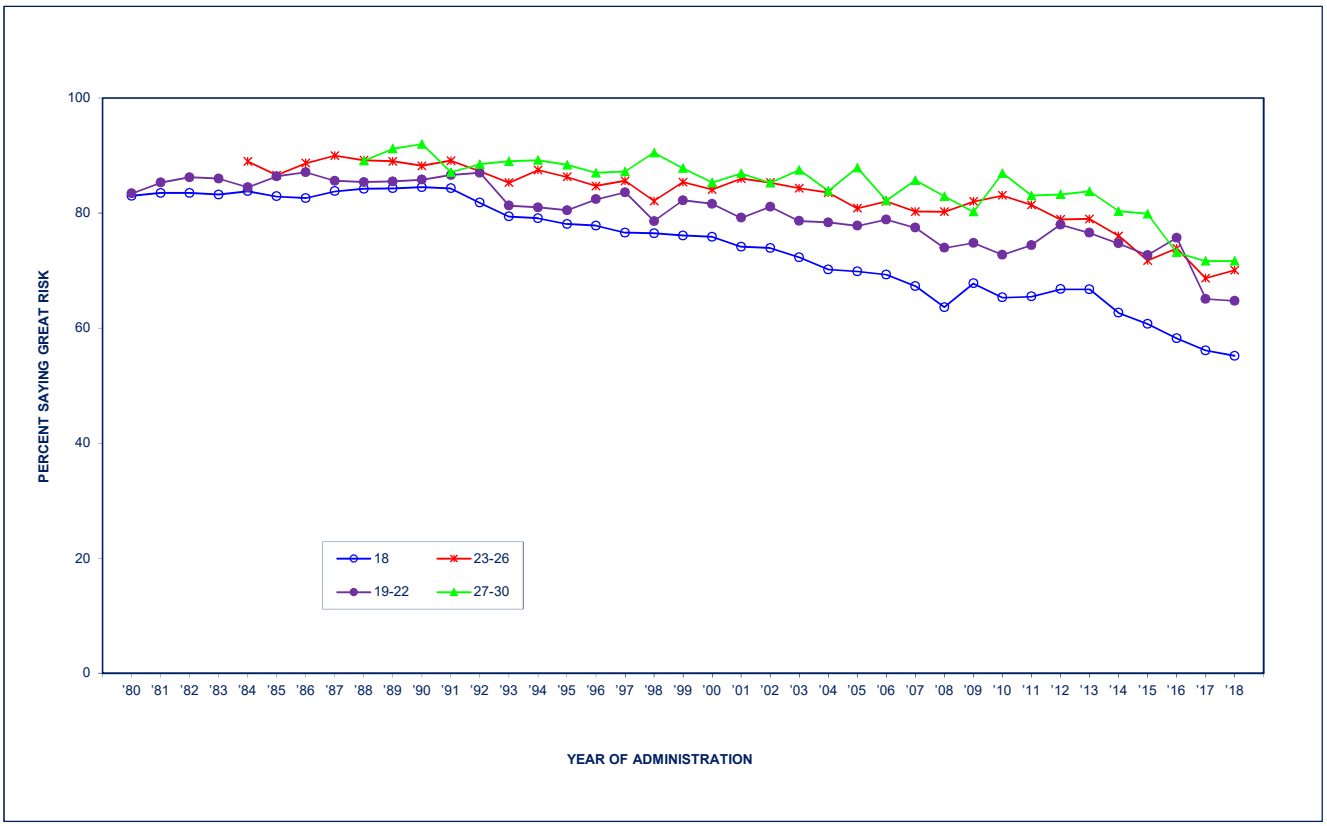
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-6
Trends in Harmfulness of LSD Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Trying Once or Twice



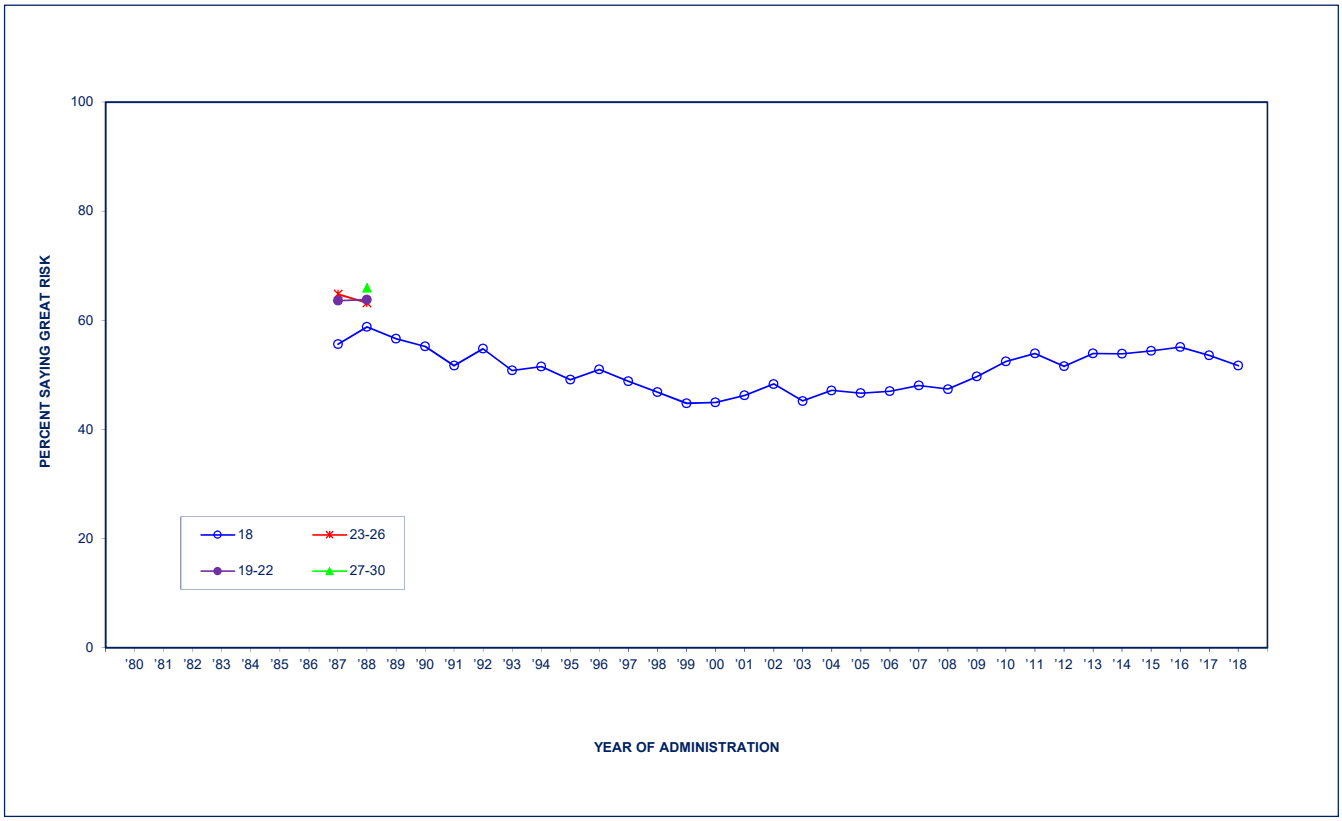
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-7
Trends in Harmfulness of LSD Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



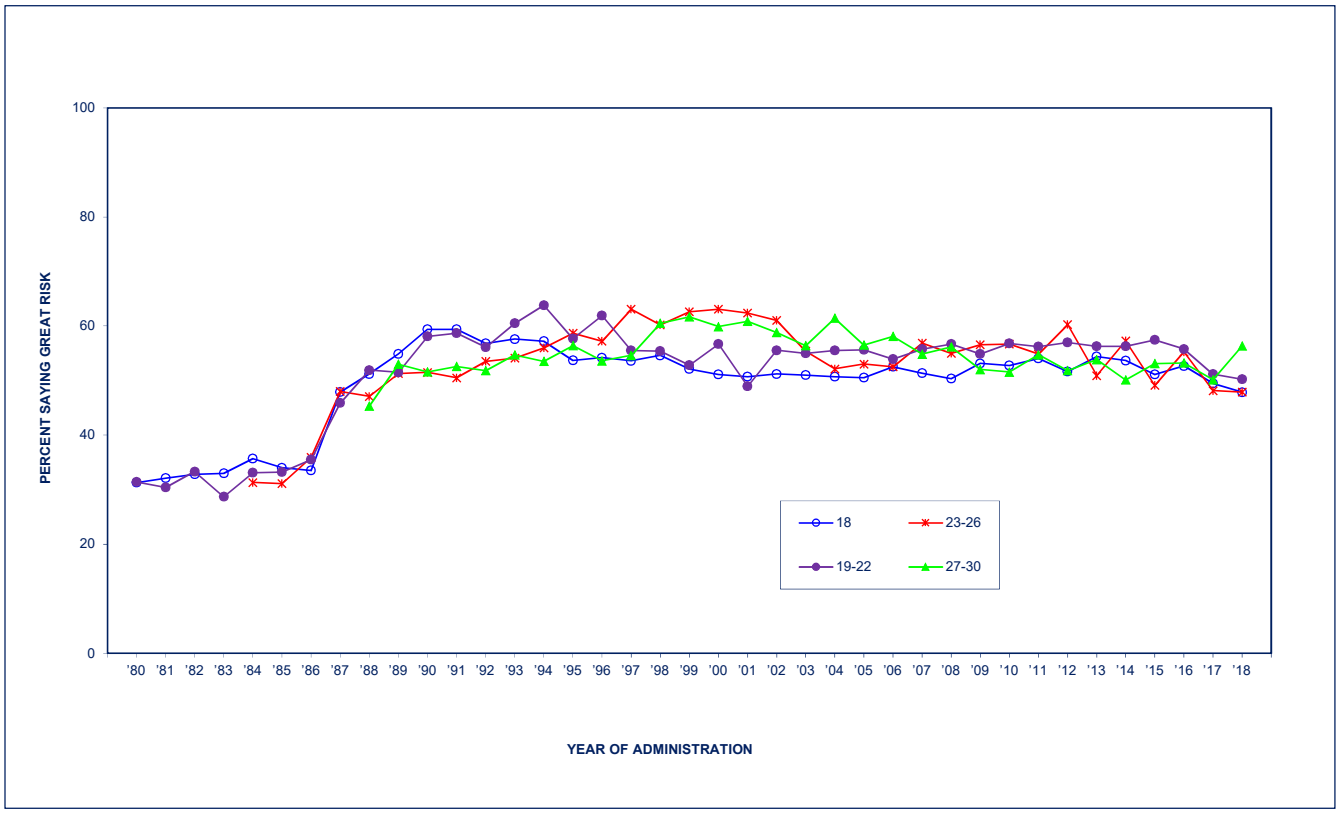
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-8
Trends in Harmfulness of PCP Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Trying Once or Twice



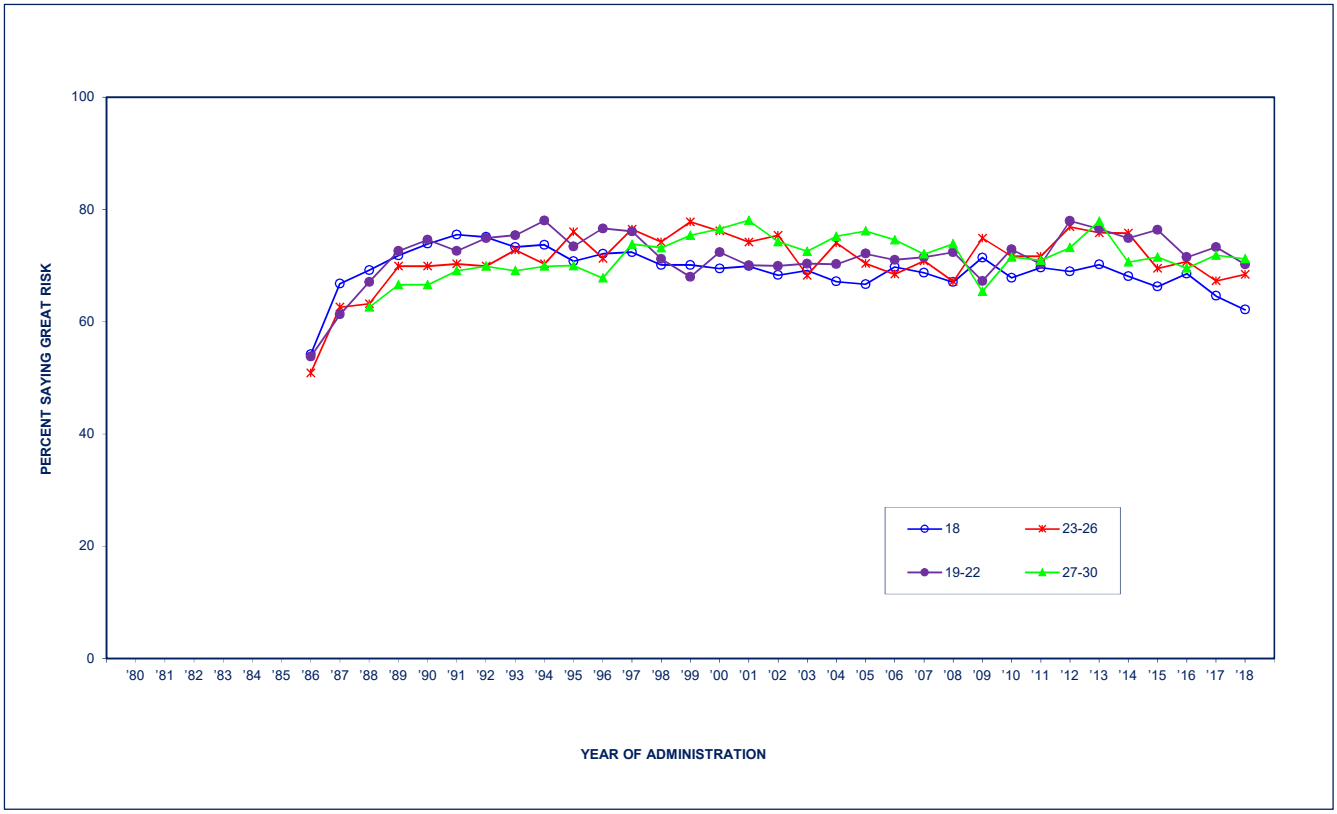
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-9
Trends in Harmfulness of COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



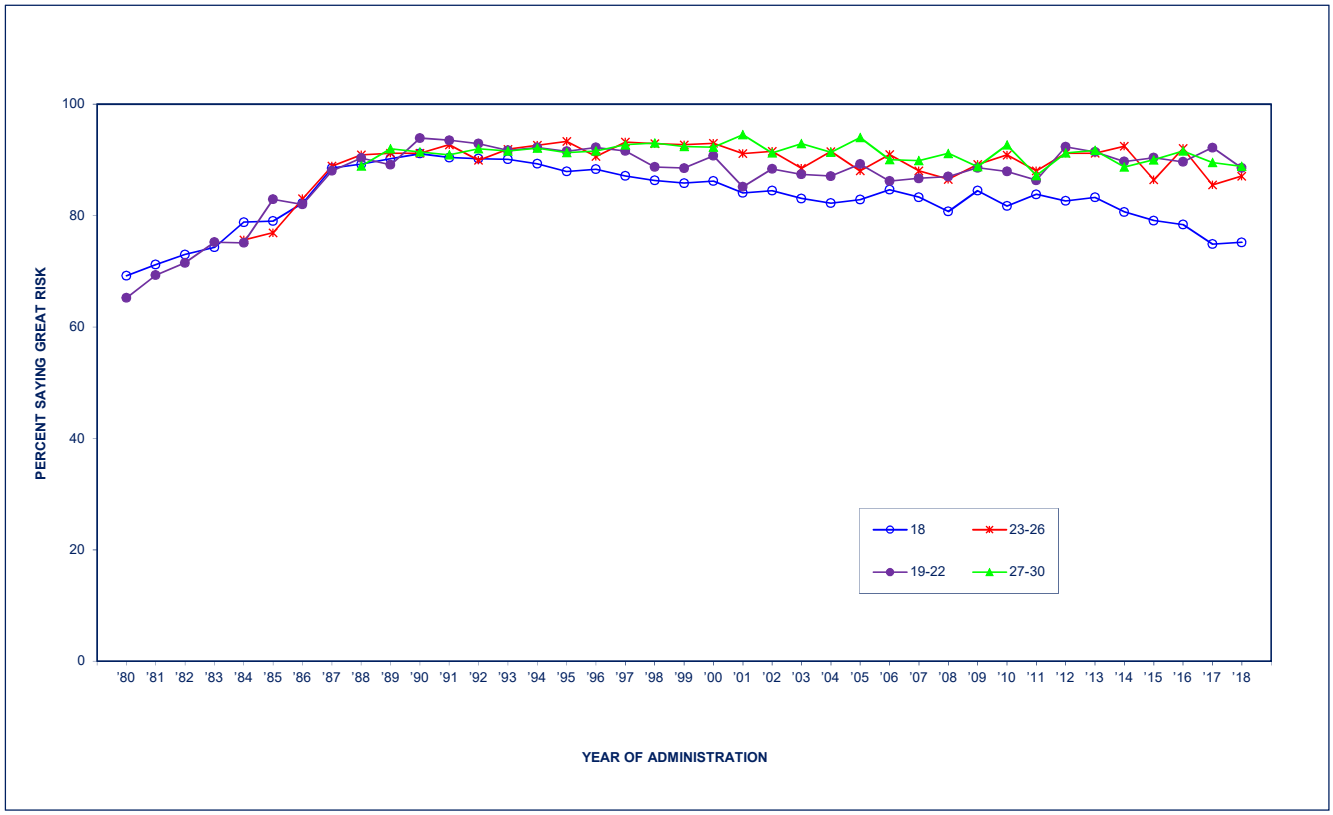
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-10
Trends in Harmfulness of COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Occasional Use



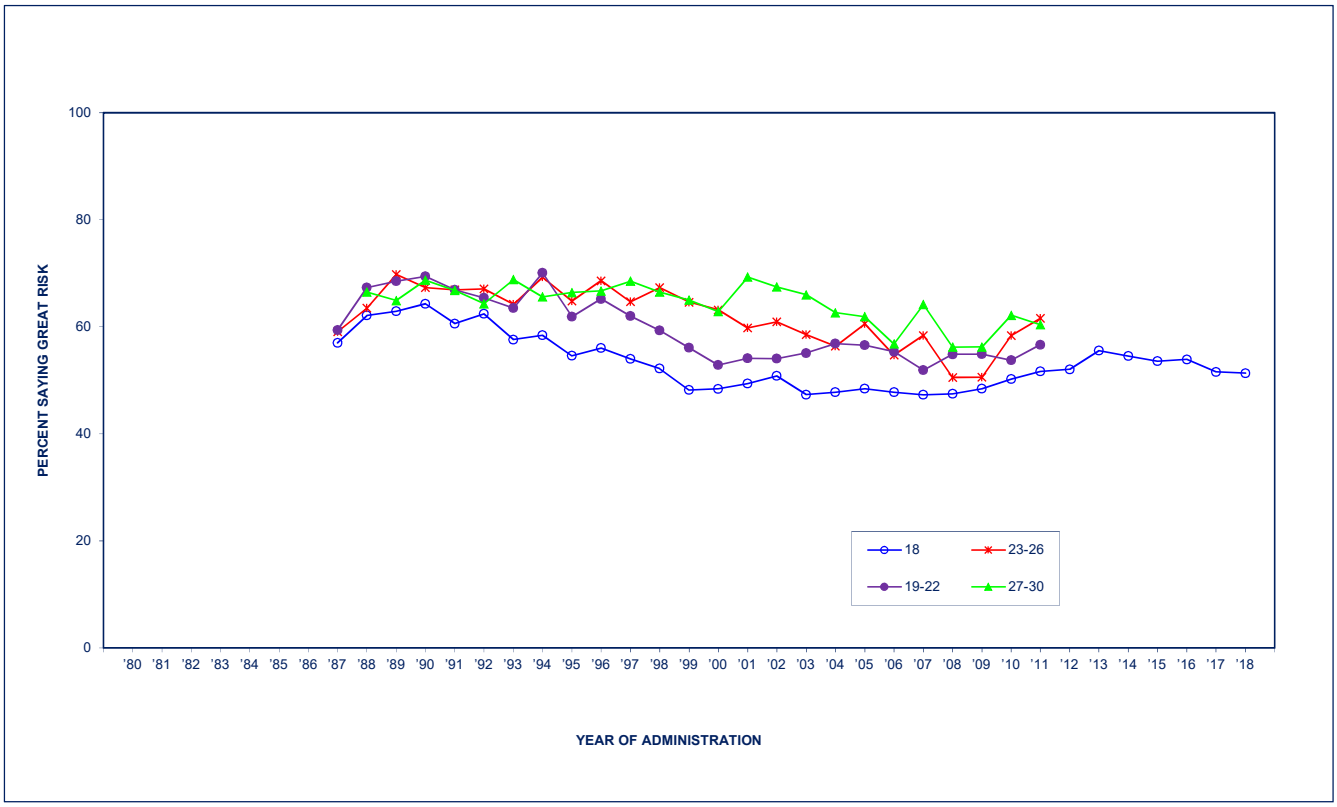
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-11
Trends in Harmfulness of COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



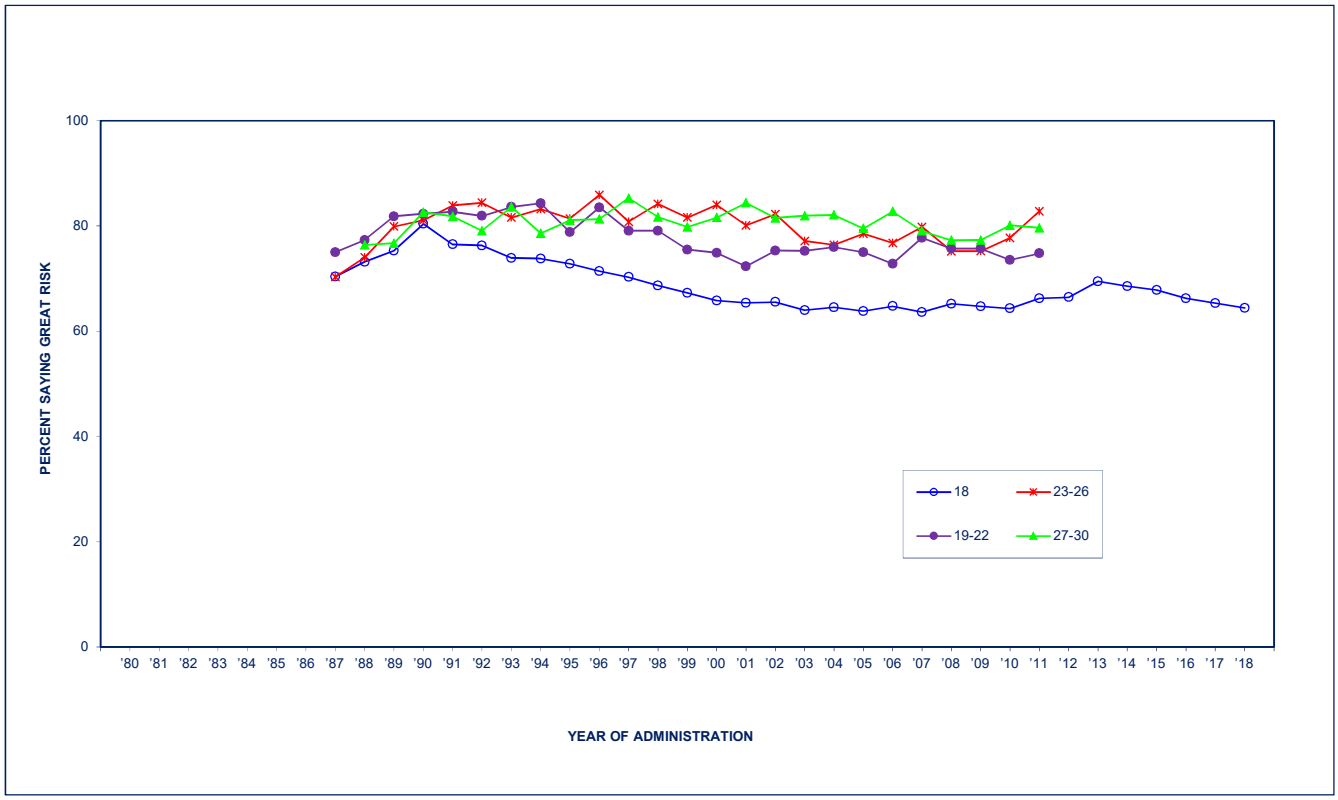
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-12
Trends in Harmfulness of CRACK COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Trying Once or Twice



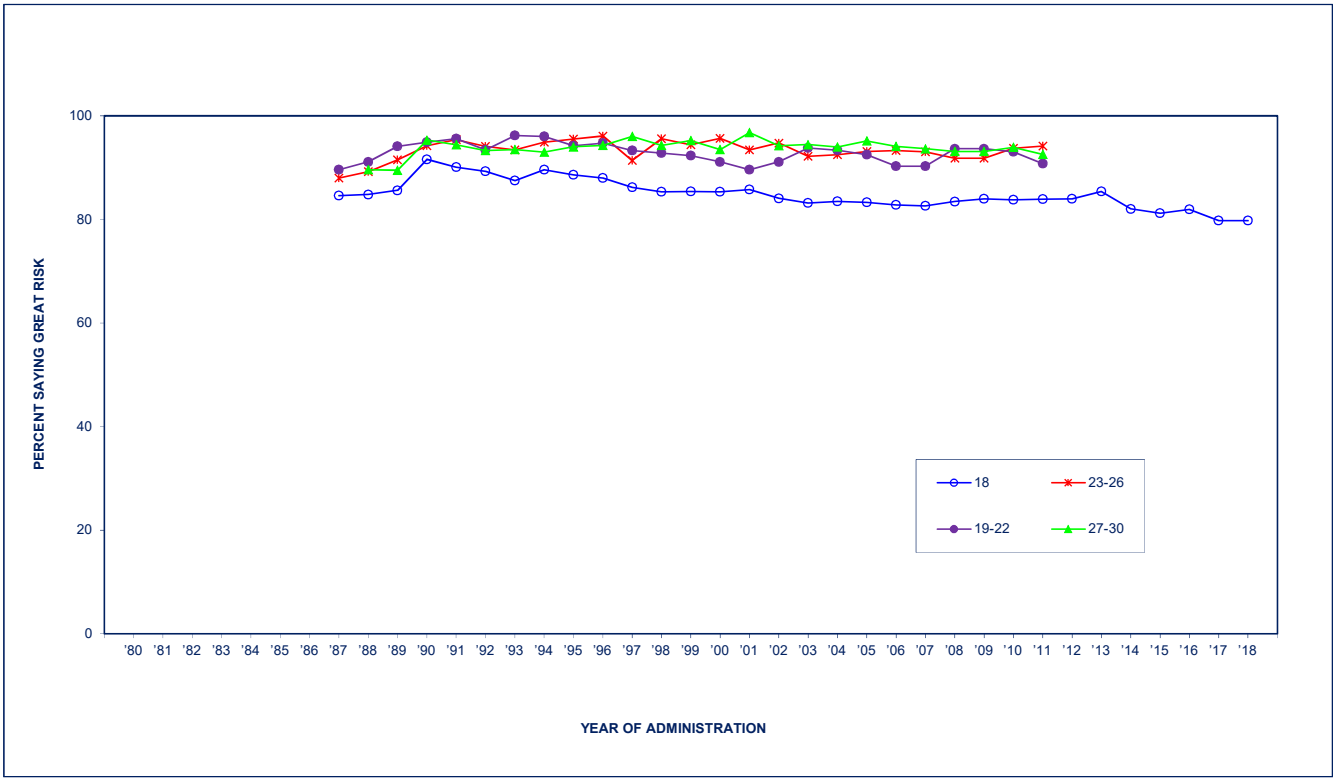
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-13
Trends in Harmfulness of CRACK COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Occasional Use



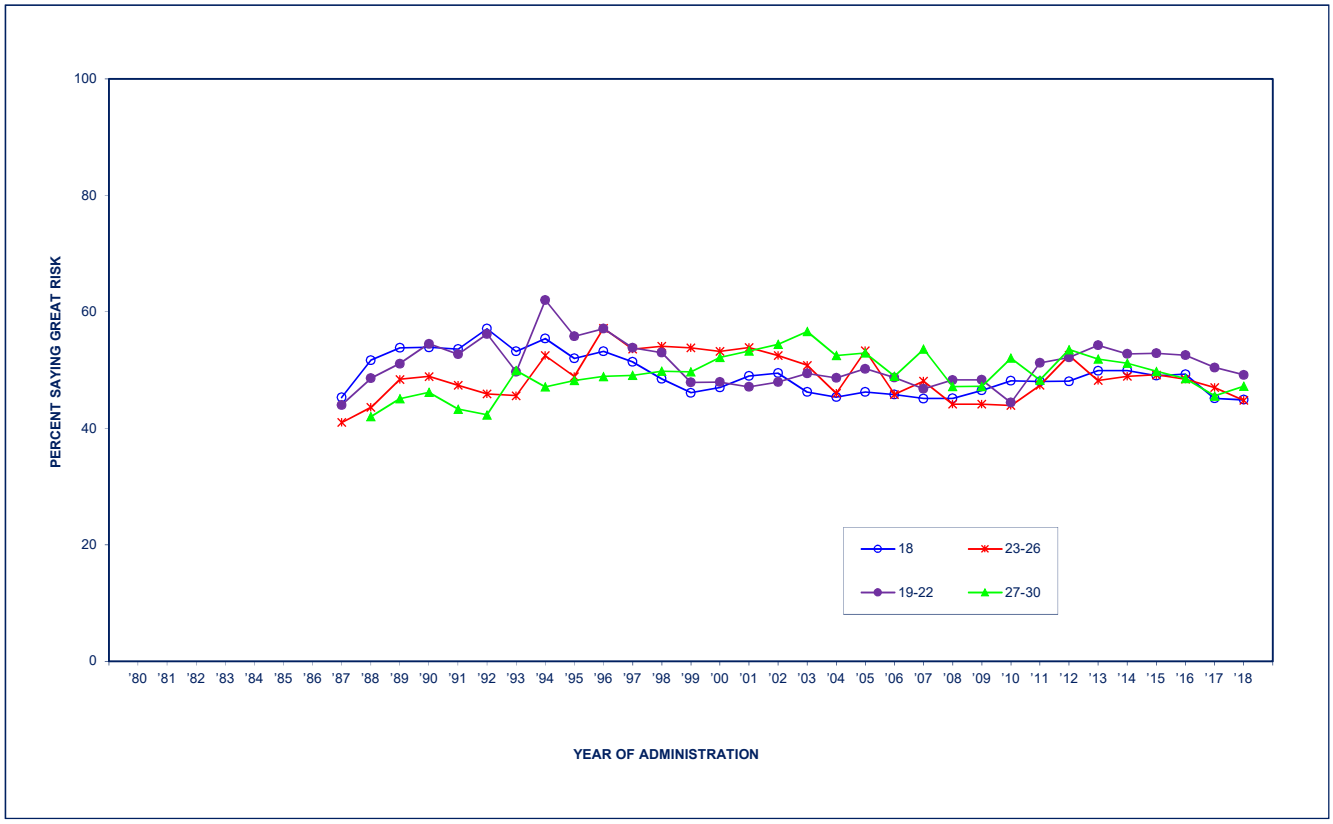
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-14
Trends in Harmfulness of CRACK COCAINE Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



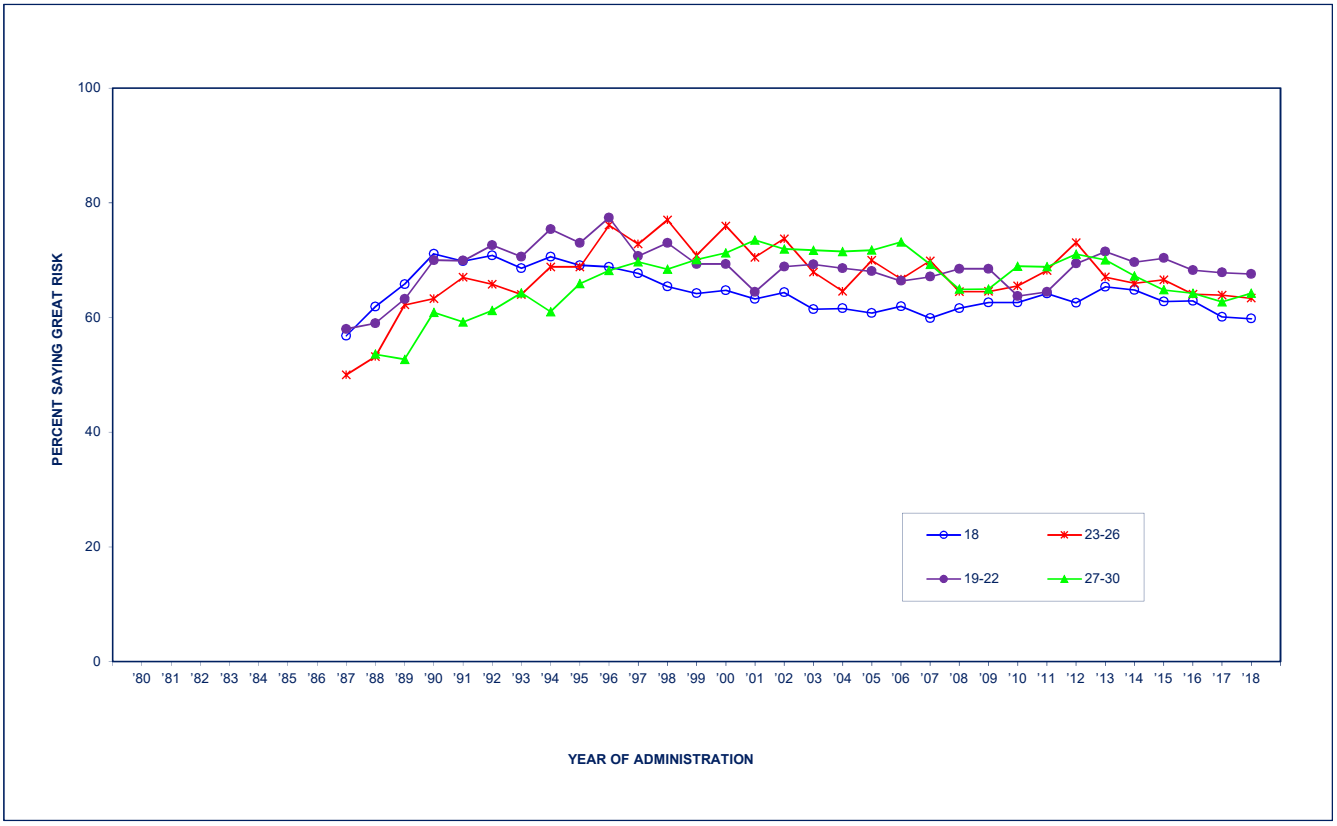
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-15
Trends in Harmfulness of COCAINE POWDER Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



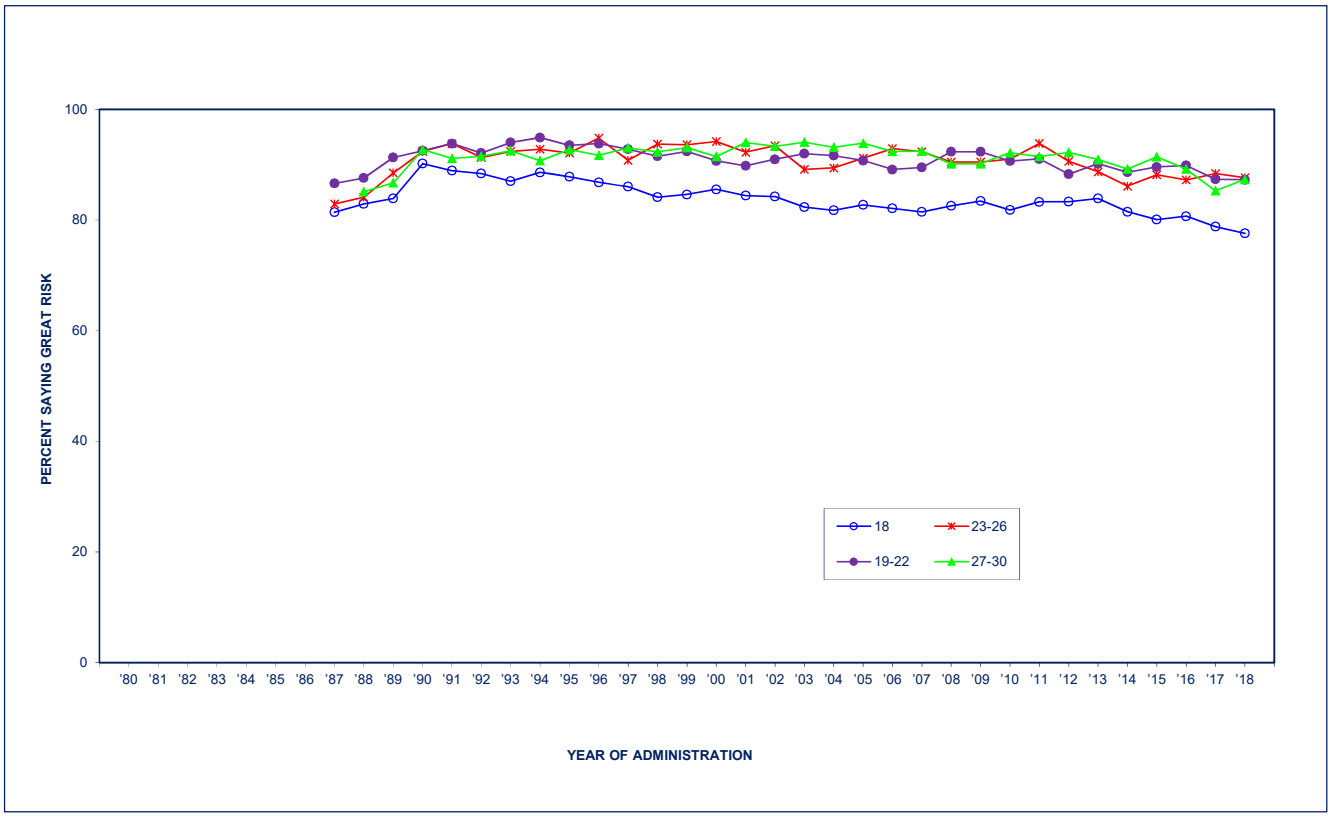
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-16
Trends in Harmfulness of COCAINE POWDER Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Occasional Use



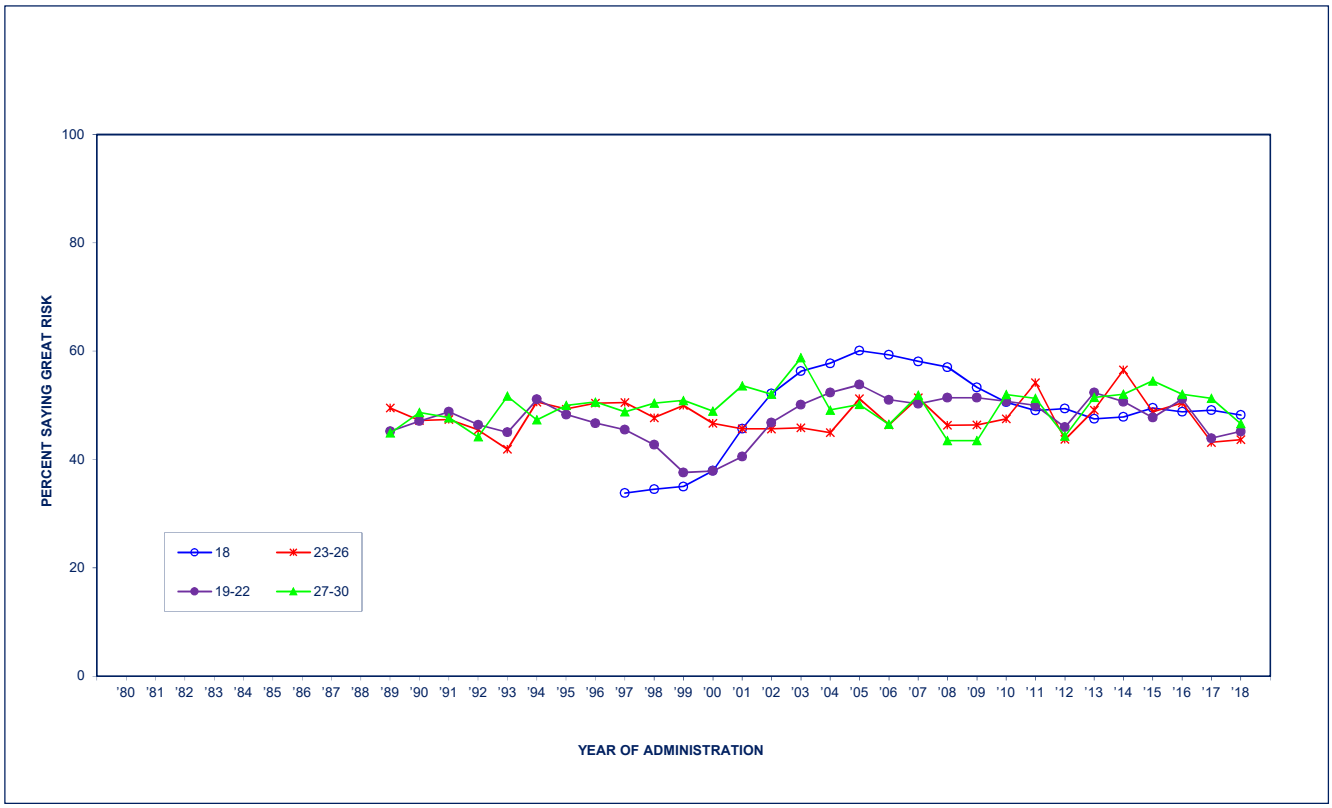
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-17
Trends in Harmfulness of COCAINE POWDER Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



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

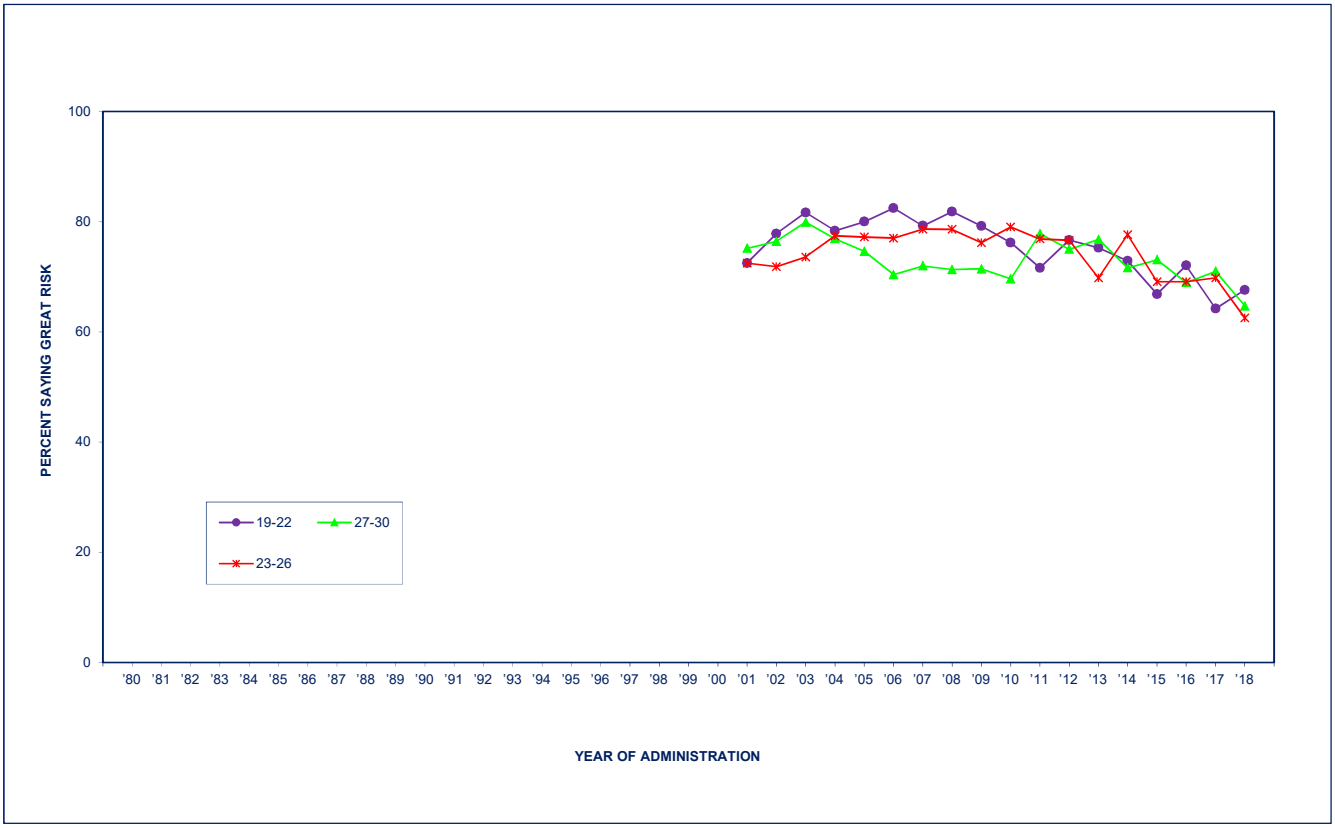
FIGURE 6-18
Trends in Harmfulness of ECSTASY (MDMA, Molly)[a] Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



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

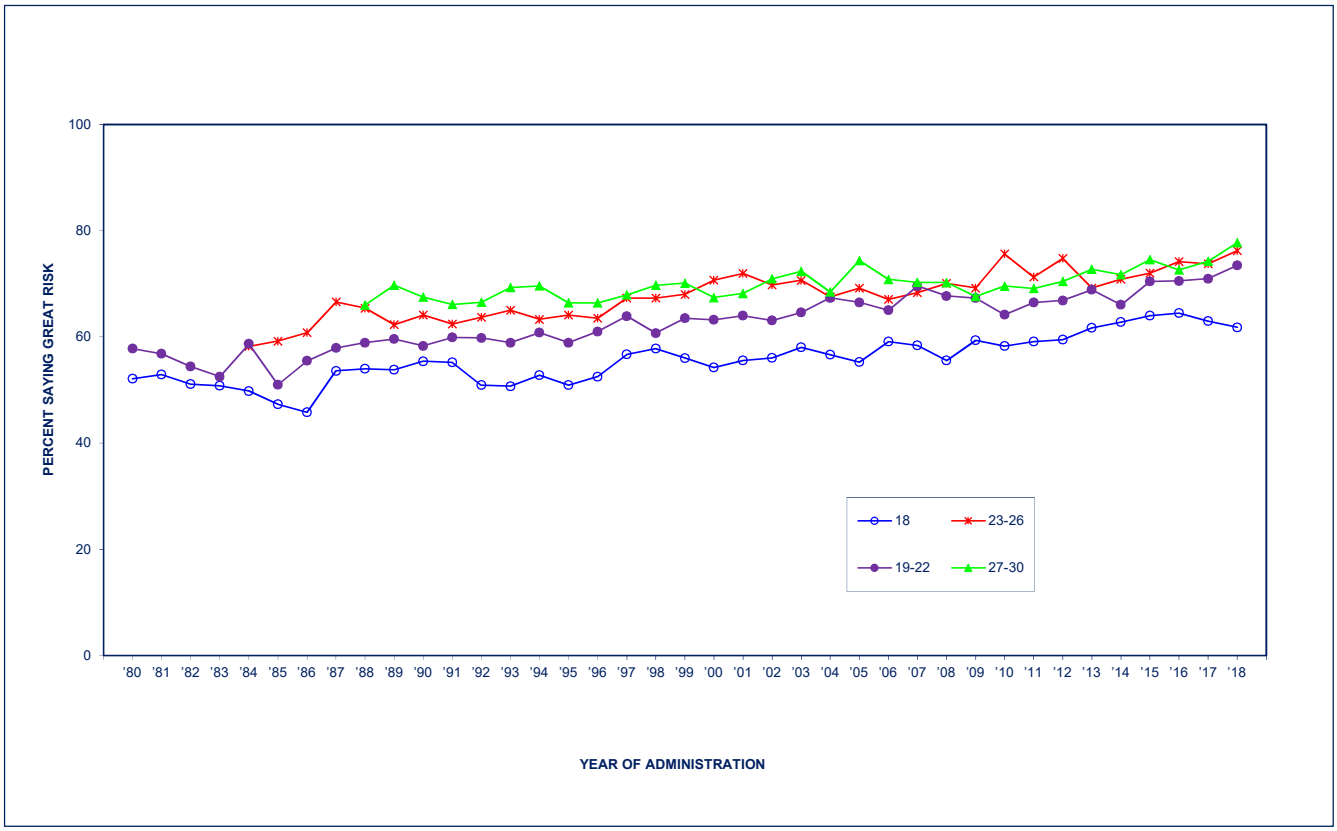
[a] In 2014 in the Age 18 questionnaire, "molly" was added to the question text. In 2015, the same change was made to the questionnaires for the other age groups. This likely explains the discontinuity in results for the affected years.

FIGURE 6-19
Trends in Harmfulness of ECSTASY (MDMA, Molly)[a] Use as Perceived by Respondents in Modal Age Groups of 19–22, 23–26, and 27–30
Occasional Use



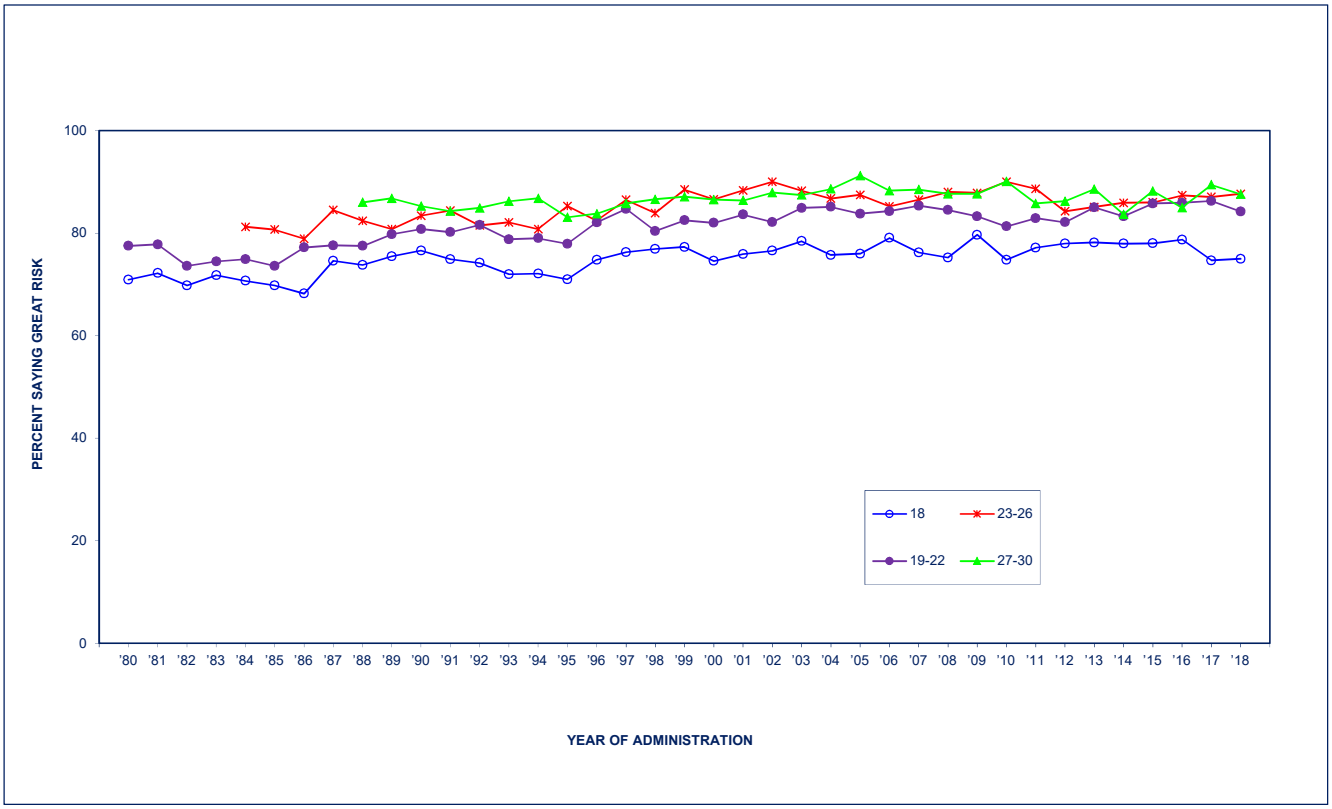
Source. The Monitoring the Future study, the University of Michigan.
[a] In 2015, "molly" was added to the question text. This likely explains the discontinuity in results for the affected years.

FIGURE 6-20
Trends in Harmfulness of HEROIN Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Trying Once or Twice



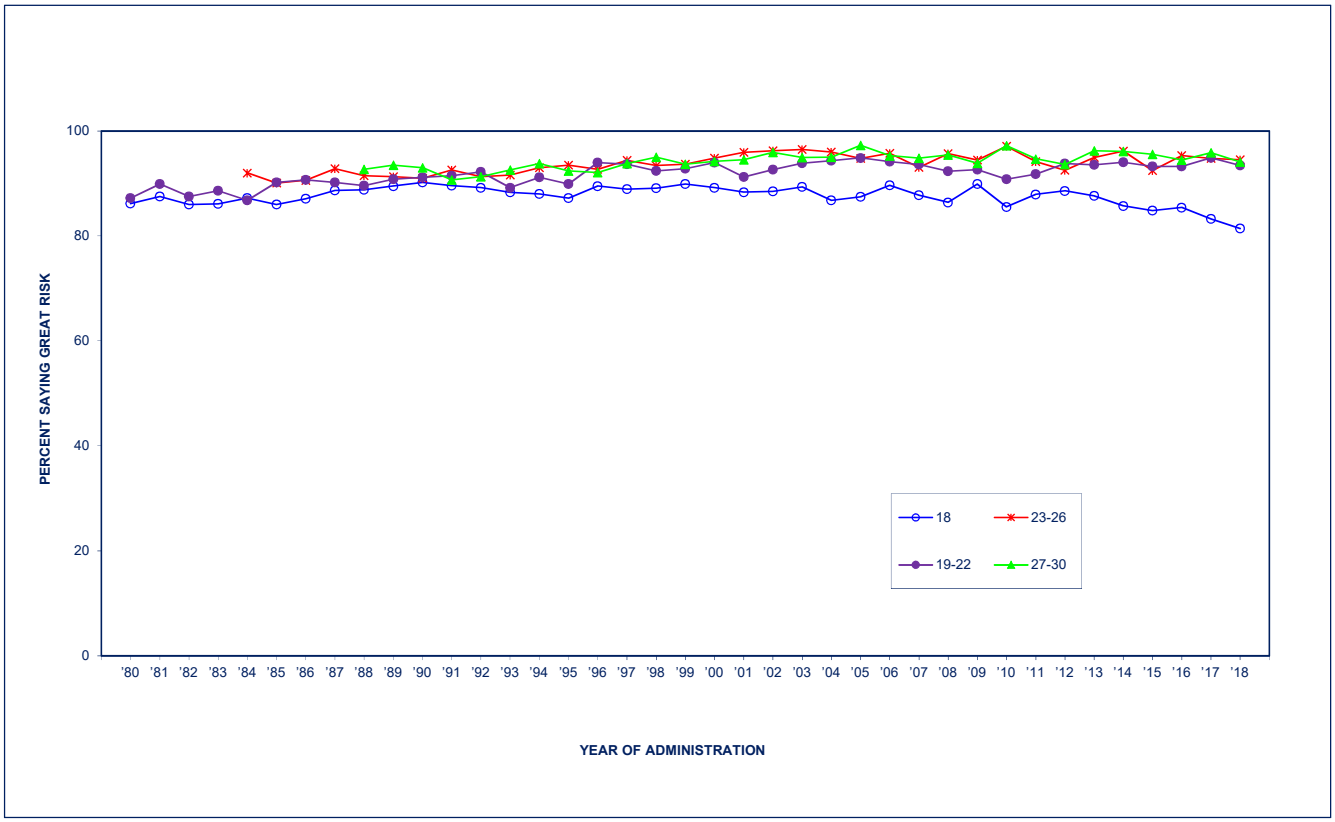
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-21
Trends in Harmfulness of HEROIN Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Occasional Use



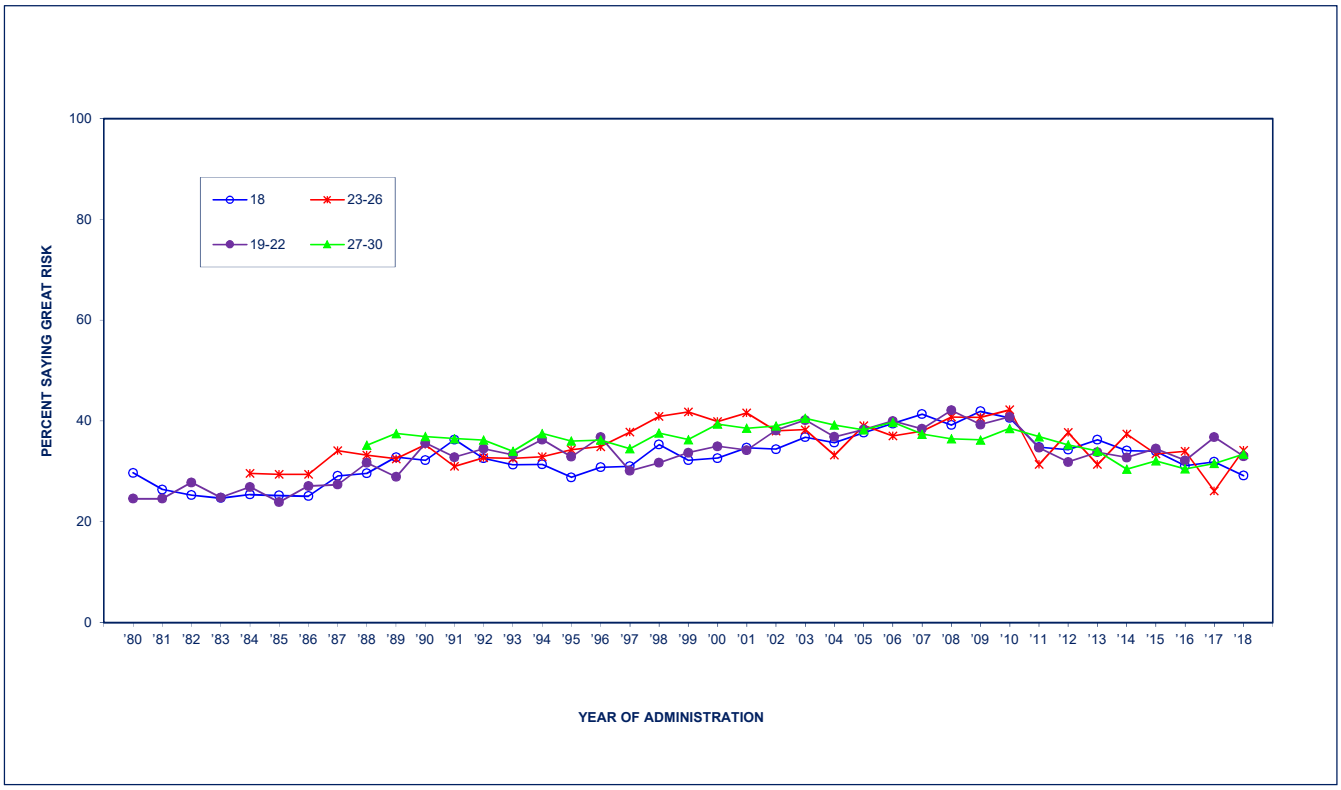
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-22
Trends in Harmfulness of HEROIN Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



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

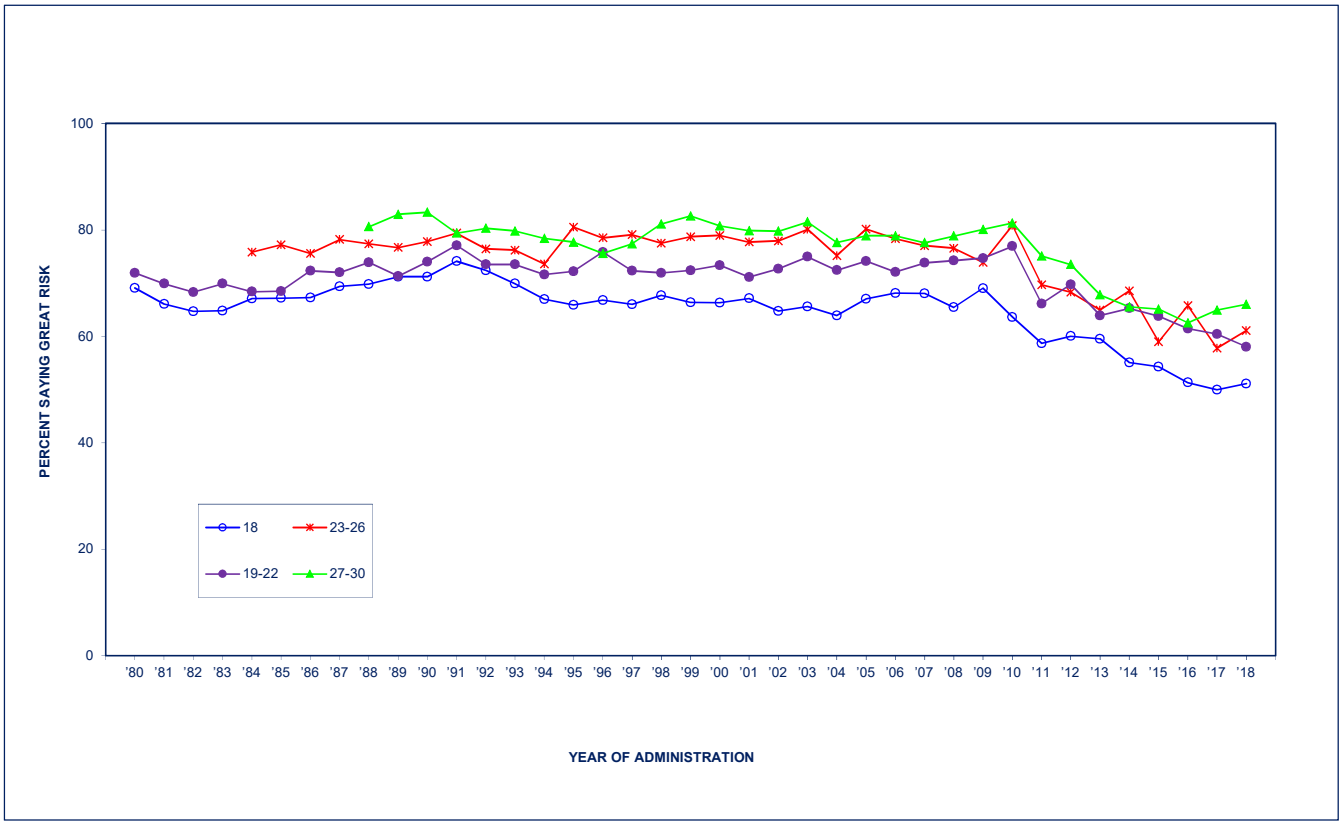
FIGURE 6-23
Trends in Harmfulness of AMPHETAMINE[a] Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



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

[a]In 2011 the list of examples was changed from upper, pep pills, bennies, and speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

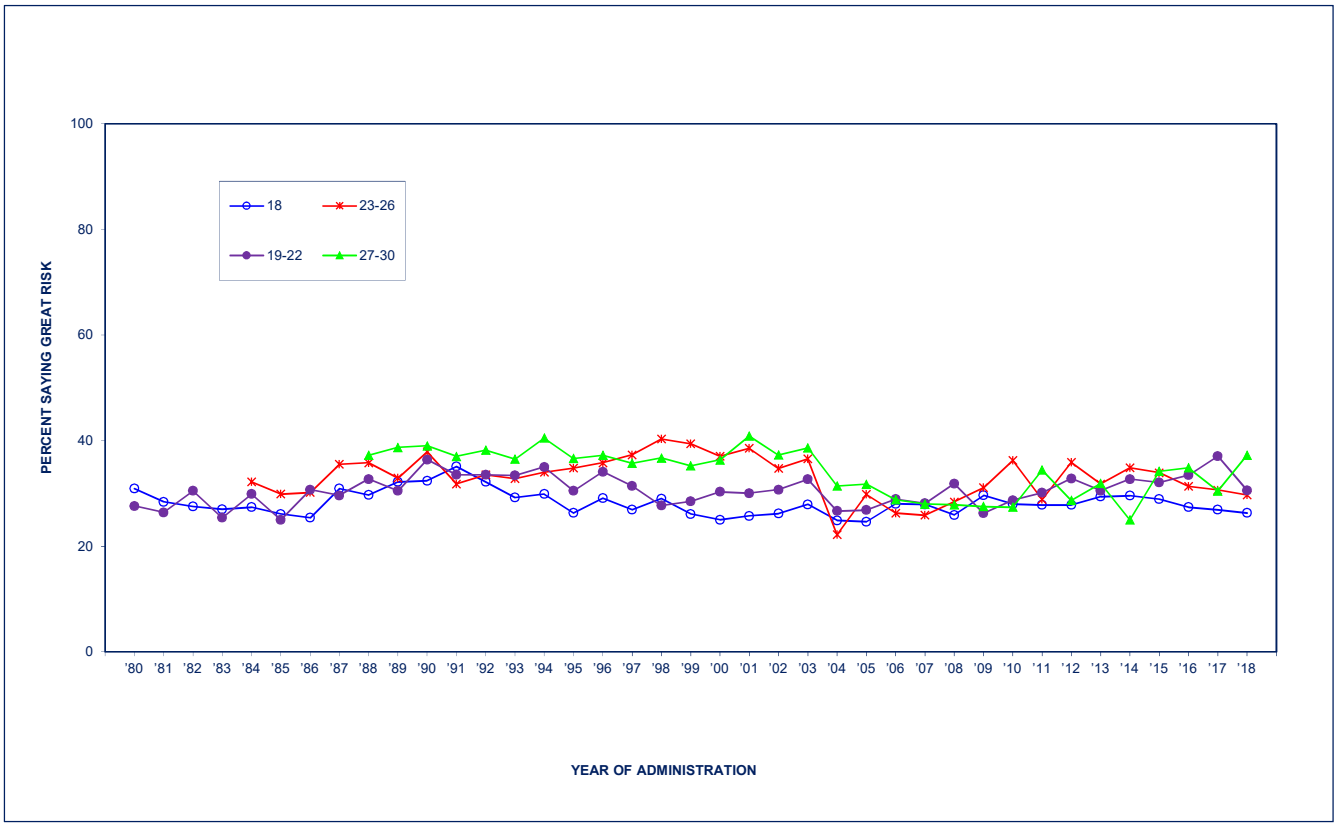
FIGURE 6-24
Trends in Harmfulness of AMPHETAMINE[a] Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



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

[a]In 2011 the list of examples was changed from upper, pep pills, bennies, and speed to uppers, speed, Adderall, Ritalin, etc. These changes likely explain the discontinuity in the 2011 results.

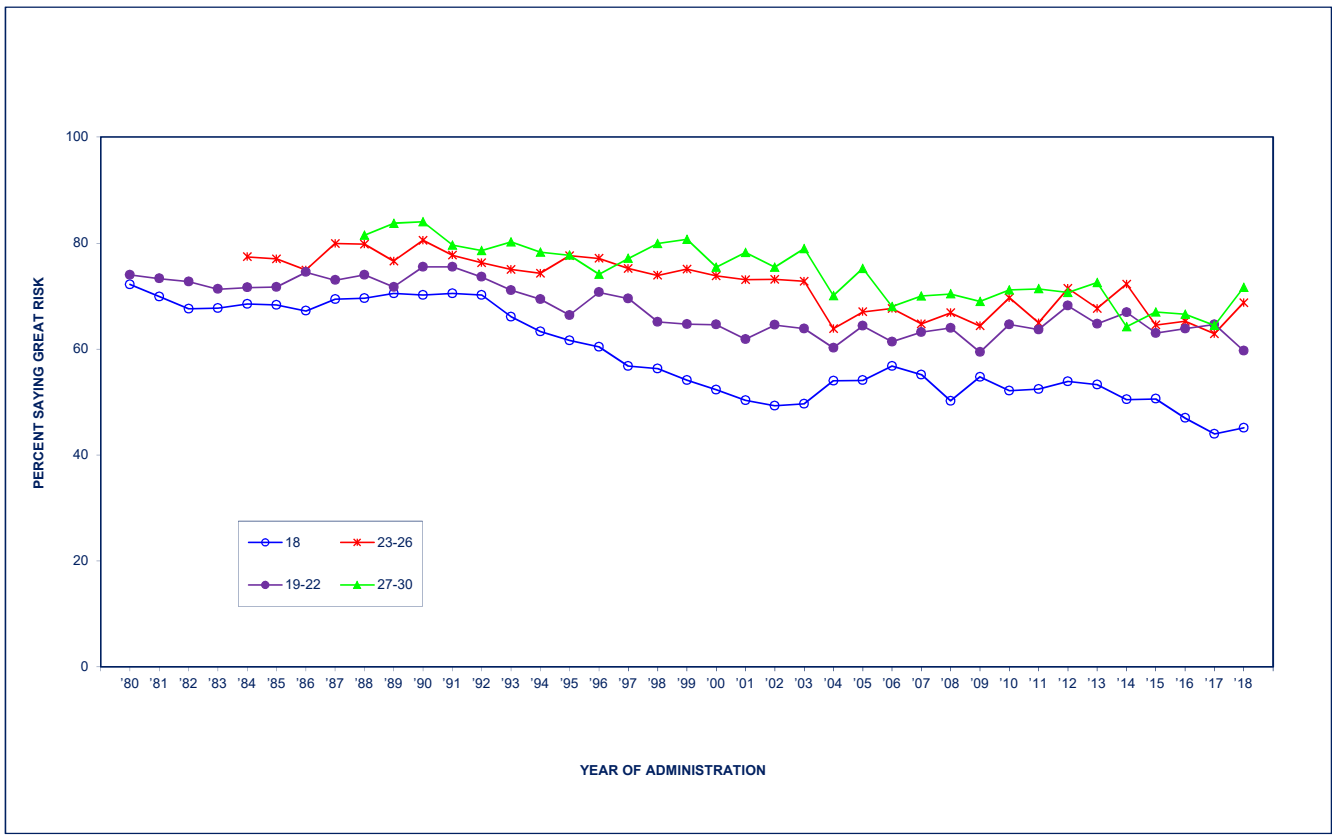
FIGURE 6-25
Trends in Harmfulness of SEDATIVE (BARBITURATE)[a] Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



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

[a]In 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2003 and 2004 results.

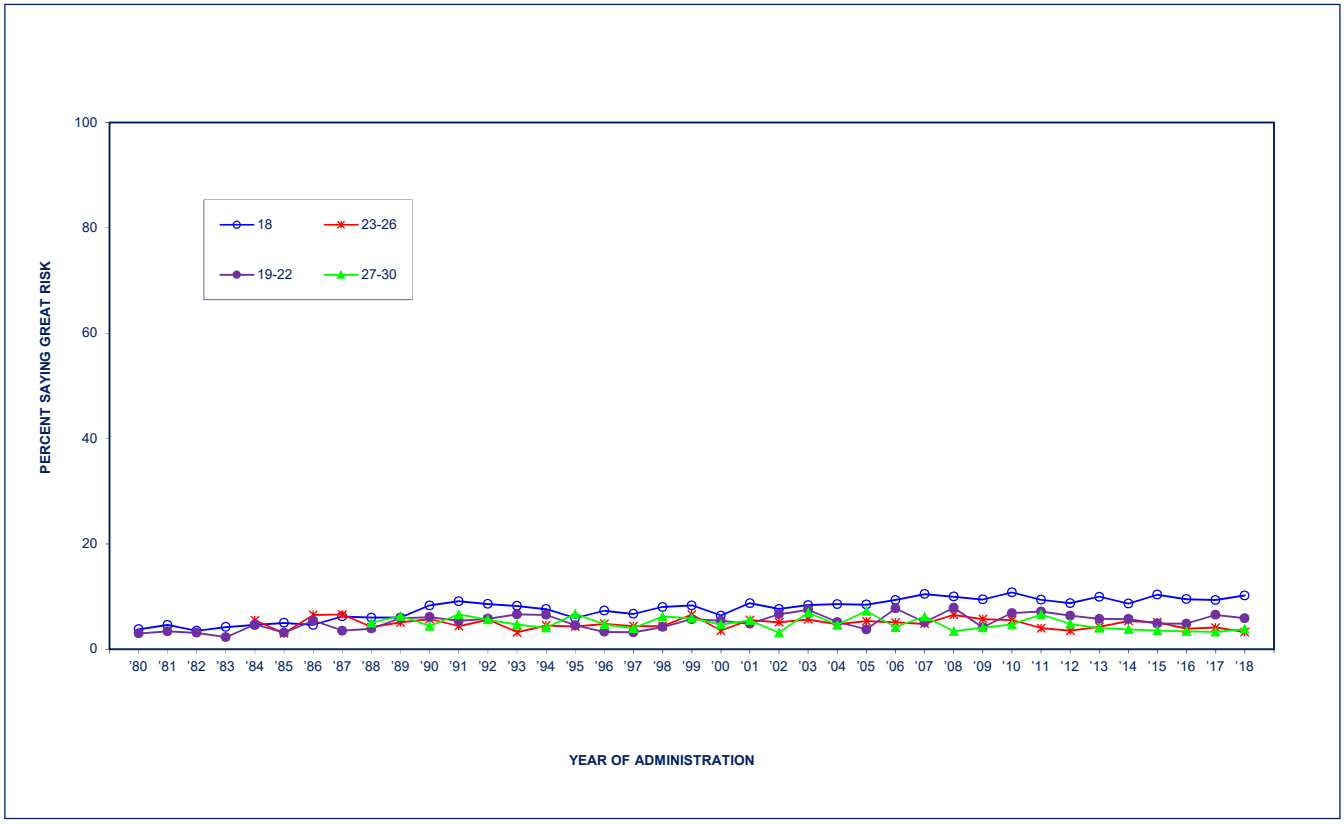
FIGURE 6-26
Trends in Harmfulness of SEDATIVE (BARBITURATE)[a] Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



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

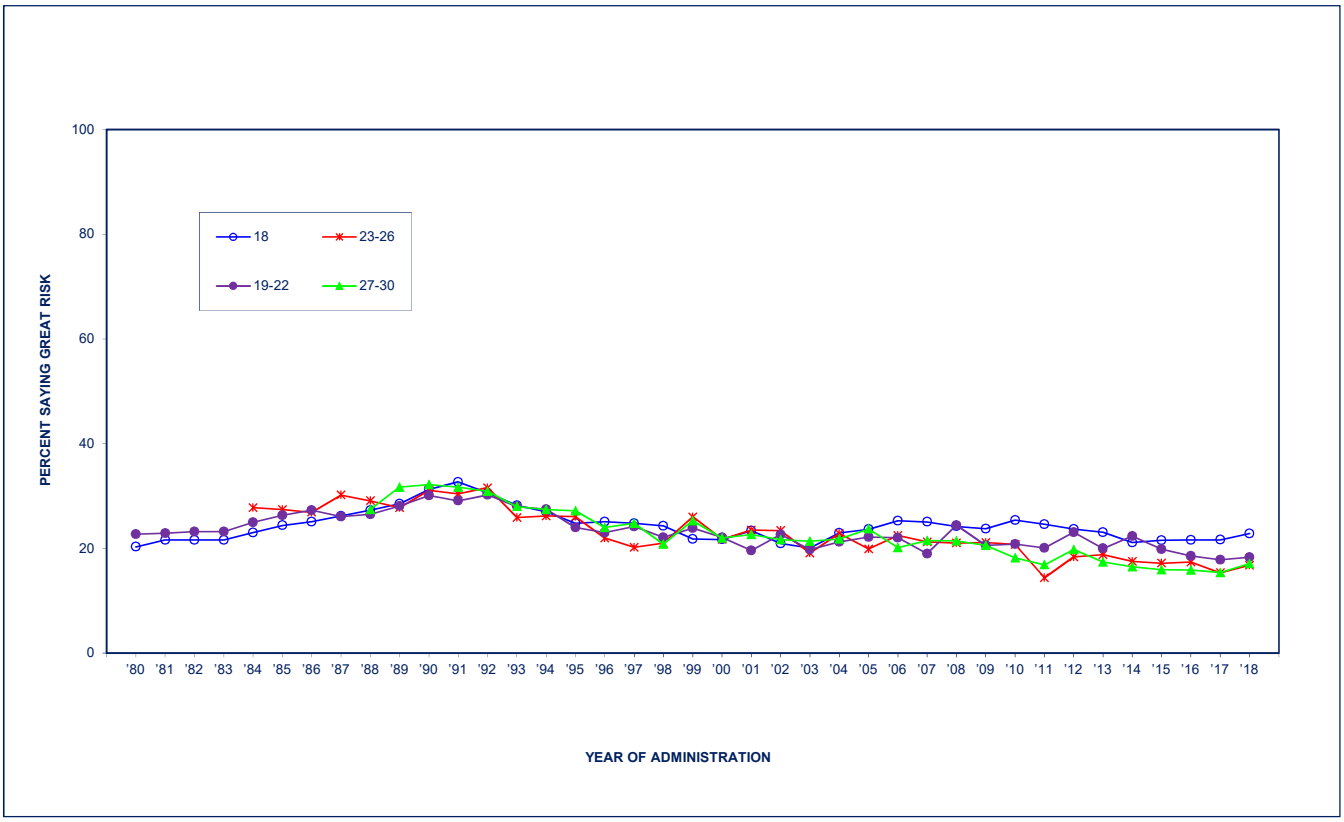
[a]In 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2003 and 2004 results.

FIGURE 6-27
Trends in Harmfulness of ALCOHOL Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Trying Once or Twice



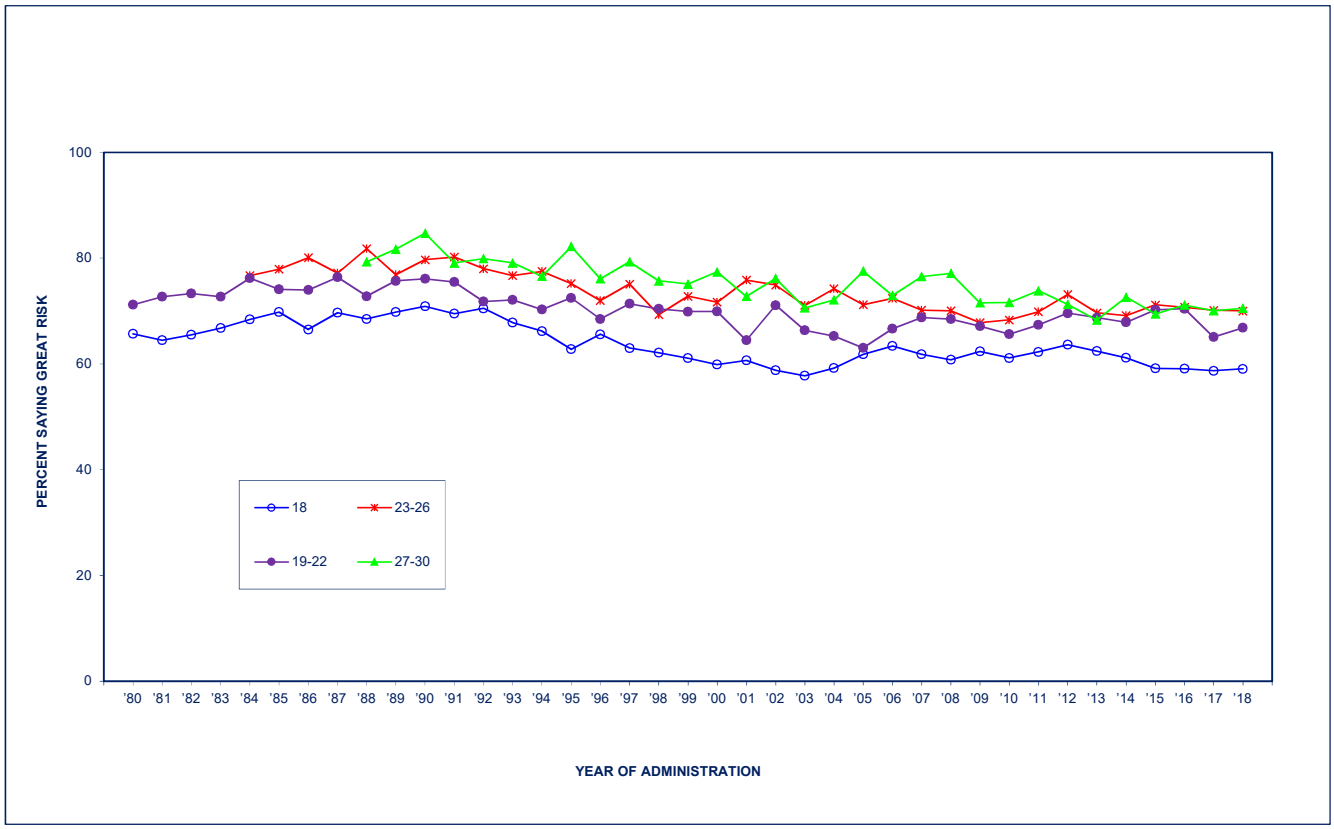
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-28
Trends in Harmfulness of ALCOHOL Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Having One or Two Drinks per Day



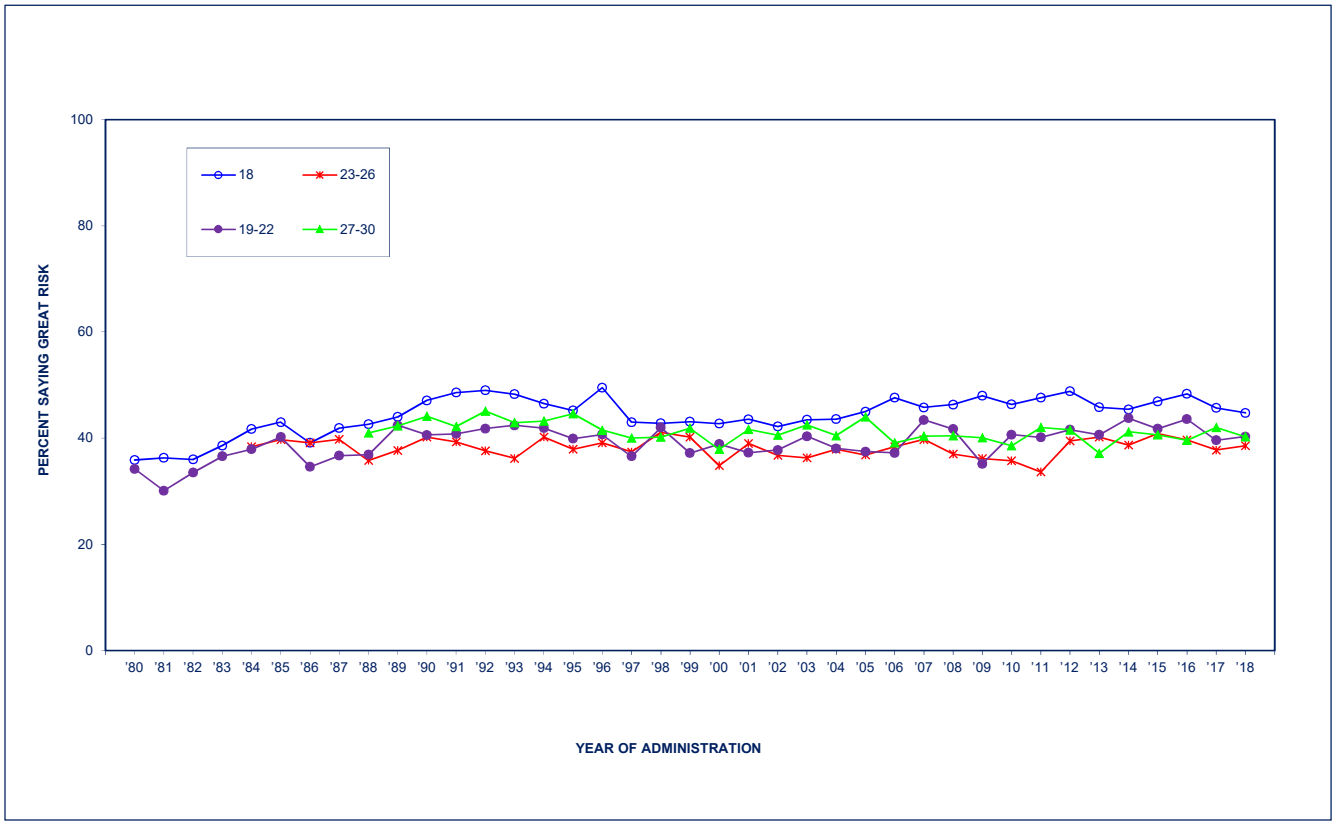
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-29
Trends in Harmfulness of ALCOHOL Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Having Four or Five Drinks per Day



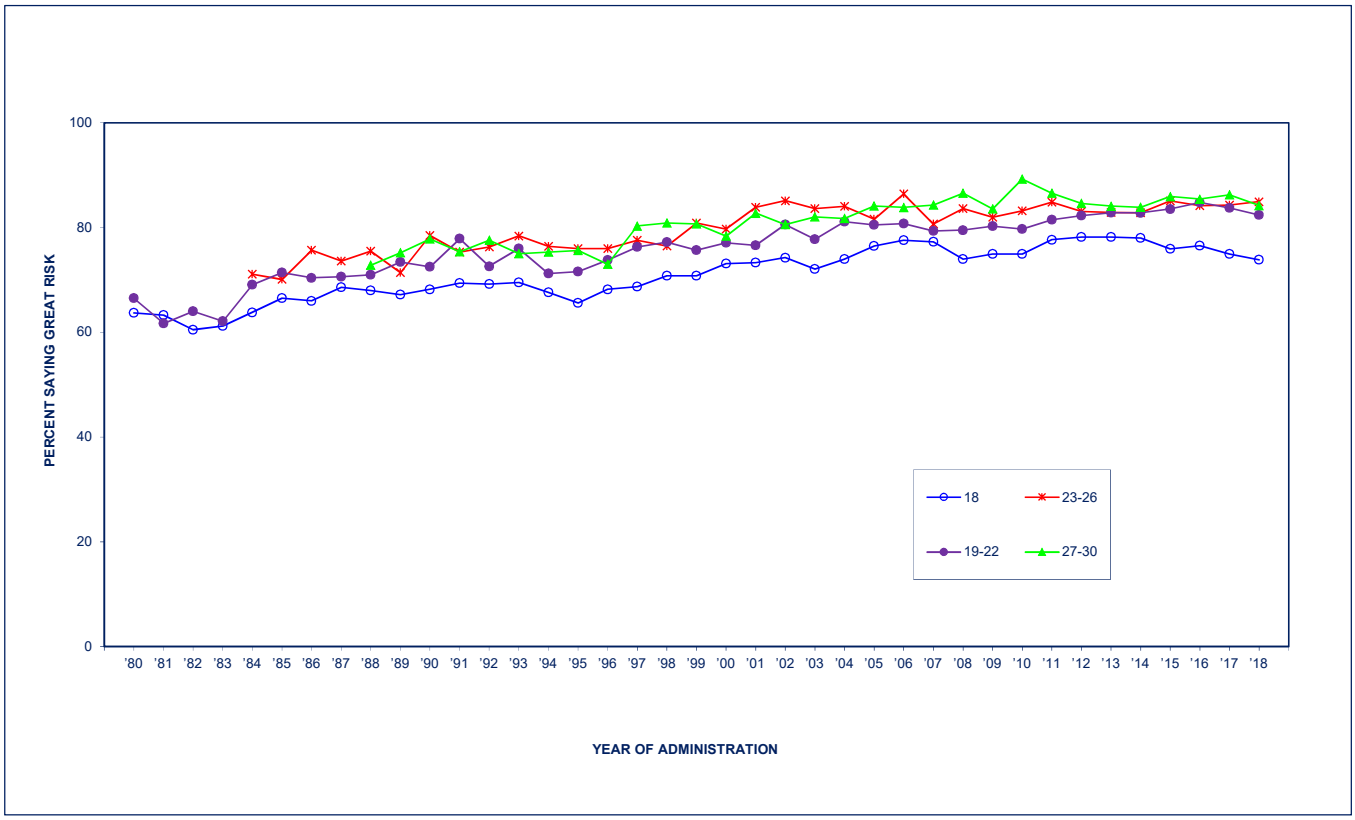
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-30
Trends in Harmfulness of BINGE DRINKING as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30 Having Five or More Drinks Once or Twice Each Weekend



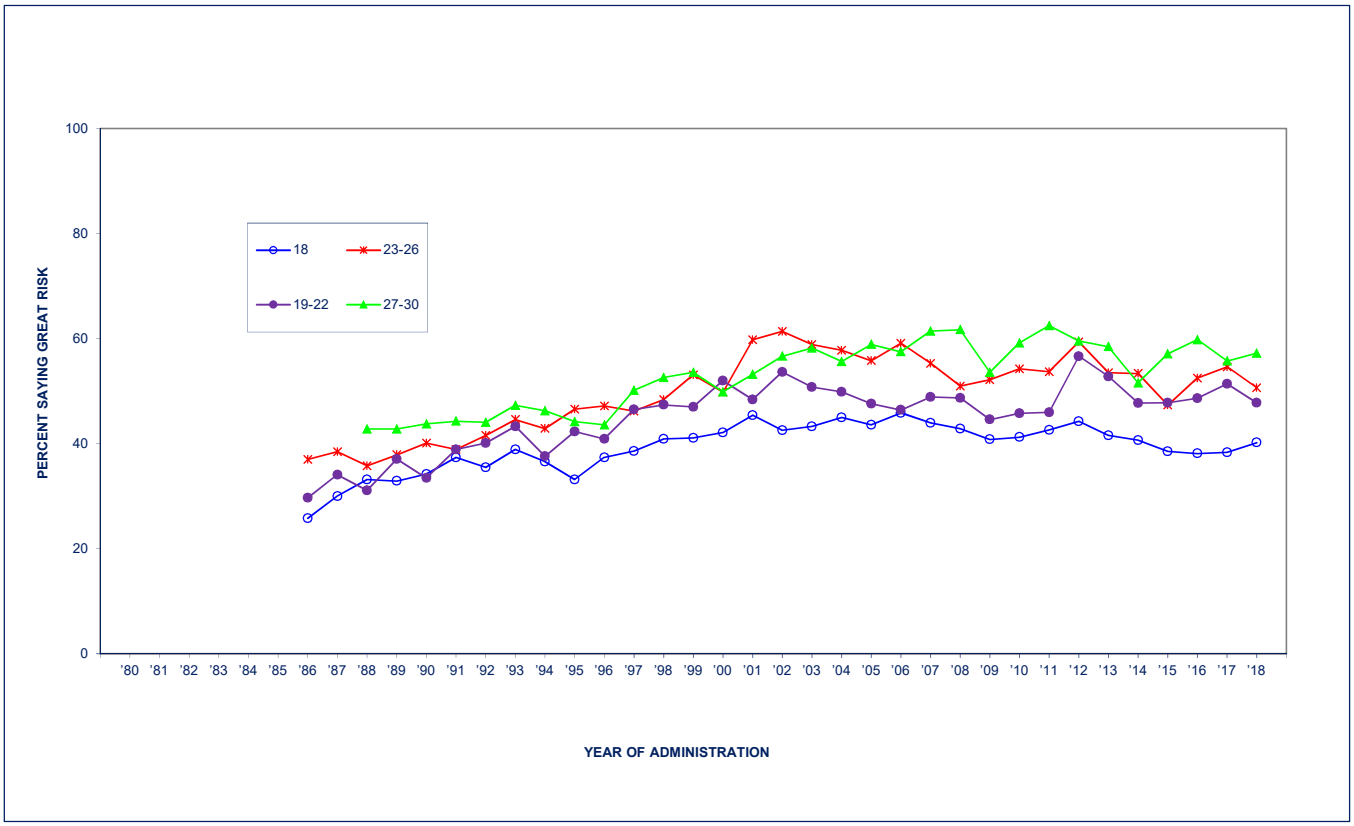
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 6-31
Trends in Harmfulness of TOBACCO Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Smoking One or More Packs of Cigarettes per Day



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

FIGURE 6-32
Trends in Harmfulness of SMOKELESS TOBACCO Use as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30
Regular Use



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

Chapter 7

THE SOCIAL CONTEXT

The social contexts in which individuals place and otherwise find themselves can influence the likelihood of using drugs in a number of ways. The context can provide social modeling and social norms for either use or abstention from use. Through friends and friends' contacts it can also influence the availability of drugs and bring about an awareness of new drugs, including knowledge of their existence and their potential for altering mood and consciousness. Since its inception, MTF has measured three important features of the social context: (1) peer groups' norms about drug use, (2) amount of direct exposure to drug use by friends and others, and (3) perceived availability of drugs. All three factors are measured by self-reports and are therefore measures of the perceived context, though evidence suggests that they bear a strong correlation with the actual context (e.g., consistency between one's own reported attitudes and behaviors regarding substance use and perceived peer attitudes and behaviors). We believe that these three factors exert important influences on substance use at both the individual (micro) and the aggregate (macro) level.

In *Volume I*,[1] we examined these factors among secondary school students. In this chapter, we do the same for the young adult population ages 19 to 30, whose social contexts typically differ considerably from what they were in high school. Most high school graduates today enter college, many get civilian jobs, and some enter military service. These transitions almost always change the institutional contexts experienced by young adults (e.g., colleges, work organizations, military services) and therefore the circles of people to whom they are exposed and with whom they develop friendships. Such transitions also alter the potential consequences of drug use if it is discovered by authorities in the relevant institution; for example, consequences today can be quite severe for those in military service, and we have shown that illicit drug use drops when young people enter the military.[2]

Each of the question sets discussed here is contained in only one of the six questionnaire forms, so the case counts are lower than those presented in most chapters in this volume. Therefore, these prevalence and trend estimates are more subject to random fluctuation or "noise" compared to those based on more questionnaire forms in this volume as well as those covered in *Volume I*[1] (MTF's cross-sectional secondary school samples are much larger than its young adult samples). As we did in Chapter 6, when examining age variation within those aged 19-30, we use four-year age bands (19-22, 23-26, 27-30) to increase the available sample sizes to about 250-600 weighted cases per year for each age band, thereby improving the reliability of the estimates. (The numbers of weighted cases are given at the end of Table 7-1. The actual numbers of respondents are somewhat larger.)

In addition, we include consideration of norms, exposure, and availability where relevant among those age 35 through 60. In such cases, the data are based on larger numbers because just one form is used for all respondents at each particular age.

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1 Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, University of Michigan.

2 Bachman, J. G., Freedman-Doan, P., O'Malley, P. M., Johnston, L. D., & Segal, D. R. (1999). Changing patterns of drug use among U.S. military recruits before and after enlistment. *American Journal of Public Health, 89*, 672-677.

PEER NORMS AMONG YOUNG ADULTS (AGES 18–30)

Table 7-1 provides current levels and trends in perceived friends' disapproval of experimental, occasional and regular use of marijuana, alcohol, and cigarettes as reported by 12th graders, 19-22 year olds, 23-26 year olds, and 27-30 year olds. Trend data are available since 1980, 1984, and 1988, respectively, for these three 4-year age groupings of young adults. The survey question reads, "How do you think your close friends feel (or would feel) about you… [trying marijuana once or twice]?" The answer categories are "don't disapprove," "disapprove," and "strongly disapprove." Percentages discussed below are for the last two categories combined.

The results for perceived peer norms are generally quite consistent with those for personal disapproval in the aggregate. Exceptions are trying marijuana once or twice and smoking one or more packs of cigarettes per day, for which friends' attitudes are consistently reported as more disapproving than respondents' own attitudes (especially in the oldest age band), and weekend binge drinking, for which friends' attitudes are seen as less disapproving than their own. The question set regarding friends' disapproval employs a shorter list of drug-using behaviors but includes the same answer scale, stated in terms of strength of disapproval associated with different use levels of the various drugs, as do the questions on the respondent's own attitudes about those behaviors (discussed in Chapter 6). While peer disapproval and personal disapproval questions appear on different questionnaire forms and therefore have different sets of respondents, the forms are distributed randomly in respondents' senior year of high school and should leave no systematic sample differences.

Perceptions of Close Friends' Attitudes (Ages 18 to 30)

Table 7-1 provides trends for each age band in the proportions of respondents indicating how their close friends would feel about the respondent engaging in various drug-using behaviors. For purposes of simplification, we begin by addressing results across the entire 19- to 30-year age band (tabular data for the entire age band are not presented). Then we distinguish among the three young adult age bands: 19-22, 23-26, and 27-30, along with 18 year olds. In 2010 questions about friends' disapproval were dropped from the young adult follow-up questionnaires for all drugs except ***marijuana***, ***binge drinking***, and ***cigarettes***. The dropped questions had shown a high degree of redundancy with respondents' reports of their own attitudes in the aggregate, and thus were deleted to make room for other items.

- Generally, the peer norms reported by young adults one to 12 years past high school have been quite similar to those reported by 12th graders.

- In 2018, with regard to ***marijuana***, 35% to 40% of the young adults thought their close friends would disapprove of their trying it, 40% to 46% thought their close friends would disapprove of occasional use, and two-thirds (64% to 68%) thought close friends would disapprove of regular use. Clearly the norms differ as a function of level of marijuana use, with less than half believing occasional use and about two-thirds believing regular use would meet with disapproval from their close friends. In comparison, in 2018, corresponding rates for 12th graders were 46%, 53%, and 68%, showing somewhat less differentiation as a function of level of marijuana use than young adults show.

- For each of the ***illicit drugs other than marijuana***, 2009 was the last year in which results on peer norms were available. At that time, the great majority of young adults, nearly 9-in-10, said that their close friends would disapprove of their even *trying* such drugs once or twice; 89% indicated this for ***cocaine***, 87% for ***LSD***, and 87% for ***amphetamines***. (We stopped asking these questions beginning in 2010 to make space for new items on the survey and because the data that they provided on peer norms so closely tracked what their own attitudes were in the aggregate; below we provide a quick summary of trends for these three measures up through 2009.)

- In 2018, with regard to friends' disapproval of ***binge drinking on weekends***, about half (52% to 56%) of any of the young adult age groups thought that their close friends would disapprove of their having five or more drinks once or twice each weekend. These levels of disapproval are considerably lower than among those 18 years old (72%). These levels are also lower than perceived disapproval of daily drinking. In 2009 (when we last asked these questions), nearly two thirds (63%) of young adults said their close friends would disapprove if they were ***daily drinkers***, and 9 out of 10 (91%) thought friends would disapprove if they had ***four or five drinks nearly every day***.

- Peer disapproval of ***cigarette*** smoking is very high in all four age bands: In 2018, 87% of 12th graders said their friends would disapprove of pack-a-day smoking, as did 90% to 92% of 19-30 year olds.

Trends in Peer Norms (Ages 18 to 30)

Important changes in the social acceptability of drug-using behaviors among both 12th graders' and young adults' peers have occurred since MTF began (see Table 7-1). We present overviews of trends, summarizing previous years.

- In 2018, perceived peer disapproval of experimental, occasional, and regular use of ***marijuana*** among young adults were at historic lows since the early 1980s. This follows a period of declines in perceived peer disapproval for nearly a decade, as summarized below.

  Among 12th graders, the proportion saying their close friends would disapprove of their *trying* marijuana rose from 41% in 1979 to 73% in 1992, a period of substantial decline in use. Friends' disapproval also grew substantially stronger in all of the young adult age bands in the years for which data are available. For example, among 19-22 year olds, the proportion thinking their close friends would disapprove if they even tried marijuana rose from 41% in 1981 to 65% in 1992 (Table 7-1). A similar peak in disapproval occurred for 23-26 year olds in 1992 and 1993, and among 27-30 year olds in 1994 and 1995, 66% for both age bands; these trends suggest some cohort effects as classes of higher disapproving 12th graders grew older. In all age groups, peer disapproval subsequently declined, though the declines were earliest and greatest among 12th graders, again consistent with cohort effects. The decline ended in 1997 for 12th graders and began to reverse, but continued through 2002 among 19-26 year olds. There was little systematic change for several years among 19-26 year olds until about 2008 when friends' disapproval began to decline again for all three levels of marijuana use. In 2013 all young adult age groups showed a further decline in disapproval of experimental marijuana use; indeed, the declines for the older two

age bands were large and statistically significant. For example, the percent of 23-26 year olds and 27-30 year olds saying that their close friends would disapprove of their trying marijuana fell by about 9 percentage points in that one year, possibly reflecting both cohort effects and a secular trend. In 2013, about half of each age group (48% to 52%) said that their close friends would disapprove of their trying marijuana, down from between 57-62% as recently as 2008. Since 2013, perceived peer disapproval has continued to decline, reaching 35% to 40% in 2018 among young adults; these are *new historic lows* since the early 1980s.

Close friends' disapproval of occasional and regular marijuana use also rose until the early 1990s among respondents 18 years old, and then declined between 1992 and 1997. It declined through 1999 among 19-22 year olds and continued to decline among 23-30 year olds through 2003. Recent peak years of friends' disapproval of trying marijuana were 2006 for 12th graders, 2008 for 19-26 year olds, and 2010 for 27-30 year olds. In essence, peer norms have moved in a way consistent with the existence of some lasting cohort differences in these norms, as well as in use. A more formal analysis of age, period, and cohort effects in disapproval came to the same conclusion.[3] In the past decade or so, there have been continuing declines in friends' disapproval of occasional and regular use among all age groups, suggesting more of a secular trend effect. In 2018, less than half of young adults (40% to 46%) said that their close friends would disapprove of their using marijuana occasionally, and a majority still said they would disapprove regular use (63% to 68%). Thus, *2018 levels of close friends' disapproval of occasional and regular marijuana use are at historic lows since the early 1980s.* Clearly peer norms among young adults, as well as teens, have become more accepting of marijuana use in recent years, corresponding to their increased use.

- There was a gradual increase in peer disapproval of *trying* an ***amphetamine*** for all age groups (18-30) through 1991, followed by a small decline evident among 12th graders through 1997. Between 1997 and 2009, the last year we asked this question of young adults and for which data are available, levels of disapproval among 18-30 year olds increased to some extent, though not dramatically. In 2009, disapproval levels for trying an amphetamine were at 87% for all four age groups. Based on the data available on trends in respondents' own disapproval (see Chapter 6), it seems likely that peer disapproval among young adults has weakened modestly in recent years, as it has for 12th graders.

- Perceived peer norms for ***LSD*** were measured from 1980 through 2009 among the follow-up respondents. Through 1991, peer disapproval of trying LSD showed very little change in any of the age bands, but it fell some in the 1990s, especially among 18 year olds and subsequently among 19-22 year olds. These declines bottomed out in a staggered fashion, beginning with the 12th graders in 1997, which thereafter showed a seven-percentage-point increase in peer disapproval. There was a five-percentage-point increase among 19-22 year olds (after 2000), and a three-percentage-point increase among 23-26 year olds (after 2001), again suggestive of a cohort effect in these norms. In 2009, the last year we asked,

[3] Keyes, K. M., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., Bachman, J. G., Li, G., & Hasin, D. (2011). The social norms of birth cohorts and adolescent marijuana use in the United States, 1976-2007. *Addiction, 106*(10), 1790-1800.

there was almost no difference among the age groups, with 85% to 87% of respondents in each age group saying their friends would disapprove of their trying LSD.

- Perceived peer norms regarding ***cocaine*** use were measured from 1986 through 2009, after which such questions were dropped. In the eight-year interval from 1986 to 1994, self-reported cocaine use declined substantially as peer norms in all age bands shifted toward disapproval. For example, by 1994, 95% of the 19-22 year olds thought their close friends would disapprove of their even trying cocaine once or twice. After 1994, peer norms against use continued to strengthen a bit in the upper age bands, perhaps through generational replacement, but weakened slightly in the younger age bands, likely reflecting a new cohort effect combined with generational forgetting of the consequences of using cocaine. By 2009 (the last year we asked) there was little difference by age in peer norms against cocaine use, with 85% to 91% saying their friends would disapprove of their even trying it. By way of contrast, in 1986 that statistic ranged between 71% and 80% among 18-26 year olds.

- For most of the years under consideration, peer norms against ***binge drinking*** on weekends (five or more drinks once or twice each weekend) among the three young adult age groups have tended to be weakest for the 19-22 year old age group, in which such behavior is most common, and strongest for the 27-30 year old group. Since 2002, disapproval of such drinking has also been low for the 23-26 year old group relative to the other two age bands. Since about 2012, the differences among the three age groups have diminished (ranging from 52% to 56% in 2018). Among 12th graders, friends' attitudes had become somewhat more restrictive between 1981 and 1992 (and respondents' own occasions of binge drinking declined during that interval), but attitudes were fairly level for some years and then rose from 56% in 2002 to 72% by 2018). There was a similar upward trend in peer disapproval among the various young adult age bands that followed a staggered pattern, again likely reflecting a cohort effect in these norms. However, between 1997 and 2000 the 19-22 year old age group became somewhat less disapproving of occasions of binge drinking on weekends; this was followed by a decline in perceived peer disapproval between 2001 and 2004 among 23-26 year olds, and a decline from 2004 to 2009 among 27-30 year olds. The recent increase in peer disapproval among 12th graders was not mirrored among the older age strata; thus peer disapproval of binge drinking became highest among the 12th graders, contrary to the situation in the late 1990s when 12th graders were the lowest. Despite some increases in peer disapproval over the years, this risky and potentially health-compromising form of drinking has the *least* restrictive perceived peer norms of regular use of all of the substances measured in MTF (only experimental and occasional use of marijuana have lower norms in recent years), yet about half still report peer disapproval. In 2018 the proportions saying that their friends would disapprove of such weekend binge drinking was between 52% and 56% for the three young adult age bands compared to 72% among the 12th graders.

- Peer norms against ***cigarette smoking*** one or more packs per day have strengthened in staggered fashion among those age 18 and the young adult age groups. Between 1998 and 2008, the proportion saying that their close friends would disapprove of their smoking a pack or more of cigarettes per day rose substantially from 69% to 83% among 18 year olds

and from 69% to 86% among 19-22 year olds. In other words, the proportions *not* disapproving were cut in half. The two older strata did not see a comparable change until peer disapproval among 23-26 year olds rose from 77% in 2005 to 88% in 2009, at which time their disapproval leveled. The change did not manifest itself among the 27-30 year olds until 2010; their rates of peer disapproval of smoking, which for some years had the highest rates of disapproval for smoking among the four age groups, stayed fairly level after 2000, until there was a 4.4-percentage-point jump in 2010, followed by a leveling. This pattern again suggests some cohort effects in peer norms working their way up the age spectrum. In 2018, very large proportions across the age bands reported that their friends would disapprove of pack-a-day smoking, ranging from 87% at age 18 to 90-92% among the young adult age groups.

In the early years of MTF, peer disapproval of smoking a pack or more of cigarettes per day rose among 12th graders from 64% (1975) to 73% (1979). There was little further net change for 13 years through 1992, when friends' disapproval stood at 76%. During the relapse in the drug epidemic between 1992/1993 and 1997/1998, all age groups showed a decrease in perceived peer disapproval of smoking, consistent with a secular trend.

- It is noteworthy that peer norms for so many drugs have shown cohort effects in their patterns of change across age bands. In addition to cohort effects, secular trend effects are evident, with the recent declines in peer disapproval of marijuana use in all four age groups, suggesting a secular trend.

ADULTS' EXPOSURE TO DRUG USE THROUGH FRIENDS AND OTHERS (AGES 18–60)

Exposure to drug use is important because it provides both the modeling of the behavior by peers (possibly including direct encouragement to use) and immediate access. Exposure is measured by two sets of questions, each appearing on a (different) single questionnaire form. The first set asks the respondent to estimate what proportion of his or her friends use each drug (i.e., friends' use), while the second set asks, "During the LAST TWELVE MONTHS how often were you around people who were using each of the following to get high?" (i.e., direct exposure). The same questions are asked of 12th graders (modal age 18), and their results are included here for comparison purposes in Tables 7-2 and 7-3 and Figures 7-1 through 7-24. (Questions about *direct exposure* to drug use were not included in the questionnaires for 35-60 year olds due to the space limitations imposed by the use of a single questionnaire form at each of these ages.)

With regard to our measures of *friends' use*, we continue to present four-year age bands for the young adult friends' use measures in order to increase the reliability of the estimates. Questions about friends' use were included at ages 35, 40, 45, 50, 55, and 60. They are shown as one-year age bands, with both half-samples from each of those cohorts being surveyed at those modal ages. Starting with age 35, each year has a larger number of cases than single years at the earlier ages because *all* respondents in a cohort at later ages complete the relevant questionnaire items, compared with only one sixth of those at younger ages. At the end of each table in this chapter is a summary of the weighted number of cases upon which each annual estimate is based. (The actual numbers of cases are somewhat higher.)

Exposure to Drug Use (Ages 18 to 60)

- Relatively high proportions of young adults in all of these age bands have had at least *some* friends who use ***some illicit drug*** (including marijuana); that proportion varies considerably with age, with older respondents reporting that fewer of their friends use (Table 7-2). In 2018, illicit drug use by at least some friends was reported by 78% at age 18, increasing to 86% for 23-26 year olds, then decreasing to 42% at age 60. The 2018 levels are at or near all-time highs (largely due to continued increase in friends' use of marijuana as discussed below).[4]

  Clearly, among adults, the older the respondent, the less likely he or she is to report having friends who use any illicit drugs. In 2018, the proportions who said that *most or all* of their friends use one or more of the illicit drugs were much lower (Table 7-2): 27% for 12th graders, between 14% and 27% for the 19-30 year olds, and between 2% and 9% for those 35, 40, 45, 50, 55, and 60 years old, quite a dramatic difference across ages and one that is consistent with the large differences in their own self-reported current use.

  With regard to being around others in the past 12 months who used any illicit drug (direct exposure), it was highest among 19-22 year olds in 2018 (Table 7-3). The percent saying that they had *any* direct exposure to people using in 2018 was 73% for 12th graders, 76% for 19-22 year olds, 74% for 23-26 year olds, and 66% for 27-30 year olds. The percent indicating that they *often* had direct exposure followed a similar age-group pattern: 31%, 36%, 25%, and 25%, respectively (direct exposure is not asked of those age 35 and above). Among young adults, but not among 12th graders, rates of direct exposure in 2018 were at or near historic highs for the past three decades (since about the mid- to-late 1980s), as discussed in the section below on trends. Note that rates of any direct exposure tend to be lower than rates for any friends' use (as summarized above), a pattern that holds for most illicit and licit substances.

- With regard to ***illicit drugs other than marijuana***, taken as a whole, considerably fewer respondents reported that *any* of their friends use compared to what is true for marijuana use (see below): 41% for 12th graders, 52-54% for 19-30 year olds, and 18-28% for 35-60 year olds in 2018 (Table 7-2).[4] The proportions who said that *most or all* of their friends use illicit drugs other than marijuana in 2018 were 5%, 2-7%, and less than 1%, respectively. Thus, very low proportions of the older age groups appear to be deeply immersed in a drug culture involving illicit drugs beyond marijuana.

  Regarding direct exposure to others using illicit drugs other than marijuana in the past year, the percent indicating that they were around *any* people using was highest in 2018 among 19-26 year olds (46-47%) and lower among 12th graders (40%) and 27-30 year olds (35%) (Table 7-3). The percent indicating that they *often* were directly exposed was quite low, and similar across the four age groups (7-8%). As discussed below when considering

[4] Due to a printing error in the young adult questionnaire in 2015, data cannot be reported for friends' use in the young adult age bands in that one year for this index as well as for some individual drugs that were directly affected. We believe that the 2014 data present a reasonable approximation of what the values likely would be in 2015. This applies to some but not all of the measures of the individual drugs. This situation was remedied in the 2016 surveys.

trends, the rates of direct exposure in 2018 were at or near historic highs over the past three decades among young adults, but not among 12th graders.

- With respect to individual illicit drugs, exposure among all of the age groups was greatest for ***marijuana***. The percentages in 2018 saying they have *any* friends who use was 77% for 12th graders, 79% for 19-22 year olds, 84% for 23-26 year olds, and 80% for 27-30 year olds; it declined by age for the older adults from 60% at age 35 to 36% at age 60 (Table 7-2). In regard to *most or all* friends using in 2018, percentages were highest for 12th graders and 19-22 year olds (26%) and declined with age from 17% for 23-26 year olds to 2% at age 60. For the age groups 23-24 through 55, the 2018 levels were at or near new historic highs as discussed further below.

  Similarly, rates of direct exposure to people using marijuana in the past year among young adults in 2018 were at or near historic highs over the past three decades. For *any* direct exposure, they were 70% for 12th graders, 76% for 19-22 year olds, 72% for 23-26 year olds, and 65% for 27-30 year olds; rates for *often* having direct exposure were 28%, 34%, 24%, and 22%, respectively (Table 7-3).

- The next-highest exposures in 2018 were for ***amphetamines*** (22% among 12th graders, 31% among 19-22 year olds, 33% among 23-26 year olds, and 32% among 27-30 year olds) and cocaine (18% among 12th graders, 30% among19-22 year olds, 35% among 23-26 year olds, and 25% among 27-30 year olds), followed by ***MDMA*** (***ecstasy***, ***Molly***), ***hallucinogens other than LSD***, and ***narcotics other than heroin***. (Use of several illicit drugs was not asked of the age groups above 30 due to space limitations in the single questionnaire form used at each of those ages. See Table 7-2.)

- For the remaining illicit drugs, the proportion of young adults reporting in 2018 that some friends use a given drug was 10% or higher in at least two of the four age strata for the following drugs: ***LSD*** (16-28%), ***sedatives*** (***barbiturates***) (12-16%), and ***tranquilizers*** (9-12%), and ***steroids*** (8-13%). See Table 7-2 for specifics.

- In the past few years, reported friends' use of ***cocaine*** has been highest among young adults, and this continued in 2018 with 18% for 12th graders, and 25% to 35% for 19-30 year olds (peaking at age 23-26 at 35%). Those 35, 40, 45, 50, and 55 years old are asked separately about cocaine powder; in 2018 far fewer reported having friends who use cocaine powder, 15% for age 35 and 4% to 9% for the five older groups.

- For use of ***crack*** specifically, 9% of 12th graders reported having any friends using crack, versus 6% to 11% of 19-30 year olds in 2018 (use is no longer asked of those age 35 and over, because by 2017, the rate was down to 0-2%).

- The proportions who report having any friends who take ***heroin*** are now level across young adulthood. In 2018, these percentages were 5.8%, 3.3%, 3.3%, and 3.8% for the age groups of 18, 19-22, 23-26, and 27-30, respectively. These age differences are much smaller than in earlier years, due to greater declines with time among the younger age groups. (This question is not asked of those age 35 and over.)

- At present, the percentages reporting any friends who use ***narcotics other than heroin*** are higher among older respondents: in 2018, 15% of 18 year olds, 20% of the 19-22 year olds, 22% of 23-26 year olds, and 26% of 27-30 year olds. This was not always the case. In the late 1990s and early 2000s perceptions of friends' use were lower among older young adults (this question is not asked of those age 35 and older) (Table 7-2).

- In general, it appears that some respondents who report that their friends use ***illicit drugs*** are themselves not directly exposed to that use by their friends, judging by the differences in proportions saying they have some friends who use (Table 7-2) and the proportions who say they have been around people who were using during the prior year (Table 7-3 and Figure 7-1). That is, as has been true all along, more respondents report use by friends than report being around others who were using. When considering trends in the next section, we give more attention to findings from the direct exposure measure concerning being around others who use.

- With respect to ***alcohol*** use, the great majority of young adults have at least *some* friends who ***get drunk at least once a week***, although this peaks in their mid-to late-20s and then drops off gradually with age: in 2018, 55% in 12th grade, 72% at ages 19-22, 79% at ages 23-26, 79% at ages 27-30, 67% at age 35, 59% at age 40, 58% at age 45, 48% at age 50, 40% at age, and 33% at age 60.[5] Given the potential serious consequences of this behavior, these rates are troublingly high across a wide age range. The proportions who say *most or all* of their friends get drunk once a week differ more substantially by age, with a peak in the respondents' early to mid-20s. In 2018, 12% of 12th graders, 23% of 19-22 year olds, 24% of 23-26 year olds, 16% of 27-30 year olds, and 10% for 35 year olds to 2% of 60 year olds responded that most or all of their friends get drunk once a week. Note in particular how high these rates are among the high school and college-age populations, most of whom are underage. In terms of having any direct exposure during the prior year to people who were drinking alcohol "to get high or for 'kicks'," having some such exposure was almost universal in the three age groups of young adults: 84%, 89%, and 89%, respectively, as well as among 18 year olds (78%) (Table 7-3 and Figure 7-23).

- From ages 19 through 30, 62% to 74% reported in 2018 having at least a few friends who ***smoke cigarettes***, compared to 51% of the 12th graders; there is a falloff through middle adulthood, reaching 48% at age 60. Similarly, 4% to 6% of the 18-30 year olds state that *most or all* of their friends smoke. Above those ages, the proportions decline to 4% for 35 year olds and 2-3% for those 40 years of age and older.

Trends in Exposure to Drug Use (Ages 18 to 60)

Tables 7-2 and 7-3 also provide trend data on the proportions of respondents' friends using drugs and the proportion of respondents who say they have been directly exposed to drug use by others. Both of these measures of exposure to use will be discussed in this section. As noted previously, trends are available for 19-22 year olds since 1980, for 23-26 year olds since 1984, and for 27-30 year olds since 1988. Data for those 35, 40, 45, 50, 55, and 60 years old are available on friends'

[5] Due to the previously mentioned printing error, data are not available for the three young adult age bands in 2015, though they are included for the other age bands in Table 7-2. This situation was remedied for 2016 data.

use since 1994, 1998, 2003, 2008, 2013, and 2018, respectively. (Questions about being around drug users – direct exposure – were not included in the questionnaires administered to respondents age 35 and older, so those age bands are not included in Table 7-3 or Figures 7-1 through 7-24. However, these respondents were asked about the proportions of their friends using as shown in Table 7-2.) Twelfth-grade data (i.e., age 18) have also been included in these tables for comparison purposes.

Figures 7-1 through 7-24 provide graphic presentation of trends in direct exposure to use for 12th graders and young adults.

- An examination of Table 7-3 and Figures 7-1 through 7-6 shows that direct exposure to illicit drug use (in the 12 months preceding the survey) generally declines across the age bands for ***any illicit drug***, ***marijuana***, and ***any illicit drug other than marijuana***, as well as many of the specific other illicit drugs (Figures 7-7 through 7-24). Up until the past few years, this age-band ordering was consistent across different historical periods; however, as summarized below, the past few years have shown some compression of age differences and re ordering of age groups, with the 19-22 year olds having the highest direct exposure to many drugs in 2018. An important exception to the long-standing age group ordering of direct exposure is ***cocaine***, which did not show a decline in exposure with increasing age until after 1996. (Prior to that it showed an increase with increasing age.) Thus, up until the past few years, with the exception of cocaine, the consistent ordering of declining exposure across the age groups reflect age effects (changes with age observed across multiple cohorts) in both exposure to use and in personal use of most drugs.

- Until 1992, young adults' trends in direct exposure to use tended to parallel those observed for 12th graders. From 1980 to 1992, that meant a decreasing number of respondents were directly exposed to ***any illicit drug*** use (Table 7-3 and Figure 7-1) or reported any such use in their own friendship circle (Table 7-2). After 1992, however, an important *divergence* in trends emerged: 12th graders showed a substantial increase in both friends' use and direct exposure to use (as well as self-reported use); 19-22 year olds showed a similar rise, but lagged by a few years; 23-26 year olds subsequently showed some rise; while the 27-30 year old age band did not show a rise until 2002. As discussed in earlier chapters, this pattern no doubt reflects the emergence of lasting cohort differences that emerged in secondary school and, driven by generational replacement, continued up the age spectrum as the secondary school students grew older. The age differentials expanded in the 1990s during the relapse phase in the drug epidemic; first observed among the 12th graders, the increases in use then occurred on a staggered basis. The age differentials have diminished considerably during the 2000s, and especially since 2009, as direct exposure to use generally leveled among the younger age groups but rose among the older ones (see Figure 7-1).

  Over the past decade, trends in friends' use of ***any illicit drug*** were fairly level for 12th graders, rose modestly among 19-22 year olds, and increased more for the older age groups (Table 7-2). The 2018 percentages were 78% for 12th graders and 81% for the 19-22 year olds; they were 86% for 23-26 year olds (a significant seven percentage point increase from 2017), 82% for 27-30 year olds (a nonsignificant four percentage point increase from

2017), and ranged from 62% among those 35 to 42% among those 60 years old. These 2018 percentages are at or near historic highs for those 23-26 through 55 years old. Recent trends in direct exposure to people using any illicit drug were mostly level between 2012 and 2016, with some modest increase among those aged 19-22 and 23-26 (Figure 7-1). In 2018, direct exposure decreased somewhat for 12th graders to 73%, the lowest level in the past decade (Table 7-3); and it increased four percentage points (nonsignificant) for 19-22 year olds to 76%, with this age-group now having the highest direct exposure among the four age groups. In 2017, direct exposure increased five percentage points for 23-26 year olds (nonsignificant) and ten percentage points for 27-30 year olds (significant); direct exposure was fairly level for these two age groups in 2018 at 74% and 67%, respectively. Thus, in 2018, direct exposure to people using an illicit drug were at or near historic highs over the past three decades for the three young adult age groups, and at the lowest level for 12th graders in the past decade (trends that are largely due to exposure to marijuana use as discussed next).

- ***Marijuana*** showed a very similar pattern of change compared to any illicit drug. It is particularly noteworthy that, while 34% of 19-22 year olds in 1980 said *most or all* of their friends used marijuana, only 8% said the same in 1991 (Table 7-2). Clearly, the number of friendship groupings in which marijuana use was widespread dropped dramatically in the 1980s. This measure of friends' use for 19-22 year olds more than doubled to 19% by 1999 during the relapse phase in the larger epidemic, where it remained for a couple of years before falling to 12% by 2008, then increasing to 26% by 2018. The percent indicting that *most or all* of their friends use marijuana increased as well for the other age bands of adults across the past decade, increasing by two or more times between 2008 and 2018, reaching 17% for 23-26 year olds, 13% for 27-30 year olds, and 8% for 35 year olds; in 2018, it ranged from 2% and 5% for 40-60 year olds. The 2018 percentages were at historic highs since the mid-1980s for all age groups of adults.

  Similar trends occurred for being around those using (direct exposure) in the past year among young adults, as shown in Figures 7-5 and 7-6. In the past decade, the percentages of those who report *often* being around friends who used marijuana increased for each age group of young adults, with a fairly level trend for 12th graders. They increased between 2008 and 2018 from 18% to 34% for 19-22 year olds, from 14% to 24% for 23-26 year olds, and from 9% to 22% for 27-30 year olds (Table 7-3); the 2018 percentages were at new historic highs for all young adults combined.

- The proportion of respondents reporting having any friends who use ***any illicit drugs other than marijuana*** began to decline after 1982 in the two younger age groups spanning 18-22 (for whom we had data at that time; see Table 7-2 regarding use by friends, and also Figure 7-3 regarding direct exposure to use). By 1991/1992 there had been a considerable drop in all four age groups (spanning 18-30). This drop appears to be due particularly to decreases in friends' use of ***cocaine*** and ***amphetamines***, although there were decreases for ***sedatives*** (***barbiturates***) and ***tranquilizers*** as well. The levels then began to rise among the 18-22 year olds in the early 1990s, while at the same time declining further for the 23-30 year olds, reflecting lasting cohort effects, opening up a large age-related difference in friends' use in the 1990s and into the early 2000s. The 23-26 year olds showed a later

increase in friends' use and the 27-30 year olds showed a still later increase. After 2001 there was some decline in reported friends' use in the two youngest age strata while reported friends' use continued to climb in the older two strata. The net effect was to narrow the age differences among the young adult strata considerably.

More recently, the gap among the four age bands covering ages 18-30 has narrowed for the proportions saying that they have *any* friends who use ***some illicit drug other than marijuana***. Between 2003 and 2012, there was little change among 12th graders, followed by a fairly consistent decrease through 2018 (41%) (Table 7-2). For 19-22 year-olds, the trend has remained fairly level from 2003 through 2018 (54%). For 23-30 year-olds, there was an unsteady increase for the past decade through 2018 (52-54%). Among those aged 35 and older, considerably fewer report having any friends who use, but the past few years have shown some uneven increases for 35- year-olds through 2018 (28%), with fairly level trends for those 40 and older through 2018 (18-22%) (see Table 7-2 for the specifics). The similar trends in direct exposure to use are shown in Figure 7-3, though it is noteworthy that exposure has been increasing unevenly for the young adults over the past decade reaching 35-47% in 2018 (Table 7-3). Also, the proportions indicating *often* being directly exposed to friends' use of any illicit drugs other than marijuana (Figure 7-4) has increased unevenly over the past decade reaching 7-8% in 2018 (Table 7-3), also reflecting a lasting cohort effect.

- Between 1986 and about 1992, all four age groups (covering 12th grade through age 30) showed a considerable drop in the proportion of respondents with friends who used ***cocaine*** (Table 7-2) and in direct exposure to cocaine use (Figure 7-11). (Self-reported use declined sharply in the same period.) After that decline, the rates of *any* friends' use peaked in 1998 among 12th graders (31%) and 19-22 year-olds (27%), remained fairly steady through 2007, and declined since for 12th graders through 2018 (18%) while decreasing and then increasing unevenly for 19-22 year olds through 2018 (30%). For 23-26 year-olds, friends' use increased through 2004 (27%), declined unsteadily through 2016 (22%), and increased through 2018 (35%). For 27-30 year-olds, friends' use peaked in 2009 (22%) and has remained fairly steady since then (25% in 2018). These changes, staggered somewhat by age since the mid-1990s, reflect cohort effects. For 35-55 year olds (who are asked about cocaine powder specifically), there have been some recent modest increases for the 35 and 40 year olds, with the recent trends remaining fairly steady for the 45-55 year olds. Regarding recent trends in being around those who use cocaine (Figure 7-11 and Table 7-3), *any* direct exposure has remained fairly steady for 18 year olds across the last decade (17% in 2018) and showed some uneven increases among the young adult age groups reaching 20-25% in 2018. The story for ***crack*** has been fairly similar to that for cocaine regarding friends' use (Table 7-2).

- There were substantial increases between the early 1990s and about 2000 in the proportion of 12th graders and 19-22 year olds reporting that they have *any* friends who use (Table 7-2), and being directly exposed to use by others of (Table 7-3 and Figure 7-15), ***narcotics other than heroin*** without medical supervision; also, there were smaller increases among 23-30 year olds, resulting in some considerable age-related differences. After 2002, the proportions of 18 year olds and 19-22 year olds declined some for both measures, while

the 23-30 year olds continued to increase in a classic cohort-effect pattern of change, thus narrowing the age differences by 2009. There was a wording change in 2010 that served to increase the rates considerably for both measures for all age groups. In 2010, the percentages of those reporting *any* friends using narcotics other than heroin were 36%, 31%, 37%, and 28%, respectively across the four age groups; since 2010, all four of these age bands have shown a decline through 2018, reaching 15%, 20%, 22%, and 26% (Table 7-2). In 2010, the percentages of those reporting *any* direct exposure to people using narcotics other than heroin were 30%, 28%, 26%, and 23% across the four age groups respectively (Table 7-3); since 2010, percentages decreased substantially for all four age groups, reaching 18%, 17%, 16%, and 17%, respectively (Table 7-3 and Figure 7-15). The proportional declines since 2010 for both measures of exposure have been largest in the younger age bands.

- The proportions saying that *any* of their friends use ***MDMA*** (***ecstasy, Molly***) increased sharply in all age groups between 1992 and 2001 or 2002, though in a staggered fashion (Table 7-2). Twelfth graders showed the first sharp increase beginning after 1992, 19-22 year olds after 1994, 23-26 year olds after 1996 and 27-30 year olds after 1997. These sharp increases ended among 12th graders in 2001 (42%) and among 19-30 year olds a year later in 2002 (43%, 37%, and 21% for the three young adult age groups respectively). Since those peak levels, the proportions saying that they had any friends using ecstasy have generally declined through about 2012 and 2013 for all age groups. Since 2013, friends' use continued to decline modestly for 12th graders through 2018 (19%), whereas it has shown some uneven increases for the young adults (reaching 23%, 29%, and 26%, respectively in 2018). The staggered nature of past increases in friends' use suggests a cohort effect at work, but the nearly simultaneous decline in the early 2000s strongly suggests a secular trend, likely due to the heavy media coverage during that period of adverse consequences associated with ecstasy use.

- For all four of the youngest age groups (spanning ages 18-30), the proportions saying that they were *often* directly exposed to others drinking ***alcohol*** declined modestly between 1987 and 1992 (Figure 7-24, Table 7-3). The next decade or so saw rather little change in the four youngest age bands. Direct exposure among 12th graders declined considerably from 2002 (53%) through 2018 (34%). The recent trend for 19-22 year-olds peaked in 2007 (61%) and declined unevenly through 2018 (45%); it peaked in 2012 (56%) for 23-26 year-olds and declined unevenly through 2018 (52%); and it peaked in 2012 (50%) for 27-30 year-olds and showed some modest decline through 2018 (45%). This is again indicative of a cohort effect with staggered decreases radiating up the age spectrum as the cohorts age. The greater proportional declines among the two younger age groups has served to widen the age gap somewhat over the past decade.

- The age groups above age 30 have consistently been much less likely to report that *any* of their friends ***get drunk*** at least once a week, compared with those ages 18 to 30 (Table 7-2). These proportions increased starting at different times: after 1998 among those age 35, after 2004 among those age 40, and after 2005 among those age 45, suggesting somewhat enduring cohort differences. The net effect has been to reduce the differences separating those in their 20s from those older in terms of the proportion having *any* friends who get

drunk at least once a week. In the past decade, this trend toward smaller age differences among adults continued. Since 2008, 12th graders showed consistent declines from 78% in 2008 to 55% in 2018, 19-22 year olds showed more modest declines from 81% in 2008 to 72% in 2018, 23-26 year olds showed a fairly level trend from 80% in 2008 to 79% in 2018, and those aged 27 to 50 showed modest increases from 40-72% in 2008 to 48-79% in 2018. In 2018, it remained the case that the majority of those aged 18 through 45 have *any* friends who get drunk at least once a week, with those aged 50, 55, and 60 at 48%, 40%, and 33% respectively. On the other hand, the proportions saying that *most or all* of their friends get drunk often were considerably smaller and declined sharply with age (Table 7-2).

- Among 12th graders, the proportion who said *most or all of their friends smoked* ***cigarettes*** declined appreciably between 1975 and 1981, the same period in which self-reported use declined (Table 7-2). After that, neither measure showed much change until about 1992. Thereafter, substantial increases in both measures occurred. By 1997, one-third (34%) of 12th graders reported that most or all of their friends smoked cigarettes (up from 21% in 1992); since then, that percentage declined (along with self-reported use) to 14% in 2008, where it leveled for a few years, and then declined again reaching 6% in 2018, an all-time low. Among 19-22 year olds, a decline in friends' use occurred between 1980 (or possibly earlier) and 1985, followed by a leveling through 1994. The percentage saying most or all of their friends smoked increased from 22% in 1994 to 29% in 2000, before declining steadily and considerably to a new low of 4% in 2018. Among 23-26 year olds, a downturn was evident between 1984 (the first year for which data are available) and 1988, after which reported friends' use leveled through 2005 (20%) and then declined through 2018, reaching a new low of 4% (representing a significant decline from 2017). After 2002, some slight increases occurred through 2005 (13%) among the 27-30 year olds, followed by an unsteady decline through 2016, reaching a new low of 6% in 2016 through 2018. These staggered changes, until about 1998, illustrate that cohort effects were moving up the age spectrum. Among those aged 35-55, the proportion of those responding that most or all of their friends smoked cigarettes have consistently declined over the years since they entered the study (except those 35 years old who showed some increase in the middle- to late-1990s), reaching 2-4% in 2018. The 2018 rates for all age groups were at or near historic lows. Since 1998 (or the earliest year available for the age bands above age 30), the proportion saying that *any* of their friends smoked cigarettes showed consistent decline for all age groups through 2018, where they were at or near historic lows (Table 7-2).

Implications for Validity

Nearly all of these changes in friends' use and direct exposure to drug use parallel changes in self-reported use by these age groups. This pattern reinforces the validity of self-report data, because there would presumably be less motivation to distort answers about the proportion of an unnamed set of friends who use a drug than about one's own use. The systematic nature of the patterns of change across age strata (whether in terms of parallel changes consistent with a secular trend, or systematically staggered ones consistent with a cohort-related trend) is also supportive of the data validity.

PERCEIVED AVAILABILITY OF DRUGS AMONG ADULTS (AGES 18–60)

Adults participating in the follow-up surveys receive questions identical to those asked of 12th graders regarding how difficult they think it would be to get each of the various drugs if they wanted them. The questions are contained in only one of the six questionnaire forms used through modal age 30. Data for the young adult follow-up samples, which are grouped into the same four-year age bands used above (19-22, 23-26, 27-30), are presented in Table 7-4, along with data for 12th graders and those 35, 40, 45, 50, 55, and 60 years old. Sample sizes are presented at the bottom of the table. The availability question is not asked for all drugs in the adult samples, as may be seen in Table 7-4.

Perceived Availability

Much like 12th graders, substantial proportions of the American adult population have access to various illicit drugs. (We do not ask about access to alcohol and cigarettes because we assume these are readily available to all adults.) Table 7-4 presents trends in perceived availability for the various substances.

- ***Marijuana*** was by far the most readily available of the illicit drugs in 2018 (and in all previous years) with 85-90% of the young adult age groups (19-30) saying it would be "fairly easy" or "very easy" to get if they wanted some. Perceived access decreased somewhat with age after age 30, but even at age 60, 71% of the respondents said they could get marijuana fairly or very easily (Table 7-4). *That is, as of 2018, well over 80% of adults aged 19-45, and 71-79% of those aged 50, 55, and 60, reported marijuana being readily available if they wanted it. Continuing changes in the legal status of marijuana will likely increase perceived availability in the years ahead.*

- Though less available than marijuana, ***amphetamines*** were still fairly available, with 51-55% of young adults and 32-41% of those 35, 40, 45, 50, 55, and 60 years old reporting that amphetamines would be fairly or very easy to get (Table 7-4).

- ***Cocaine*** was reported as readily available in 2018 by a significant proportion of young adults, with 39-42% saying it would be easy to get, higher than the 28% observed among 12th graders (Table 7-4). ***Powdered cocaine*** availability was highest among those ages 19 to 40 at 35-38% in 2018. ***Crack*** was seen as available to smaller proportions than powdered cocaine in 2018, ranging from 21% to 23% among 18-30 year olds (availability is not asked for those age 35 and older).

- In 2018, 18% of 12th graders, and 19-22% of 19-26 year-olds said that they could get ***heroin*** fairly or very easily, though far fewer report having used heroin (Table 7-4). Reported availability was higher for the 27-30 year olds (29%), showing that availability tended to rise with age. (The question is not asked of respondents above age 30.)

- Perceived availability of ***narcotics other than heroin*** also rose with age. In 2018, the percentage of those who said that such drugs would be fairly or very easy to get was 33%, 42%, 50%, and 53%, respectively across the four age groups (Table 7-4). (The question is not asked of respondents above age 30.)

- Perceived availability of ***sedatives*** (***barbiturates***) showed some increase with age in 2018: 23%, 28%, 30%, and 35% across the four age groups, respectively (Table 7-4). (The question is not asked of respondents above age 30.)

- ***Tranquilizers*** were reported as available in 2018 by considerably fewer respondents (13-17% across the four age groups), which historically was not always the case (Table 7-4). (The question is not asked of respondents above age 30.)

- ***MDMA*** (***ecstasy, Molly***) was seen as readily available in 2018 to 28% of 12th graders, and 39%, 34%, and 32% of the three young adult age groups, showing a peak of availability among 19-22 year olds (Table 7-4). (The question is not asked of respondents above age 30.)

- ***Hallucinogens other than LSD*** (such as psilocybin) were reported as fairly or very easy to get in 2018 by 29% of 12th graders, and 34%, 32%, and 29% for the three young adult age groups, respectively, again showing a peak of availability among 19-22 year olds (Table 7-4). (The question is not asked of respondents above age 30.)

- Perceived availability of ***LSD*** was also highest for the 19-22 year olds at 33% in 2018; it was 28% for 12th graders, 27% for 23-26 year olds, and 21-23% among those 27 to 50 years old (Table 7-4). (The question is not asked of respondents above age 50.)

- ***Crystal methamphetamine*** (***ice***) was perceived to be fairly or very easy to get by 14% of 12th graders, and by 15%, 15%, and 17% of the young adult age groups, respectively (Table 7-4). (The question is not asked of respondents above age 30.)

- ***Anabolic steroids*** were perceived to be fairly or very easy to get by between 20% and 23% of all four age strata (Table 7-4). (The question is not asked of respondents above age 30.)

Trends in Perceived Availability

- ***Marijuana*** has been almost universally perceived to be available by older adolescents and young and middle adults throughout the historical periods covered by the data. Overall, perceived availability has risen in the six older age groups on whom trend data are available during the 2000s—that is, from 27- through 55 year olds (reaching 75-90% in 2018)—but has simultaneously declined among 12th graders (80% in 2018) and held relatively steady among 19-22 year olds (85% in 2018). As a result, there is now less variability by age in the reported availability of marijuana (Table 7-4). From the peak year in 1979, perceived availability decreased slightly through 1991 among 12th graders and decreased slightly more from 1980 through 1991 among 19-22 year olds. After the late 1990s, the trends in availability across the 18 through 30 age bands had generally been quite parallel, suggesting secular trends in prevailing conditions that affected availability. Perceived availability has generally increased in the past several years through 2018 for those aged 35 to 55, resulting in it being only somewhat higher for those aged 18-30 (80-90%) than for those aged 35 to 55 (75-84%), and with it now being at or near all-time highs for the latter group, coinciding with the ongoing changes in the legal status of marijuana.

- Historic highs in perceived availability of ***cocaine*** occurred in the 1980s among all three young adult age strata (ages 19-30), reaching highest proportions in 1988 and 1989, at which time the older young adult age strata had higher availability than the younger ages. (From a policy perspective, it is worth noting that in 1987 the perceived availability of cocaine *increased* while use actually dropped sharply.) In the early 1990s, all four groups reported decreased availability by 4-7 percentage points, quite parallel to the drop in numbers of those who had friends who were users and to the decline in personal use. Until about 2001, there was some falloff in perceived cocaine availability in all age strata through age 30—particularly among those ages 23 through 30—and an increasing convergence among the age groups (ranging from 45% to 50% in 2001); it then generally leveled through 2007. From about 2007 through 2012 and 2013, all four age strata showed considerable declines in reported cocaine availability, followed by a leveling through 2018 for 12th graders (28%), 23-26 year olds (39%), and 27-30 year olds (42%); 19-22 year-olds showed an increase from 28% in 2013 to 41% in 2018. The question about availability of any type of cocaine is not asked of respondents above age 30, but a question about specific ***cocaine powder*** availability is asked of them. As shown in Table 7-4, there have been some uneven increases in perceived availability since about 2012 through 2018 for those aged 35-55 (reaching 32-38% in 2018).

- ***Crack*** availability peaked in 1988-1989 for all age groups (it was first assessed in 1987) and declined through 1992, with little further change until 1995. Since 1995 through 2018, crack availability has declined substantially in all of the lower four age strata (ages 18-30). Data on 35, 40, 45, and 50 year olds are available for shorter intervals (and only through 2017), but also show appreciable declines from initial measurements.

- In 2018, between 21% and 33% of age groups 18 through 50 said they could get ***LSD*** fairly easily, which contrasts quite dramatically with the mid-1990s, when over 50% of those in the younger age strata said they could get it. Across the decades measured, the trends in LSD availability among young adults have had some parallels to those among 12th graders. For 12th graders, there was a drop of about 10 percentage points in the mid-1970s, and a later drop from 1980 to 1986. The latter drop, at least, was paralleled in the data from 19-22 year olds. After 1986, LSD availability increased considerably in all age bands, reaching its peak levels by 1995 during the relapse phase of the illicit drug epidemic. At that time a considerable age-related difference developed, with availability lower in the older age groups. Since 1995, availability has fallen substantially in all age bands but particularly in the youngest two age bands, narrowing the differences among the age groups. Indeed, the drop-off in availability of LSD to 12th graders and 19-22 year olds was quite sharp in 2002, probably contributing to the steep decline in use that year because changes in attitudes and beliefs about LSD cannot explain it. Over the past decade through 2018, availability has either remained largely steady (among 18 year olds, 23-30 year olds, and those 40 and older) or declined somewhat (among 35 year olds); in contrast, it has increased for those aged 19-22. Across all age bands in 2018, availability was the highest among 19-22 year olds (33%) and considerably lower among those ages 27 and above (21-23%). Fifty-five and 60 year olds are not asked the question.

- Since 2001 through 2018, the general pattern among 12th graders and young adults regarding the availability of ***hallucinogens other than LSD*** has been one of decline, with availability for the four age groups declining from 38-49% in 2001 to 29-34% in 2018. (This question is not asked of respondents over age 30.) Levels of availability are now more differentiated by age than in prior decades, with it being higher for younger respondents, though these differences have diminished in recent years. In the early 1980s, there was a fair decline among all age groups in the availability of hallucinogens other than LSD. There was little additional change through 1992. From 1992 to 1995, the three youngest age groups all showed an increase in availability, with 12th graders showing the largest increase. From 1996 to 2000, availability was fairly steady. All age groups showed substantial increases in 2001, undoubtedly due to the changed question wording which added *shrooms*, among other substances, to the examples of hallucinogens. (Shrooms refer primarily to psilocybin mushrooms.) It appears that the inclusion of shrooms as an example introduced a greater variability with age in reported availability of hallucinogens other than LSD taken as a class.

- ***MDMA (ecstasy, Molly)*** questions were first introduced in MTF surveys in 1989 and 1990 (and are not asked of those over age 30). Availability rose very substantially in all of these age groups during the 1990s and early 2000s. Among 12th graders, reported availability nearly tripled from 22% in 1989 to 62% in 2001, the peak year of use for 12th graders. All four age groupings showed sharp increases in 2000 and 2001, with the older age groups continuing to increase through 2002 (to 41-60%) , their peak year for use. The availability of ecstasy showed considerable declines from about 2001 through about 2010 (reaching 36%, 30%, 35%, and 31%, respectively for the four age groups); it then continued to decline for 12th graders through 2018 (28%), increased for 19-22 year olds through 2018 (39%), and remained fairly steady for 23-30 year olds through 2018 (32-34%).

- All four age groups have shown some gradual, modest decline in ***heroin*** availability since about 1997 or 1998, during which interval there has been rather little variability in heroin availability across the 18-to-30 age range. (The question is not asked of respondents over age 30.) Heroin availability varied within a fairly narrow range from 1980 to 1985, then increased in all age groups through 1990. For the younger ages (18-22) heroin availability rose further through 1995 while in the older two age groups it increased some later in the 1990s. It is clear that heroin was much more available to all of these age groups in the 1990s than it was in the 1980s. This increase in the availability, and in the purity, of heroin most likely led to the emergence of non-injection forms of heroin use observed during this period. In the past decade from 2008 through 2018, heroin availability declined for 12th graders from 25% to 18%, declined for 19-22 year olds from 24% to 19%, remained fairly steady for 23-26 year olds (23% to 22%), and increased unevenly for 27-30 year olds from 26% to 29%.

- The availability of ***narcotics other than heroin*** rose slowly among all four age groups from 1980 through the early to mid-2000s, with the exception of a period of considerable stability from 1989 through 1994. (Respondents over age 30 are not asked this question.) After 1994, the modest increase in availability was accompanied by steadily rising use. Reported availability jumped in 2010, when new drugs, including Vicodin and OxyContin,

were added to the list of examples in the question (this jump suggests that our earlier measure was underestimating availability to some extent). In 2010, availability was 54%, 55%, 56%, and 62%, respectively among the four age groups, revealing little age differentiation. Since 2011, availability declined steadily for 12th graders (to 33% in 2018) and 19-22 year olds (to 42% in 2018), and rose through 2013 for the two older age groups (62% and 64%, respectively) before declining unevenly through 2018 (50% and 53%, respectively); these different trends served to increase the age differences among the four groups. It seems clear that *availability of these drugs has been going down since 2011-2013, especially in the younger age strata, likely in response to state and federal efforts to reduce their abuse by reducing availability.*

- In general, availability of ***amphetamines*** has declined to some extent for all age groups since about the time they entered the study, and the age groups above age 30 have reported somewhat lower availability than the younger strata, but not dramatically lower. In 1982, availability peaked for both 12th graders and 19-22 year olds, after which it fell through 1991 by 14-15 percentage points. Among 23-26 year olds, there was a decline of 14 percentage points between 1984 (when data were first available) and 2005. For 27-30 year olds, reported availability decreased by nine percentage points between 1988 (the first measurement point) and 2005. Decreases also occurred among 35-45 year olds in the 2000s but some reversal has been evident in recent years in the older cohorts. In 2011 all age strata from age 18 through age 35 showed an increase in perceived availability for amphetamines, statistically significant for those 19-22 and 23-26 years old. (It should be noted that the examples of amphetamines used in the question text were updated in 2011 to include Adderall and Ritalin, while "pep pills" and "bennies" were eliminated as outdated examples. Therefore, the sharp rise in reported *availabilit*y of amphetamines in 2011 among young adults likely was due to the revision of the examples provided). Between 2011 and 2018, availability declined unevenly for 18 year olds (from 47% to 39%), was fairly level for 19-22 year olds (52% and 54%), decreased unevenly for 23-26 year olds (from 56% to 51%), and increased unevenly for 27-30 year olds (from 50% to 55%). For those aged 35-50, 2011 percentages were 40%, 34%, 37%, and 34%, respectively, and changes have been uneven since 2011, with most age groups showing a fairly level or declining trend through 2017 or 2018; however in 2018, 40 and 50 year olds showed a significant increase. In 2018, availability was 38%, 41%, 35%, and 38%, for 35-50 year olds respectively; it was 35% and 32% for 55 and 60 year olds.

- By way of contrast to amphetamines, ***crystal methamphetamine*** or "***ice***" exhibited an increase in availability in the 1990s, rising for all four age strata from 1991 to 1998/1999 before stabilizing with similar rates of availability from ages 18 to 30. (This question was not asked of those over 30.) All four strata have shown some decline in recent years (reaching 14-17% in 2018), starting with the youngest three age strata after 2006 and the 27-30 year olds after 2008. In recent years through 2018, availability has been lowest for the youngest three age bands, a reversal of the situation in the early 1990s (Table 7-4).

- ***Sedatives*** (***barbiturates***) exhibited a long-term decline in availability over more than two decades from about 1981 or 1982 through 2003 in the two younger groups—a 20-percentage-point drop among 12th graders and a 23-percentage-point drop among 19-22

year olds. All groups showed increased perceived availability in 2004—no doubt due primarily to an updating of the examples given in the question, followed by an overall decline. As of 2018, there was a decline of 23 percentage points among 12th graders since 2004 (from 46% to 23%), of 20 percentage points among the 19-22 year olds since 2007 (from 48% to 28%), of 21 percentage points among 23-26 year olds since 2006 (from 51% to 30%), and of 11 percentage points among 27-30 year olds since 2007 (from 46% to 35%). In 2018, perceived availability was higher in the 27-30 year old group (35%) than in the 18 year old group (23%).

- ***Tranquilizer*** availability has declined long-term by about four fifths among 12th graders, from 72% in 1975 to 13% in 2018. Since 1980, when data were first collected for 19-22 year olds, tranquilizer availability has declined by over three fourths (from 67% in 1980 to 15% in 2018), such that previous differences in availability between these two groups were eliminated by 1992. The older young adult age groups have also shown a considerable decline in the availability of tranquilizers through 2018, thus narrowing the differences among them. For the most part, trend lines for the different age groups have been quite parallel, as has been true for sedatives (barbiturates). Indeed, tranquilizers have shown the most consistent pattern of change in perceived availability since MTF began. By 2018 only 13% at age 18 said that tranquilizers were fairly or very easy to get, and only 14% to 17% of the three young adult age bands said the same.

- Data on ***steroid*** availability were first gathered in 1990 (Table 7-4). There has been some decline in availability in all age groups since about 2000, including a sharper rate of decline in the youngest three age strata after 2007. (This question was not asked of those over 30.) While younger respondents used to report higher levels of availability than those in the older strata, by 2018 there was not much difference among them, with all age groups being at or near their lowest point in 2018 (from 20% to 23%).

TABLE 7-1
Trends in Proportions of Respondents Reporting Their Close Friends Disapproving of Drug Use among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Percentage saying friends disapprove [a]

Q. How do you think your close friends feel (or would feel) about you. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Trying marijuana once or twice	18	42.6	46.4	50.3	52.0	54.1	54.7	56.7	58.0	62.9	63.7	70.3	69.7	73.1	66.6	62.7	58.1	55.8	53.0	53.8
	19–22	41.0	40.6	46.9	47.1	51.6	54.5	55.2	54.7	58.7	63.0	63.6	64.7	64.7	63.4	63.7	58.5	64.3	58.4	57.0
	23–26	—	—	—	—	47.7	47.0	49.1	53.9	58.2	62.6	61.3	64.5	65.6	65.5	63.2	63.8	61.2	59.3	66.5
	27–30	—	—	—	—	—	—	—	—	58.6	58.7	61.4	64.6	63.5	64.4	66.3	66.1	65.8	65.0	65.4
Using marijuana occasionally	18	50.6	55.9	57.4	59.9	62.9	64.2	64.4	67.0	72.1	71.1	76.4	75.8	79.2	73.8	69.1	65.4	63.1	59.9	60.4
	19–22	50.9	49.2	54.0	57.9	59.4	64.6	64.4	65.1	69.8	71.5	74.1	73.9	74.3	73.1	73.0	66.6	71.3	65.1	65.1
	23–26	—	—	—	—	54.3	56.4	57.1	63.1	68.1	73.2	71.8	72.5	75.3	73.5	72.2	70.7	70.8	68.5	73.6
	27–30	—	—	—	—	—	—	—	—	67.8	69.4	71.9	73.7	76.0	75.1	76.4	73.8	75.6	72.4	74.9
Using marijuana regularly	18	72.0	75.0	74.7	77.6	79.2	81.0	82.3	82.9	85.5	84.9	86.7	85.9	88.0	83.5	80.6	78.9	76.1	74.1	74.7
	19–22	70.3	75.2	75.7	79.5	80.0	82.7	83.5	84.8	86.9	87.5	89.1	88.4	89.1	87.6	85.9	83.9	84.5	83.3	81.1
	23–26	—	—	—	—	77.8	78.4	80.9	82.0	85.8	89.2	88.1	87.9	90.3	89.1	88.8	84.9	89.5	85.6	87.1
	27–30	—	—	—	—	—	—	—	—	85.4	86.0	88.4	89.2	88.7	88.2	88.9	89.7	89.6	87.8	90.8
Trying LSD once or twice	18	87.4	86.5	87.8	87.8	87.6	88.6	89.0	87.9	89.5	88.4	87.9	87.9	87.3	83.5	83.4	82.6	80.8	79.3	81.7
	19–22	87.4	90.5	88.0	89.3	89.3	91.1	90.5	91.8	90.8	91.2	89.1	89.9	87.2	87.7	87.9	84.6	85.3	83.6	81.7
	23–26	—	—	—	—	87.4	90.8	88.6	89.8	88.9	91.0	90.1	92.4	88.9	87.7	86.3	85.3	88.5	85.4	87.6
	27–30	—	—	—	—	—	—	—	—	88.8	89.7	92.3	91.1	91.4	89.9	91.2	89.7	89.3	88.5	88.7
Trying cocaine once or twice	18	—	—	—	—	—	—	79.6	83.9	88.1	88.9	90.5	91.8	92.2	91.1	91.4	91.1	89.2	87.3	88.8
	19–22	—	—	—	—	—	—	76.4	—	84.8	87.7	89.2	92.3	91.9	92.4	94.7	91.7	91.5	91.8	90.0
	23–26	—	—	—	—	—	—	70.8	—	81.4	84.5	84.1	86.7	87.4	87.7	87.9	90.4	90.0	91.1	92.0
	27–30	—	—	—	—	—	—	—	—	81.8	81.1	83.7	83.5	84.4	86.1	87.8	87.5	88.7	89.4	89.3
Taking cocaine occasionally	18	—	—	—	—	—	—	87.3	89.7	92.1	92.1	94.2	94.7	94.4	93.7	93.9	93.8	92.5	90.8	92.2
	19–22	—	—	—	—	—	—	84.9	—	91.0	93.8	94.2	95.6	95.9	95.6	97.5	95.6	95.7	96.6	93.1
	23–26	—	—	—	—	—	—	81.7	—	88.2	91.5	92.4	94.1	93.8	93.5	94.3	94.6	95.4	95.1	95.2
	27–30	—	—	—	—	—	—	—	—	87.7	89.5	90.0	92.2	92.3	92.8	94.6	94.1	94.6	94.2	96.1
Trying an amphetamine once or twice	18	78.9	74.4	75.7	76.8	77.0	77.0	79.4	80.0	82.3	84.1	84.2	85.3	85.7	83.2	84.5	81.9	80.6	80.4	82.6
	19–22	75.8	76.7	75.3	74.3	77.0	79.7	81.5	81.3	83.0	83.5	84.5	86.5	83.8	85.0	87.2	83.1	86.0	84.5	84.0
	23–26	—	—	—	—	78.4	79.1	76.7	81.7	83.0	85.6	84.3	85.0	83.6	84.2	84.7	87.6	86.5	83.3	87.0
	27–30	—	—	—	—	—	—	—	—	82.7	84.1	84.9	84.6	84.7	84.1	85.9	85.5	85.6	85.9	85.8
Taking one or two drinks nearly every day	18	70.5	69.5	71.9	71.7	73.6	75.4	75.9	71.8	74.9	76.4	79.0	76.6	77.9	76.8	75.8	72.6	72.9	71.5	72.3
	19–22	71.9	72.1	68.6	73.5	71.6	72.2	72.7	70.2	73.9	77.1	73.3	73.7	74.0	71.2	73.0	68.3	68.9	73.5	67.3
	23–26	—	—	—	—	63.6	66.8	67.7	68.3	69.2	70.8	72.7	72.5	72.1	67.6	71.5	68.2	72.8	68.1	66.9
	27–30	—	—	—	—	—	—	—	—	71.0	68.0	70.4	71.9	68.8	73.2	70.9	68.8	65.7	67.3	66.7
Taking four or five drinks nearly every day	18	87.9	86.4	86.6	86.0	86.1	88.2	87.4	85.6	87.1	87.2	88.2	86.4	87.4	87.2	85.2	84.1	82.6	82.5	82.8
	19–22	93.7	91.7	89.9	91.9	91.7	92.5	91.5	90.8	90.4	92.5	89.9	91.7	92.6	89.6	90.1	88.8	88.1	90.0	85.9
	23–26	—	—	—	—	90.8	90.2	92.5	92.8	93.7	92.1	92.1	92.4	91.1	93.1	92.1	92.2	92.6	90.7	93.7
	27–30	—	—	—	—	—	—	—	—	92.8	92.0	92.9	92.7	92.7	93.9	94.0	92.9	91.9	93.8	92.1
Having five or more drinks once or twice each weekend	18	50.6	50.3	51.2	50.6	51.3	55.9	54.9	52.4	54.0	56.4	59.0	58.1	60.8	58.5	59.1	58.0	57.8	56.4	55.5
	19–22	53.5	51.7	51.7	53.3	50.8	53.3	47.0	49.4	50.5	56.8	53.1	51.4	53.6	51.9	54.4	55.5	52.1	56.4	52.8
	23–26	—	—	—	—	53.8	57.3	61.0	57.2	58.8	57.5	55.1	56.8	58.4	57.6	61.4	58.9	58.4	55.6	60.0
	27–30	—	—	—	—	—	—	—	—	61.9	65.1	66.3	68.2	66.2	66.7	63.7	64.6	61.6	64.0	63.0
Smoking one or more packs of cigarettes per day	18	74.4	73.8	70.3	72.2	73.9	73.7	76.2	74.2	76.4	74.4	75.3	74.0	76.2	71.8	72.4	69.2	69.3	68.5	69.0
	19–22	75.6	75.1	75.4	78.5	76.2	79.7	77.7	78.6	80.2	78.4	77.5	78.3	79.0	76.0	73.8	70.9	73.9	76.5	69.2
	23–26	—	—	—	—	73.9	77.3	80.3	80.5	79.5	80.5	78.5	83.3	82.3	77.4	80.1	78.8	78.3	75.8	76.5
	27–30	—	—	—	—	—	—	—	—	81.2	80.9	82.9	84.5	83.1	86.8	82.5	83.4	81.9	80.5	81.9
Approximate Weighted N =	18	*2,766*	*3,120*	*3,024*	*2,722*	*2,721*	*2,688*	*2,639*	*2,815*	*2,778*	*2,400*	*2,184*	*2,160*	*2,229*	*2,220*	*2,149*	*2,177*	*2,030*	*2,095*	*2,037*
	19–22	*569*	*597*	*580*	*577*	*582*	*556*	*577*	*595*	*584*	*555*	*559*	*537*	*520*	*510*	*470*	*480*	*471*	*466*	*436*
	23–26					*510*	*548*	*549*	*540*	*510*	*513*	*516*	*516*	*507*	*481*	*463*	*445*	*436*	*419*	*425*
	27–30									*483*	*518*	*479*	*480*	*451*	*451*	*457*	*439*	*439*	*422*	*440*

(Table continued on next page.)

TABLE 7-1 (cont.)
Trends in Proportions of Respondents Reporting Their Close Friends Disapproving of Drug Use among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. How do you think your close friends feel (or would feel) about you. . .	Age Group	Percentage saying friends disapprove [a]																				2017–2018 change
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Trying marijuana once or twice	18	55.1	58.1	57.6	54.1	58.4	59.5	60.9	62.3	60.4	60.8	61.4	54.9	53.0	52.9	51.2	50.4	51.0	48.6	44.3	45.8	+1.5
	19–22	56.5	56.0	54.2	53.4	56.5	61.0	57.9	60.5	58.4	62.4	57.0	57.4	52.4	54.6	52.2	50.7	46.7	40.5	41.1	34.9	-6.2
	23–26	62.6	64.6	55.2	53.8	51.4	57.7	55.9	60.7	55.8	62.1	57.1	58.0	55.5	59.3	50.2	50.1	43.7	44.7	40.0	39.1	-0.9
	27–30	61.8	63.9	64.9	67.1	61.9	67.2	61.2	64.1	58.2	57.1	55.6	60.5	57.1	56.8	48.2	49.5	45.5	42.1	41.6	39.5	-2.1
Using marijuana occasionally	18	61.6	63.9	64.3	60.3	64.2	65.0	67.6	68.1	65.8	66.3	68.5	61.8	59.4	59.5	57.6	56.2	58.1	54.9	51.4	53.2	+1.8
	19–22	64.6	61.8	61.0	62.6	63.3	70.1	67.2	68.8	70.6	67.5	65.9	67.1	60.6	60.9	59.0	59.5	54.1	48.0	48.4	40.0	-8.3
	23–26	70.2	70.9	63.9	64.5	61.6	63.5	65.5	71.3	63.8	70.1	66.8	63.4	64.7	69.3	60.9	57.6	54.9	52.6	49.1	45.2	-3.9
	27–30	74.5	75.0	74.2	72.9	71.4	76.9	70.4	74.9	66.4	67.0	64.6	68.3	64.9	67.1	59.7	60.1	57.8	51.5	48.4	45.8	-2.6
Using marijuana regularly	18	74.5	76.1	77.8	75.3	77.0	77.3	79.5	79.8	78.3	78.0	79.1	73.8	73.3	72.7	71.2	70.1	70.9	68.4	65.2	67.9	+2.7
	19–22	78.2	78.5	80.0	80.5	79.1	84.4	82.2	84.1	83.7	81.4	81.9	81.1	76.3	74.5	75.2	77.1	74.3	67.1	71.4	63.8	-7.6
	23–26	86.8	86.9	83.7	82.8	80.0	79.2	82.7	83.7	81.9	87.1	81.9	83.5	82.7	83.8	77.7	76.7	71.6	71.3	68.4	68.4	0.0
	27–30	89.2	91.6	90.1	87.9	87.2	88.0	87.7	88.2	84.3	84.5	83.4	87.5	83.4	86.1	80.8	81.5	76.2	74.8	68.1	66.1	-2.0
Trying LSD once or twice [b]	18	83.2	84.7	85.5	84.9	87.5	87.3	88.4	89.5	88.4	86.3	87.2	84.5	85.6	85.0	84.9	84.6	81.9	83.3	81.3	82.7	+1.4
	19–22	82.0	82.1	85.2	86.9	86.9	88.6	90.5	90.4	90.0	90.0	87.1	—	—	—	—	—	—	—	—	—	—
	23–26	84.5	85.3	82.8	83.6	79.3	82.4	85.6	89.3	90.4	88.4	88.3	—	—	—	—	—	—	—	—	—	—
	27–30	88.4	85.6	87.4	86.3	87.1	87.7	86.9	88.5	83.5	85.3	84.6	—	—	—	—	—	—	—	—	—	—
Trying cocaine once or twice [b]	18	88.7	90.2	89.3	89.1	91.2	87.9	89.0	88.7	89.6	88.7	90.2	89.7	89.7	89.2	89.2	88.6	87.0	89.1	88.5	88.7	+0.2
	19–22	91.2	89.4	89.1	91.7	90.6	90.3	90.3	91.2	93.3	90.2	91.2	—	—	—	—	—	—	—	—	—	—
	23–26	89.6	90.5	88.0	88.5	83.6	84.2	84.6	88.7	91.7	91.0	91.0	—	—	—	—	—	—	—	—	—	—
	27–30	90.5	90.4	89.3	88.8	89.9	91.8	89.5	92.0	86.4	88.0	84.5	—	—	—	—	—	—	—	—	—	—
Taking cocaine occasionally [b]	18	91.8	92.8	92.2	92.2	93.0	91.0	92.3	92.4	93.1	92.0	92.7	91.8	92.9	92.8	92.5	91.4	90.6	91.5	91.7	93.1	+1.3
	19–22	95.7	94.7	94.5	95.6	95.1	96.0	95.3	96.1	97.1	95.5	95.6	—	—	—	—	—	—	—	—	—	—
	23–26	95.2	96.7	94.7	93.2	91.2	90.1	93.0	94.9	95.9	96.6	95.6	—	—	—	—	—	—	—	—	—	—
	27–30	95.4	95.9	94.2	94.0	95.1	96.3	94.5	95.4	93.2	94.3	94.3	—	—	—	—	—	—	—	—	—	—
Trying an amphetamine once or twice [b]	18	83.0	84.1	83.8	83.3	85.9	84.7	86.1	86.7	87.3	87.1	87.0	85.8	84.6	83.7	83.5	83.2	83.2	83.2	83.7	84.5	+0.8
	19–22	85.8	81.6	84.5	87.6	87.6	89.4	88.9	89.4	89.1	90.2	87.4	—	—	—	—	—	—	—	—	—	—
	23–26	85.9	85.1	83.1	83.9	81.5	82.7	86.2	89.9	89.3	89.6	87.2	—	—	—	—	—	—	—	—	—	—
	27–30	87.2	87.8	86.4	86.0	87.9	88.9	87.5	88.5	82.9	85.3	85.6	—	—	—	—	—	—	—	—	—	—
Taking one or two drinks nearly every day [b]	18	71.7	71.6	73.4	71.6	74.7	72.8	74.0	73.2	74.5	75.2	75.5	75.0	74.9	74.0	75.4	74.0	76.3	76.3	77.3	77.8	0.5
	19–22	68.6	66.6	64.9	68.5	64.4	72.4	68.3	68.7	68.4	69.5	68.8	—	—	—	—	—	—	—	—	—	—
	23–26	66.1	65.4	64.4	61.6	62.1	61.8	62.3	66.1	62.5	63.4	59.4	—	—	—	—	—	—	—	—	—	—
	27–30	64.3	67.3	67.1	64.0	64.5	65.0	62.8	64.9	59.4	58.9	59.8	—	—	—	—	—	—	—	—	—	—
Taking four or five drinks nearly every day [b]	18	82.2	82.8	84.4	80.1	83.1	82.9	82.7	83.3	84.8	84.7	84.6	83.4	85.8	84.1	85.8	83.8	85.3	85.6	87.3	86.5	-0.8
	19–22	87.9	86.6	84.6	87.7	86.8	89.8	86.8	89.0	90.7	88.8	89.9	—	—	—	—	—	—	—	—	—	—
	23–26	89.9	92.5	91.1	88.1	89.3	87.8	89.1	90.8	87.8	93.8	89.1	—	—	—	—	—	—	—	—	—	—
	27–30	95.3	92.4	91.2	92.7	92.6	92.5	93.4	92.3	91.3	89.0	93.1	—	—	—	—	—	—	—	—	—	—
Having five or more drinks once or twice each weekend	18	57.6	57.7	57.8	55.6	60.3	59.4	59.9	60.6	60.0	62.1	63.5	62.0	62.2	62.3	65.2	65.6	68.5	70.7	69.0	72.1	+3.1
	19–22	51.8	45.2	47.4	50.4	47.9	52.4	53.2	54.8	54.4	55.2	54.6	47.7	48.7	53.9	53.0	54.5	50.4	51.9	54.7	55.5	+0.8
	23–26	54.5	56.6	56.9	52.9	49.5	49.5	51.9	56.0	51.3	55.3	51.0	51.2	50.7	53.4	48.5	52.3	49.7	51.1	52.1	51.9	-0.2
	27–30	57.7	65.8	58.8	63.3	59.6	64.6	56.9	62.7	56.3	57.3	52.7	52.9	50.6	53.7	52.7	57.1	52.8	54.1	56.4	53.7	-2.7
Smoking one or more packs of cigarettes per day	18	71.2	72.6	74.5	75.7	79.2	78.6	81.1	81.2	81.4	82.5	81.6	81.4	81.6	83.2	84.4	84.0	85.1	87.1	85.3	87.0	+1.7
	19–22	73.9	71.1	74.3	77.3	78.3	82.1	82.7	84.8	87.0	85.5	86.8	85.7	84.8	89.2	87.9	90.9	90.7	90.2	89.5	90.7	+1.2
	23–26	78.0	79.9	77.0	75.4	78.3	77.6	77.4	84.4	82.6	88.2	88.1	88.0	88.2	90.6	85.5	89.6	88.5	90.0	90.5	92.1	+1.7
	27–30	82.6	84.0	83.6	86.1	84.0	84.6	82.2	84.1	81.3	83.9	85.0	89.5	88.4	88.1	90.0	89.4	92.2	91.2	90.1	90.1	0.0
Approximate Weighted N =	18	*1,945*	*1,775*	*1,862*	*1,820*	*2,133*	*2,208*	*2,183*	*2,183*	*2,161*	*2,090*	*2,033*	*2,101*	*2,132*	*2,126*	*1,916*	*1,863*	*1,992*	*1,763*	*1,922*	*1,972*	
	19–22	*430*	*379*	*402*	*361*	*399*	*427*	*395*	*395*	*361*	*370*	*389*	*347*	*364*	*337*	*309*	*289*	*263*	*246*	*255*	*272*	
	23–26	*394*	*398*	*378*	*366*	*363*	*377*	*361*	*344*	*349*	*336*	*322*	*355*	*320*	*329*	*327*	*284*	*299*	*238*	*244*	*249*	
	27–30	*397*	*394*	*374*	*364*	*346*	*408*	*362*	*327*	*330*	*318*	*333*	*322*	*321*	*285*	*303*	*288*	*265*	*272*	*279*	*258*	

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

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. ' — ' indicates data not available.

[a] Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

[b] These questions were dropped from the questionnaires beginning in 2010.

TABLE 7-2
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take any illicit drug [b]																				
% saying any	18	87.5	85.4	86.3	82.6	81.0	82.4	82.2	81.7	79.1	76.9	71.0	69.1	67.3	71.0	78.3	78.6	80.6	83.4	84.6
	19–22	90.2	88.0	86.8	85.0	82.3	82.9	80.5	76.7	77.2	78.4	72.7	71.5	66.8	71.7	71.6	71.6	76.2	77.2	79.8
	23–26	—	—	—	—	83.6	82.7	80.3	80.9	74.4	73.8	65.8	63.0	67.3	64.6	66.7	65.3	64.6	67.0	67.6
	27–30	—	—	—	—	—	—	—	—	74.8	72.9	69.6	67.1	61.5	60.2	57.1	58.5	59.1	60.9	58.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	38.1	37.4	39.7	39.2	38.4
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.2
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	32.5	29.8	26.5	23.8	20.9	22.7	21.5	18.6	15.8	15.7	11.6	11.7	12.0	15.5	20.3	21.7	23.8	23.7	25.9
	19–22	34.9	32.8	28.1	22.4	21.9	18.2	16.2	14.0	13.5	10.9	10.5	8.8	9.0	10.4	14.9	13.1	17.3	16.2	16.8
	23–26	—	—	—	—	19.6	15.4	16.2	11.7	9.5	9.7	9.5	7.4	6.2	6.4	8.7	7.6	8.8	10.5	9.6
	27–30	—	—	—	—	—	—	—	—	8.6	6.4	5.9	2.9	5.8	5.0	5.6	6.1	3.6	4.5	5.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.1	1.9	2.0	3.0	3.1
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.3
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take any illicit drug other than marijuana [b]	18	62.4	63.3	64.7	61.2	61.3	61.8	63.3	62.4	56.5	56.2	50.1	46.3	47.1	48.7	53.7	53.7	54.5	55.1	55.6
% saying any	19–22	67.9	67.8	66.7	65.2	60.8	62.1	61.0	57.3	53.5	60.8	53.4	51.5	45.3	51.4	46.3	46.4	46.5	49.7	53.3
	23–26	—	—	—	—	63.7	64.0	59.0	61.1	55.1	54.2	47.8	41.8	46.1	42.3	39.4	40.3	32.8	35.1	35.4
	27–30	—	—	—	—	—	—	—	—	55.9	55.0	49.7	47.2	37.7	38.5	33.9	37.7	36.4	33.9	34.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.6	22.1	19.2	19.3
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.9
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	11.1	11.9	10.9	11.0	10.3	10.4	10.3	9.2	6.9	7.7	5.1	4.6	5.3	7.1	7.1	7.7	8.9	7.0	8.9
	19–22	9.8	12.9	11.8	9.8	9.3	8.6	7.6	5.0	5.3	4.0	3.2	2.6	3.3	4.0	4.4	3.5	6.2	4.1	4.3
	23–26	—	—	—	—	10.6	6.6	8.6	5.2	3.9	4.2	3.4	1.6	1.8	2.8	2.5	1.9	1.9	2.6	2.8
	27–30	—	—	—	—	—	—	—	—	4.6	3.0	2.8	1.0	1.4	1.5	1.5	1.5	0.9	1.2	0.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.5	0.7	0.5	0.7
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.4
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take any illicit drug [b,g]																						
% saying any	18	82.0	82.0	82.8	81.8	80.7	81.2	79.8	78.8	77.7	80.1	79.2	80.4	81.7	78.9	80.8	80.8	78.2	79.9	79.6	78.1	-1.5
	19–22	77.3	83.1	81.1	78.3	79.4	78.1	78.6	74.7	79.8	77.4	80.3	78.6	78.1	78.8	78.3	79.4	—	83.5	83.8	81.2	-2.6
	23–26	67.9	67.8	66.9	73.4	70.8	70.8	74.2	72.2	71.3	72.2	74.5	75.7	80.3	74.2	76.9	78.5	—	80.2	79.1	85.8	+6.8 s
	27–30	59.6	55.6	57.2	61.8	58.6	63.1	63.7	62.3	62.7	66.7	70.0	66.9	69.2	72.3	72.9	73.6	—	74.5	78.0	82.3	+4.3
	35	36.3	37.7	39.1	40.9	37.5	37.9	40.0	40.4	42.1	44.9	44.4	45.0	50.8	49.0	52.7	55.3	55.9	60.9	62.9	61.7	-1.2
	40	38.2	38.0	38.4	36.2	36.5	34.6	36.2	35.4	34.6	35.9	39.0	37.3	36.6	40.3	42.1	42.0	44.0	48.0	49.0	52.0	+3.0
	45	—	—	—	—	37.8	38.3	34.3	36.7	38.5	35.9	36.1	37.7	36.2	39.2	39.5	41.3	39.6	42.8	43.8	48.2	+4.3
	50	—	—	—	—	—	—	—	—	—	39.3	37.0	36.5	36.0	38.4	39.1	39.8	41.1	40.4	44.0	44.3	+0.3
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.2	36.2	38.0	38.7	41.7	41.2	-0.5
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	42.0	—
% saying most or all	18	25.5	24.5	25.2	23.1	23.5	23.0	20.2	20.9	21.7	21.3	22.4	25.4	29.1	26.4	26.7	24.6	28.0	24.9	26.1	26.7	+0.6
	19–22	20.6	18.9	20.3	20.2	17.3	14.7	15.8	16.8	14.5	13.7	16.0	17.2	21.8	17.3	22.1	20.5	—	22.3	25.5	27.1	+1.6
	23–26	8.4	9.7	10.4	10.3	10.3	11.7	9.7	11.1	8.1	8.9	12.7	13.9	10.5	9.1	13.6	15.3	—	14.0	18.3	19.5	+1.2
	27–30	5.7	5.3	7.1	6.9	6.9	3.9	4.7	5.4	6.5	6.3	6.4	6.6	7.1	6.8	6.7	8.3	—	9.1	10.3	13.9	+3.6
	35	2.8	3.1	3.2	2.9	3.2	2.8	2.5	2.1	2.2	2.2	2.5	3.7	4.5	3.3	4.7	5.1	6.4	6.3	6.5	8.9	+2.4
	40	2.0	2.0	1.6	2.2	1.6	1.6	2.1	2.5	2.0	1.3	1.3	2.1	1.9	1.2	2.3	3.3	3.4	4.1	3.9	4.6	+0.6
	45	—	—	—	—	2.2	1.5	1.4	1.7	1.3	1.3	1.2	1.5	1.2	1.0	1.5	1.9	1.6	2.2	2.1	3.2	+1.1
	50	—	—	—	—	—	—	—	—	—	1.4	1.4	1.4	1.8	1.8	1.0	1.4	1.9	2.0	1.4	2.2	+0.8
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	0.9	2.2	1.3	2.0	2.3	+0.3
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8	—
Take any illicit drug other than marijuana [b]																						
% saying any	18	51.2	52.5	55.0	54.3	50.0	51.4	51.3	51.0	50.0	49.3	49.4	53.7	49.9	48.9	45.4	43.7	41.2	44.2	40.3	41.1	+0.8
	19–22	54.8	56.1	60.0	57.2	50.8	53.4	54.9	49.5	52.5	46.4	47.5	52.0	52.0	49.3	52.4	50.3	—	46.2	51.2	54.3	+3.1
	23–26	41.1	42.5	42.6	49.4	42.3	47.1	46.6	45.6	42.6	45.9	44.4	52.4	50.5	46.6	45.3	53.3	—	50.3	49.6	54.3	+4.8
	27–30	35.2	31.7	33.5	36.0	34.7	35.8	33.1	36.2	34.2	36.4	41.6	40.1	40.9	50.1	44.6	48.2	—	45.1	50.7	52.2	+1.5
	35	19.0	17.9	18.7	20.4	18.5	20.2	18.5	18.1	20.7	23.7	20.2	23.9	26.4	25.7	25.2	26.5	27.2	28.3	29.3	27.8	-1.5
	40	21.0	21.9	21.4	21.0	20.2	18.5	21.0	20.3	20.3	19.8	20.6	18.8	17.4	20.2	18.7	17.9	21.3	23.5	20.3	19.6	-0.7
	45	—	—	—	—	23.4	25.1	20.8	22.7	25.0	21.2	20.7	20.9	21.5	22.6	20.9	19.7	18.3	18.3	19.8	21.5	+1.7
	50	—	—	—	—	—	—	—	—	—	24.5	24.8	21.7	22.8	22.2	20.1	21.3	20.5	18.9	20.7	20.3	-0.4
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.9	19.0	21.0	20.1	18.8	18.6	-0.2
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.2	—
% saying most or all	18	7.4	7.4	7.0	6.1	6.7	7.3	6.7	5.3	6.5	5.3	5.6	7.1	6.5	5.5	4.3	5.1	6.0	4.6	4.6	4.8	+0.2
	19–22	5.1	7.7	8.0	5.7	5.1	3.5	4.8	4.2	3.9	3.4	3.6	4.8	7.4	4.6	6.6	5.5	—	4.6	5.7	6.6	+0.9
	23–26	2.2	3.8	3.7	2.8	3.7	3.1	3.2	3.2	1.0	1.5	2.9	3.2	3.1	3.2	3.3	5.3	—	3.5	4.6	2.7	-1.9
	27–30	1.3	1.5	2.6	2.3	0.7	0.8	0.9	1.4	2.2	2.5	1.7	1.5	2.5	1.5	0.7	1.6	—	2.4	2.5	1.9	-0.6
	35	0.9	1.0	0.9	0.6	0.6	0.4	0.5	0.5	0.6	0.5	0.5	1.0	0.7	0.8	1.3	0.9	1.2	0.9	0.7	0.7	-0.1
	40	0.8	0.7	0.5	0.3	0.3	0.2	0.5	0.7	0.6	0.7	0.3	*	0.2	0.1	0.2	0.4	0.6	0.4	0.5	0.4	-0.1
	45	—	—	—	—	0.7	0.7	0.4	0.9	0.5	0.5	0.3	0.3	0.1	0.2	0.4	0.5	0.2	0.3	0.5	0.6	+0.1
	50	—	—	—	—	—	—	—	—	—	0.5	0.4	0.3	0.8	0.4	0.2	0.3	0.3	0.5	0.2	0.2	+0.1
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.4	0.4	0.4	0.3	0.2	0.2	0.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Use marijuana																				
% saying any	18	86.4	83.0	84.4	80.3	77.7	79.5	79.2	78.4	75.3	72.5	68.3	65.8	63.1	67.4	75.6	76.1	78.0	81.4	83.2
	19–22	88.8	86.4	85.2	83.8	81.6	81.1	78.5	75.3	75.1	73.8	67.6	68.0	63.5	67.6	67.4	68.8	74.9	74.7	77.2
	23–26	—	—	—	—	82.0	80.8	77.7	79.4	71.6	69.8	61.8	59.6	61.3	61.2	62.6	63.2	62.6	63.5	65.0
	27–30	—	—	—	—	—	—	—	—	71.8	68.2	65.1	62.6	58.0	57.4	52.3	55.7	55.1	58.3	55.5
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.9	36.3	36.3	35.0	34.6
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.6
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	31.3	27.7	23.8	21.7	18.3	19.8	18.2	15.8	13.6	13.4	10.1	10.0	10.3	13.9	18.9	20.7	22.2	22.5	23.8
	19–22	34.1	30.6	25.6	20.6	19.4	16.0	13.3	12.5	12.2	9.0	9.2	8.3	8.2	8.5	13.0	12.5	16.3	16.2	16.4
	23–26	—	—	—	—	17.0	14.3	13.7	10.4	7.8	8.6	8.3	6.9	5.6	5.6	7.5	6.6	8.2	9.8	9.0
	27–30	—	—	—	—	—	—	—	—	6.8	4.4	4.0	2.8	5.1	5.2	5.0	5.6	3.5	3.9	4.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	2.5	2.9	2.9	2.8
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.1
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Use inhalants																				
% saying any	18	17.8	16.5	18.4	16.1	19.3	21.2	22.4	24.7	20.8	22.1	20.0	19.2	22.2	23.7	26.5	27.5	27.2	27.4	25.9
	19–22	11.9	13.2	13.8	12.3	11.7	9.6	10.9	12.7	10.9	11.7	13.0	12.2	12.6	13.8	14.0	14.2	16.2	13.7	16.2
	23–26	—	—	—	—	7.7	6.7	7.2	6.1	6.2	5.9	6.1	4.4	5.1	6.3	7.0	9.3	5.6	7.5	6.2
	27–30	—	—	—	—	—	—	—	—	4.6	3.5	2.9	2.5	3.3	2.9	3.5	4.0	4.1	3.6	3.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.2	0.9	1.3	1.1	1.1	1.5	2.0	1.9	1.2	1.9	1.0	0.7	1.8	1.8	2.0	2.0	2.4	1.9	2.7
	19–22	0.5	0.4	0.7	0.3	0.5	0.6	0.7	0.7	0.7	0.4	0.6	0.2	0.8	0.7	0.7	0.6	1.1	0.7	1.3
	23–26	—	—	—	—	0.6	0.2	0.6	0.1	0.2	0.4	0.4	0.1	*	0.1	0.2	0.7	0.5	0.8	*
	27–30	—	—	—	—	—	—	—	—	0.3	*	0.2	0.2	*	0.2	*	*	*	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Use marijuana																						
% saying any	18	80.7	80.5	81.2	79.4	78.9	79.5	77.4	76.4	74.8	78.2	77.2	79.7	80.6	77.7	80.2	79.3	76.9	78.9	78.2	76.5	-1.7
	19–22	73.9	81.2	78.4	77.2	76.5	75.6	75.8	72.0	76.6	74.7	77.7	75.6	74.7	76.8	76.2	77.5	78.4	82.9	82.8	79.4	-3.4 s
	23–26	64.4	64.8	64.5	68.8	67.7	68.4	70.7	67.6	69.0	67.7	71.7	71.9	77.5	71.5	73.4	74.7	74.6	79.2	77.5	84.4	+7.0
	27–30	57.0	51.7	56.5	59.0	55.8	60.4	60.8	61.0	60.2	64.2	65.2	62.3	65.9	66.6	69.2	69.4	76.2	72.2	76.2	80.0	3.8
	35	33.3	34.9	35.6	37.4	32.9	34.7	37.2	37.3	38.6	42.1	40.6	41.3	47.4	45.1	48.8	54.0	53.4	57.0	60.7	60.1	-0.7
	40	32.5	32.3	31.8	31.4	30.7	29.9	30.4	29.4	29.2	29.6	33.6	32.1	32.4	35.8	38.0	38.2	39.4	45.0	46.4	49.7	+3.3
	45	—	—	—	—	31.1	29.4	26.3	28.4	30.0	28.6	29.4	32.6	30.3	33.0	34.5	36.4	34.8	37.6	40.4	45.7	+5.3 s
	50	—	—	—	—	—	—	—	—	—	30.1	26.9	28.0	27.9	31.3	33.0	34.0	36.2	36.1	39.4	40.5	+1.1
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.5	28.9	31.6	31.9	37.0	36.6	-0.5
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.3	—
% saying most or all	18	24.2	23.2	24.0	21.4	21.7	21.1	17.9	19.6	19.2	19.9	20.9	23.6	27.3	25.0	25.7	23.4	25.9	23.8	24.3	25.7	1.4
	19–22	19.4	16.6	18.5	18.6	16.0	15.0	13.4	15.7	13.4	11.5	14.5	15.4	19.1	16.2	19.7	18.3	23.1	20.5	23.9	26.3	2.4
	23–26	8.5	8.2	9.0	8.7	9.3	9.8	8.0	10.1	7.9	8.5	12.2	12.3	9.6	8.3	12.8	13.7	17.1	12.8	15.2	17.1	+1.9
	27–30	5.5	4.9	6.3	6.2	6.7	3.5	4.3	5.0	6.6	5.0	5.8	6.3	5.8	5.6	6.6	7.8	7.4	8.0	9.4	12.7	+3.3
	35	2.6	2.8	2.6	2.7	3.1	2.7	2.3	2.0	2.1	1.9	2.3	3.4	4.2	2.9	4.3	4.9	6.2	6.1	6.1	8.4	+2.3
	40	1.4	1.9	1.2	2.0	1.4	1.6	1.8	2.1	1.6	0.9	1.2	2.1	1.7	1.2	2.1	3.1	3.1	3.8	3.9	4.5	+0.6
	45	—	—	—	—	1.9	0.9	1.3	1.1	1.0	1.0	1.1	1.3	1.1	0.9	1.3	1.6	1.5	2.1	2.0	2.9	+0.9
	50	—	—	—	—	—	—	—	—	—	1.2	1.2	1.2	1.3	1.5	1.0	1.2	1.6	1.6	1.4	2.2	+0.9
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8	0.7	1.9	1.1	1.9	2.2	0.3
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	—
↓																						
Use inhalants																						
% saying any	18	21.6	23.5	22.2	21.0	17.5	17.9	18.1	18.9	17.9	18.0	18.0	19.0	16.4	12.3	12.1	9.4	8.7	8.8	7.2	9.0	+1.8
	19–22	16.3	13.7	13.7	10.4	10.0	9.5	11.1	11.0	9.6	7.4	6.6	8.3	11.9	8.2	7.3	5.5	7.5	3.5	5.4	6.6	1.2
	23–26	7.9	6.9	7.5	7.4	7.9	6.2	5.8	5.2	3.7	6.1	6.5	6.0	4.8	5.4	4.1	4.4	2.7	4.1	5.3	3.7	-1.6
	27–30	4.2	3.6	6.0	4.5	3.2	2.6	3.2	3.3	2.8	2.7	3.6	1.7	3.2	3.8	2.9	5.4	1.7	3.7	4.2	4.7	+0.5
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.8	1.4	1.4	1.2	1.1	1.2	2.0	1.2	1.6	1.1	0.9	1.8	1.4	0.9	1.1	0.7	0.8	0.8	0.7	1.1	+0.4
	19–22	0.8	0.6	1.2	0.4	0.6	*	0.1	0.5	0.3	0.6	*	0.6	0.6	0.1	0.9	*	0.5	*	*	0.8	0.8
	23–26	0.1	0.7	0.1	0.4	0.3	*	0.1	0.3	*	*	*	0.1	0.1	*	0.3	0.3	*	*	0.4	*	-0.4
	27–30	*	*	0.3	0.3	*	*	*	*	*	0.3	0.3	*	0.3	*	0.1	0.5	*	*	0.4	*	-0.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Use nitrites																				
% saying any	18	19.0	17.4	17.5	14.5	15.0	15.6	18.0	18.3	13.6	13.3	10.4	8.9	9.0	10.7	10.0	10.7	11.2	11.9	12.9
	19–22	18.4	16.0	14.2	13.8	8.9	9.9	11.7	13.2	10.2	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	10.8	7.8	8.0	7.9	5.2	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	6.6	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.3	1.2	0.9	0.7	1.2	1.0	1.2	1.3	0.7	0.9	0.6	0.4	0.7	0.7	0.8	0.8	0.8	0.7	1.0
	19–22	0.3	0.4	0.9	0.6	0.6	0.6	0.4	0.4	0.2	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	0.8	0.3	0.4	0.3	0.1	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	0.5	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take LSD																				
% saying any	18	28.1	28.5	27.8	24.0	23.9	24.4	24.5	25.3	24.1	25.2	25.0	23.4	28.1	31.3	34.1	36.9	37.9	36.5	36.8
	19–22	30.9	25.9	26.5	22.6	21.6	18.8	18.7	18.2	19.0	20.1	20.1	22.0	22.2	28.8	23.8	26.9	28.6	24.7	29.4
	23–26	—	—	—	—	21.5	17.2	15.4	15.9	13.3	14.1	12.3	12.5	15.0	17.2	17.3	21.5	15.3	18.2	15.2
	27–30	—	—	—	—	—	—	—	—	10.4	7.7	9.1	8.6	10.9	8.7	8.1	12.0	11.6	12.3	12.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.8	2.2	2.4	1.4	2.0	1.5	1.8	1.6	1.5	2.4	1.9	1.7	2.4	3.8	4.2	4.8	5.0	3.7	4.7
	19–22	1.2	0.8	0.9	1.0	0.6	0.8	0.9	0.6	1.3	0.4	1.2	1.4	1.9	2.1	2.5	2.3	3.8	1.4	2.5
	23–26	—	—	—	—	0.8	0.5	1.0	0.2	0.6	0.5	0.6	0.2	0.4	0.7	1.1	0.7	0.7	0.6	1.0
	27–30	—	—	—	—	—	—	—	—	0.3	0.2	0.3	0.3	*	0.3	0.4	0.3	0.4	0.4	0.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a]																				2017–2018 change
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Use nitrites																						
% saying any	18	10.9	11.0	11.9	11.2	8.5	9.4	9.1	8.1	7.7	7.3	7.7	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	0.7	1.0	0.6	0.8	1.0	1.2	1.0	0.5	0.7	0.5	0.2	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take LSD																						
% saying any	18	32.2	31.9	32.2	28.6	21.9	23.5	19.5	18.7	18.3	20.9	21.3	22.3	22.5	21.3	17.7	18.0	18.9	22.7	20.1	21.5	+1.4
	19–22	28.2	27.8	28.4	24.0	15.4	15.9	13.9	14.2	15.1	12.5	12.8	16.0	18.0	15.7	23.3	17.1	22.0	17.1	26.3	27.8	+1.5
	23–26	18.1	19.3	16.8	15.8	16.1	14.4	12.0	11.7	11.2	9.2	11.0	11.9	10.2	11.5	13.4	16.7	16.8	17.0	22.7	20.7	-2.0
	27–30	13.4	11.8	12.5	13.1	11.4	8.9	6.6	9.1	7.6	8.8	7.6	8.2	7.6	7.7	10.6	9.7	8.4	12.8	14.3	16.1	+1.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	3.9	3.1	2.9	1.7	1.9	1.5	1.5	0.8	1.2	1.1	1.1	1.5	1.4	1.3	1.2	1.2	1.6	1.0	1.5	2.0	+0.5
	19–22	1.8	2.1	2.7	1.6	0.8	0.3	0.3	0.2	0.8	0.2	0.3	1.4	0.7	1.0	1.0	0.9	1.8	0.7	0.9	1.2	+0.3
	23–26	1.5	0.9	0.3	0.4	0.8	0.4	0.2	0.3	*	0.1	0.5	0.1	0.6	0.4	0.3	0.6	0.4	0.4	1.0	0.4	-0.6
	27–30	0.6	0.4	0.4	0.3	0.1	*	0.3	0.4	0.4	*	0.5	0.2	0.1	*	*	0.3	*	*	0.4	0.7	+0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take other hallucinogens [c]	18	28.2	26.3	25.6	22.1	21.3	22.0	22.3	21.7	17.8	18.1	15.9	15.1	17.0	19.3	21.4	23.8	26.4	26.3	26.3
% saying any	19–22	33.4	25.5	25.1	21.0	20.2	16.6	15.8	15.0	16.1	13.9	15.3	14.2	12.0	15.0	13.8	14.9	17.2	17.2	17.2
	23–26	—	—	—	—	20.0	16.7	13.2	13.2	11.7	9.6	8.7	8.5	9.8	9.4	10.3	11.7	10.4	13.0	13.0
	27–30	—	—	—	—	—	—	—	—	10.6	7.4	7.1	6.8	7.9	7.1	6.6	7.9	7.5	6.8	6.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.2	2.1	1.9	1.6	1.9	1.4	1.3	1.2	0.9	1.4	1.0	0.8	1.0	1.7	2.2	2.2	2.3	2.6	2.6
	19–22	1.5	0.9	1.1	1.2	0.7	1.0	0.7	0.6	0.9	0.2	0.5	0.8	0.7	0.9	1.6	1.5	1.0	1.1	1.1
	23–26	—	—	—	—	0.8	0.3	0.5	0.3	0.2	0.3	0.8	0.1	0.4	0.7	0.6	0.8	0.1	0.8	0.8
	27–30	—	—	—	—	—	—	—	—	0.2	0.1	0.3	0.2	*	0.2	0.3	0.1	0.2	0.3	0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take PCP																				
% saying any	18	22.2	17.2	17.3	14.2	14.2	15.9	16.1	15.5	13.5	14.7	13.0	12.0	12.7	15.6	15.5	18.3	20.3	19.7	19.7
	19–22	24.1	15.3	15.3	12.6	9.5	8.9	10.1	9.7	10.1	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	11.6	6.8	7.4	6.9	5.1	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	6.7	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.6	0.9	0.9	1.1	1.1	1.2	1.2	1.1	0.8	1.2	0.5	0.5	0.9	1.9	1.2	1.2	1.3	1.4	1.4
	19–22	0.5	0.3	0.3	0.5	0.7	0.7	0.2	0.1	0.3	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	0.6	*	0.4	*	0.2	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	0.4	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take other hallucinogens [c]	18	22.5	24.0	35.4	33.6	30.1	31.9	31.0	30.1	30.1	29.4	30.5	32.3	31.8	29.5	26.9	22.0	22.1	23.7	20.0	21.5	+1.5
% saying any	19–22	18.9	20.9	33.6	33.5	24.8	26.8	25.1	27.8	26.7	21.9	21.8	26.4	26.4	22.6	28.3	19.9	27.1	23.2	26.8	31.6	+4.8
	23–26	9.6	11.3	18.6	22.4	20.2	24.5	18.5	18.9	15.9	21.1	19.6	22.6	16.5	17.5	17.4	25.5	20.3	21.1	24.2	24.2	0.0
	27–30	9.4	8.0	14.6	14.9	13.5	12.4	9.4	14.9	10.6	16.9	12.1	14.9	13.9	17.1	16.5	15.6	18.8	17.3	19.4	20.2	+0.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.4	2.4	2.9	2.3	2.4	2.6	2.2	1.7	1.7	1.8	1.6	2.0	2.1	2.0	1.6	1.6	1.7	1.0	1.2	1.7	+0.4
	19–22	0.8	2.0	2.3	2.2	1.5	1.1	0.6	0.9	1.0	1.3	0.6	0.9	0.7	0.8	1.0	1.0	1.3	0.7	0.9	1.0	+0.1
	23–26	0.8	0.3	0.6	0.7	1.0	0.8	0.7	1.0	0.4	0.4	1.2	0.2	0.7	0.5	1.2	1.1	0.5	0.6	1.4	0.4	-1.0
	27–30	0.2	0.4	0.6	1.0	0.1	*	0.4	0.4	0.4	0.4	0.6	0.7	0.5	0.3	0.4	0.1	*	0.3	0.4	0.7	+0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take PCP																						
% saying any	18	16.8	17.5	19.1	17.2	13.6	11.8	10.1	10.6	9.4	9.4	9.3	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.5	1.7	1.3	1.0	1.5	1.1	1.0	0.5	0.8	0.5	0.5	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take ecstasy (MDMA)																				
% saying any	18	—	—	—	—	—	—	—	—	—	—	12.4	11.9	10.7	12.8	15.9	20.7	24.2	27.7	27.7
	19–22	—	—	—	—	—	—	—	—	—	16.3	14.3	12.0	12.9	13.7	11.3	17.2	20.7	21.4	21.4
	23–26	—	—	—	—	—	—	—	—	—	7.6	9.0	9.5	11.0	9.8	11.4	11.2	11.3	15.1	15.1
	27–30	—	—	—	—	—	—	—	—	—	5.6	6.3	5.4	4.6	6.6	5.8	6.9	10.1	7.4	7.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	—	—	—	—	—	—	—	—	—	—	2.2	1.7	2.1	1.2	1.7	2.8	3.0	2.6	2.6
	19–22	—	—	—	—	—	—	—	—	—	0.4	0.7	0.2	0.7	0.7	0.5	0.5	0.8	1.7	1.7
	23–26	—	—	—	—	—	—	—	—	—	0.5	0.2	0.1	0.1	0.5	0.1	0.4	0.1	0.8	0.8
	27–30	—	—	—	—	—	—	—	—	—	0.5	0.3	*	0.1	0.3	0.2	0.5	0.1	0.3	0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cocaine																				
% saying any	18	41.6	40.1	40.7	37.6	38.9	43.8	45.6	43.7	37.7	37.4	31.7	26.8	26.3	24.5	26.1	24.8	28.1	28.2	31.2
	19–22	51.0	48.9	49.8	46.5	47.6	45.9	48.3	45.7	42.0	42.7	33.2	29.7	22.8	24.3	21.5	22.0	19.4	22.2	26.8
	23–26	—	—	—	—	52.4	53.2	51.6	50.7	47.1	40.8	34.8	29.0	28.8	27.1	22.3	24.4	18.1	19.7	18.7
	27–30	—	—	—	—	—	—	—	—	47.9	43.3	38.3	35.7	29.9	27.6	22.6	26.2	20.8	21.5	18.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	6.1	6.3	4.9	5.1	5.1	5.8	6.2	5.1	3.4	3.7	2.1	1.5	1.5	2.1	1.5	2.0	2.2	2.0	3.2
	19–22	7.0	8.6	7.8	6.1	6.3	6.1	6.1	3.3	3.5	2.1	1.2	1.1	1.0	0.5	1.5	0.9	1.0	0.8	1.5
	23–26	—	—	—	—	9.1	5.3	7.0	4.1	3.1	2.7	2.1	0.6	0.9	0.8	1.0	0.3	0.4	1.1	0.9
	27–30	—	—	—	—	—	—	—	—	3.8	2.0	2.3	0.9	1.2	0.8	0.8	0.4	0.4	0.6	0.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take ecstasy (MDMA)																						
% saying any	18	26.7	37.3	41.9	38.0	34.2	28.9	23.1	23.0	23.6	24.7	23.5	25.9	27.5	26.8	25.6	24.3	26.3	24.4	22.4	19.4	-3.0
	19–22	30.7	42.4	43.3	43.4	31.3	27.6	28.3	25.2	21.6	19.3	24.4	20.4	22.0	18.9	27.4	19.9	—	23.8	26.5	23.2	-3.4
	23–26	15.2	25.9	29.4	36.8	27.0	31.2	25.3	23.4	16.5	20.8	19.7	20.7	19.5	18.8	19.1	22.7	—	24.9	29.0	28.7	-0.2
	27–30	12.4	13.1	17.8	20.6	19.4	20.6	15.6	22.6	15.9	17.8	17.0	12.7	10.6	15.8	13.5	17.7	—	20.5	24.1	25.9	+1.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.7	4.8	5.2	3.7	2.7	3.2	2.5	1.9	2.1	2.4	2.2	2.1	2.7	2.7	1.8	2.3	2.0	1.0	1.2	1.7	+0.4
	19–22	2.9	4.9	5.8	2.7	1.9	1.9	1.1	0.7	0.8	0.9	1.6	1.3	2.9	1.2	2.0	1.5	—	2.6	1.3	1.3	0.0
	23–26	0.4	2.9	1.7	1.2	2.0	1.1	1.3	0.9	0.3	0.4	0.7	0.6	0.4	1.7	1.0	2.2	—	0.6	0.4	1.0	+0.6
	27–30	0.8	0.4	0.3	0.9	0.5	0.6	0.2	*	0.1	0.9	0.7	0.1	0.5	0.3	0.1	0.8	—	1.3	0.4	0.2	-0.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cocaine																						
% saying any	18	27.8	27.2	27.1	26.8	23.8	29.3	28.1	29.7	29.7	25.2	24.0	22.9	18.8	18.1	18.8	17.9	18.3	16.9	17.0	18.1	+1.1
	19–22	25.7	24.8	27.4	28.2	25.5	26.2	27.2	26.6	29.4	21.8	21.2	21.8	22.3	15.9	19.5	20.5	21.4	18.2	24.6	29.5	+4.9
	23–26	20.1	20.3	19.4	23.7	21.9	27.4	25.6	24.6	23.1	23.1	23.5	28.0	23.7	21.6	18.9	20.3	22.0	22.2	28.5	34.9	+6.4
	27–30	20.7	16.5	19.7	16.0	17.0	17.0	17.9	19.5	18.6	20.7	22.1	19.2	16.1	21.6	18.4	20.8	24.7	22.4	23.4	25.3	+1.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.9	2.0	1.7	1.7	2.4	2.3	2.3	1.9	2.1	1.2	1.8	1.4	1.0	0.8	1.1	0.8	1.5	0.9	1.1	1.0	-0.2
	19–22	1.1	1.0	1.8	1.0	1.4	0.7	2.1	1.0	1.1	1.3	0.5	0.2	0.5	0.3	0.9	0.6	1.1	0.8	2.6	1.9	-0.6
	23–26	0.5	0.8	1.6	1.0	1.6	1.0	1.5	1.4	0.8	0.6	1.7	0.9	0.4	0.6	0.9	1.1	1.0	0.6	2.0	0.2	-1.9 s
	27–30	0.4	0.4	0.5	0.6	0.3	0.3	*	*	1.4	0.9	0.7	0.2	0.5	0.6	0.5	0.4	0.4	0.5	0.8	0.6	-0.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take crack																				
% saying any	18	—	—	—	—	—	—	—	27.4	25.4	26.1	19.2	17.6	17.8	17.9	20.0	19.2	21.6	22.2	24.4
	19–22	—	—	—	—	—	—	—	23.8	21.8	20.6	14.6	14.3	11.8	13.6	13.8	14.0	9.4	13.1	16.4
	23–26	—	—	—	—	—	—	—	26.4	22.4	19.8	14.4	10.8	10.8	8.8	8.8	11.1	8.2	8.3	8.3
	27–30	—	—	—	—	—	—	—	—	22.1	18.4	16.6	11.6	10.3	10.2	10.4	10.3	8.6	6.3	6.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.5	5.1	4.4	3.1	2.8
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.8
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	—	—	—	—	—	—	—	2.2	1.1	2.1	0.6	0.6	0.7	0.9	1.0	1.1	0.9	1.1	1.7
	19–22	—	—	—	—	—	—	—	0.7	0.8	1.0	0.6	0.2	0.1	0.3	0.4	0.3	0.5	0.3	0.9
	23–26	—	—	—	—	—	—	—	0.8	0.9	0.8	0.5	0.1	0.1	0.5	0.2	*	0.3	0.5	0.4
	27–30	—	—	—	—	—	—	—	—	1.2	0.9	0.9	0.3	*	0.6	0.3	0.1	0.2	0.2	0.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.6	0.3	0.4	*	0.1
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cocaine powder																				
% saying any	18	—	—	—	—	—	—	—	—	—	25.3	24.6	19.8	19.7	18.1	20.7	19.2	22.8	24.8	22.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	12.9	15.4	11.1	10.4
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.8
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	—	—	—	—	—	—	—	—	—	2.3	2.5	1.8	2.0	1.6	1.9	1.7	1.9	2.0	1.9
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.3	0.6	0.4	0.4
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take crack																						
% saying any	18	19.0	21.4	23.4	21.5	18.7	22.5	22.9	22.3	21.8	19.1	18.8	15.2	12.1	10.4	10.3	9.0	10.1	8.0	8.0	8.6	0.6
	19–22	15.7	16.5	17.4	18.0	11.8	16.0	14.9	14.5	16.0	12.2	11.3	7.2	8.3	5.1	8.3	6.9	—	5.9	4.9	8.1	+3.2
	23–26	8.8	7.9	8.6	10.1	10.4	10.8	10.8	10.0	8.7	9.8	8.5	7.0	6.7	6.5	7.5	5.0	—	5.4	8.4	10.8	+2.4
	27–30	8.7	6.0	7.1	6.4	6.5	5.2	8.5	9.1	6.9	5.8	9.5	3.6	4.2	3.6	4.6	4.2	—	4.8	5.2	5.6	+0.4
	35	3.2	3.9	2.8	3.2	2.8	3.1	2.6	2.8	3.0	2.8	2.5	3.4	2.1	1.3	2.9	3.5	3.4	2.6	2.1	—	—
	40	3.0	2.9	3.5	2.6	2.7	2.6	2.8	2.3	3.1	1.9	1.2	1.5	1.2	1.2	1.2	2.1	1.9	1.1	1.2	—	—
	45	—	—	—	—	3.7	3.3	2.4	3.0	2.9	1.8	2.3	2.2	1.8	1.6	2.1	1.2	1.0	1.0	0.5	—	—
	50	—	—	—	—	—	—	—	—	—	2.0	1.6	1.8	1.4	1.1	1.2	1.9	1.3	0.9	0.9	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.1	1.2	1.1	0.9	0.8	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.5	1.4	0.8	0.8	1.4	1.6	1.6	1.0	1.3	1.1	1.1	1.5	0.9	0.8	0.9	0.8	1.0	0.7	1.0	0.8	-0.2
	19–22	0.9	0.5	0.3	0.2	0.4	0.1	1.0	0.8	0.3	0.4	0.3	*	0.3	0.3	0.6	0.1	—	0.4	*	0.4	+0.4
	23–26	*	0.5	0.3	*	0.3	0.5	0.2	0.7	0.1	0.3	*	0.4	0.1	*	0.3	0.1	—	1.2	0.9	*	-0.9
	27–30	*	*	*	0.3	0.1	*	0.1	*	0.3	0.6	0.3	*	*	*	0.5	*	—	0.2	0.4	*	-0.4
	35	0.3	0.5	0.2	0.3	0.3	0.1	0.2	0.2	0.2	*	0.1	0.3	*	0.1	*	*	0.3	0.2	0.1	—	—
	40	0.2	0.2	0.1	*	*	*	0.1	0.2	0.1	0.0	*	*	*	*	0.1	*	0.3	*	0.1	—	—
	45	—	—	—	—	0.4	0.3	0.2	0.2	*	*	0.1	*	*	0.1	0.1	0.2	*	0.1	*	—	—
	50	—	—	—	—	—	—	—	—	—	0.2	0.1	0.2	0.1	0.0	0.2	0.1	*	0.2	0.1	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.0	0.2	0.0	0.1	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take cocaine powder																						
% saying any	18	22.0	21.3	20.1	22.4	23.2	25.4	23.2	22.8	22.3	22.6	19.1	17.6	15.9	17.4	15.6	15.4	14.7	16.0	17.1	15.8	-1.3
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	10.0	10.3	9.4	9.4	8.2	9.2	8.3	8.4	9.1	11.4	8.7	10.5	12.8	9.0	11.6	12.8	13.2	12.0	13.4	15.4	+2.0
	40	8.9	8.8	8.8	8.5	7.6	7.6	8.9	7.3	6.7	6.2	6.5	4.9	4.8	5.2	6.6	6.6	6.2	8.1	7.3	8.5	+1.1
	45	—	—	—	—	8.3	8.0	7.0	7.4	8.0	6.7	6.4	5.9	5.8	6.0	6.0	5.2	4.6	4.8	4.8	8.1	+3.3 ss
	50	—	—	—	—	—	—	—	—	—	6.0	5.4	5.3	4.9	4.9	4.4	4.6	5.1	4.3	4.5	5.8	+1.3
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1	3.0	3.8	3.5	3.9	4.9	1.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1	—
% saying most or all	18	1.9	1.8	1.5	1.9	1.9	3.3	1.7	1.7	1.8	1.5	1.5	1.0	1.6	1.5	1.2	1.8	1.2	2.2	2.2	2.1	-*
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	0.6	0.7	0.4	0.4	0.4	0.2	0.2	0.2	0.4	0.2	0.2	0.4	0.0	0.1	0.7	0.1	0.8	0.4	0.6	0.3	-0.3
	40	0.2	*	0.2	0.1	0.1	0.1	0.2	0.5	0.2	0.2	0.1	*	*	*	*	*	0.3	*	0.2	0.1	-0.1
	45	—	—	—	—	0.5	0.5	0.2	0.4	0.1	0.1	*	*	*	0.1	0.3	0.2	*	0.1	0.3	0.3	+0.1
	50	—	—	—	—	—	—	—	—	—	0.2	0.2	0.2	0.0	0.0	0.1	0.2	*	0.4	0.1	0.1	0.0
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.1	0.2	0.1	0.1	0.1	0.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take heroin																				
% saying any	18	13.0	12.5	13.2	12.0	13.0	14.5	15.3	13.9	12.4	14.0	11.4	11.4	13.2	13.3	14.3	14.5	15.6	15.6	16.5
	19–22	11.0	8.1	9.4	7.5	7.1	6.5	8.5	8.5	7.8	6.8	6.5	6.1	4.7	7.0	8.1	10.4	6.7	7.4	9.4
	23–26	—	—	—	—	6.1	4.4	4.3	6.5	3.6	5.2	4.2	3.6	3.8	4.5	4.9	5.8	4.0	6.2	5.8
	27–30	—	—	—	—	—	—	—	—	3.8	2.8	4.5	2.7	3.1	3.6	4.2	3.6	4.4	4.2	3.5
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.0	0.5	0.7	0.8	0.8	0.9	1.1	0.9	0.7	1.1	0.4	0.4	0.7	1.1	1.0	1.1	0.9	0.8	1.3
	19–22	0.3	0.5	0.1	0.2	0.4	0.6	0.2	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.4	0.4	0.4	0.2	0.5
	23–26	—	—	—	—	0.4	0.2	0.2	*	0.2	0.4	0.2	0.3	0.4	0.1	0.2	0.2	*	0.7	*
	27–30	—	—	—	—	—	—	—	—	0.2	0.1	0.2	0.2	*	0.2	0.3	*	*	*	0.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take other narcotics [d]																				
% saying any	18	22.4	23.1	23.9	20.8	21.4	22.8	21.8	23.2	19.2	19.2	17.2	13.7	14.9	16.1	18.5	19.5	21.8	22.2	24.8
	19–22	22.8	20.4	21.9	17.9	17.4	16.9	14.6	15.4	14.1	15.0	12.9	14.1	10.8	13.2	10.5	15.9	13.4	13.2	15.2
	23–26	—	—	—	—	16.0	14.9	14.0	13.0	10.6	10.8	10.5	8.5	8.4	8.7	8.0	10.5	8.9	9.9	9.4
	27–30	—	—	—	—	—	—	—	—	12.1	8.6	9.1	9.3	7.5	8.2	8.0	7.7	9.5	7.9	8.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.7	1.5	1.4	1.4	1.6	1.4	1.8	1.4	1.2	1.4	0.9	0.5	1.1	1.2	1.0	1.6	1.5	1.4	2.9
	19–22	0.9	0.7	0.6	0.5	0.8	1.0	0.5	0.4	0.9	0.1	0.6	0.4	0.5	0.6	0.6	0.6	0.4	0.4	0.8
	23–26	—	—	—	—	0.4	0.3	0.7	*	0.3	0.2	0.2	*	*	*	0.3	0.2	*	0.6	0.3
	27–30	—	—	—	—	—	—	—	—	0.3	*	0.2	0.2	0.1	0.2	0.2	*	0.2	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

		Percentage saying friends use [a]																				
Q. How many of your friends would you estimate. . .	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take heroin																						
% saying any	18	12.7	14.9	13.1	12.9	10.3	12.7	13.1	12.7	12.9	11.2	12.7	12.4	10.2	7.7	8.5	7.9	7.1	6.0	5.3	5.8	+0.5
	19–22	9.7	7.7	8.7	8.9	5.3	7.0	6.4	7.5	9.0	6.4	3.9	5.3	6.2	6.4	4.8	4.6	5.6	6.6	3.6	3.3	-0.3
	23–26	4.8	4.7	5.0	5.2	6.1	2.9	5.1	3.5	4.3	3.1	5.9	6.9	3.9	5.9	4.6	3.9	3.0	4.4	7.0	3.3	-3.7 ~
	27–30	3.8	2.8	4.3	3.9	3.4	3.0	3.8	2.5	3.0	2.1	3.9	3.3	2.6	3.5	4.6	3.3	4.9	4.6	3.7	3.8	+0.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.0	1.1	0.9	0.7	0.9	0.9	1.1	0.8	1.4	0.7	0.9	1.3	0.6	0.6	0.6	0.5	0.7	0.7	0.9	0.3	-0.5
	19–22	0.1	0.3	0.6	*	0.3	*	0.3	0.4	0.3	0.6	*	*	0.5	0.1	0.6	*	0.6	*	*	0.4	+0.4
	23–26	*	0.3	*	0.1	*	*	0.3	0.3	*	*	0.1	0.5	0.1	0.1	0.8	0.3	0.5	0.2	0.6	*	-0.6
	27–30	*	*	*	0.3	*	*	*	*	*	*	0.3	*	0.3	*	0.1	0.1	*	0.2	0.4	*	-0.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take other narcotics [d]																						
% saying any	18	22.9	23.1	24.0	27.5	21.6	24.6	21.4	23.0	20.7	20.6	21.5	36.3	31.0	28.5	25.8	22.0	20.0	20.5	18.4	14.7	-3.7 s
	19–22	19.8	23.2	23.0	21.8	21.9	22.6	19.9	17.6	23.7	16.8	15.3	31.4	31.3	25.7	29.5	20.9	21.7	17.1	19.1	19.6	+0.5
	23–26	10.4	11.2	13.5	14.6	18.4	16.8	18.3	17.6	14.2	16.0	19.3	36.7	30.4	27.9	25.6	29.2	24.4	24.2	18.8	21.8	+3.0
	27–30	7.2	8.4	11.2	11.8	11.0	12.0	12.5	13.1	10.6	14.3	14.2	28.4	29.8	32.9	30.4	29.6	28.7	25.5	26.8	26.2	-0.7
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.8	2.0	2.0	2.1	2.4	2.4	1.9	1.8	2.6	1.3	1.9	3.8	2.6	1.8	1.9	1.8	1.5	1.7	1.7	1.3	-0.3
	19–22	0.4	1.2	1.8	1.3	1.0	0.5	1.0	0.9	0.3	1.3	0.4	1.8	2.1	1.4	2.7	0.5	1.1	0.5	0.3	1.0	+0.7
	23–26	*	0.4	0.5	0.6	0.6	0.5	0.8	0.5	0.3	0.1	0.9	1.6	1.1	1.0	1.6	1.2	1.0	0.6	1.0	*	-1.0
	27–30	0.2	*	*	0.3	0.1	*	*	0.6	*	0.6	0.6	0.9	1.2	0.1	0.5	0.5	*	0.5	0.9	0.2	-0.7
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take amphetamines [e]																				
% saying any	18	43.9	48.8	50.6	46.1	45.1	43.3	41.8	39.5	33.4	33.5	28.7	24.3	24.3	27.5	28.1	30.3	32.2	32.7	33.8
	19–22	54.1	52.2	51.3	49.7	46.1	42.1	38.5	34.5	26.8	29.6	23.3	26.2	19.5	21.0	20.9	21.7	21.6	21.1	24.4
	23–26	—	—	—	—	45.6	40.1	33.5	32.1	28.4	23.1	20.6	17.1	15.1	16.8	16.2	18.2	12.5	14.4	14.1
	27–30	—	—	—	—	—	—	—	—	26.1	21.6	19.3	17.0	15.3	14.0	13.1	13.7	15.5	12.9	11.0
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	4.8	6.4	5.4	5.1	4.5	3.4	3.4	2.6	1.9	2.6	1.9	1.3	1.3	2.0	1.8	2.0	2.8	2.4	3.4
	19–22	3.8	5.7	4.6	3.8	3.3	2.9	1.3	1.9	1.4	0.7	1.0	0.6	0.9	0.2	1.1	1.2	0.7	0.7	1.2
	23–26	—	—	—	—	1.9	1.8	1.7	1.2	0.3	0.6	0.7	0.8	0.4	1.5	0.9	0.5	0.2	0.8	0.5
	27–30	—	—	—	—	—	—	—	—	0.6	0.4	0.5	0.5	0.1	0.5	0.5	0.3	0.3	0.1	0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take sedatives/ barbiturates [f]																				
% saying any	18	30.5	31.1	31.3	28.3	26.6	27.1	25.6	24.3	19.7	20.3	17.4	14.8	16.4	17.8	18.2	17.8	21.6	20.4	22.8
	19–22	33.2	27.9	27.7	23.6	22.0	17.2	18.8	15.5	14.0	14.1	11.9	12.8	10.7	11.7	9.7	13.3	11.6	12.1	14.8
	23–26	—	—	—	—	22.2	18.7	16.3	14.1	11.2	10.4	8.9	8.3	8.7	8.2	7.6	9.6	6.9	8.4	7.9
	27–30	—	—	—	—	—	—	—	—	12.0	8.5	8.8	7.1	6.6	6.7	7.4	7.2	6.7	6.5	6.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.6	2.1	1.8	1.7	1.7	1.6	1.4	1.1	1.1	1.4	0.6	0.5	0.6	1.0	1.1	1.4	1.6	1.1	2.5
	19–22	1.1	1.3	1.0	0.8	0.8	0.5	0.3	0.4	0.8	0.1	0.2	0.3	0.1	0.1	0.3	0.8	0.2	0.7	0.4
	23–26	—	—	—	—	0.4	0.3	0.3	0.3	0.1	0.2	0.2	0.1	0.1	0.3	0.2	*	*	0.8	*
	27–30	—	—	—	—	—	—	—	—	0.2	*	0.4	0.2	0.2	0.2	*	*	0.3	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take amphetamines [e]																						
% saying any	18	30.8	32.9	33.2	34.4	28.1	31.4	28.8	29.0	27.4	27.3	30.0	31.1	31.3	30.5	25.7	25.0	24.2	27.3	21.4	21.5	+0.2
	19–22	25.5	28.4	28.0	28.6	24.0	23.5	25.9	25.4	26.9	19.9	26.6	27.3	29.5	30.5	37.9	33.4	38.5	30.6	35.2	30.9	-4.3
	23–26	14.2	14.5	17.5	18.4	18.0	18.8	18.4	19.7	17.6	17.9	21.3	23.8	27.7	26.1	27.0	31.5	28.5	30.5	32.4	33.1	+0.7
	27–30	11.8	11.9	12.9	12.3	12.0	13.5	11.8	12.5	10.0	12.8	16.4	16.4	17.2	22.9	24.7	24.1	27.0	25.4	30.0	31.8	+1.8
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	2.8	3.1	2.2	2.4	2.1	2.9	2.2	2.0	2.4	1.8	2.0	2.9	2.2	2.4	2.2	2.9	2.5	2.4	1.7	1.7	0.0
	19–22	0.7	1.7	1.6	1.3	1.2	0.5	0.7	1.1	0.4	1.3	1.6	1.2	4.3	2.0	3.5	3.8	4.3	2.4	3.0	2.2	-0.8
	23–26	0.6	0.3	0.5	0.3	0.7	0.1	0.3	0.7	*	0.1	0.3	0.8	1.3	1.5	1.9	2.2	1.3	1.9	2.4	1.6	-0.8
	27–30	0.6	0.1	0.5	0.9	0.1	*	0.4	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.1	0.3	0.8	0.5	1.1	0.7	-0.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take sedatives/ barbiturates [f]																						
% saying any	18	20.9	21.6	22.1	25.3	18.1	25.2	22.3	22.5	20.8	19.8	21.0	23.5	21.1	17.3	15.5	14.2	14.5	15.1	12.9	11.9	-0.9
	19–22	16.0	15.2	18.6	17.1	14.4	18.8	19.6	18.7	20.1	17.8	16.4	19.1	14.5	13.7	19.0	13.6	18.2	12.0	14.9	13.2	-1.7
	23–26	8.3	6.6	11.1	10.9	12.9	16.7	15.7	16.2	16.5	13.4	18.6	17.6	12.2	11.8	14.3	15.0	11.9	15.4	11.6	16.2	+4.6
	27–30	5.7	6.4	7.9	7.4	7.3	11.5	10.5	13.5	12.5	15.2	12.7	15.3	13.7	14.5	16.5	13.0	13.1	13.0	14.8	14.5	-0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.4	1.7	1.1	1.7	1.9	2.0	1.8	1.3	1.6	1.3	1.3	1.5	1.3	1.5	1.2	1.1	1.4	1.4	1.0	0.8	-0.2
	19–22	0.4	1.0	0.9	0.8	0.7	0.3	0.3	0.2	0.6	0.5	1.0	0.6	0.6	0.3	1.2	0.7	1.3	*	0.2	0.4	+0.2
	23–26	*	0.4	0.4	*	0.2	0.4	0.2	0.5	*	0.4	0.4	0.5	0.3	0.4	0.7	0.4	0.7	0.8	1.0	*	-1.0
	27–30	0.2	*	0.3	0.6	0.1	*	0.5	0.4	0.6	0.1	0.9	0.4	0.2	*	0.1	0.1	0.4	0.6	0.4	0.2	-0.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Take quaaludes																				
% saying any	18	32.5	35.0	35.5	29.7	26.1	26.0	23.5	22.0	17.1	16.6	14.3	12.0	13.1	14.2	14.2	15.5	18.1	16.1	17.4
	19–22	38.3	36.2	35.4	30.5	24.6	19.9	20.3	16.9	12.5	10.9	10.0	10.6	9.2	10.0	7.8	11.5	10.1	9.3	10.6
	23–26	—	—	—	—	25.7	21.0	17.4	15.0	12.1	10.3	8.6	5.9	6.4	7.6	7.7	9.0	6.3	6.5	6.6
	27–30	—	—	—	—	—	—	—	—	11.8	7.9	8.2	7.0	7.1	6.5	6.6	4.5	6.9	4.9	4.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	3.6	3.6	2.6	2.6	1.7	1.3	1.6	1.0	1.0	1.3	0.8	0.5	0.8	1.1	1.1	1.3	1.7	1.1	2.0
	19–22	1.9	2.7	1.2	1.3	1.2	0.6	0.2	0.4	0.4	0.2	0.6	0.2	0.1	0.1	0.2	0.7	0.1	0.6	0.5
	23–26	—	—	—	—	0.6	0.3	0.7	0.2	0.2	0.4	0.2	0.1	0.2	0.6	0.2	0.2	*	0.8	*
	27–30	—	—	—	—	—	—	—	—	0.5	0.2	0.2	0.2	*	0.2	*	*	0.2	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take tranquilizers																				
% saying any	18	29.7	29.5	29.9	26.7	26.6	25.8	24.2	23.3	19.9	18.0	14.9	13.5	14.6	15.5	16.5	15.8	18.1	17.9	19.7
	19–22	37.5	33.9	28.7	22.9	22.0	19.7	20.6	18.0	16.4	14.8	13.4	13.0	11.3	11.9	9.5	13.6	10.5	11.7	13.7
	23–26	—	—	—	—	29.3	26.3	22.3	20.8	15.5	13.1	14.8	12.1	12.5	11.0	13.4	10.4	10.7	9.6	8.5
	27–30	—	—	—	—	—	—	—	—	20.1	16.6	16.9	14.9	12.0	12.5	13.9	11.9	11.0	10.8	12.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.3	12.2	13.1	10.8	10.7
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.7
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.9	1.4	1.1	1.2	1.5	1.2	1.3	1.0	0.7	1.5	0.5	0.4	0.7	0.9	0.9	1.1	1.4	0.8	2.3
	19–22	0.7	0.9	0.5	0.8	0.3	0.7	0.3	0.6	0.4	0.1	0.4	0.5	0.1	0.1	0.2	0.7	0.7	0.8	0.6
	23–26	—	—	—	—	0.4	0.3	0.5	*	0.3	0.4	0.2	0.3	0.1	0.4	0.2	*	*	1.1	0.1
	27–30	—	—	—	—	—	—	—	—	0.5	0.3	0.4	0.2	0.1	0.2	0.4	*	0.2	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	0.3	0.3	0.1	0.2
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Take quaaludes																						
% saying any	18	15.5	16.2	17.8	18.0	14.2	16.6	13.6	13.4	13.6	11.2	14.3	—	—	—	—	—	—	—	—	—	—
	19–22	11.4	13.1	14.6	13.0	10.3	8.3	8.2	8.6	8.8	5.9	5.3	—	—	—	—	—	—	—	—	—	—
	23–26	6.4	4.9	7.7	8.5	8.9	6.5	7.7	5.6	5.6	4.1	8.0	—	—	—	—	—	—	—	—	—	—
	27–30	5.1	5.0	4.9	6.6	4.3	4.4	3.6	4.9	4.3	5.8	4.5	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	1.4	1.4	1.2	1.2	1.2	1.6	1.3	1.3	1.6	0.8	1.1	—	—	—	—	—	—	—	—	—	—
	19–22	0.4	0.9	0.8	0.1	0.4	*	0.4	0.2	*	0.2	*	—	—	—	—	—	—	—	—	—	—
	23–26	0.2	0.3	0.3	0.1	0.2	0.1	0.2	0.3	0.3	*	0.1	—	—	—	—	—	—	—	—	—	—
	27–30	0.2	0.3	*	0.3	*	*	0.3	0.7	*	0.3	0.5	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take tranquilizers																						
% saying any	18	16.4	19.4	18.6	21.2	17.2	18.3	16.9	15.3	15.5	15.0	15.8	16.1	13.9	13.3	11.7	10.1	11.5	12.0	11.1	10.5	-0.6
	19–22	16.2	16.7	21.3	18.1	14.5	12.3	11.5	13.0	17.2	11.6	11.1	11.6	8.2	10.2	12.7	8.6	10.8	7.2	7.9	10.1	+2.3
	23–26	9.8	11.2	12.4	14.9	12.9	15.1	13.1	10.7	12.3	12.6	15.5	13.4	9.9	7.3	9.3	8.9	7.5	7.9	8.0	12.2	+4.2
	27–30	10.4	10.6	9.6	10.6	10.4	9.9	9.7	8.5	9.1	12.3	10.3	9.5	9.4	12.6	12.3	8.7	11.6	7.1	9.3	8.6	-0.7
	35	11.4	10.8	12.2	12.5	11.4	12.7	12.4	12.2	14.7	16.1	14.8	17.6	17.7	17.9	17.3	17.7	19.2	19.5	18.7	16.0	-2.8
	40	14.8	15.2	15.1	15.6	15.0	13.6	14.1	16.1	16.0	15.0	15.1	13.6	12.9	15.8	14.5	13.2	14.5	17.1	14.7	12.0	-2.7
	45	—	—	—	—	17.3	19.8	15.4	18.3	20.7	17.3	17.5	16.3	16.7	18.8	16.7	15.8	14.5	14.2	13.7	15.7	+2.1
	50	—	—	—	—	—	—	—	—	—	19.7	21.0	17.8	19.1	18.1	16.7	17.9	15.7	15.0	16.3	15.6	-0.6
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.0	16.6	17.0	16.8	15.8	15.4	-0.4
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.7	—
% saying most or all	18	1.3	2.1	1.3	1.6	1.5	1.7	1.6	1.2	1.8	1.2	1.5	1.4	0.8	0.8	1.0	1.3	1.5	1.1	1.0	0.7	-0.3
	19–22	0.3	0.6	0.9	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.1	0.6	0.6	0.2	0.6	0.4	0.8	*	0.7	0.6	0.0
	23–26	*	0.5	0.8	0.1	*	0.5	0.7	0.4	*	0.1	0.3	0.2	0.1	0.3	0.3	0.3	0.2	0.4	0.4	*	-0.4
	27–30	0.4	*	0.4	0.6	0.1	*	0.2	0.2	*	0.1	0.5	*	*	*	0.1	0.1	0.6	0.4	0.4	0.2	-0.2
	35	0.6	0.6	0.2	0.1	0.2	0.3	0.5	0.3	0.5	0.3	0.4	0.6	0.3	0.4	0.4	0.5	0.4	0.4	0.1	0.3	+0.2
	40	0.4	0.1	0.3	0.2	*	0.2	0.2	0.3	0.3	0.3	0.1	*	*	0.1	*	0.2	*	0.1	0.4	0.1	-0.3
	45	—	—	—	—	0.3	0.2	0.2	0.1	0.3	*	0.2	0.1	0.1	*	0.2	0.2	0.1	0.1	0.1	*	0.0
	50	—	—	—	—	—	—	—	—	—	0.3	0.1	0.1	0.4	0.2	0.1	0.2	0.2	0.2	0.2	*	-0.2
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.4	0.2	0.2	0.1	0.0	0.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Drink alcoholic beverages																				
% saying any	18	96.1	94.7	95.7	95.5	94.6	94.6	95.6	95.4	95.7	95.1	92.0	91.2	90.5	88.9	90.1	90.9	89.6	90.7	91.2
	19–22	96.3	96.7	96.6	97.3	96.8	95.8	96.9	95.6	97.0	97.6	96.1	95.2	93.1	95.1	92.5	94.8	93.7	94.5	94.5
	23–26	—	—	—	—	96.8	96.8	96.2	95.9	95.3	95.4	94.7	93.9	95.1	94.4	94.0	94.1	92.7	95.4	95.5
	27–30	—	—	—	—	—	—	—	—	96.1	96.0	95.2	94.4	95.6	93.4	93.3	93.3	93.1	95.1	93.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	89.6	89.9	90.3	89.5	88.1
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	88.4
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	68.9	67.7	69.7	69.0	66.6	66.0	68.0	71.8	68.1	67.1	60.5	58.6	56.9	57.0	59.6	56.4	56.4	60.9	61.0
	19–22	76.6	77.6	75.2	75.1	74.9	71.9	74.2	71.3	73.4	74.1	70.0	71.4	67.4	66.5	68.7	63.9	67.0	63.8	69.4
	23–26	—	—	—	—	73.2	74.4	69.5	74.9	68.9	69.8	67.1	69.3	68.8	68.7	70.7	67.0	68.9	66.6	67.4
	27–30	—	—	—	—	—	—	—	—	66.7	67.8	62.0	62.7	63.3	61.3	63.2	62.6	64.1	66.6	62.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43.8	45.1	49.5	46.6	47.1
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.7
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Get drunk at least once a week																				
% saying any	18	83.1	81.8	83.1	83.9	81.5	82.5	84.7	85.6	84.4	82.8	79.2	79.8	79.9	79.2	81.4	78.9	78.5	82.4	81.1
	19–22	80.9	79.9	80.0	80.4	79.8	76.7	82.0	81.1	80.6	80.4	80.1	80.8	76.5	81.1	79.6	83.2	80.9	79.2	82.3
	23–26	—	—	—	—	73.1	72.7	73.5	73.7	72.1	73.1	72.2	74.0	73.1	74.3	72.1	73.1	74.5	71.9	74.1
	27–30	—	—	—	—	—	—	—	—	66.3	61.8	65.4	65.2	65.5	64.5	62.7	67.1	66.7	65.4	65.5
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	44.3	43.2	44.9	42.9	46.1
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	41.6
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	30.1	29.4	29.9	31.0	29.6	29.9	31.8	31.3	29.6	31.1	27.5	29.7	28.6	27.6	28.4	27.4	29.0	30.9	31.7
	19–22	21.9	23.3	22.0	20.2	22.7	21.7	20.8	21.3	24.0	22.6	23.6	24.9	22.6	28.8	26.3	28.2	26.0	26.6	29.8
	23–26	—	—	—	—	11.4	11.6	12.5	11.9	12.8	12.0	13.9	11.6	14.6	13.2	15.2	15.2	14.0	17.0	16.0
	27–30	—	—	—	—	—	—	—	—	5.2	6.3	6.7	6.6	5.9	6.7	6.4	7.9	8.6	7.7	9.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.6	3.6	5.4	3.2	4.4
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Drink alcoholic beverages																						
% saying any	18	90.2	89.8	89.2	88.0	87.9	87.8	87.2	86.0	85.1	85.2	83.7	83.9	82.6	82.0	82.0	79.7	75.5	77.2	75.7	74.2	-1.5
	19–22	92.8	95.2	93.4	94.5	92.5	90.4	95.0	91.9	94.0	92.6	93.2	90.9	88.9	93.3	92.0	91.0	—	87.7	86.8	86.5	-0.3
	23–26	93.3	94.5	93.1	95.3	92.8	94.9	91.6	93.6	94.7	93.3	95.0	95.3	95.3	92.3	92.5	94.1	—	91.6	91.9	90.8	-1.1
	27–30	94.4	92.7	91.4	92.8	90.5	94.4	93.7	95.6	92.4	91.7	93.9	93.0	92.5	93.4	91.6	95.1	—	94.7	92.5	90.3	-2.2
	35	88.7	89.6	89.3	90.1	87.4	93.4	91.3	90.6	90.5	91.0	90.4	93.3	93.0	92.7	93.2	92.6	92.6	94.3	93.2	92.4	-0.8
	40	88.9	90.7	89.6	90.5	89.2	90.5	92.1	90.8	93.0	89.3	92.6	92.1	92.4	91.3	91.9	90.8	91.2	91.4	91.2	92.5	+1.3
	45	—	—	—	—	87.9	90.3	89.8	90.1	89.8	90.5	89.5	90.6	90.8	90.1	91.4	92.4	92.5	91.3	90.0	91.2	+1.3
	50	—	—	—	—	—	—	—	—	—	88.9	90.2	89.9	90.4	90.1	89.2	92.0	90.3	91.4	91.2	90.9	-0.3
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	87.6	89.3	89.5	88.3	89.9	90.7	+0.8
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	88.7	—
% saying most or all	18	58.2	57.2	59.2	53.7	53.1	53.9	55.3	52.4	52.0	51.6	50.5	51.4	50.3	49.4	46.9	46.2	42.3	39.2	39.7	38.0	-1.7
	19–22	67.8	70.1	65.4	68.8	63.9	66.4	71.8	65.4	71.1	64.4	69.7	69.1	63.3	66.3	63.2	63.4	—	66.1	62.4	62.8	0.5
	23–26	63.6	70.8	65.7	73.4	66.0	71.3	69.3	69.2	70.2	76.3	76.9	75.5	79.7	74.3	73.7	76.5	—	66.5	65.4	65.5	1.5
	27–30	64.4	64.8	64.9	66.3	61.5	69.0	66.2	70.7	65.6	67.1	74.0	72.2	70.9	74.9	72.9	74.7	—	75.1	76.3	71.3	-5.0
	35	46.0	49.1	48.4	52.9	51.6	53.7	55.5	55.2	56.1	55.7	53.2	56.9	61.9	58.7	62.1	66.1	64.2	66.5	65.4	65.5	+0.2
	40	41.4	42.5	44.7	44.8	47.2	43.3	47.2	45.9	50.3	48.9	54.5	54.7	54.3	55.9	56.6	53.6	55.2	57.6	60.2	62.6	+2.3
	45	—	—	—	—	38.9	41.7	42.4	45.1	46.6	47.0	45.9	46.7	47.2	53.5	52.0	56.1	57.8	55.1	56.5	56.2	-0.2
	50	—	—	—	—	—	—	—	—	—	37.7	39.3	41.9	43.5	45.8	48.2	48.6	48.8	50.0	50.7	50.2	-0.5
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	41.0	42.4	46.9	47.7	47.4	-0.3
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.5	—
Get drunk at least once a week																						
% saying any	18	81.5	79.5	79.6	78.3	77.3	79.0	78.7	77.4	75.5	76.2	76.2	73.5	71.9	68.9	69.9	64.2	58.9	59.0	58.0	55.4	-2.6
	19–22	82.8	82.2	81.9	81.5	81.5	80.5	85.1	81.7	84.4	81.3	82.8	81.2	78.3	83.6	77.7	78.2	—	75.6	76.5	72.1	-4.4
	23–26	71.0	76.5	74.7	81.0	76.4	75.8	80.7	80.9	80.4	79.5	83.0	83.7	83.9	79.7	83.1	85.6	—	81.2	76.1	79.0	2.9
	27–30	65.9	64.3	64.7	68.9	66.5	73.8	72.4	74.6	72.0	71.7	78.7	78.2	78.3	80.1	74.4	77.2	—	77.9	79.2	78.9	-0.2
	35	44.5	46.9	47.6	48.3	47.9	52.0	50.7	52.6	55.0	56.0	56.0	59.2	63.2	62.4	63.9	65.4	68.0	67.8	68.2	66.5	-1.6
	40	40.6	42.2	41.3	42.6	42.9	43.2	48.4	47.2	46.3	48.2	53.7	49.6	48.5	54.9	54.7	53.4	58.0	57.4	58.9	58.7	-0.2
	45	—	—	—	—	41.6	42.2	41.6	40.0	42.7	45.7	45.4	49.1	45.9	50.0	50.5	52.1	52.8	52.3	54.3	57.6	+3.3
	50	—	—	—	—	—	—	—	—	—	40.0	38.3	39.6	42.4	42.5	45.0	45.5	46.7	48.7	47.3	48.4	+1.1
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35.1	35.4	39.2	39.7	38.9	39.9	+1.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.4	—
% saying most or all	18	30.1	32.4	32.7	28.3	27.1	27.6	28.5	27.7	27.0	25.2	24.4	23.7	23.8	21.2	20.7	18.5	15.5	11.5	12.4	11.6	-0.9
	19–22	29.3	28.1	30.2	31.0	29.6	29.0	31.2	32.9	32.0	28.9	31.4	27.7	27.6	27.2	28.1	28.7	—	21.6	25.8	23.0	-2.8
	23–26	16.8	17.4	19.1	19.2	18.3	24.0	24.0	20.3	22.8	23.1	23.2	24.0	22.6	20.0	23.4	20.2	—	23.5	20.1	24.1	3.9
	27–30	12.1	9.8	11.7	8.9	13.0	9.4	11.2	13.5	12.2	10.9	17.1	13.7	13.2	13.5	13.2	15.2	—	16.7	17.2	15.8	-1.4
	35	4.9	4.6	4.8	4.5	5.2	5.3	5.3	5.6	6.1	7.3	5.9	7.4	8.4	6.8	8.3	10.7	10.8	8.6	10.2	9.7	-0.5
	40	3.0	2.5	2.9	3.8	3.9	3.0	3.6	4.0	3.4	4.8	4.6	4.8	4.8	4.3	4.2	5.7	5.6	5.6	6.7	6.8	0.0
	45	—	—	—	—	3.6	2.7	2.7	3.1	3.7	4.1	3.2	3.2	3.5	4.3	5.1	5.1	5.5	4.2	3.5	5.5	+2.0
	50	—	—	—	—	—	—	—	—	—	3.2	2.7	2.0	2.9	2.5	3.6	4.1	3.6	4.0	3.0	3.7	+0.7
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	1.9	3.2	3.1	2.9	2.5	-0.4
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Percentage saying friends use [a]

Q. How many of your friends would you estimate. . .	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Smoke cigarettes																				
% saying any	18	90.6	88.5	88.3	87.0	86.0	87.0	87.8	88.3	87.7	86.5	84.9	85.7	84.4	84.8	88.1	87.9	88.3	89.9	89.5
	19–22	94.4	94.3	93.4	93.1	91.9	91.6	91.1	90.3	89.3	90.0	86.1	86.1	86.7	86.7	86.1	88.8	89.2	91.3	92.6
	23–26	—	—	—	—	93.9	95.0	91.6	92.1	89.8	90.1	88.7	89.6	85.6	88.3	86.4	86.8	85.3	85.4	88.7
	27–30	—	—	—	—	—	—	—	—	92.6	89.8	90.7	90.4	88.0	85.8	84.8	84.9	85.4	84.1	81.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	72.7	71.7	71.7	72.4	71.8
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	70.2
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	23.3	22.4	24.1	22.4	19.2	22.8	21.5	21.0	20.2	23.1	21.4	21.8	21.4	25.0	25.3	27.5	30.4	34.4	33.9
	19–22	31.8	27.6	25.6	25.2	25.6	22.7	21.9	22.5	19.3	19.9	19.2	20.2	20.3	22.2	21.7	28.4	24.0	25.1	28.8
	23–26	—	—	—	—	25.6	22.7	19.7	18.5	16.5	20.5	16.9	18.1	16.0	15.5	16.6	13.9	17.6	17.0	16.8
	27–30	—	—	—	—	—	—	—	—	15.8	14.2	11.6	12.9	11.9	14.3	10.9	12.3	10.4	12.1	12.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.9	7.2	9.3	7.2	8.0
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take steroids																				
% saying any	18	—	—	—	—	—	—	—	—	—	—	25.9	24.7	21.5	19.0	18.1	19.5	17.9	18.9	18.3
	19–22	—	—	—	—	—	—	—	—	—	23.4	21.5	22.2	19.7	20.7	16.8	16.6	16.1	16.8	20.0
	23–26	—	—	—	—	—	—	—	—	—	15.3	15.0	12.3	14.5	11.1	10.5	12.4	7.3	13.0	9.2
	27–30	—	—	—	—	—	—	—	—	—	9.9	10.5	7.5	8.0	8.0	8.0	8.0	10.2	9.1	7.0
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	—	—	—	—	—	—	—	—	—	—	1.8	1.0	1.7	0.9	1.2	1.3	0.8	1.7	1.4
	19–22	—	—	—	—	—	—	—	—	—	0.2	0.6	*	0.1	0.4	0.2	0.1	*	0.1	0.3
	23–26	—	—	—	—	—	—	—	—	—	0.4	*	*	0.2	0.1	0.1	*	*	0.5	*
	27–30	—	—	—	—	—	—	—	—	—	0.5	*	*	*	0.2	0.1	*	*	*	*
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a] 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Smoke cigarettes																						
% saying any	18	89.3	87.2	86.8	85.4	83.3	83.7	81.8	81.4	77.1	78.4	79.6	78.0	75.4	74.3	72.1	66.4	60.2	58.4	54.0	50.9	-3.1
	19–22	91.0	90.9	90.9	89.7	86.5	89.7	89.3	85.8	86.8	84.4	88.3	81.8	79.4	78.2	77.4	76.5	76.0	70.8	63.9	62.2	-1.7
	23–26	84.1	86.5	86.7	86.4	86.5	87.0	87.3	85.4	84.1	86.8	85.3	87.7	86.5	83.1	80.3	82.2	79.8	77.5	72.9	74.4	1.5
	27–30	86.3	85.1	84.9	87.0	82.8	83.5	81.0	84.4	81.7	82.1	84.1	84.6	83.8	85.2	81.6	84.4	78.6	74.5	77.5	73.8	-3.7
	35	69.9	70.8	69.2	66.6	67.0	67.7	65.5	67.0	64.8	67.6	62.2	65.4	66.1	66.4	63.2	63.8	65.2	65.0	62.6	60.1	-2.4
	40	70.0	67.8	64.3	65.5	65.1	62.4	63.8	64.6	59.2	59.7	60.5	57.4	57.4	56.7	59.1	56.2	54.5	54.8	52.4	48.9	-3.6
	45	—	—	—	—	66.1	67.0	62.9	60.9	58.5	56.1	57.7	60.6	58.0	57.4	54.3	56.0	49.7	52.1	50.4	52.5	+2.1
	50	—	—	—	—	—	—	—	—	—	62.1	61.3	59.2	55.9	57.4	54.7	55.4	55.4	52.4	52.8	53.1	+0.3
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56.5	52.4	52.9	48.5	49.4	47.4	-2.0
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	47.9	—
% saying most or all	18	31.1	28.2	25.0	23.0	19.6	20.6	16.7	15.8	16.4	13.9	14.1	14.9	14.1	12.2	11.0	8.1	6.5	5.9	6.6	6.1	-0.5
	19–22	26.8	29.4	27.0	25.7	20.2	20.7	20.4	15.2	17.9	12.9	15.3	16.7	13.7	13.6	10.8	9.4	8.9	5.4	5.0	3.8	-1.2
	23–26	17.5	17.0	15.5	15.1	18.3	19.8	19.6	13.9	14.7	15.0	13.4	15.0	11.1	10.6	13.5	11.4	9.5	5.6	7.9	3.5	-4.5 s
	27–30	13.4	11.7	10.2	12.9	12.2	9.2	12.6	12.6	12.7	10.8	12.4	7.9	7.4	10.0	6.8	7.7	5.9	5.8	6.3	6.3	0.0
	35	9.0	6.7	8.8	6.6	6.3	6.9	6.0	6.8	5.7	5.9	6.4	6.8	6.2	5.5	4.9	5.8	6.0	4.0	4.5	3.7	-0.8
	40	7.4	6.8	5.7	5.8	5.9	6.0	7.0	5.1	4.7	4.5	3.9	4.0	4.2	2.9	3.8	4.0	4.1	2.7	3.5	2.6	-0.9
	45	—	—	—	—	5.7	5.9	6.1	5.4	4.5	3.7	4.8	5.2	3.8	3.4	4.6	2.5	3.3	2.8	1.3	1.7	0.4
	50	—	—	—	—	—	—	—	—	—	4.0	4.3	4.2	3.6	2.6	2.3	4.4	3.4	2.6	2.5	2.6	0.1
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3	2.2	2.7	1.9	1.7	1.9	0.2
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	—
Take steroids																						
% saying any	18	20.0	19.8	21.7	21.6	21.1	22.8	19.1	19.8	20.1	19.4	19.3	16.4	16.0	18.7	17.4	15.7	12.8	15.5	13.7	13.0	-0.6
	19–22	20.6	18.9	20.0	19.3	17.1	21.4	20.1	21.0	18.3	14.8	16.8	13.8	15.3	12.6	11.1	16.4	12.7	8.6	9.6	8.4	-1.3
	23–26	15.0	12.2	13.6	14.3	12.9	12.4	11.6	13.4	13.8	13.3	12.8	11.7	13.9	10.0	11.6	12.7	8.7	11.9	10.6	9.2	-1.4
	27–30	11.2	9.3	10.7	6.4	11.6	10.1	7.4	7.5	6.7	6.6	12.0	9.2	8.5	11.6	10.0	9.1	11.0	9.4	10.9	11.2	+0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	18	0.9	1.9	1.2	1.5	1.5	2.6	1.5	0.9	1.2	1.3	1.5	1.7	1.1	1.8	1.5	1.7	1.0	1.9	1.7	1.5	-0.1
	19–22	0.1	0.3	0.7	0.7	0.4	*	0.1	0.3	0.3	0.3	*	0.7	0.6	0.4	0.7	0.5	0.4	*	*	0.8	0.8
	23–26	0.1	0.3	0.2	0.1	*	0.1	0.3	0.3	*	*	0.7	*	0.1	0.1	0.3	0.1	*	0.9	0.4	*	-0.4
	27–30	*	*	*	0.3	*	*	0.1	*	*	*	0.3	*	*	*	*	*	0.2	*	0.4	*	-0.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

	Age Group	Percentage saying friends use [a] 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Approximate	18	2,987	3,307	3,303	3,095	2,945	2,971	2,798	2,948	2,961	2,587	2,361	2,339	2,373	2,410	2,337	2,379	2,156	2,292	*2,313*
Weighted N =	19–22	576	592	564	579	543	554	579	572	562	579	556	526	510	468	435	470	469	467	*437*
	23–26					527	534	546	528	528	506	510	507	516	495	449	456	416	419	*394*
	27–30									516	507	499	476	478	461	419	450	464	454	*428*
	35															1,200	1,187	1,187	1,209	*1,067*
	40																			*1,098*
	45																			
	50																			
	55																			
	60																			

(Table continued on next page.)

TABLE 7-2 (cont.)
Trends in Friends' Use of Drugs as Estimated by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How many of your friends would you estimate. . .	Age Group	Percentage saying friends use [a]																			
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Approximate	18	*2,060*	1,838	1,923	1,968	2,233	2,271	2,266	2,266	2,253	2,125	2,110	2,195	2,208	2,144	1,973	1,920	2,055	1,795	1,955	2,028
Weighted N =	19–22	*426*	402	402	375	388	443	395	377	362	375	382	376	353	348	340	315	297	251	269	258
	23–26	*414*	387	403	358	362	411	361	336	340	355	311	359	314	330	328	305	305	272	268	269
	27–30	*424*	363	359	348	369	396	363	350	324	332	309	340	325	333	284	307	260	287	287	306
	35	*1,071*	1,033	1,005	918	968	985	1,041	953	884	905	974	922	858	877	848	776	741	740	731	676
	40	*1,156*	1,144	1,119	1,083	945	1,004	975	951	896	924	905	952	877	852	844	919	808	782	819	762
	45					976	1,074	1,052	1,009	999	904	937	889	887	874	844	825	889	812	773	781
	50										940	1,009	1,016	974	987	840	891	830	845	793	760
	55															880	943	933	926	941	788
	60															880	943	933	926	941	673

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

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. ' — ' indicates data not available. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Answer alternatives were: (1) None, (2) A few, (3) Some, (4) Most, (5) All. The any percentage combines categories (2)–(5). The most or all percentage combines categories (4) and (5).

[b]For the young adult sample, any illicit drug includes all of the drugs listed in this table except cigarettes and alcohol. For the 35-, 40-, 45-, and 50-year-olds, any illicit drug includes marijuana, tranquilizers, crack, cocaine powder, and other illicit drugs.

[c]In 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

[d]In 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

[e]In 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

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

[g]No data reported in 2015 due to a printing error in the questionnaire in which this question is asked.

TABLE 7-3
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

Percentage saying exposed to drug [a]

Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Any illicit drug [b]																		
% saying any																		
18	84.3	82.7	81.4	79.4	77.9	77.7	75.5	73.9	71.3	68.6	67.6	64.2	61.3	66.1	70.8	75.3	78.0	78.8
19–22	80.6	81.0	81.5	76.5	76.3	77.4	74.6	72.7	69.5	61.5	60.8	58.9	58.6	58.4	60.7	66.4	67.2	65.3
23–26	—	—	—	—	68.9	70.2	68.0	62.4	62.7	58.3	54.6	52.1	48.2	49.9	47.1	54.2	50.3	55.4
27–30	—	—	—	—	—	—	—	—	52.4	50.2	47.0	39.6	41.7	38.9	45.6	42.4	44.9	41.6
% saying often exposed																		
18	36.3	36.1	31.4	29.8	28.3	27.2	26.3	23.3	20.8	22.0	20.7	18.2	18.0	24.0	29.3	32.3	33.8	34.7
19–22	34.6	34.0	32.1	24.4	24.4	23.7	21.1	18.9	19.9	16.2	16.4	17.6	21.4	16.1	18.1	23.7	20.4	25.3
23–26	—	—	—	—	20.7	23.3	18.5	17.4	18.2	13.8	13.7	13.3	12.2	11.1	11.1	12.5	12.8	14.3
27–30	—	—	—	—	—	—	—	—	13.7	12.0	10.8	8.2	10.5	9.0	12.5	8.5	10.1	10.3
Any illicit drug other than marijuana [b]																		
% saying any																		
18	58.5	62.6	62.5	59.4	59.8	59.3	55.3	51.7	47.8	47.1	45.4	40.0	41.6	42.6	45.3	47.2	49.7	47.9
19–22	56.9	58.4	61.6	54.9	57.1	53.3	53.4	48.5	46.4	36.5	39.4	33.8	37.1	29.4	33.9	36.8	36.5	39.4
23–26	—	—	—	—	51.5	51.9	51.5	43.6	42.9	36.8	34.0	30.0	27.3	27.8	24.9	26.8	23.2	25.6
27–30	—	—	—	—	—	—	—	—	35.8	33.7	31.5	25.8	26.6	24.2	25.8	21.1	21.8	21.4
% saying often exposed																		
18	14.1	17.1	16.6	14.2	14.6	12.9	12.1	10.2	9.6	10.7	9.2	7.9	7.5	9.6	9.4	11.1	12.1	11.7
19–22	11.8	15.6	13.5	11.1	10.7	10.2	8.2	8.1	7.5	6.7	4.5	4.4	5.5	4.1	5.1	7.7	3.9	7.6
23–26	—	—	—	—	9.0	10.4	9.3	8.5	6.7	5.0	5.1	3.5	2.6	3.0	2.2	3.5	3.4	3.1
27–30	—	—	—	—	—	—	—	—	6.0	4.7	4.1	3.2	3.7	2.4	3.4	2.9	3.4	3.2
Marijuana																		
% saying any																		
18	82.0	80.2	77.9	76.2	74.4	73.5	72.0	70.4	67.0	64.8	63.4	59.6	56.8	61.0	67.2	72.7	75.6	76.8
19–22	79.8	79.8	78.7	72.7	74.1	75.5	72.4	70.5	66.3	59.3	57.5	55.0	56.4	55.4	56.8	64.0	64.8	63.4
23–26	—	—	—	—	65.3	66.0	64.1	59.0	57.6	55.0	50.6	47.9	44.6	45.9	44.4	51.0	47.8	53.1
27–30	—	—	—	—	—	—	—	—	49.1	47.4	42.1	36.0	38.2	35.3	41.9	38.3	41.8	39.1
% saying often exposed																		
18	33.8	33.1	28.0	26.1	24.8	24.2	24.0	20.6	17.9	19.5	17.8	16.0	15.6	20.9	27.6	30.7	31.8	32.9
19–22	32.6	30.5	30.3	21.1	21.9	20.3	18.6	16.4	18.3	14.2	14.7	15.9	19.9	14.7	17.0	22.1	20.3	23.7
23–26	—	—	—	—	17.5	20.6	14.6	14.8	15.6	11.6	11.2	11.6	10.9	10.4	10.4	11.1	11.5	12.9
27–30	—	—	—	—	—	—	—	—	10.9	9.8	8.5	6.7	8.9	7.6	10.7	7.4	9.1	8.9
LSD																		
% saying any																		
18	17.2	17.4	16.1	13.8	12.5	13.2	13.1	12.9	13.4	15.0	14.9	15.7	17.8	21.0	24.2	26.1	27.6	25.9
19–22	17.4	15.8	16.0	13.5	12.8	12.7	10.8	10.9	12.0	12.0	12.1	13.1	19.3	13.4	16.5	18.6	20.7	22.3
23–26	—	—	—	—	8.3	9.3	8.8	7.3	6.3	6.7	8.4	8.6	8.8	7.8	8.4	9.9	8.6	7.6
27–30	—	—	—	—	—	—	—	—	3.6	3.2	3.3	3.6	3.9	4.9	5.3	5.5	4.3	3.9
% saying often exposed																		
18	1.4	2.0	1.9	1.4	1.5	1.3	1.6	1.8	1.6	2.2	2.6	2.9	3.0	3.9	4.2	6.1	4.7	5.1
19–22	1.4	1.5	1.4	0.6	0.8	0.7	0.5	1.2	0.6	1.1	1.2	1.0	2.0	1.1	0.4	3.6	1.4	1.8
23–26	—	—	—	—	0.3	0.4	0.4	0.7	0.6	0.3	0.5	0.2	0.8	0.3	0.5	0.5	0.4	0.2
27–30	—	—	—	—	—	—	—	—	0.3	0.2	0.5	0.2	0.2	0.5	0.5	0.2	0.2	*
Other hallucinogens [c]																		
% saying any																		
18	20.4	17.6	16.8	13.1	12.7	12.5	11.8	10.0	9.0	8.8	9.4	9.4	9.7	12.1	14.0	15.8	16.6	17.8
19–22	18.3	16.3	16.3	12.5	10.5	11.0	9.2	9.1	7.7	8.4	8.3	8.9	10.6	6.7	8.3	12.8	13.1	15.0
23–26	—	—	—	—	8.4	8.9	9.1	6.0	5.1	4.8	5.7	5.5	5.1	5.7	5.2	5.5	6.9	5.6
27–30	—	—	—	—	—	—	—	—	5.0	3.4	3.4	3.4	2.1	3.7	3.4	4.2	3.2	2.9
% saying often exposed																		
18	2.2	2.0	2.6	1.1	1.7	1.4	1.5	1.2	1.1	1.3	1.2	1.3	1.1	1.9	2.3	2.5	2.7	2.8
19–22	1.1	0.9	0.9	0.7	0.8	0.8	0.2	0.8	0.3	0.4	0.4	0.5	0.7	0.4	0.2	1.6	0.7	0.7
23–26	—	—	—	—	0.1	0.3	0.5	0.6	0.8	0.1	0.4	0.4	*	0.2	0.4	0.3	0.3	0.2
27–30	—	—	—	—	—	—	—	—	0.2	0.4	0.5	0.3	0.1	0.5	0.2	0.3	0.2	0.5

(Table continued on next page.)

TABLE 7-3 (cont.)
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

Percentage saying exposed to drug [a]

Age Group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any illicit drug [b]																						
% saying any																						
18	77.2	77.9	76.0	76.5	76.5	73.6	74.3	73.0	73.7	70.8	71.9	74.1	76.0	76.6	76.4	75.4	75.2	75.4	75.1	74.8	72.7	-2.2
19–22	69.1	65.8	64.7	69.7	65.7	68.0	67.6	68.8	67.1	67.4	66.2	69.8	66.0	68.3	70.4	72.1	73.6	72.5	73.1	72.3	76.4	+4.1
23–26	50.6	50.5	55.1	56.4	56.5	57.0	53.5	53.9	56.7	58.3	56.3	57.7	56.3	62.6	67.0	65.2	65.1	68.2	68.9	73.9	74.2	+0.3
27–30	37.5	41.1	40.8	42.2	47.0	46.7	43.3	45.7	48.4	44.1	48.7	42.5	49.3	51.6	58.9	57.2	57.1	56.7	58.6	69.0	66.5	-2.4
% saying often exposed																						
18	33.2	35.6	32.6	33.6	32.6	31.8	30.4	29.9	29.7	27.8	28.6	31.4	33.2	34.6	34.9	32.3	31.3	32.5	33.1	32.8	30.8	-2.0
19–22	24.2	24.0	21.3	26.1	25.2	26.5	26.8	25.2	24.2	22.8	20.1	23.7	26.5	24.8	27.3	24.6	29.8	26.2	32.1	28.0	35.5	+7.6
23–26	14.2	15.0	15.9	16.4	15.9	17.8	15.1	18.7	14.9	18.9	15.4	14.9	18.8	19.4	21.2	20.8	20.1	23.2	23.3	22.9	25.4	+2.5
27–30	8.5	9.6	9.4	10.4	13.8	13.9	10.3	14.5	13.2	9.7	9.7	12.1	13.2	13.6	15.7	18.5	16.1	18.9	19.8	21.1	24.7	+3.6
Any illicit drug other than marijuana [b]																						
% saying any																						
18	47.3	46.5	47.2	49.9	49.3	46.3	48.3	45.9	45.4	45.4	43.8	44.3	47.2	46.6	45.0	44.2	41.0	44.3	43.8	41.7	40.1	-1.6
19–22	40.0	36.4	38.1	39.2	38.0	40.2	40.9	41.1	38.5	42.7	38.2	37.1	38.5	38.5	41.8	38.9	44.0	42.3	49.3	44.2	46.6	+2.4
23–26	27.1	28.0	31.0	31.4	31.5	32.2	32.6	32.3	34.5	33.1	31.3	33.0	34.8	39.9	37.8	37.4	33.9	38.6	38.5	39.4	46.4	+7.0
27–30	15.4	19.5	17.2	22.2	23.1	26.1	23.2	27.1	27.4	24.8	27.7	22.8	29.3	33.4	35.2	34.4	30.1	35.9	31.6	37.1	35.3	-1.8
% saying often exposed																						
18	9.9	11.7	10.5	11.9	12.6	10.8	11.4	10.6	11.4	10.8	8.2	9.4	10.2	11.5	11.6	9.3	9.7	9.2	10.3	10.7	7.5	-3.3
19–22	7.0	4.8	6.4	7.8	8.6	5.2	7.9	8.0	6.7	6.9	6.6	6.8	6.6	6.9	10.1	8.1	9.4	7.0	9.6	7.5	8.0	+0.5
23–26	3.1	4.3	3.5	3.4	5.0	5.4	5.4	4.0	5.4	6.7	5.4	3.8	6.4	6.3	7.6	5.8	7.0	5.8	8.1	6.6	7.5	+0.9
27–30	1.0	2.5	1.6	3.7	4.7	4.9	2.4	5.6	4.0	3.4	2.3	3.0	4.8	4.2	4.5	4.8	4.9	6.6	6.0	4.4	6.6	+2.2
Marijuana																						
% saying any																						
18	75.5	75.8	73.8	74.9	74.2	71.4	72.2	70.8	71.4	68.4	69.8	71.8	74.2	74.6	75.1	73.7	73.4	73.2	73.1	73.5	70.1	-3.4
19–22	67.1	63.5	63.9	68.0	64.6	64.8	65.1	66.8	65.4	66.3	64.3	67.5	64.9	65.7	67.6	69.0	71.1	70.3	71.9	70.6	76.1	+5.6
23–26	48.8	48.1	51.8	54.2	53.5	54.4	50.6	49.7	51.9	53.3	54.0	55.5	54.0	57.9	63.9	63.4	61.1	63.6	66.7	70.9	71.8	+1.0
27–30	35.7	38.7	38.8	37.0	44.6	44.1	40.4	42.4	44.1	40.7	44.8	39.8	43.5	46.1	56.0	52.3	54.4	53.3	58.1	67.4	65.1	-2.3
% saying often exposed																						
18	31.4	34.4	30.3	30.8	30.7	30.4	28.0	27.0	27.8	25.1	27.0	29.3	31.3	32.3	32.2	30.6	29.2	30.5	31.2	30.4	28.0	-2.3
19–22	22.8	23.0	20.4	24.5	24.8	24.2	24.5	23.6	23.1	20.1	18.3	22.6	25.2	22.9	24.2	22.6	28.2	25.7	30.1	26.7	34.3	+7.6
23–26	13.6	13.2	15.2	15.6	14.9	16.2	13.7	17.8	12.5	16.2	13.7	13.5	17.0	18.0	19.7	18.3	18.8	21.2	21.5	21.0	23.6	+2.6
27–30	8.1	8.8	8.6	8.4	11.7	11.7	9.6	12.2	11.5	8.2	8.5	12.3	10.8	10.9	13.9	16.0	14.7	16.5	17.7	20.4	22.3	+2.0
LSD																						
% saying any																						
18	23.1	23.6	22.0	21.6	17.2	14.2	12.4	10.8	11.6	12.4	12.1	11.9	14.1	13.5	13.0	13.8	12.9	15.7	15.5	17.4	15.4	-2.0
19–22	21.0	20.1	15.9	15.2	13.6	10.0	8.5	7.2	10.4	6.3	9.2	9.1	9.7	10.1	12.2	10.0	13.1	13.4	19.3	15.5	14.3	-1.2
23–26	9.8	9.4	9.8	11.1	9.3	5.5	4.4	4.7	5.6	4.5	4.8	3.7	5.7	8.9	9.6	8.3	7.6	6.1	10.3	11.4	10.8	-0.7
27–30	3.2	3.7	3.2	4.3	4.8	3.0	4.7	4.0	3.4	3.9	1.7	3.8	4.2	4.1	4.2	4.7	4.6	7.7	6.2	9.8	7.6	-2.1
% saying often exposed																						
18	3.2	4.1	3.3	2.8	2.6	1.8	1.6	1.5	1.9	1.7	0.8	1.3	1.4	1.4	1.6	1.5	1.5	1.9	2.1	2.4	2.0	-0.5
19–22	2.0	1.7	1.4	2.4	0.9	0.2	0.1	0.7	0.7	0.3	0.7	0.3	0.1	0.2	0.6	0.9	0.4	0.9	1.0	0.7	1.0	+0.3
23–26	0.1	0.3	0.2	*	0.3	0.3	*	0.3	*	0.5	0.6	*	0.6	0.3	1.4	0.1	0.8	0.1	0.8	0.2	0.9	+0.8
27–30	*	0.1	*	*	*	0.3	0.3	0.6	*	0.1	*	0.3	0.5	0.5	0.6	1.0	0.3	0.9	0.2	0.6	0.2	-0.4
Other hallucinogens [c]																						
% saying any																						
18	15.9	17.7	16.3	28.1	26.4	25.8	24.8	24.3	23.8	23.5	23.6	22.0	25.0	23.8	22.7	22.3	19.8	20.4	18.6	17.5	15.5	-2.0
19–22	15.0	12.4	11.8	22.8	23.4	18.9	18.7	19.5	17.8	20.2	17.5	17.5	19.6	17.5	17.0	14.6	19.1	17.1	18.7	13.1	17.2	+4.1
23–26	8.7	5.8	8.9	14.8	14.7	11.9	10.1	11.3	10.3	9.8	9.8	9.9	12.5	13.8	13.6	14.6	10.3	11.8	11.4	12.2	14.7	+2.4
27–30	2.6	3.0	3.0	6.4	7.7	6.3	7.9	8.8	7.8	6.8	5.2	7.5	5.0	8.1	7.8	7.2	8.3	12.0	5.9	13.4	10.5	-3.0
% saying often exposed																						
18	1.7	2.7	2.1	3.6	4.5	3.2	3.2	2.6	4.1	3.0	1.9	2.7	2.2	2.5	2.7	2.4	1.9	1.9	2.4	2.5	1.8	-0.7
19–22	0.5	0.6	0.8	2.6	2.4	0.4	0.7	1.2	0.7	0.7	0.9	0.9	1.1	1.3	0.8	*	0.9	0.6	0.6	1.1	1.3	+0.2
23–26	*	*	0.4	0.2	0.4	*	*	0.5	*	0.6	0.7	0.1	0.7	0.3	1.1	0.3	1.1	*	0.8	0.2	0.9	+0.8
27–30	*	0.1	*	0.4	*	*	0.3	0.6	*	0.4	0.3	0.3	0.7	0.5	0.8	0.9	0.9	1.2	0.2	0.6	0.2	-0.4

↓
(List of drugs continued.)

TABLE 7-3 (cont.)
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

Percentage saying exposed to drug [a]

Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cocaine																		
% saying any																		
18	37.7	36.3	34.9	33.3	35.6	38.3	37.4	34.9	30.2	30.2	27.7	21.3	19.8	19.2	18.8	21.6	25.0	25.6
19–22	37.6	42.3	43.6	36.6	38.9	39.4	41.5	37.0	36.2	26.6	24.0	18.5	19.8	13.5	14.7	14.1	19.3	18.8
23–26	—	—	—	—	38.5	40.6	42.0	34.5	35.9	28.0	24.0	19.9	16.7	14.6	14.3	14.1	12.5	14.0
27–30	—	—	—	—	—	—	—	—	28.9	28.3	24.2	18.6	19.4	16.6	14.3	11.4	12.1	11.4
% saying often exposed																		
18	5.9	6.6	6.6	5.2	6.7	7.1	7.8	5.9	5.1	5.4	4.7	3.4	2.7	2.9	2.5	3.2	4.0	4.2
19–22	5.8	7.6	6.5	4.3	6.5	7.0	5.4	5.2	4.8	4.3	2.2	1.6	1.7	1.7	1.8	1.7	1.2	2.4
23–26	—	—	—	—	5.3	8.5	7.0	6.0	5.4	3.5	2.5	1.7	1.4	1.7	1.0	1.7	1.3	1.8
27–30	—	—	—	—	—	—	—	—	4.4	3.9	2.9	2.2	2.0	1.2	1.5	1.4	1.9	1.6
Heroin																		
% saying any																		
18	7.4	6.6	7.1	5.1	6.0	5.5	6.0	5.8	5.7	6.5	5.4	5.1	5.4	5.7	7.3	7.9	8.6	9.1
19–22	4.4	3.3	4.1	2.9	3.1	4.8	2.9	2.9	2.9	2.9	2.5	3.0	2.7	2.0	3.7	3.8	3.6	3.7
23–26	—	—	—	—	2.3	3.3	3.2	2.9	1.7	2.3	2.3	1.8	1.7	1.5	1.9	2.8	2.9	2.7
27–30	—	—	—	—	—	—	—	—	2.1	1.4	1.5	0.9	1.0	2.0	2.0	1.7	1.5	1.3
% saying often exposed																		
18	0.4	0.6	1.0	0.7	1.1	0.5	1.0	0.9	0.8	1.0	0.5	0.9	0.7	1.1	0.7	1.2	1.6	1.2
19–22	0.2	0.3	0.3	0.1	0.2	0.5	0.2	0.1	0.2	0.1	0.2	0.4	0.6	0.4	0.6	1.2	0.2	0.4
23–26	—	—	—	—	*	0.7	0.3	0.6	0.4	0.3	0.6	0.3	*	*	*	0.2	0.2	0.3
27–30	—	—	—	—	—	—	—	—	0.3	0.3	0.5	0.2	0.2	0.9	0.3	0.6	0.6	*
Other narcotics [d]																		
% saying any																		
18	19.6	17.5	18.5	17.3	18.0	18.4	15.6	14.4	14.8	13.8	14.2	11.3	11.1	12.4	14.9	15.5	18.5	20.4
19–22	14.4	14.4	15.2	10.9	12.4	13.7	9.8	12.2	11.2	9.0	9.4	9.2	8.5	6.8	10.1	12.1	11.5	14.5
23–26	—	—	—	—	9.0	12.3	9.2	9.7	7.4	8.0	5.9	8.3	7.0	4.6	6.9	7.8	7.4	6.5
27–30	—	—	—	—	—	—	—	—	6.5	6.5	5.8	5.5	3.7	5.6	5.9	5.7	4.7	4.9
% saying often exposed																		
18	1.7	1.7	2.4	2.2	2.0	1.8	2.1	1.7	1.7	1.7	1.6	1.4	1.3	1.7	1.7	2.1	3.4	2.5
19–22	0.7	0.5	0.5	0.9	0.7	1.0	0.5	0.4	0.9	0.3	0.2	1.0	0.9	0.6	0.8	1.4	0.7	1.5
23–26	—	—	—	—	0.4	0.5	1.3	0.8	0.8	0.5	1.6	0.7	0.1	0.3	0.1	0.1	0.3	0.7
27–30	—	—	—	—	—	—	—	—	0.7	0.5	1.0	0.3	0.8	1.2	0.8	0.8	0.7	0.5
Amphetamines																		
% saying any																		
18	40.8	49.5	50.2	46.1	45.0	41.0	36.5	31.7	27.9	27.4	28.3	23.6	24.5	24.7	28.2	28.1	31.5	31.0
19–22	42.3	48.6	48.4	39.7	41.3	35.9	31.3	26.7	21.2	18.5	19.5	17.4	21.3	15.1	20.3	21.0	22.3	24.6
23–26	—	—	—	—	32.3	30.5	29.1	20.9	18.8	14.0	16.8	14.6	11.8	13.2	11.2	13.0	11.1	11.7
27–30	—	—	—	—	—	—	—	—	15.6	14.3	13.5	10.7	11.4	11.3	11.0	10.6	7.6	9.1
% saying often exposed																		
18	8.3	12.1	12.3	10.1	9.0	6.5	5.8	4.5	4.1	4.7	4.1	3.1	3.0	3.9	4.1	4.5	5.6	5.2
19–22	7.4	9.9	7.7	6.9	5.4	4.4	3.1	3.3	2.2	1.5	1.1	1.9	2.6	1.5	3.3	5.0	1.3	4.1
23–26	—	—	—	—	3.9	3.2	2.2	3.3	1.9	0.7	2.0	1.3	0.2	0.8	0.9	1.6	1.3	1.4
27–30	—	—	—	—	—	—	—	—	2.0	2.0	1.2	0.8	0.8	1.3	0.7	1.6	1.8	1.0

(Table continued on next page.)

TABLE 7-3 (cont.)
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

Percentage saying exposed to drug [a]

	Age Group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Cocaine																							
% saying any	18	26.6	25.8	24.2	24.5	24.9	24.8	24.4	25.7	28.2	25.2	24.1	20.0	20.0	19.3	17.4	16.7	17.6	18.0	18.2	17.6	17.1	-0.5
	19–22	21.6	18.5	19.1	20.6	22.5	18.4	23.6	22.7	22.9	22.5	22.7	18.6	17.8	15.5	18.9	11.5	17.6	18.0	28.7	18.6	25.4	+6.8
	23–26	16.0	18.2	16.4	16.9	18.3	17.4	18.7	19.2	19.3	19.0	18.2	15.3	14.7	20.5	17.2	14.4	15.6	15.7	20.0	20.0	24.0	+4.1
	27–30	8.6	11.6	10.2	11.6	12.2	12.6	13.0	15.8	16.0	14.1	14.8	13.2	11.4	13.1	14.2	15.0	12.1	17.8	15.4	19.3	20.3	+1.0
% saying often exposed	18	3.7	4.6	4.6	4.5	5.3	5.0	4.7	4.2	5.3	4.6	3.6	2.6	2.1	2.3	2.8	2.1	2.2	2.3	3.0	3.0	1.7	-1.2
	19–22	3.2	1.4	3.8	3.0	4.1	1.6	2.6	4.0	2.6	1.8	2.6	2.6	0.7	1.2	3.2	1.7	2.4	1.2	1.8	1.5	4.1	+2.6
	23–26	1.5	2.2	1.8	1.0	2.5	1.9	2.9	1.8	2.0	3.2	1.0	1.0	1.2	1.4	2.0	1.0	2.1	0.8	3.4	3.2	3.3	0.0
	27–30	0.8	1.5	0.3	1.6	2.4	1.7	0.7	2.4	0.8	0.7	1.4	0.8	0.1	1.4	0.8	1.6	1.8	2.0	2.2	1.9	1.7	-0.2
Heroin																							
% saying any	18	8.7	8.1	9.1	8.7	8.3	7.3	6.6	7.3	9.0	8.6	6.8	7.3	8.3	6.4	6.0	6.6	5.2	5.6	5.3	6.4	5.2	-1.1
	19–22	6.4	3.2	5.2	3.2	5.3	3.4	3.0	3.2	3.7	3.3	4.8	4.3	3.2	4.0	3.6	3.4	3.6	3.2	2.9	4.4	3.4	-1.0
	23–26	3.1	2.9	2.6	2.4	3.8	2.0	3.1	2.6	3.5	3.6	1.8	1.8	4.1	4.8	2.4	2.3	2.4	3.9	5.1	5.2	4.7	-0.5
	27–30	1.4	1.9	1.9	2.3	2.7	1.3	3.2	2.9	2.3	3.0	2.2	1.9	1.5	3.5	3.0	3.9	5.3	2.6	3.4	5.5	3.4	-2.1
% saying often exposed	18	0.9	1.3	1.5	0.7	1.3	1.2	1.2	0.8	1.7	1.1	0.8	0.8	1.0	1.1	1.3	0.7	0.7	1.2	0.9	1.1	0.6	-0.5
	19–22	0.7	0.8	0.7	0.8	0.6	0.2	*	0.8	0.1	*	0.6	*	0.4	0.7	1.0	1.0	0.9	*	*	0.5	0.6	+0.1
	23–26	0.5	1.0	*	*	0.8	0.5	0.5	0.3	0.6	0.3	*	*	1.2	0.3	0.2	*	0.3	1.1	0.8	0.6	0.8	+0.2
	27–30	*	0.2	*	*	0.7	0.3	*	0.4	0.3	0.4	0.3	0.6	*	1.2	0.7	1.3	0.5	1.0	0.9	1.0	0.7	-0.2
Other narcotics [d]																							
% saying any	18	20.7	21.9	21.1	21.6	22.5	21.8	20.3	19.0	18.9	18.9	16.3	16.3	30.3	27.5	27.1	22.9	20.9	21.0	21.0	19.9	18.1	-1.8
	19–22	15.3	13.9	17.0	18.3	18.7	13.6	14.5	16.8	15.3	12.5	13.2	14.2	27.5	23.7	25.2	19.5	21.3	17.8	19.9	15.3	16.9	+1.6
	23–26	8.1	9.4	10.9	12.2	12.0	12.6	12.6	12.4	13.0	14.4	11.2	13.2	25.9	25.3	24.1	22.5	17.8	19.6	20.4	16.7	15.6	-1.1
	27–30	3.6	5.2	6.5	9.0	7.9	9.5	8.8	11.6	10.6	9.2	9.1	9.7	23.4	22.7	23.6	24.5	19.4	19.1	14.8	22.8	16.5	-6.2
% saying often exposed	18	2.8	3.9	2.9	3.0	3.8	3.0	3.3	2.6	3.4	3.4	2.1	2.7	5.3	5.6	5.7	3.8	3.6	2.8	3.8	3.4	1.8	-1.6
	19–22	1.7	1.1	2.4	1.6	3.0	1.2	0.8	2.4	1.9	1.7	1.9	1.6	3.3	2.1	1.6	2.2	2.0	1.7	0.4	0.7	1.5	+0.8
	23–26	0.5	1.1	0.7	1.0	0.9	1.6	1.4	1.3	1.1	1.8	1.0	1.3	4.4	2.5	3.6	1.5	2.3	2.0	4.0	1.6	1.4	-0.2
	27–30	*	0.2	1.1	1.0	0.7	1.2	0.1	1.7	0.7	0.8	0.4	1.4	3.0	3.1	2.3	3.1	2.6	2.3	2.6	1.4	0.9	-0.5
Amphetamines [e]																							
% saying any	18	29.9	30.1	29.5	31.5	30.6	27.4	27.2	26.4	26.6	23.8	23.3	23.8	23.6	28.0	26.2	25.4	23.7	25.7	24.3	22.4	21.9	-0.6
	19–22	24.8	21.2	24.8	23.3	25.5	21.6	23.7	22.2	22.7	22.8	17.6	18.0	19.4	26.0	27.4	26.2	30.4	30.3	34.2	26.3	31.4	+5.1
	23–26	14.6	12.3	18.5	18.2	17.9	15.4	18.8	15.6	18.7	16.6	13.7	15.3	15.8	24.2	23.1	21.4	22.0	23.5	25.8	23.0	32.2	+9.3 s
	27–30	6.6	10.4	7.4	11.1	11.5	12.2	11.4	12.2	14.1	10.0	10.3	10.3	12.6	16.4	19.0	19.1	17.7	23.1	19.9	20.3	19.1	-1.1
% saying often exposed	18	4.7	6.3	4.4	6.0	6.4	4.9	5.3	4.1	5.6	4.3	3.0	4.3	3.3	6.1	5.7	5.3	5.7	5.2	5.0	5.0	3.3	-1.7
	19–22	2.9	2.2	2.4	2.6	5.6	1.7	4.1	3.1	2.9	2.3	2.1	3.0	3.9	3.3	5.5	3.7	6.8	5.4	8.2	4.9	4.3	-0.6
	23–26	2.2	1.7	1.4	2.2	0.7	1.3	1.7	1.6	2.6	1.6	1.8	1.1	1.6	3.1	4.1	3.2	3.6	2.3	3.6	3.0	4.6	+1.6
	27–30	0.2	1.1	0.4	0.6	1.5	1.0	1.2	1.0	0.8	1.1	0.3	0.7	0.6	1.7	3.0	2.7	2.0	3.5	2.7	1.8	3.1	+1.4

(List of drugs continued.)

TABLE 7-3 (cont.)
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

Percentage saying exposed to drug [a]

Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Sedatives/barbiturates [e]																		
% saying any																		
18	25.2	25.9	25.7	22.5	21.2	18.9	15.8	13.1	12.4	11.8	13.3	10.0	10.2	11.9	13.0	14.5	15.5	16.1
19–22	25.6	23.1	21.8	18.3	15.7	14.7	12.8	12.0	8.2	8.3	6.5	7.9	7.3	7.2	7.4	10.1	8.8	11.7
23–26	—	—	—	—	16.1	13.1	11.0	7.1	7.1	6.6	6.9	5.9	6.5	3.8	4.2	5.7	6.6	4.9
27–30	—	—	—	—	—	—	—	—	8.0	6.8	5.9	5.4	5.2	5.7	4.5	5.2	3.5	3.8
% saying often exposed																		
18	3.4	4.0	4.3	3.0	2.7	1.7	2.1	1.5	1.4	1.7	1.7	1.2	1.1	1.6	1.7	2.0	2.9	2.5
19–22	2.5	2.8	1.1	1.4	0.7	1.3	0.5	0.7	0.7	0.3	0.7	0.4	0.7	0.7	1.3	1.3	0.4	0.9
23–26	—	—	—	—	0.7	0.9	1.7	0.8	0.6	0.3	1.1	0.3	0.3	*	*	0.2	0.3	0.8
27–30	—	—	—	—	—	—	—	—	0.7	0.4	0.6	0.2	0.4	1.2	0.2	0.6	0.5	0.2
Tranquilizers [f]																		
% saying any																		
18	29.1	29.0	26.6	23.5	23.1	23.4	19.6	18.4	18.2	15.1	16.3	14.2	12.7	13.8	16.5	15.7	17.9	18.9
19–22	29.6	26.9	28.5	19.5	21.2	19.5	16.4	18.5	13.8	12.0	12.7	12.6	11.0	10.0	12.0	11.8	10.7	15.6
23–26	—	—	—	—	23.1	21.0	16.9	15.9	13.4	12.9	12.0	10.4	9.7	10.9	9.8	10.3	10.1	9.4
27–30	—	—	—	—	—	—	—	—	15.0	11.6	11.1	9.7	10.3	10.4	9.0	11.2	9.6	9.6
% saying often exposed																		
18	3.2	4.2	3.5	2.9	2.9	2.2	2.5	2.6	2.2	2.1	1.9	1.4	1.9	1.7	1.8	2.3	3.5	3.2
19–22	3.2	2.6	1.8	2.1	1.5	1.7	0.9	1.1	1.8	1.0	1.1	1.1	1.5	1.1	1.3	1.5	0.5	1.3
23–26	—	—	—	—	2.0	1.6	2.6	1.8	1.2	0.8	0.5	1.0	0.6	0.7	0.1	1.1	1.5	0.7
27–30	—	—	—	—	—	—	—	—	1.4	0.3	1.7	0.8	1.3	1.3	1.0	1.1	0.8	1.2
Alcoholic beverages																		
% saying any																		
18	94.7	94.0	94.0	94.0	94.0	94.0	94.1	93.9	93.1	92.3	93.6	91.7	90.6	91.8	90.0	91.2	91.5	91.4
19–22	94.3	93.8	94.5	93.4	94.2	92.7	93.6	94.4	92.5	91.8	92.4	94.0	93.3	92.9	93.7	93.1	93.7	93.1
23–26	—	—	—	—	90.3	92.7	91.4	90.6	91.1	92.9	91.3	91.0	91.4	90.3	89.5	91.9	89.6	93.1
27–30	—	—	—	—	—	—	—	—	87.1	88.4	86.2	87.7	87.3	86.6	86.2	89.3	89.2	86.4
% saying often exposed																		
18	60.2	61.0	59.3	60.2	58.7	59.5	58.0	58.7	56.4	55.5	56.1	54.5	53.1	51.9	54.0	54.0	54.5	53.9
19–22	59.6	61.2	62.5	56.6	59.3	61.8	59.9	61.4	55.4	53.8	56.0	53.9	56.1	56.8	57.0	56.3	52.3	54.2
23–26	—	—	—	—	52.1	54.8	51.4	53.0	48.1	50.9	49.7	48.4	45.4	45.4	43.3	47.5	44.8	49.8
27–30	—	—	—	—	—	—	—	—	39.9	39.5	38.7	38.0	39.9	38.1	39.3	38.0	34.7	37.1
Approximate Weighted N =																		
18	*3,259*	*3,608*	*3,645*	*3,334*	*3,238*	*3,252*	*3,078*	*3,296*	*3,300*	*2,795*	*2,556*	*2,525*	*2,630*	*2,730*	*2,581*	*2,608*	*2,407*	*2,595*
19–22	*582*	*574*	*601*	*569*	*578*	*549*	*591*	*582*	*556*	*567*	*567*	*532*	*528*	*489*	*460*	*464*	*485*	*471*
23–26					*533*	*532*	*557*	*529*	*531*	*514*	*523*	*494*	*532*	*513*	*471*	*467*	*447*	*424*
27–30									*522*	*507*	*506*	*478*	*502*	*457*	*425*	*452*	*432*	*455*

(Table continued on next page.)

TABLE 7-3 (cont.)
Trends in Direct Exposure to Drug Use
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

Q. During the LAST 12 MONTHS how often have you been around people who were taking each of the following to get high or for "kicks"?

	Age Group	Percentage saying exposed to drug [a]																					2017–2018 change
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Sedatives/barbiturates [f]																							
% saying any	18	16.1	17.1	16.3	17.1	17.7	14.8	21.5	20.4	21.3	18.8	16.7	17.6	18.8	16.2	16.0	15.0	13.4	13.5	12.8	11.2	11.4	+0.2
	19–22	13.4	11.6	13.1	13.1	16.0	11.9	17.2	17.8	16.0	16.1	15.2	17.3	16.1	12.2	14.8	10.7	14.2	13.1	16.9	9.3	12.9	+3.5
	23–26	8.5	7.1	9.3	9.0	9.8	7.9	15.9	12.5	14.8	13.1	12.4	12.7	13.4	15.2	14.9	10.6	11.9	11.5	13.3	12.1	12.2	+0.1
	27–30	2.7	4.1	2.9	5.3	6.0	6.1	9.2	12.4	11.9	10.3	10.1	9.9	11.6	10.4	11.7	10.1	11.8	12.1	10.5	13.1	11.7	-1.4
% saying often exposed	18	2.7	3.8	2.7	2.7	4.6	2.8	4.1	3.7	3.9	3.9	2.1	3.4	2.5	3.1	2.9	2.5	2.3	1.8	2.5	2.3	1.9	-0.4
	19–22	1.4	0.9	1.6	1.2	1.8	0.8	1.7	2.1	2.5	1.4	2.2	1.9	0.9	1.2	1.7	1.0	1.5	1.9	1.5	0.9	1.0	+0.1
	23–26	0.5	0.9	0.7	0.2	0.3	0.4	0.7	1.1	1.1	1.6	1.7	0.7	1.0	1.0	1.5	0.8	1.3	0.5	1.4	0.8	0.8	+0.1
	27–30	*	0.6	0.2	0.9	0.4	0.6	0.4	1.7	0.7	1.3	0.4	1.7	0.9	1.3	1.1	2.0	0.6	1.4	0.2	1.4	1.0	-0.4
Tranquilizers [g]																							
% saying any	18	17.3	18.2	17.7	23.8	22.7	21.0	22.1	20.9	21.8	19.3	19.9	20.0	18.2	17.0	17.6	16.4	16.0	19.7	22.2	22.6	20.5	-2.1
	19–22	16.9	14.3	18.5	21.3	23.6	20.0	21.9	20.6	23.1	21.4	20.0	19.6	18.1	16.6	19.0	13.3	18.3	16.8	24.4	18.1	20.6	+2.5
	23–26	10.9	10.8	12.3	16.4	20.1	18.7	19.9	20.1	19.9	18.8	18.4	17.5	21.4	19.6	21.0	19.5	15.5	17.9	19.3	18.0	16.0	-2.1
	27–30	6.1	8.8	7.6	12.6	13.6	15.3	14.6	18.1	19.2	16.7	16.8	13.5	18.6	16.5	19.5	17.5	16.3	17.4	13.8	23.5	17.5	-6.0
% saying often exposed	18	2.8	3.7	3.5	4.9	5.8	4.2	4.1	4.5	5.4	4.9	3.7	3.9	2.8	3.4	3.3	3.4	3.4	2.6	4.6	4.7	3.1	-1.7
	19–22	1.6	1.5	1.7	3.1	3.6	2.3	2.7	2.7	3.2	3.0	3.2	2.1	1.7	2.9	2.0	1.7	2.3	2.0	2.7	1.8	1.9	+0.1
	23–26	1.1	1.5	1.7	1.3	2.1	1.6	2.0	1.3	2.6	2.4	3.6	1.5	3.2	2.6	2.5	1.6	1.8	1.2	1.9	3.1	1.1	-2.0
	27–30	0.2	0.9	0.4	1.6	1.6	1.9	0.8	3.5	2.9	2.6	1.0	2.0	1.7	2.0	2.3	1.8	1.9	3.6	2.0	1.9	1.8	-0.1
Alcoholic beverages																							
% saying any	18	92.2	91.8	90.7	90.8	89.5	88.3	87.6	87.4	87.6	86.5	85.7	86.5	85.2	85.0	85.3	84.8	82.1	80.5	80.4	78.9	78.3	-0.6
	19–22	91.8	91.0	93.3	94.3	93.7	93.6	92.5	92.7	92.0	91.8	90.5	91.2	86.5	87.5	85.8	82.8	89.7	85.5	86.9	81.6	83.6	+2.0
	23–26	89.1	91.5	92.1	90.1	91.9	91.8	92.2	90.0	94.0	94.5	92.0	93.0	91.1	94.2	88.7	88.7	82.7	87.2	86.9	90.2	89.2	-1.0
	27–30	88.4	88.7	89.8	91.2	89.0	90.0	85.3	92.2	91.8	89.6	94.4	91.0	91.2	92.5	90.5	88.8	85.6	89.3	85.3	83.6	89.4	+5.8 s
% saying often exposed	18	54.5	53.5	50.2	52.7	50.8	49.0	48.2	49.1	47.8	46.4	45.4	46.3	45.8	40.7	43.0	41.7	40.3	38.0	37.4	35.4	33.6	-1.7
	19–22	57.9	54.7	54.3	53.4	54.9	55.7	54.3	58.9	55.0	60.7	53.9	53.4	48.5	46.0	50.6	45.3	49.5	51.1	53.2	43.2	45.1	+1.8
	23–26	44.6	45.7	49.6	48.8	46.3	50.5	48.3	46.4	57.1	54.2	49.6	53.8	51.3	52.5	55.6	49.3	44.4	49.3	47.6	52.3	51.1	-1.2
	27–30	36.6	38.3	34.4	40.0	39.6	40.6	36.8	43.6	47.3	44.3	47.8	45.2	43.0	49.3	50.4	48.1	47.7	47.4	48.7	46.5	44.5	-2.0
Approximate Weighted N =	18	*2,541*	*2,312*	*2,153*	*2,147*	*2,162*	*2,454*	*2,456*	*2,469*	*2,469*	*2,448*	*2,332*	*2,274*	*2,434*	*2,372*	*2,299*	*2,150*	*2,075*	*2,177*	*2,018*	*2,086*	*2,200*	
	19–22	*445*	*450*	*415*	*412*	*403*	*396*	*432*	*377*	*378*	*333*	*365*	*368*	*364*	*340*	*356*	*281*	*316*	*264*	*251*	*228*	*271*	
	23–26	*400*	*398*	*389*	*406*	*345*	*385*	*404*	*374*	*363*	*327*	*333*	*328*	*347*	*308*	*334*	*311*	*308*	*286*	*271*	*237*	*264*	
	27–30	*449*	*430*	*395*	*369*	*359*	*347*	*370*	*370*	*330*	*356*	*339*	*324*	*336*	*306*	*312*	*301*	*303*	*263*	*259*	*276*	*285*	

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

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. ' — ' indicates data not available.
' * ' indicates a prevalence rate of less than 0.05%.

[a] Answer alternatives were: (1) Not at all, (2) Once or twice, (3) Occasionally, (4) Often. The "any" percentage combines categories (2)–(4).

[b] These estimates were derived from responses to the question for the following drugs: marijuana, LSD, other hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), and tranquilizers.

[c] In 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

[d] In 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

[e] In 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

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

[g] In 2001 Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

TABLE 7-4
Trends in Availability of Drugs as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

Percentage saying fairly easy or very easy to get [a]

	Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Marijuana	18	89.0	89.2	88.5	86.2	84.6	85.5	85.2	84.8	85.0	84.3	84.4	83.3	82.7	83.0	85.5	88.5	88.7	89.6	90.4
	19–22	95.6	91.1	92.4	89.7	88.3	89.5	87.2	85.9	87.1	87.1	86.2	86.0	87.8	85.6	87.2	87.9	89.3	90.6	89.9
	23–26	—	—	—	—	92.5	88.8	88.8	90.3	86.9	88.7	83.3	82.5	83.8	84.6	87.1	86.2	85.3	84.4	87.5
	27–30	—	—	—	—	—	—	—	—	89.3	86.0	83.1	83.8	80.7	82.8	80.3	83.3	82.6	84.5	82.1
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.7	75.6	73.0	77.1	76.0
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	73.4
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amyl & butyl nitrites	18	—	—	—	—	—	—	—	23.9	25.9	26.8	24.4	22.7	25.9	25.9	26.7	26.0	23.9	23.8	25.1
	19–22	—	—	—	—	—	—	—	22.8	26.0	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	23.1	28.0	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	26.7	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LSD	18	35.3	35.0	34.2	30.9	30.6	30.5	28.5	31.4	33.3	38.3	40.7	39.5	44.5	49.2	50.8	53.8	51.3	50.7	48.8
	19–22	39.6	38.4	35.1	31.8	32.7	29.6	30.5	29.9	33.9	36.4	36.6	37.8	42.5	44.9	43.7	50.5	50.8	47.7	51.1
	23–26	—	—	—	—	32.7	29.1	30.0	27.5	32.7	32.6	30.2	32.8	33.5	33.4	40.1	41.0	43.6	39.2	40.4
	27–30	—	—	—	—	—	—	—	—	29.4	29.9	32.3	27.0	30.9	30.5	27.2	35.6	33.6	35.2	32.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	32.4	28.4	32.9	31.2
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31.1
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other hallucinogens [b]	18	35.0	32.7	30.6	26.6	26.6	26.1	24.9	25.0	26.2	28.2	28.3	28.0	29.9	33.5	33.8	35.8	33.9	33.9	35.1
	19–22	42.1	37.7	33.5	31.0	28.9	28.7	26.3	27.5	28.7	28.1	28.9	26.6	28.3	29.5	28.6	31.5	31.5	33.4	34.1
	23–26	—	—	—	—	31.8	29.6	26.4	25.6	29.6	28.7	27.0	25.7	27.7	25.3	28.3	29.2	32.6	31.0	32.4
	27–30	—	—	—	—	—	—	—	—	28.6	29.6	30.8	24.9	24.8	25.4	24.7	29.3	25.9	28.0	25.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PCP	18	—	—	—	—	—	—	—	22.8	24.9	28.9	27.7	27.6	31.7	31.7	31.4	31.0	30.5	30.0	30.7
	19–22	—	—	—	—	—	—	—	21.7	24.6	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	21.2	27.6	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	24.3	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecstasy (MDMA)	18	—	—	—	—	—	—	—	—	—	21.7	22.0	22.1	24.2	28.1	31.2	34.2	36.9	38.8	38.2
	19–22	—	—	—	—	—	—	—	—	—	—	26.6	24.9	27.1	23.9	27.0	29.3	33.4	35.6	39.4
	23–26	—	—	—	—	—	—	—	—	—	—	21.4	23.1	26.4	24.0	26.0	27.8	28.7	31.1	30.1
	27–30	—	—	—	—	—	—	—	—	—	—	27.1	20.8	22.2	22.8	21.9	27.1	29.3	24.3	26.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Years Cont.)

(Table continued on next page.)

TABLE 7-4 (cont.)
Trends in Availability of Drugs as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Age Group	Percentage saying fairly easy or very easy to get [a]																				2017–2018 change
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Marijuana	18	88.9	88.5	88.5	87.2	87.1	85.8	85.6	84.9	83.9	83.9	81.1	82.1	82.2	81.6	81.4	81.3	79.5	81.0	79.8	79.7	-0.1
	19–22	87.4	89.6	91.7	88.1	87.7	87.3	88.0	86.8	88.4	87.5	83.0	84.2	82.9	85.4	83.9	85.7	88.7	86.5	90.1	84.6	-5.5
	23–26	85.9	88.4	87.0	89.1	87.2	88.8	87.0	86.8	87.6	85.3	89.4	83.3	88.3	87.0	87.4	87.7	87.4	88.5	88.8	88.1	-0.6
	27–30	83.0	81.5	84.8	83.6	81.8	86.0	84.6	87.6	87.8	86.4	88.9	84.6	85.6	85.1	86.8	86.4	91.5	86.8	87.0	89.9	+2.9
	35	74.9	77.1	75.3	76.5	75.1	75.6	73.8	75.1	75.5	76.4	75.7	75.6	80.4	80.5	80.2	84.4	85.5	84.7	84.9	83.5	-1.4
	40	71.7	73.1	70.4	72.1	72.3	68.9	73.6	69.7	71.2	72.5	72.9	73.6	74.6	74.6	78.8	76.0	77.3	80.7	82.3	84.3	+2.0
	45	—	—	—	—	68.5	69.9	70.1	67.9	70.1	68.1	67.9	73.4	69.8	71.8	73.6	76.9	77.2	81.1	82.6	83.5	+0.9
	50	—	—	—	—	—	—	—	—	—	64.4	65.8	67.9	65.8	68.9	70.1	71.9	75.8	74.5	76.6	78.7	+2.1
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	68.8	72.1	71.7	72.8	76.7	74.6	-2.1
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71.3	—
Amyl & butyl nitrites	18	21.4	23.3	22.5	22.3	19.7	20.0	19.7	18.4	18.1	16.9	15.7	—	—	—	—	—	—	—	—	—	—
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LSD	18	44.7	46.9	44.7	39.6	33.6	33.1	28.6	29.0	28.7	28.5	26.3	25.1	25.1	27.6	24.5	25.9	26.5	28.0	26.3	28.0	+1.7
	19–22	43.8	47.1	42.5	37.9	34.1	30.3	27.7	29.0	23.0	19.7	24.2	26.1	24.8	23.2	26.2	22.3	25.8	24.6	33.3	33.3	0.0
	23–26	41.2	40.4	38.3	37.2	34.1	38.5	26.5	30.3	25.2	24.1	26.1	24.2	21.4	19.3	22.8	17.2	20.5	17.7	23.0	27.2	+4.3
	27–30	35.7	35.6	38.3	32.3	33.5	30.0	29.3	29.7	26.8	28.1	22.5	25.2	26.6	19.1	21.7	21.1	15.5	20.4	17.9	22.1	+4.2
	35	27.7	32.2	28.7	29.1	29.8	25.6	24.0	28.7	26.6	26.4	26.9	25.5	24.0	23.0	24.1	22.2	19.3	20.8	18.5	21.4	+2.9
	40	31.0	28.5	25.7	27.4	25.0	24.4	24.3	23.9	21.5	25.1	22.2	23.3	22.6	21.6	20.1	23.0	20.6	21.4	18.8	22.3	+3.5
	45	—	—	—	—	24.2	27.0	25.4	23.7	23.6	21.1	19.4	23.6	21.3	18.9	23.4	21.2	17.9	19.7	21.6	21.8	+0.2
	50	—	—	—	—	—	—	—	—	—	19.0	21.9	18.6	20.3	18.1	17.1	17.7	19.7	19.5	17.3	22.6	+5.3 s
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other hallucinogens [b]	18	29.5	34.5	48.5	47.7	47.2	49.4	45.0	43.9	43.7	42.8	40.5	39.5	38.3	37.8	36.6	33.6	31.4	32.5	28.4	28.6	+0.2
	19–22	31.1	33.4	45.9	48.8	45.1	46.9	48.5	41.9	39.3	34.7	38.1	39.1	37.5	36.4	34.1	31.2	35.4	30.6	32.4	34.2	+1.9
	23–26	31.5	28.5	38.3	39.7	39.2	44.4	39.2	41.5	36.8	39.3	39.2	32.3	35.0	32.7	31.8	27.5	31.1	29.6	30.1	32.1	+2.0
	27–30	30.3	25.0	38.6	33.3	35.6	31.2	30.8	32.1	30.0	36.2	32.0	34.7	33.4	31.4	33.3	31.0	27.3	24.3	27.2	29.4	+2.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PCP	18	26.7	28.8	27.2	25.8	21.9	24.2	23.2	23.1	21.0	20.6	19.2	18.5	17.2	14.2	15.3	11.0	13.8	12.6	10.6	10.8	+0.2
	19–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecstasy (MDMA)	18	40.1	51.4	61.5	59.1	57.5	47.9	40.3	40.3	40.9	41.9	35.1	36.4	37.1	35.9	35.1	36.1	37.1	32.5	29.3	27.7	-1.6
	19–22	43.2	49.9	55.5	59.7	52.1	45.8	43.5	41.2	38.4	34.7	37.1	30.4	37.9	28.3	33.9	32.9	38.6	33.4	32.0	38.7	+6.8
	23–26	34.9	41.8	51.5	52.9	49.3	51.3	46.4	44.6	42.2	41.5	36.8	35.2	34.0	32.2	35.7	30.9	36.3	30.8	35.0	33.6	-1.3
	27–30	30.0	35.5	40.6	41.2	41.0	41.1	38.0	40.5	40.7	42.2	38.0	31.2	33.8	32.8	28.6	29.7	33.2	35.8	33.1	31.7	-1.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

↓
(List of drugs continued.)

TABLE 7-4 (cont.)
Trends in Availability of Drugs as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

Percentage saying fairly easy or very easy to get [a]

Age Group	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Cocaine																			
18	47.9	47.5	47.4	43.1	45.0	48.9	51.5	54.2	55.0	58.7	54.5	51.0	52.7	48.5	46.6	47.7	48.1	48.5	51.3
19–22		56.2	57.1	55.2	56.2	56.9	60.4	65.0	64.9	66.8	61.7	54.3	54.5	49.2	49.9	49.4	44.4	49.7	47.7
23–26	—	—	—	—	63.7	67.2	65.8	69.0	71.7	70.0	65.6	58.0	61.1	53.8	54.4	54.7	50.2	46.9	51.8
27–30	—	—	—	—	—	—	—	—	68.6	68.2	64.0	60.0	63.1	56.8	53.1	57.0	53.0	50.4	46.9
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crack																			
18	—	—	—	—	—	—	—	41.1	42.1	47.0	42.4	39.9	43.5	43.6	40.5	41.9	40.7	40.6	43.8
19–22	—	—	—	—	—	—	—	41.9	47.3	47.2	46.9	42.1	42.1	38.4	41.6	40.7	32.9	39.9	40.0
23–26	—	—	—	—	—	—	—	44.5	53.0	49.9	46.9	42.0	42.6	42.5	42.4	42.3	37.9	37.2	38.4
27–30	—	—	—	—	—	—	—	—	46.5	46.8	46.8	43.1	45.2	45.8	41.1	44.7	39.9	36.5	33.3
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	49.6	48.2	43.1	44.3	45.0
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43.3
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine powder																			
18	—	—	—	—	—	—	—	52.9	50.3	53.7	49.0	46.0	48.0	45.4	43.7	43.8	44.4	43.3	45.7
19–22	—	—	—	—	—	—	—	58.7	60.2	61.7	56.5	52.5	48.9	45.7	47.8	45.5	41.3	46.0	47.1
23–26	—	—	—	—	—	—	—	64.9	69.1	60.1	58.6	53.2	56.4	50.5	49.7	49.6	45.9	43.6	44.4
27–30	—	—	—	—	—	—	—	—	63.5	62.8	57.9	55.8	56.8	55.0	48.9	52.9	48.4	45.1	43.9
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	53.9	52.1	46.7	48.3	47.0
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.0
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Heroin																			
18	21.2	19.2	20.8	19.3	19.9	21.0	22.0	23.7	28.0	31.4	31.9	30.6	34.9	33.7	34.1	35.1	32.2	33.8	35.6
19–22	18.9	19.4	19.3	16.4	17.2	20.8	21.2	24.4	28.5	31.6	30.7	25.3	30.2	30.0	33.2	35.2	29.1	31.4	32.1
23–26	—	—	—	—	18.6	18.1	21.0	22.3	28.4	31.2	28.1	25.6	25.7	25.7	29.2	29.3	32.3	30.5	35.1
27–30	—	—	—	—	—	—	—	—	23.6	27.4	29.5	22.1	25.6	28.5	24.4	30.7	29.5	30.0	28.3
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Some other narcotic [c]																			
18	29.4	29.6	30.4	30.0	32.1	33.1	32.2	33.0	35.8	38.3	38.1	34.6	37.1	37.5	38.0	39.8	40.0	38.9	42.8
19–22	32.7	32.4	30.8	31.0	28.7	34.3	32.6	33.8	37.9	37.9	35.6	35.4	35.2	33.5	35.1	38.7	37.3	38.3	38.9
23–26	—	—	—	—	32.8	32.1	33.6	32.2	35.9	36.4	34.7	33.2	33.9	33.1	35.8	32.6	36.7	35.7	39.9
27–30	—	—	—	—	—	—	—	—	31.6	36.2	36.1	29.0	31.8	33.0	34.8	36.9	37.2	35.2	32.2
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines																			
18	61.3	69.5	70.8	68.5	68.2	66.4	64.3	64.5	63.9	64.3	59.7	57.3	58.8	61.5	62.0	62.8	59.4	59.8	60.8
19–22	71.7	72.6	73.5	69.7	69.1	69.1	63.1	61.8	61.3	62.2	57.7	58.3	56.3	56.0	56.6	60.3	56.9	55.5	56.3
23–26	—	—	—	—	65.8	66.0	64.5	65.3	62.2	60.1	55.8	54.8	54.5	52.6	52.9	56.0	52.8	51.2	53.2
27–30	—	—	—	—	—	—	—	—	54.3	58.6	55.3	54.4	50.4	52.9	48.3	53.7	51.7	48.1	41.4
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	45.6	43.5	39.1	40.9	39.4
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	41.0
45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

TABLE 7-4 (cont.)
Trends in Availability of Drugs as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

Percentage saying fairly easy or very easy to get [a]

	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Cocaine	18	47.6	47.8	46.2	44.6	43.3	47.8	44.7	46.5	47.1	42.4	39.4	35.5	30.5	29.8	30.5	29.2	29.1	28.6	27.3	28.1	+0.9
	19–22	52.6	52.1	49.6	47.6	46.7	47.0	50.0	47.4	47.3	44.0	38.5	37.2	39.2	32.9	28.1	34.4	33.3	37.3	37.0	40.5	+3.5
	23–26	45.7	45.0	44.6	47.8	40.8	50.7	48.4	51.2	47.4	45.5	44.0	41.1	37.8	37.4	36.8	36.8	36.2	36.8	38.0	38.6	+0.6
	27–30	50.0	44.6	45.5	46.3	42.9	38.0	43.1	43.2	45.8	50.6	43.6	40.8	44.2	42.3	35.0	41.6	39.4	39.7	40.1	41.8	+1.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crack	18	41.1	42.6	40.2	38.5	35.3	39.2	39.3	38.8	37.5	35.2	31.9	26.1	24.0	22.0	24.6	20.1	22.0	19.8	18.1	20.8	+2.7
	19–22	40.8	40.2	37.3	35.7	37.5	33.7	34.0	35.2	35.7	31.4	27.3	27.2	27.3	20.6	20.8	23.3	21.0	20.0	18.3	22.1	+3.8
	23–26	35.0	31.9	37.1	33.9	32.8	36.5	35.1	34.0	31.4	33.1	27.4	27.1	25.3	27.6	24.2	26.7	21.9	19.4	23.6	21.2	-2.4
	27–30	38.8	35.9	36.9	33.4	33.7	28.0	34.4	29.6	36.4	36.1	33.1	27.5	28.9	25.2	24.6	26.5	26.5	28.4	22.6	22.8	+0.2
	35	41.6	45.0	41.2	38.9	40.5	36.1	34.2	37.1	35.1	33.2	31.6	30.0	30.4	27.3	28.7	25.7	26.1	26.3	24.3	—	—
	40	44.3	42.0	38.7	39.5	39.0	35.8	38.6	37.1	32.7	35.2	33.2	30.9	30.1	27.9	25.5	28.1	24.7	25.0	22.7	—	—
	45	—	—	—	—	37.0	40.0	40.6	36.2	37.0	34.2	31.7	36.2	32.3	28.2	32.3	27.3	24.7	28.8	26.5	—	—
	50	—	—	—	—	—	—	—	—	—	32.8	36.3	32.4	29.5	30.5	30.0	27.2	29.9	28.6	24.2	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.2	34.6	28.7	28.0	28.6	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine powder	18	43.7	44.6	40.7	40.2	37.4	41.7	41.6	42.5	41.2	38.9	33.9	29.0	26.4	25.1	28.4	22.3	25.8	22.9	21.3	23.0	+1.7
	19–22	45.2	45.2	43.3	43.9	45.5	43.2	44.3	44.2	44.5	39.0	36.1	35.6	35.4	26.0	25.1	31.8	33.0	29.2	29.2	36.0	+6.8
	23–26	44.3	41.8	44.4	40.7	43.4	48.5	45.1	46.4	45.0	41.4	41.6	40.3	37.5	37.0	35.1	34.0	34.3	32.4	34.5	35.5	+1.0
	27–30	46.5	43.9	42.7	42.4	39.7	37.9	40.2	42.7	43.0	47.5	41.3	38.2	38.4	37.0	35.4	36.9	40.7	38.1	36.1	37.2	+1.1
	35	43.4	47.9	43.1	41.7	42.0	39.6	35.8	39.5	37.4	38.6	34.9	35.5	35.3	31.4	35.2	31.9	34.2	35.3	33.7	38.4	+4.7
	40	46.7	44.7	41.5	41.5	40.7	38.5	40.3	37.8	35.2	36.5	33.9	33.5	31.8	29.5	29.8	31.6	28.6	30.2	27.7	35.2	+7.5 ss
	45	—	—	—	—	39.0	40.2	40.6	37.3	38.2	34.1	31.5	37.2	33.2	28.7	34.0	29.9	26.6	29.6	29.6	31.7	+2.1
	50	—	—	—	—	—	—	—	—	—	32.6	35.9	32.8	31.0	30.8	30.3	27.8	30.7	29.3	27.0	33.2	+6.2 ss
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.6	35.3	30.4	29.8	30.9	32.3	+1.4
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.9	—
Heroin	18	32.1	33.5	32.3	29.0	27.9	29.6	27.3	27.4	29.7	25.4	27.4	24.1	20.8	19.9	22.1	20.2	20.4	20.0	19.1	18.4	-0.8
	19–22	32.7	29.4	30.2	26.4	26.9	22.6	25.4	25.3	26.5	24.2	19.4	22.0	21.2	19.3	16.0	20.2	21.1	24.5	20.0	19.2	-0.8
	23–26	31.9	25.7	26.6	27.2	25.5	30.9	22.5	28.1	22.2	23.4	23.4	23.1	21.1	22.7	23.1	21.1	21.2	24.9	22.1	22.3	+0.2
	27–30	33.0	29.3	29.9	27.0	27.5	22.0	27.8	25.4	27.5	26.3	25.2	25.2	28.0	23.3	20.9	25.5	26.9	28.7	28.9	29.2	+0.3
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Some other narcotic [c]	18	40.8	43.9	40.5	44.0	39.3	40.2	39.2	39.6	37.3	34.9	36.1	54.2	50.7	50.4	46.5	42.2	39.0	39.3	35.8	32.5	-3.3
	19–22	39.5	41.1	44.1	40.4	40.6	39.4	41.4	38.5	38.3	38.0	35.3	55.2	53.8	52.2	53.5	49.7	47.5	46.8	40.1	42.4	+2.3
	23–26	38.2	38.1	35.8	40.0	40.3	47.7	44.7	45.5	41.7	41.2	42.5	56.2	59.6	58.6	62.1	52.1	52.6	55.0	48.3	49.6	+1.2
	27–30	36.9	32.4	39.4	38.5	38.9	35.8	37.7	39.8	41.3	39.4	43.5	62.3	65.2	59.8	64.4	56.2	60.9	55.2	57.6	52.9	-4.7
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines [d]	18	58.1	57.1	57.1	57.4	55.0	55.4	51.2	52.9	49.6	47.9	47.1	44.1	47.0	45.4	42.7	44.5	41.9	41.1	38.0	39.3	+1.3
	19–22	57.6	60.2	56.5	53.7	55.1	53.9	56.9	52.3	55.8	49.5	49.8	43.6	52.3	54.4	54.0	55.3	57.4	54.8	57.9	53.8	-4.2
	23–26	49.1	51.1	49.4	48.2	50.3	51.8	51.9	58.0	53.7	46.9	51.0	45.5	55.5	55.6	59.4	54.3	54.7	52.5	52.7	51.3	-1.3
	27–30	48.2	47.6	49.3	45.6	48.7	43.9	45.3	49.2	48.1	45.0	51.1	46.4	49.9	54.6	54.2	55.5	56.6	49.2	58.0	54.6	-3.4
	35	38.5	42.2	39.6	39.2	39.2	35.4	35.4	40.3	40.4	40.6	39.2	37.1	40.4	37.5	40.7	38.9	37.3	38.9	36.2	38.2	+2.0
	40	41.9	39.4	37.5	39.4	38.7	37.9	41.1	38.4	37.6	39.2	37.2	37.0	34.3	35.8	34.6	35.6	34.0	36.7	34.8	40.6	+5.8 s
	45	—	—	—	—	35.8	39.8	39.3	37.1	38.3	36.8	33.0	39.8	37.0	34.5	39.3	35.2	32.4	35.2	34.9	34.8	-0.1
	50	—	—	—	—	—	—	—	—	—	32.8	38.0	34.4	33.9	32.3	33.0	31.1	33.5	34.9	32.7	37.9	+5.2 s
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.8	39.6	35.3	35.2	34.8	35.4	+0.6
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.3	—

↓
(List of drugs continued.)

TABLE 7-4 (cont.)
Trends in Availability of Drugs as Perceived by
Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Age Group	Percentage saying "fairly easy" or "very easy" to get [a]																		
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Crystal methamphetamine (ice)	18	—	—	—	—	—	—	—	—	—	—	24.0	24.3	26.0	26.6	25.6	27.0	26.9	27.6	29.8
	19–22	—	—	—	—	—	—	—	—	—	—	24.0	21.8	22.5	20.9	24.7	25.5	25.4	29.3	31.0
	23–26	—	—	—	—	—	—	—	—	—	—	22.3	20.0	21.3	22.9	24.5	24.7	24.7	25.8	30.2
	27–30	—	—	—	—	—	—	—	—	—	—	27.3	19.7	22.0	21.2	21.7	25.8	26.1	25.1	22.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sedatives/ barbiturates [d]	18	49.1	54.9	55.2	52.5	51.9	51.3	48.3	48.2	47.8	48.4	45.9	42.4	44.0	44.5	43.3	42.3	41.4	40.0	40.7
	19–22	59.5	61.1	56.8	54.2	48.1	52.7	46.8	44.6	45.5	47.7	44.2	41.7	43.4	41.9	40.6	42.9	41.1	39.8	39.2
	23–26	—	—	—	—	52.7	47.7	46.4	45.9	47.4	44.8	41.6	39.6	42.0	38.8	40.3	42.1	40.6	39.1	42.6
	27–30	—	—	—	—	—	—	—	—	43.2	44.5	44.2	38.5	37.8	39.7	37.4	39.9	41.2	39.1	33.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers	18	59.1	60.8	58.9	55.3	54.5	54.7	51.2	48.6	49.1	45.3	44.7	40.8	40.9	41.1	39.2	37.8	36.0	35.4	36.2
	19–22	67.4	62.8	62.0	62.3	52.5	55.6	52.9	50.3	50.0	49.4	45.4	44.8	40.7	40.9	41.0	40.2	37.6	37.8	36.8
	23–26	—	—	—	—	60.2	54.3	54.1	56.3	52.8	51.4	47.8	45.1	48.1	43.2	45.9	44.3	42.3	36.4	39.4
	27–30	—	—	—	—	—	—	—	—	55.3	54.4	54.9	47.5	47.8	47.4	44.4	44.8	46.2	41.9	39.9
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	18	—	—	—	—	—	—	—	—	—	—	—	46.7	46.8	44.8	42.9	45.5	40.3	41.7	44.5
	19–22	—	—	—	—	—	—	—	—	—	—	44.1	44.8	46.3	41.7	40.9	41.8	40.8	39.2	39.2
	23–26	—	—	—	—	—	—	—	—	—	—	37.6	35.8	39.3	35.8	37.0	37.4	33.9	35.5	34.9
	27–30	—	—	—	—	—	—	—	—	—	—	36.4	30.6	35.0	31.6	30.5	33.1	35.6	32.5	30.5
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Approximate Weighted N =	18	*3,240*	*3,578*	*3,602*	*3,385*	*3,269*	*3,274*	*3,077*	*3,271*	*3,231*	*2,806*	*2,549*	*2,476*	*2,586*	*2,670*	*2,526*	*2,552*	*2,340*	*2,517*	*2,520*
	19–22	*582*	*601*	*582*	*588*	*559*	*571*	*592*	*581*	*568*	*572*	*571*	*534*	*512*	*480*	*459*	*470*	*467*	*463*	*433*
	23–26					*540*	*541*	*548*	*539*	*526*	*514*	*532*	*511*	*523*	*500*	*463*	*449*	*418*	*419*	*395*
	27–30									*519*	*513*	*510*	*487*	*475*	*473*	*437*	*446*	*468*	*459*	*425*
	35															*1,142*	*1,141*	*1,146*	*1,150*	*1,032*
	40																			*1,029*
	45																			
	50																			
	55																			
	60																			

(Table continued on next page.)

TABLE 7-4 (cont.)
Trends in Availability of Drugs as Perceived by Respondents in Modal Age Groups of 18, 19–22, 23–26, 27–30, 35, 40, 45, 50, 55, and 60

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

Percentage saying "fairly easy" or "very easy" to get [a]

	Age Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Crystal methamphetamine (ice)	18	27.6	27.8	28.3	28.3	26.1	26.7	27.2	26.7	25.1	23.3	22.3	18.3	17.1	14.5	17.2	13.7	15.3	14.5	13.6	13.6	-0.0
	19–22	31.8	27.4	28.4	31.2	26.5	27.1	28.9	29.1	27.7	24.1	19.2	19.3	19.4	13.5	15.3	15.3	15.0	15.7	10.9	15.0	+4.1
	23–26	28.5	25.8	26.4	25.1	26.4	32.3	27.8	32.3	27.8	27.7	23.1	26.1	18.2	23.5	16.3	16.0	15.1	14.0	16.2	15.1	-1.1
	27–30	29.1	25.3	27.6	29.5	30.9	25.5	27.4	31.8	29.7	31.4	27.7	27.6	26.2	24.2	22.3	22.0	20.3	22.6	17.9	16.7	-1.2
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sedatives/ barbiturates [e]	18	37.9	37.4	35.7	36.6	35.3	46.3	44.4	43.8	41.7	38.8	37.9	36.8	32.4	28.7	27.9	26.3	25.0	25.7	23.4	23.0	-0.4
	19–22	42.3	40.6	39.3	40.8	38.4	43.8	47.8	42.6	47.5	43.2	42.6	39.6	38.1	31.6	32.1	32.6	35.3	31.1	30.3	28.2	-2.1
	23–26	39.7	37.6	36.1	36.4	37.8	49.4	48.4	51.4	46.5	43.3	47.7	40.4	41.3	40.1	42.2	33.2	35.1	32.0	28.2	29.7	+1.5
	27–30	38.4	36.1	38.1	34.8	35.6	40.5	42.9	43.3	46.4	44.7	48.5	43.1	42.9	42.3	44.8	39.9	42.9	35.9	36.5	35.1	-1.4
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers	18	32.7	33.8	33.1	32.9	29.8	30.1	25.7	24.4	23.6	22.4	21.2	18.4	16.8	14.9	15.0	14.4	14.9	15.2	14.9	13.0	-1.9
	19–22	37.1	36.5	34.9	34.6	34.2	29.7	30.1	22.8	28.5	23.3	18.3	20.2	18.6	17.3	17.4	16.8	19.7	17.8	15.0	15.0	+0.1
	23–26	38.3	37.6	38.7	33.7	32.5	36.6	32.9	33.0	31.7	30.3	27.7	21.8	23.0	22.1	18.5	17.5	16.6	13.3	15.9	14.4	-1.5
	27–30	41.5	36.7	42.9	38.1	35.9	30.6	33.5	32.1	32.4	33.1	30.1	30.6	27.1	25.7	28.1	21.2	22.1	20.3	18.1	17.4	-0.7
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids	18	44.6	44.8	44.4	45.5	40.7	42.6	39.7	41.1	40.1	35.2	30.3	27.3	26.1	25.0	28.5	22.0	23.7	21.3	20.1	21.1	+1.0
	19–22	40.5	40.3	38.1	41.4	39.4	37.8	37.6	37.1	37.9	33.5	28.7	25.1	24.3	21.2	20.6	25.7	25.1	24.8	19.8	22.3	+2.4
	23–26	37.1	34.0	34.7	33.1	31.1	34.7	31.2	34.2	33.3	30.2	28.6	22.2	29.2	25.6	23.6	24.1	18.3	18.7	18.5	23.0	+4.5
	27–30	34.5	36.2	34.6	33.0	32.6	30.6	32.4	29.7	30.9	31.0	31.9	27.6	27.0	23.9	22.3	22.6	23.9	22.5	23.5	19.9	-3.6
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Approximate Weighted N =	18	*2,215*	*2,095*	*1,850*	*2,138*	*2,391*	*2,169*	*2,161*	*2,161*	*2,420*	*2,276*	*2,243*	*2,395*	*2,337*	*2,280*	*2,092*	*2,066*	*2,181*	*1,966*	*1,882*	*1,931*	
	19–22	*425*	*400*	*398*	*375*	*386*	*441*	*392*	*376*	*362*	*380*	*377*	*377*	*355*	*341*	*342*	*313*	*294*	*252*	*266*	*261*	
	23–26	*415*	*388*	*401*	*362*	*356*	*411*	*359*	*335*	*338*	*355*	*312*	*358*	*313*	*332*	*325*	*309*	*305*	*271*	*267*	*269*	
	27–30	*424*	*365*	*357*	*349*	*368*	*393*	*359*	*347*	*324*	*334*	*305*	*340*	*325*	*334*	*281*	*310*	*258*	*284*	*291*	*303*	
	35	*1,022*	*981*	*977*	*890*	*934*	*963*	*1,009*	*925*	*863*	*898*	*952*	*895*	*852*	*875*	*844*	*769*	*726*	*732*	*727*	*675*	
	40	*1,093*	*1,096*	*1,065*	*1,037*	*898*	*967*	*928*	*919*	*868*	*881*	*870*	*911*	*850*	*823*	*820*	*883*	*787*	*765*	*796*	*746*	
	45					*911*	*1,026*	*1,005*	*972*	*954*	*851*	*888*	*846*	*852*	*842*	*806*	*785*	*839*	*783*	*738*	*753*	
	50										*902*	*975*	*989*	*939*	*958*	*819*	*868*	*802*	*827*	*776*	*738*	
	55															*832*	*903*	*907*	*909*	*920*	*766*	
	60																					

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

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

' — ' indicates data not available.

[a]Answer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, and (5) Very easy.

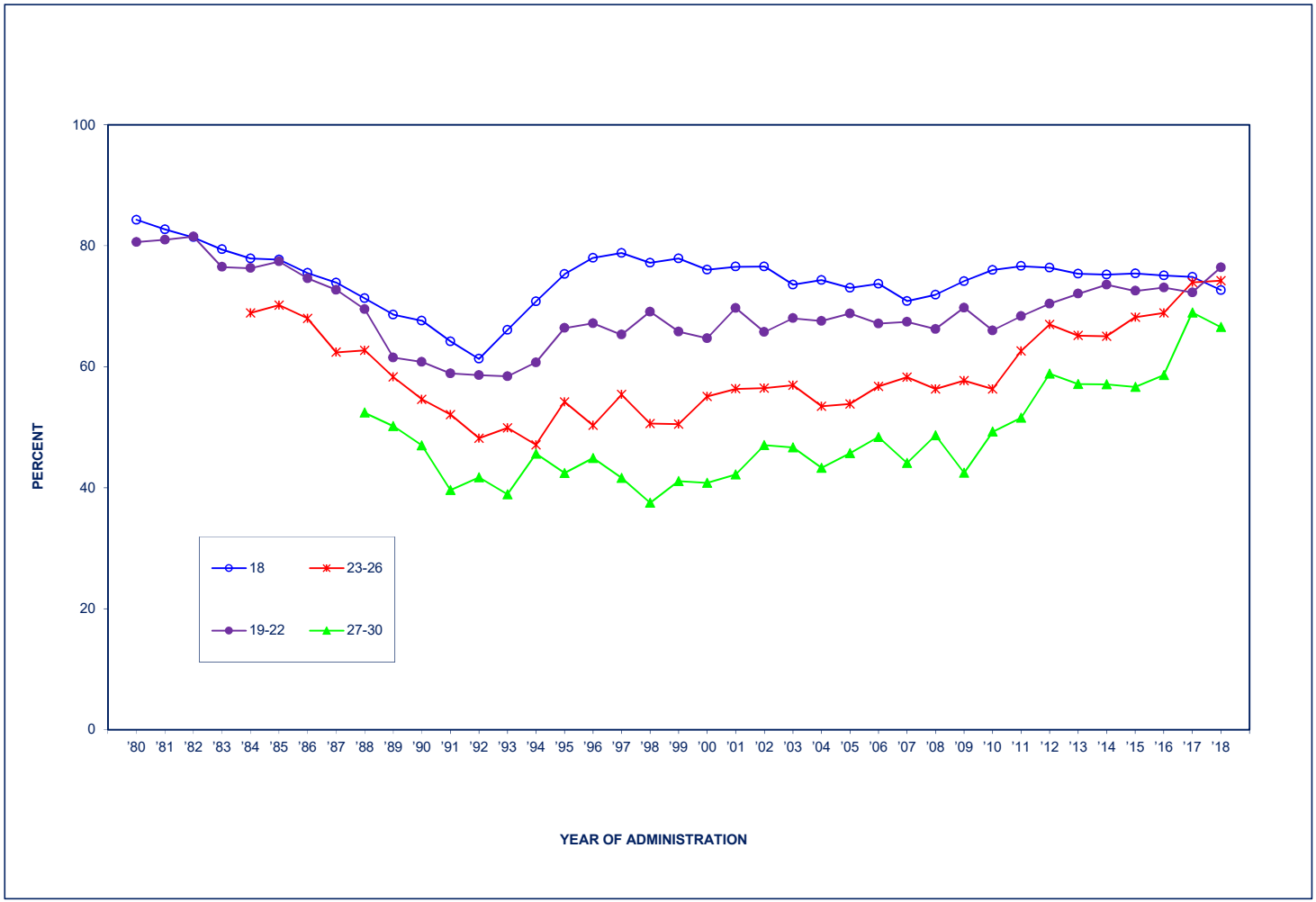
[b]In 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

[c]In 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin,OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

[d]In 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

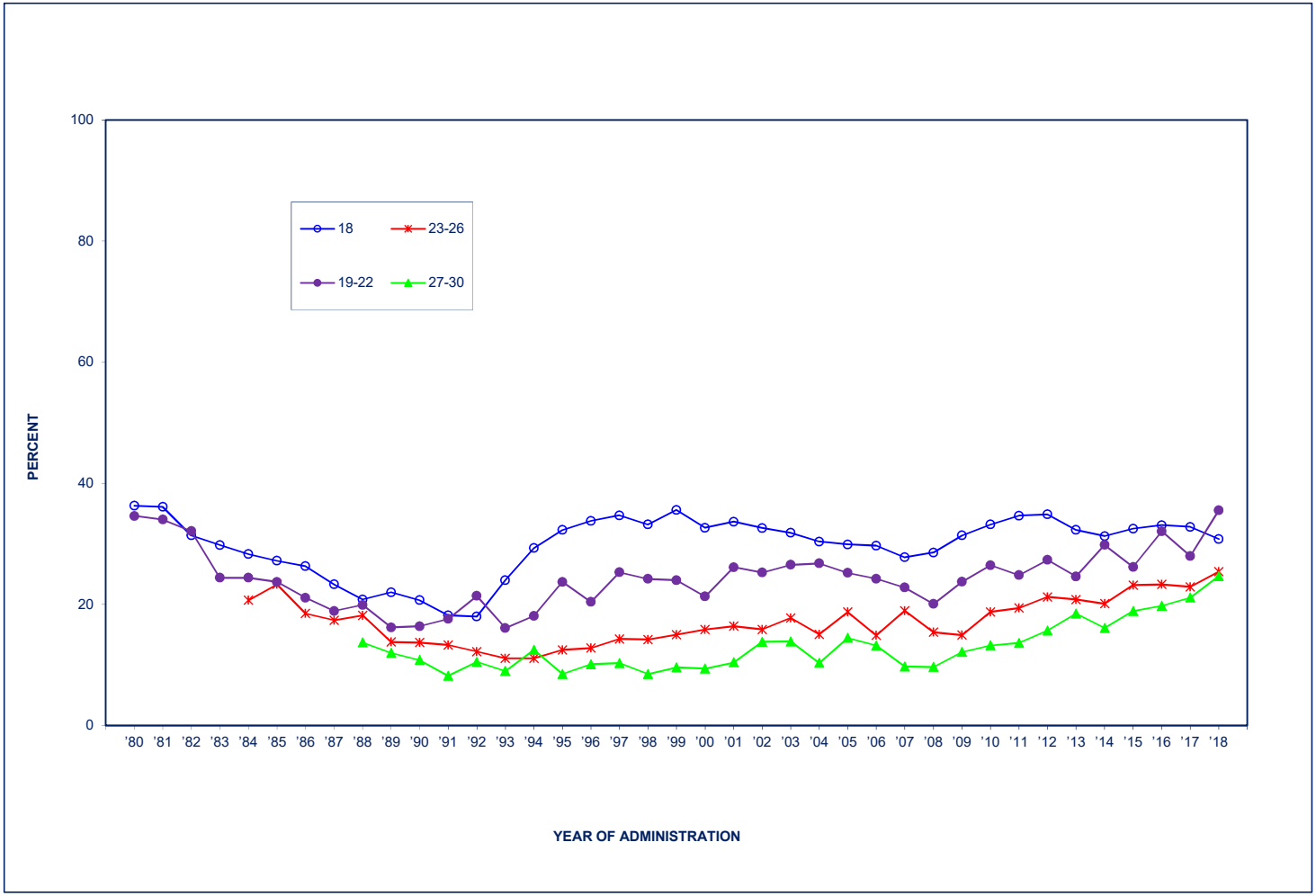
[e]In 2004 the question text was changed from barbiturates to sedatives/barbiturates and the list of examples was changed from downers, goofballs, reds, yellows, etc. to just downers. These changes likely explain the discontinuity in the 2004 results.

FIGURE 7-1
Trends in Direct Exposure to Use of ANY ILLICIT DRUGS
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



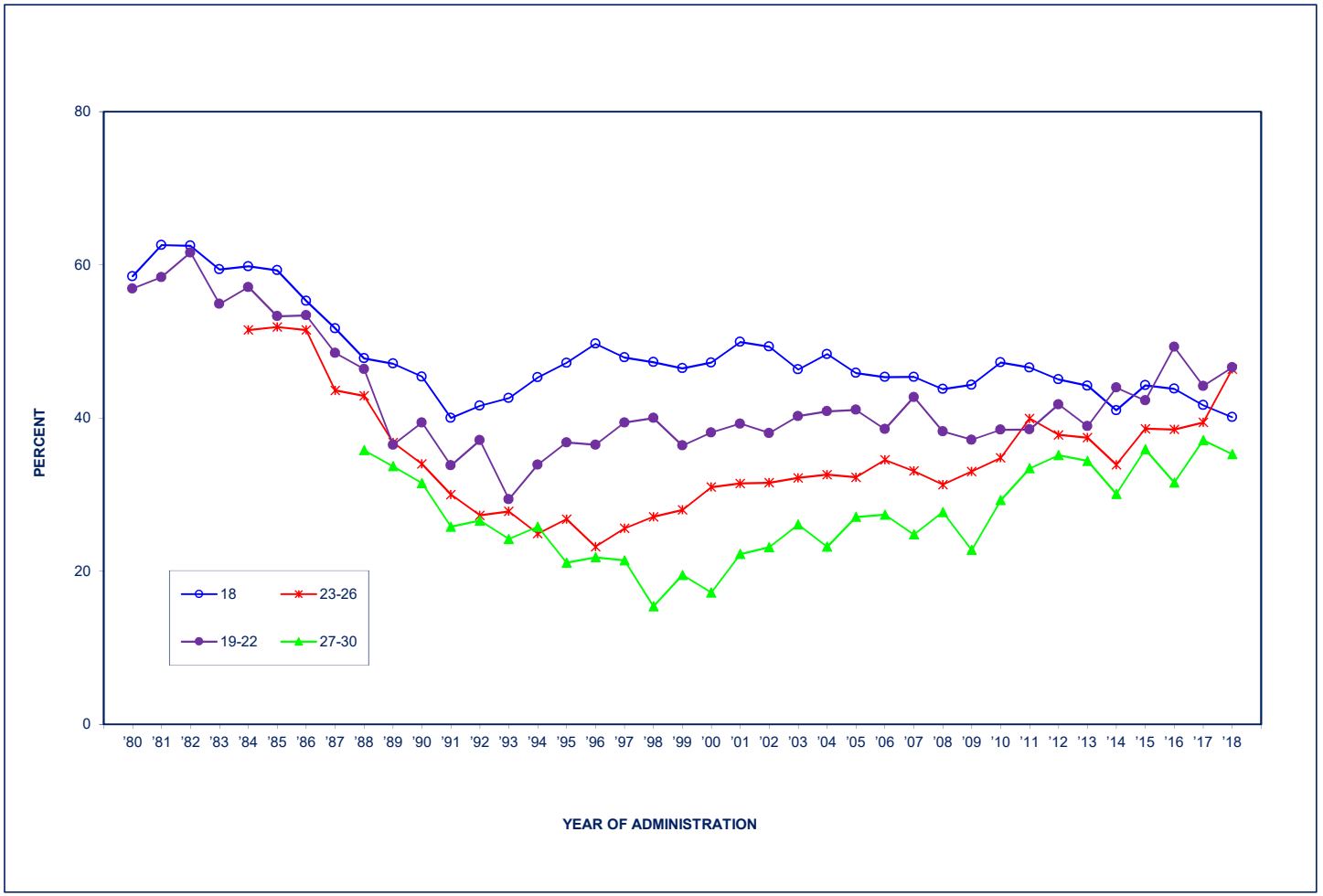
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-2
Trends in Direct Exposure to Use of ANY ILLICIT DRUGS
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

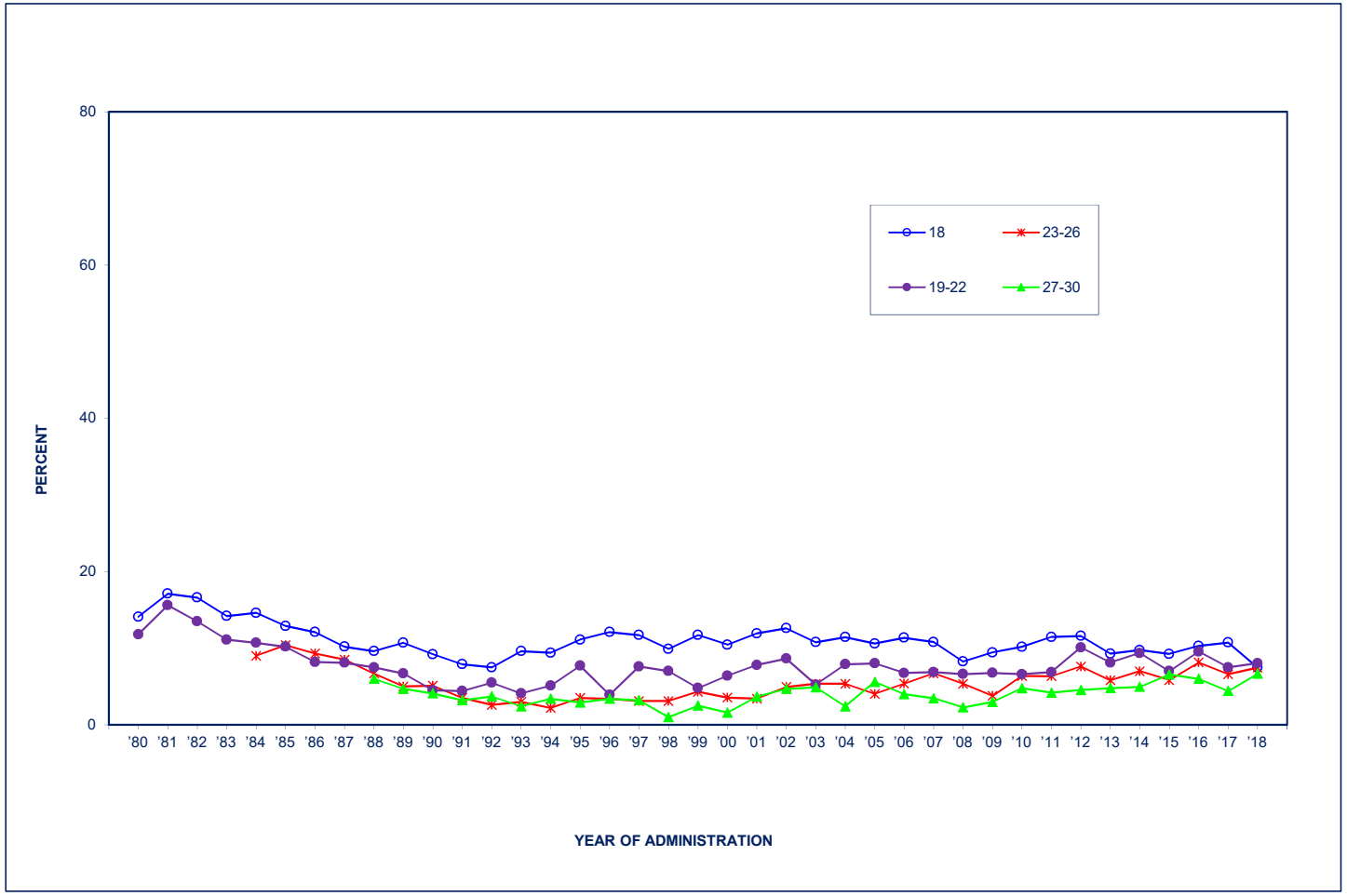
FIGURE 7-3
Trends in Direct Exposure to Use of ANY ILLICIT DRUG OTHER THAN MARIJUANA[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]These estimates were derived from responses to the question for the following drugs: marijuana, LSD, other hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), and tranquilizers.

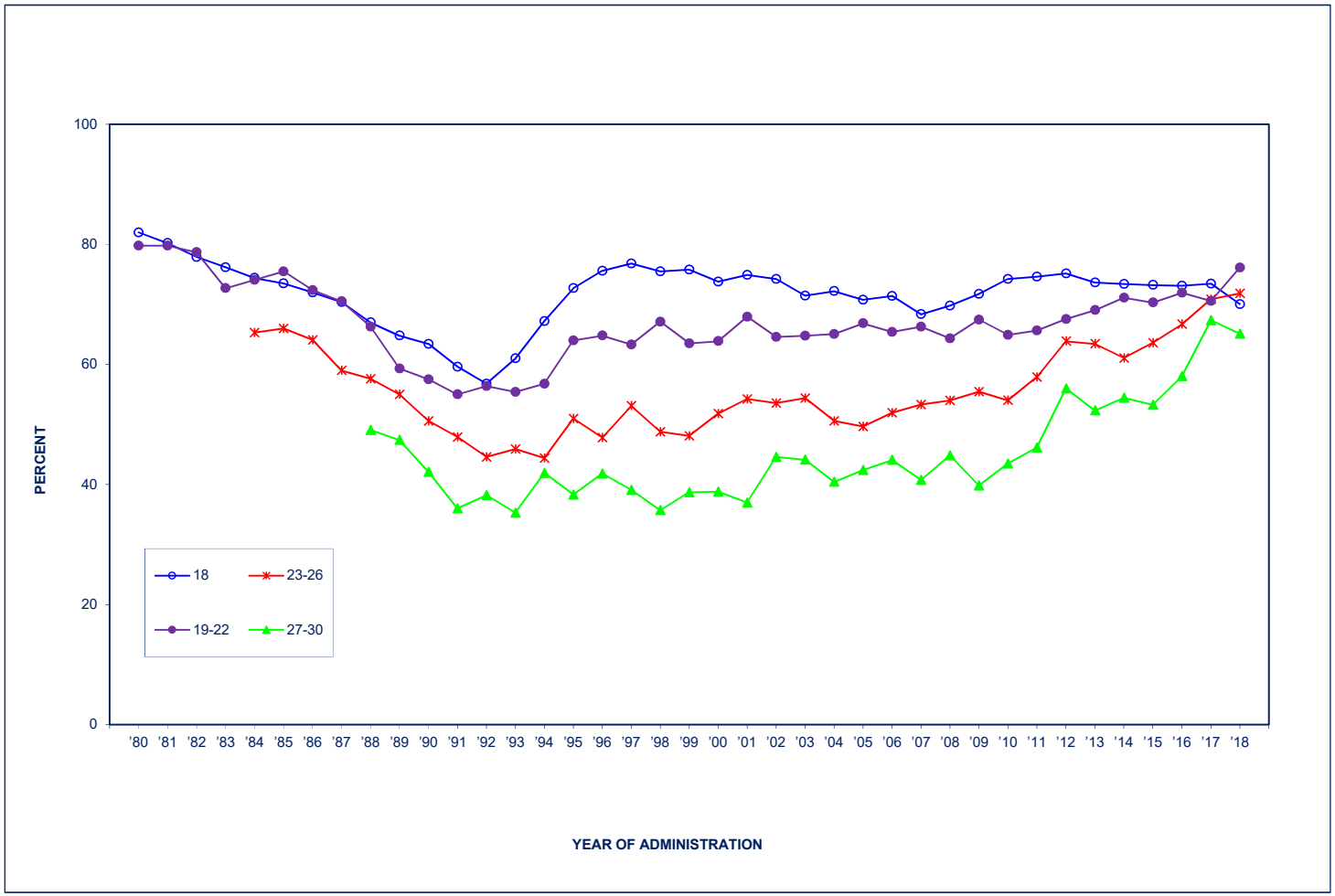
FIGURE 7-4
Trends in Direct Exposure to Use of ANY ILLICIT DRUG OTHER THAN MARIJUANA[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

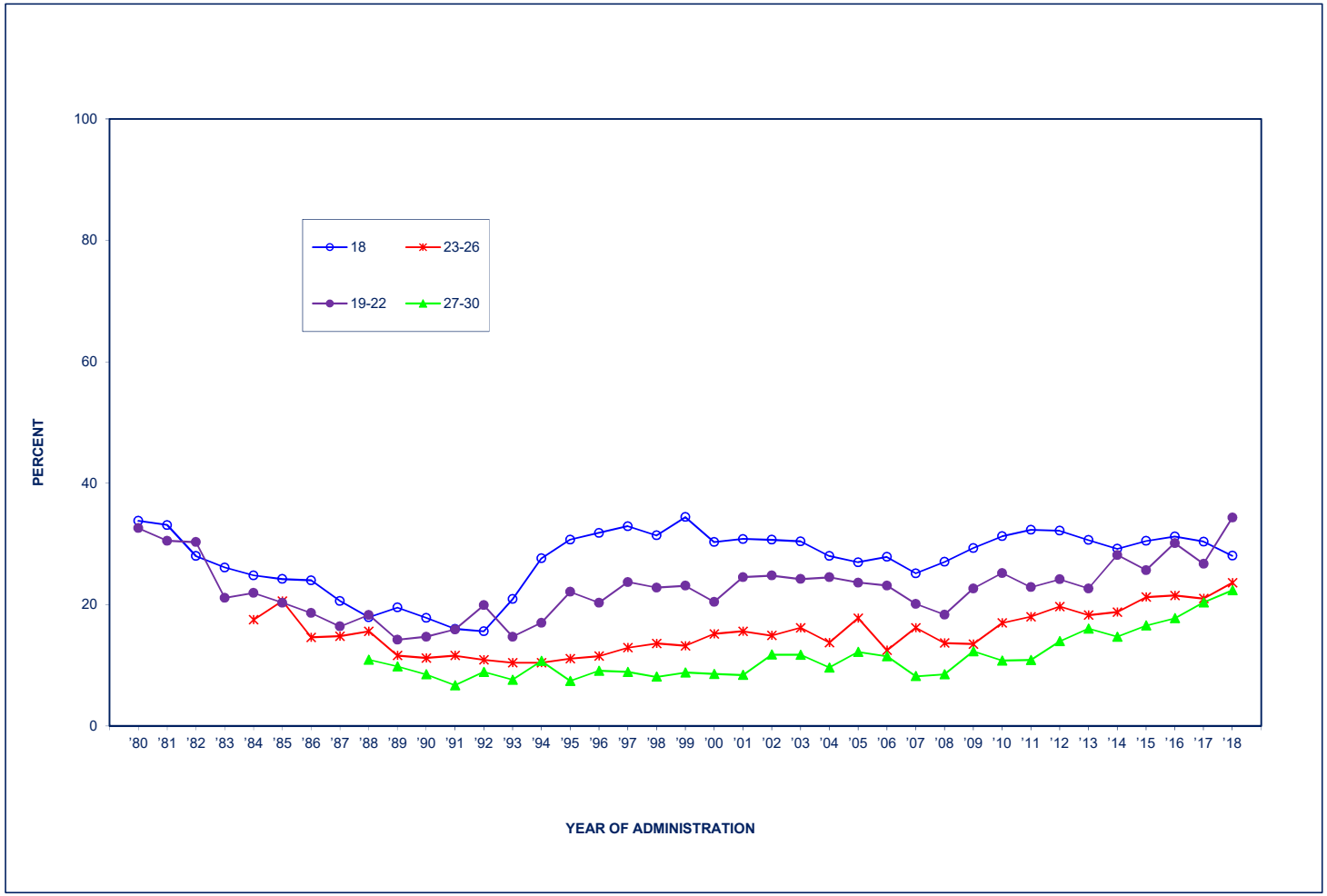
[a]These estimates were derived from responses to the question for the following drugs: marijuana, LSD, other hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), and tranquilizers.

FIGURE 7-5
Trends in Direct Exposure to Use of MARIJUANA
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



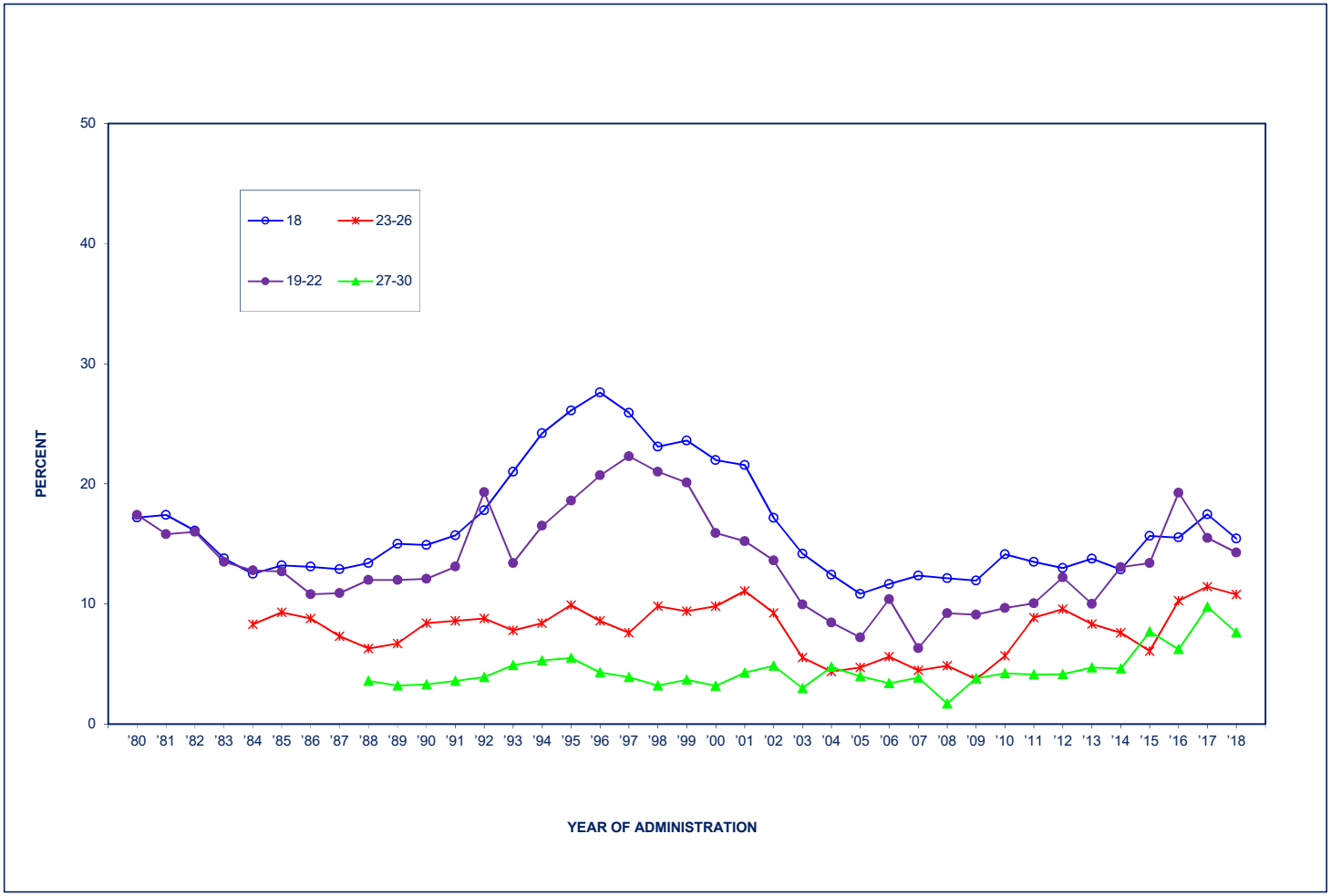
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-6
Trends in Direct Exposure to Use of MARIJUANA
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



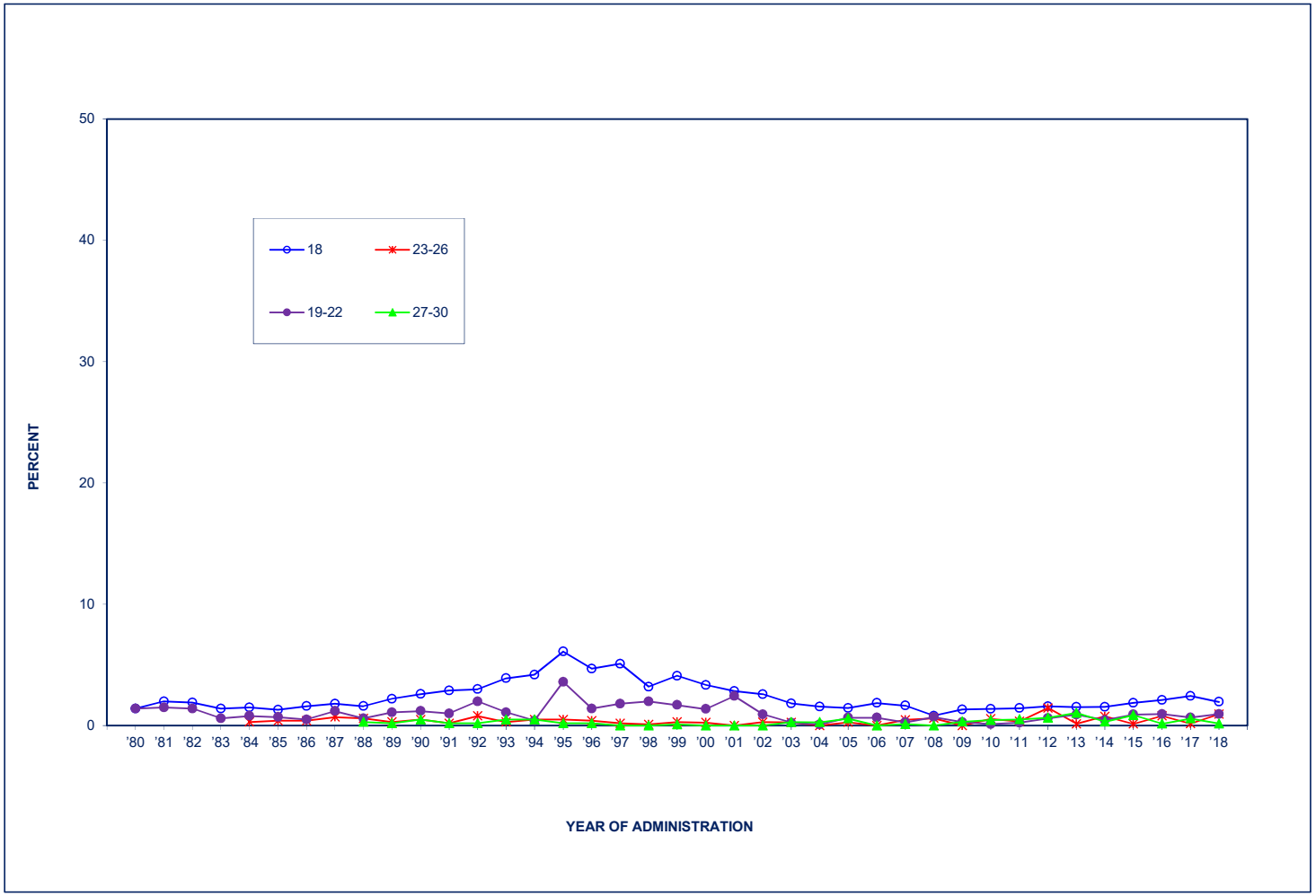
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-7
Trends in Direct Exposure to Use of LSD
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



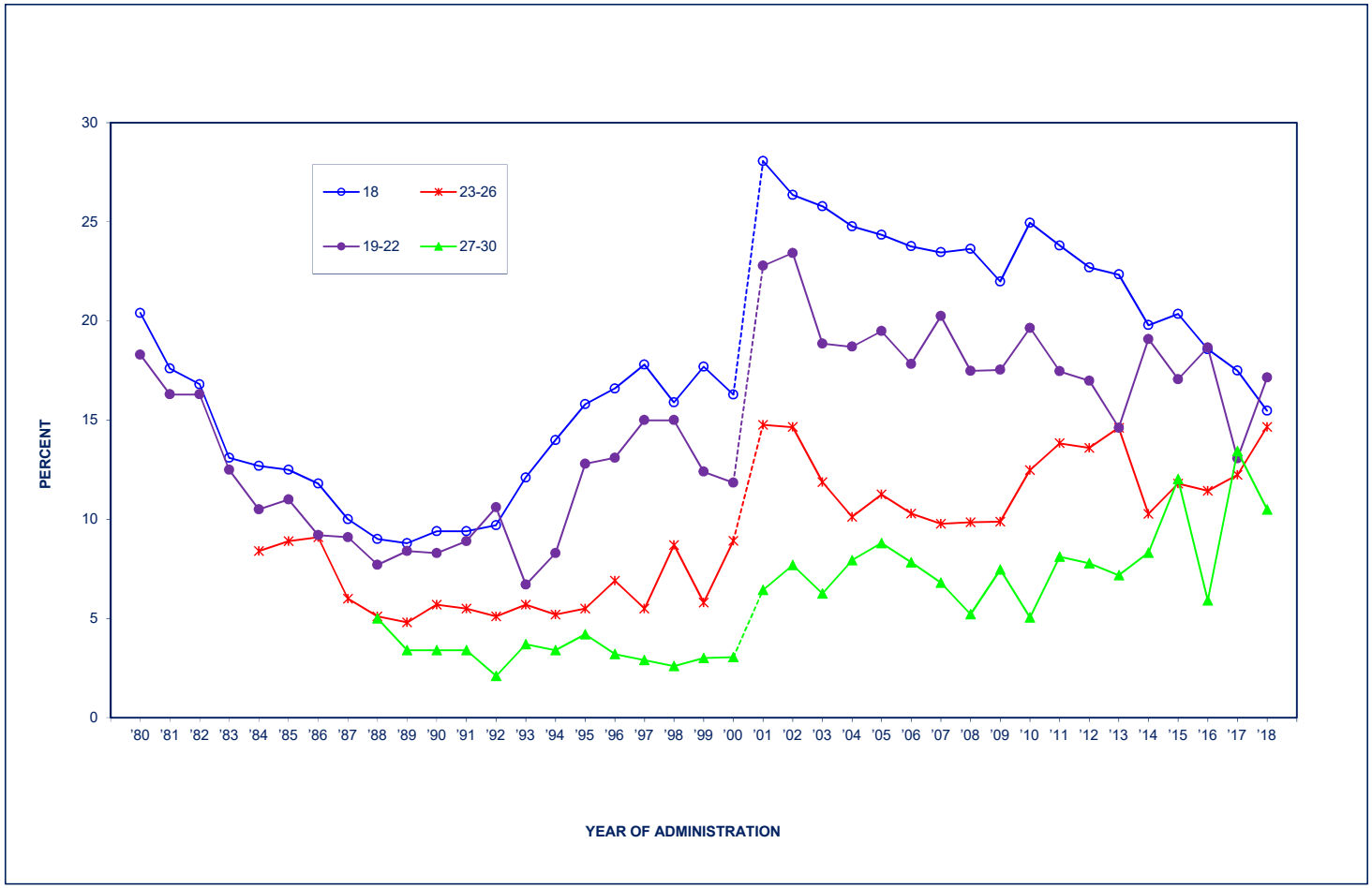
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-8
Trends in Direct Exposure to Use of LSD
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

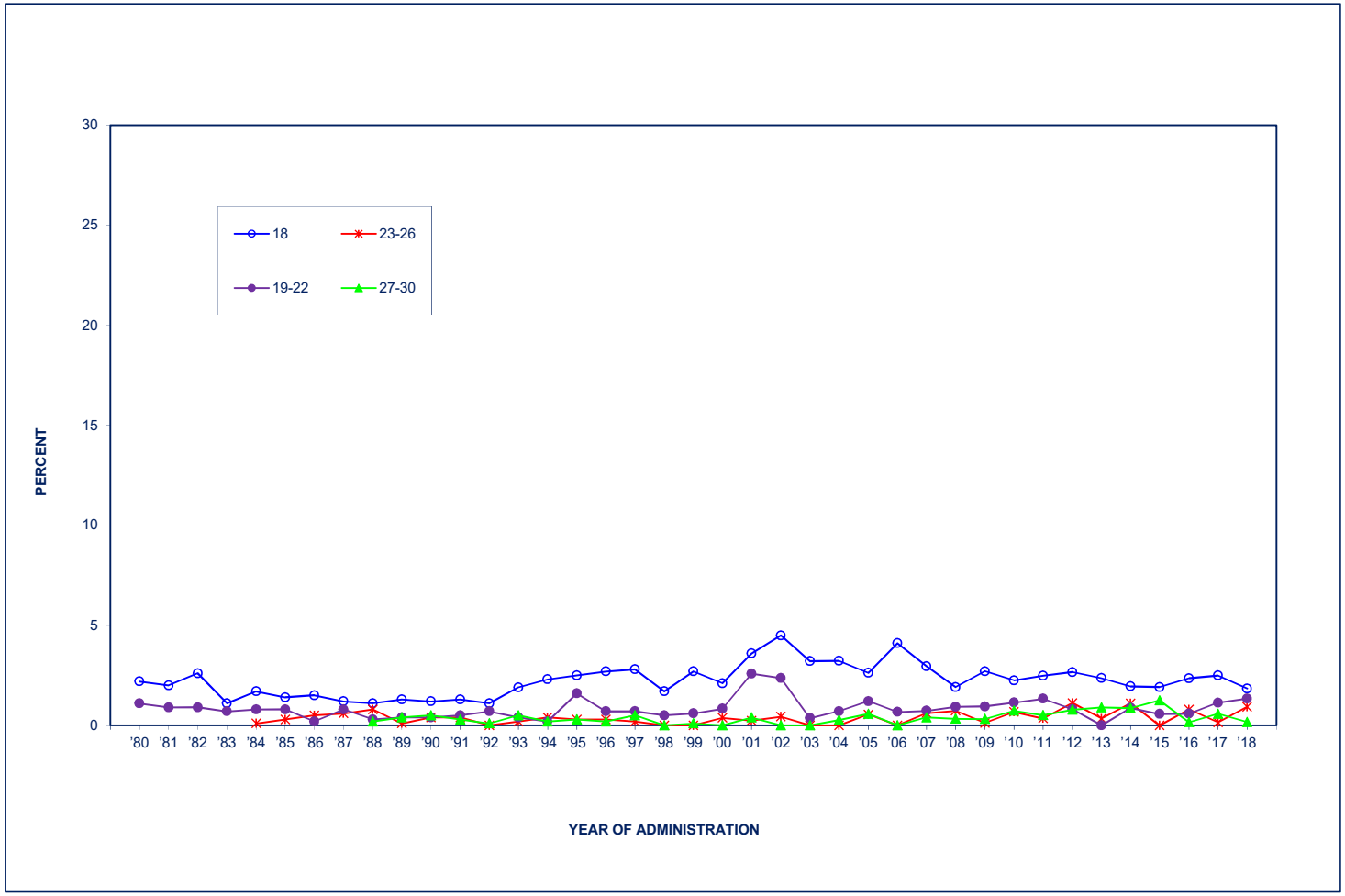
FIGURE 7-9
Trends in Direct Exposure to Use of HALLUCINOGENS OTHER THAN LSD[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]In 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

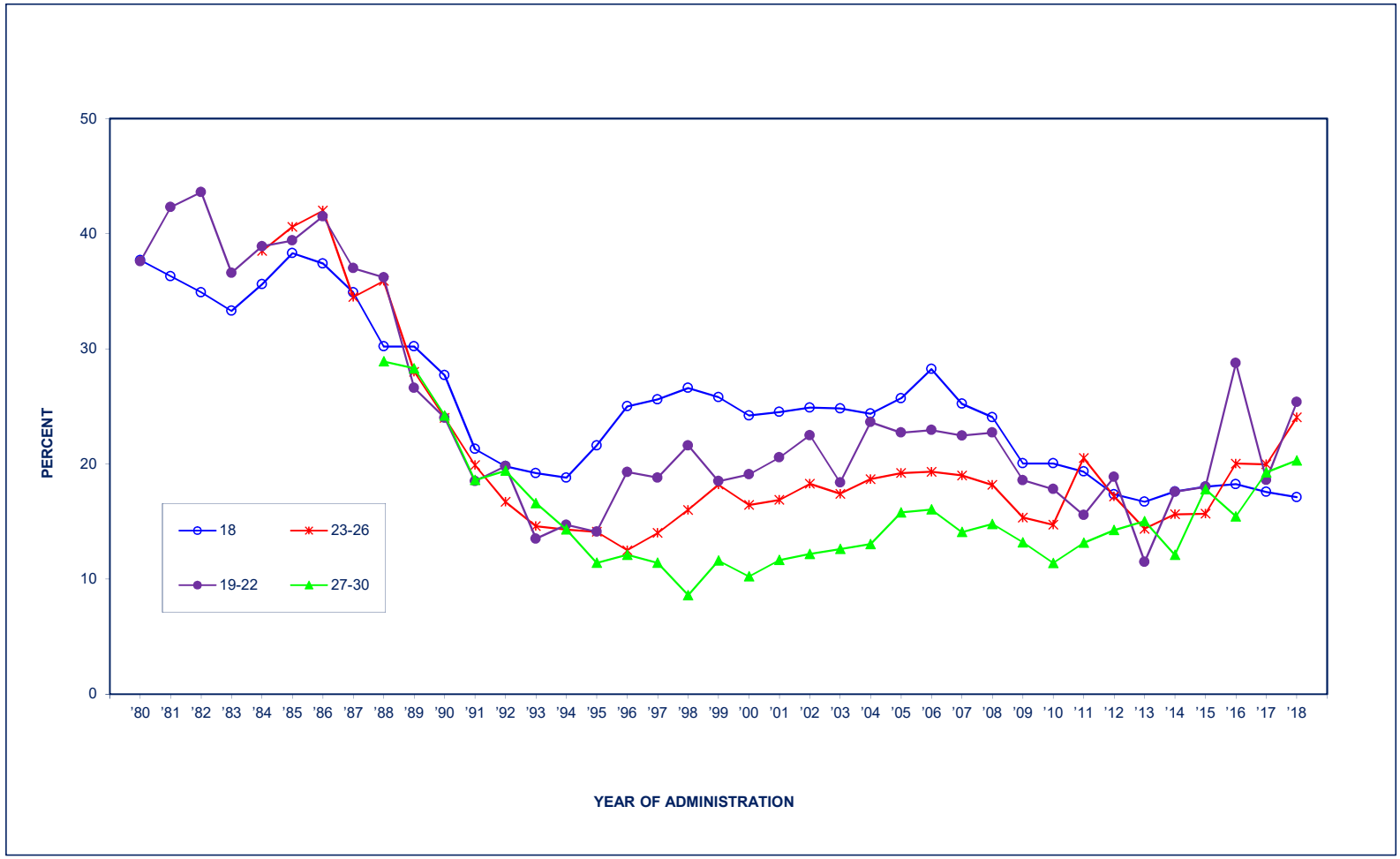
FIGURE 7-10
Trends in Direct Exposure to Use of HALLUCINOGENS OTHER THAN LSD[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

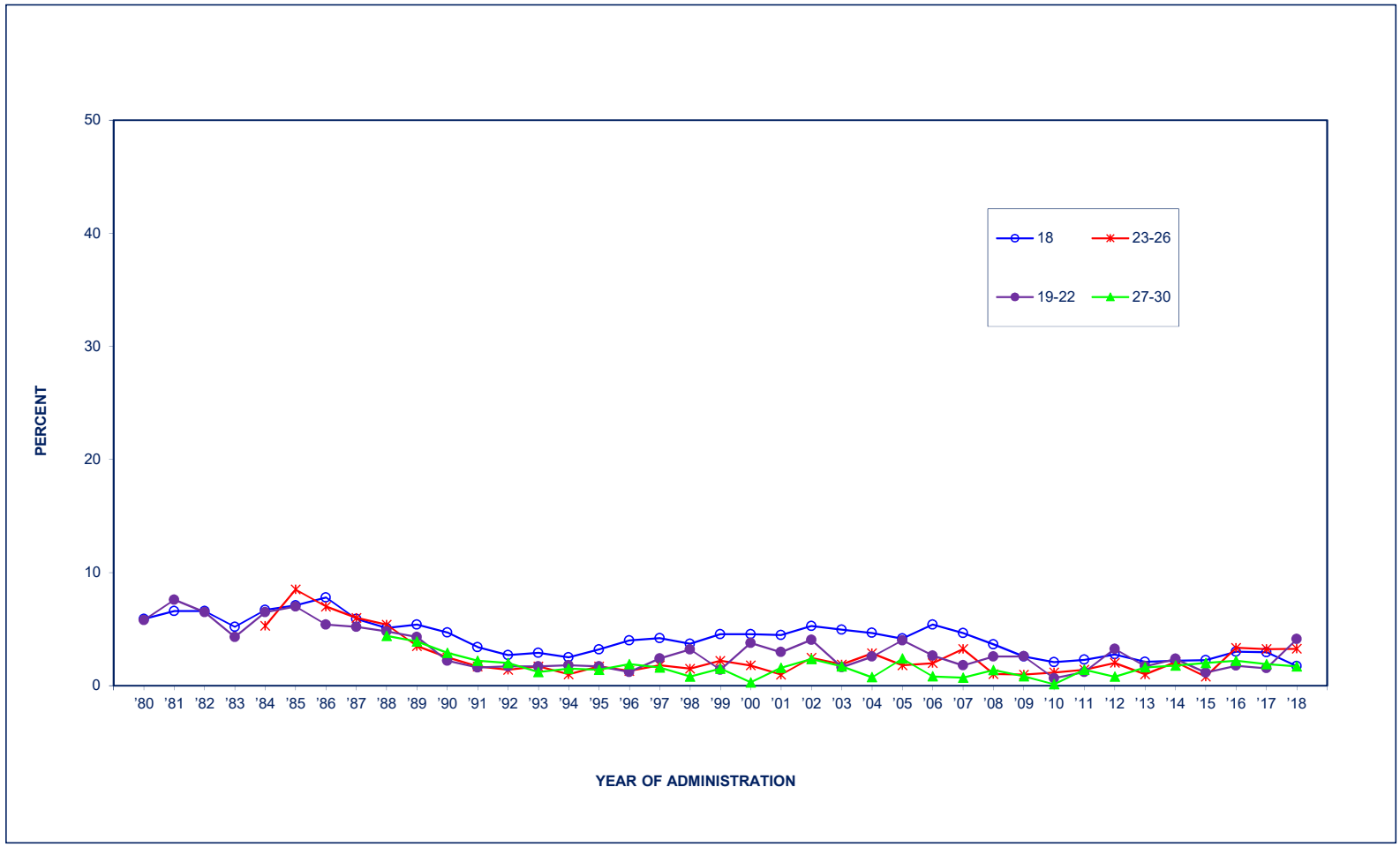
[a]In 2001 the question text was changed from other psychedelics to other hallucinogens, and shrooms was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

FIGURE 7-11
Trends in Direct Exposure to Use of COCAINE
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



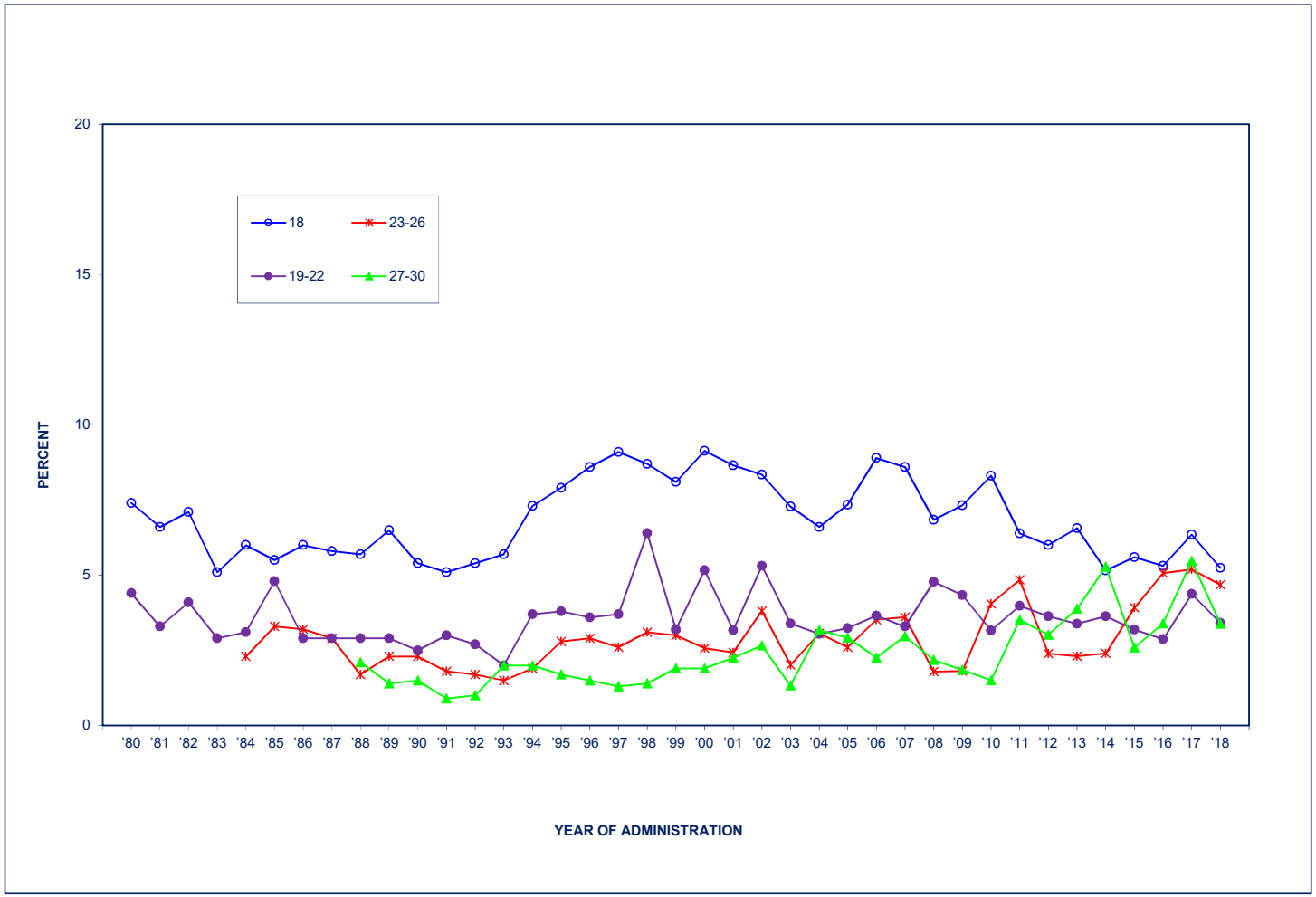
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-12
Trends in Direct Exposure to Use of COCAINE
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



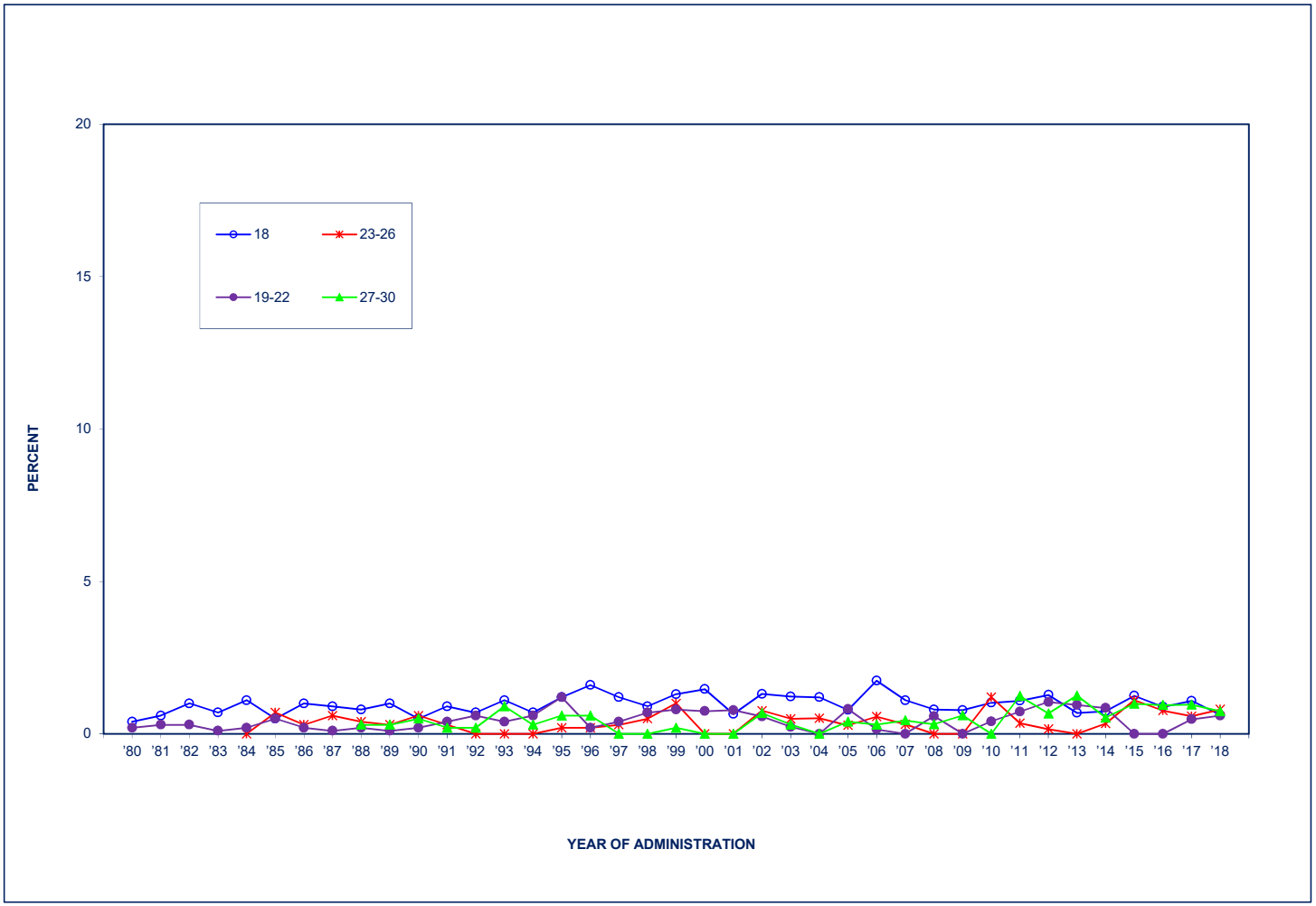
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-13
Trends in Direct Exposure to Use of HEROIN
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



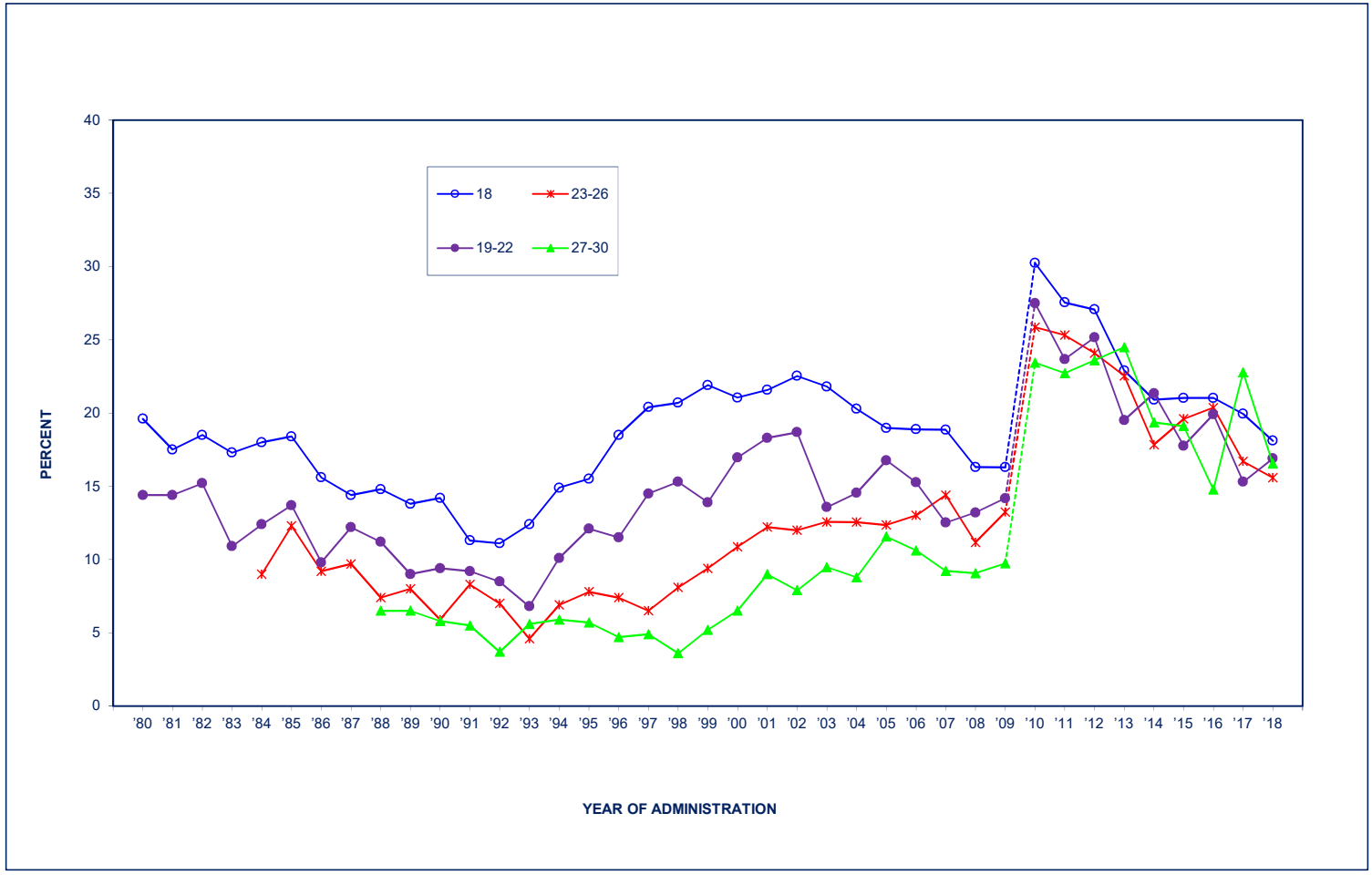
Source. The Monitoring the Future study, the University of Michigan.

FIGURE 7-14
Trends in Direct Exposure to Use of HEROIN
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

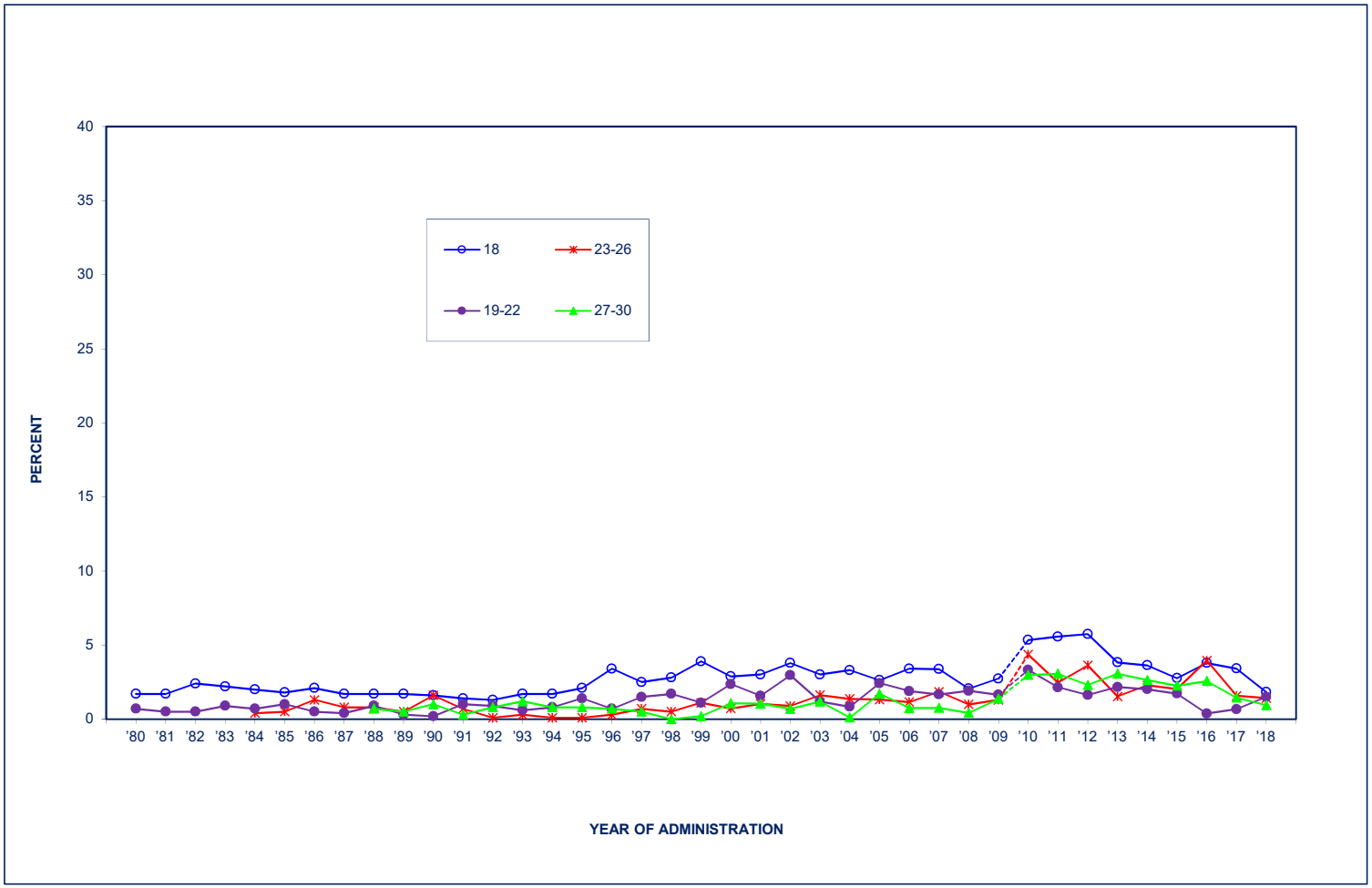
FIGURE 7-15
Trends in Direct Exposure to Use of NARCOTICS OTHER THAN HEROIN[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]In 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

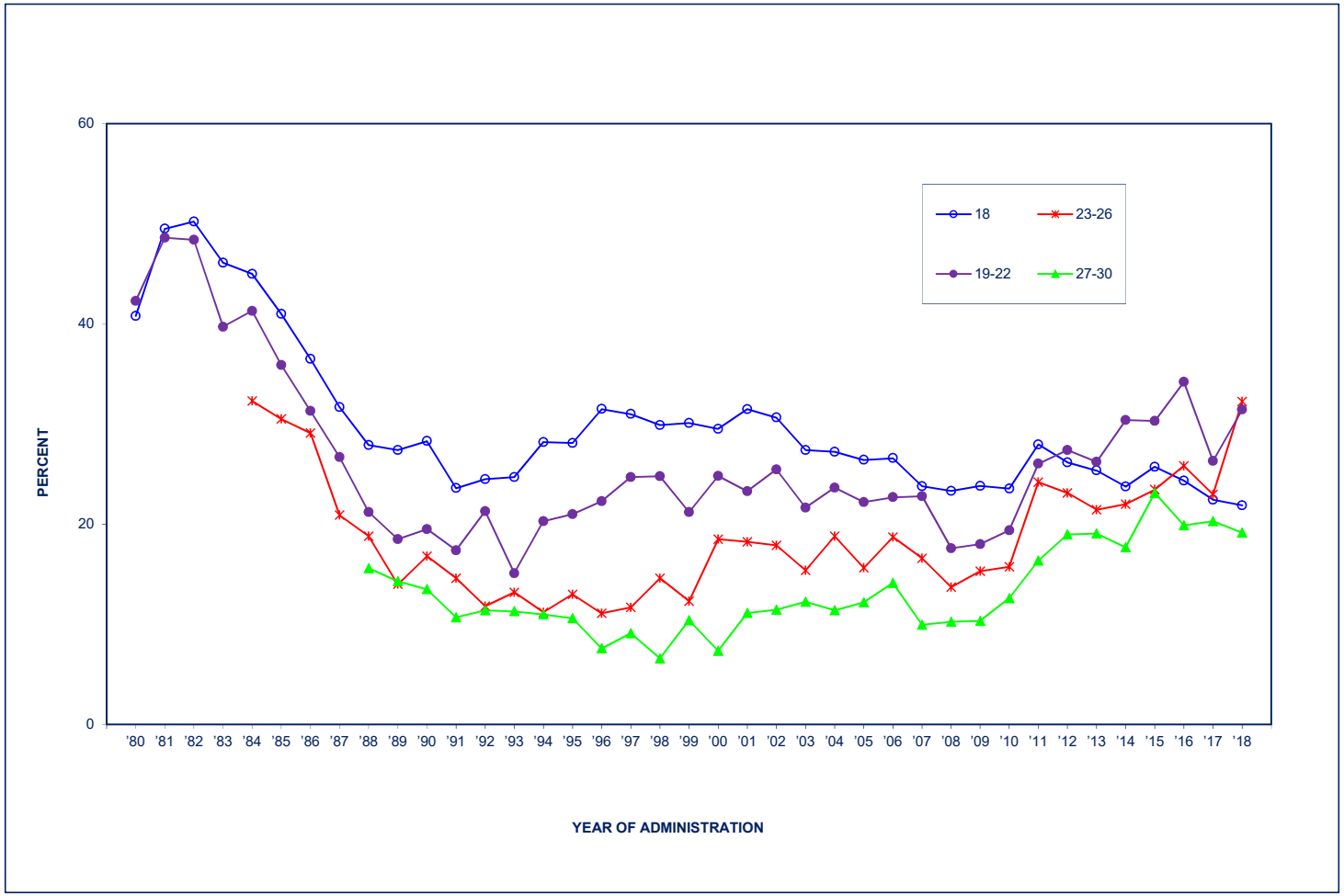
FIGURE 7-16
Trends in Direct Exposure to Use of NARCOTICS OTHER THAN HEROIN[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]In 2010 the list of examples for narcotics other than heroin was changed from methadone, opium to Vicodin, OxyContin, Percocet, etc. This change likely explains the discontinuity in the 2010 results.

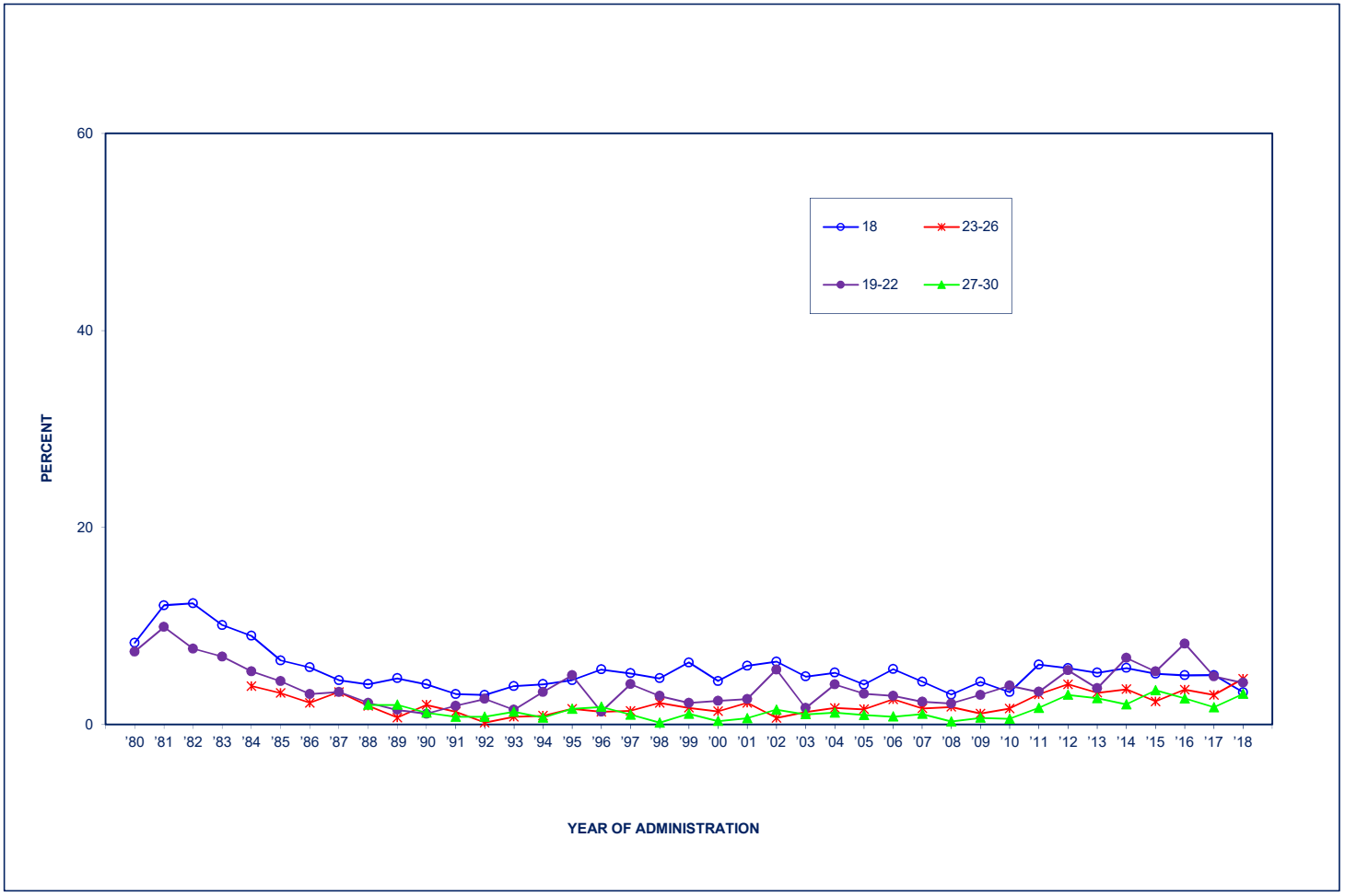
FIGURE 7-17
Trends in Direct Exposure to Use of AMPHETAMINES[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]In 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

FIGURE 7-18
Trends in Direct Exposure to Use of AMPHETAMINES[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

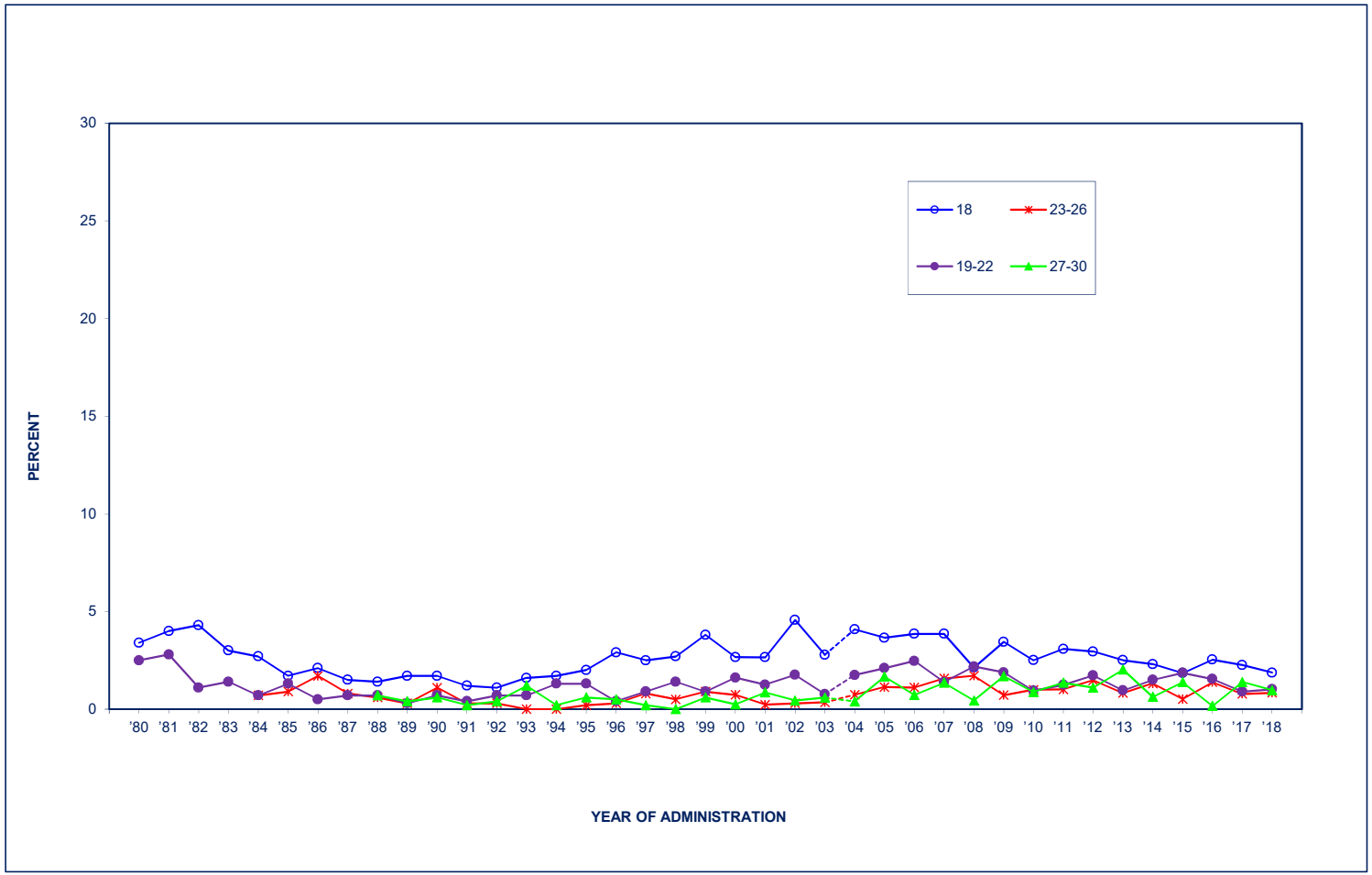
[a]In 2011 pep pills and bennies were replaced in the list of examples by Adderall and Ritalin. This change likely explains the discontinuity in the 2011 results.

FIGURE 7-19
Trends in Direct Exposure to Use of SEDATIVES (BARBITURATES)[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30

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

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

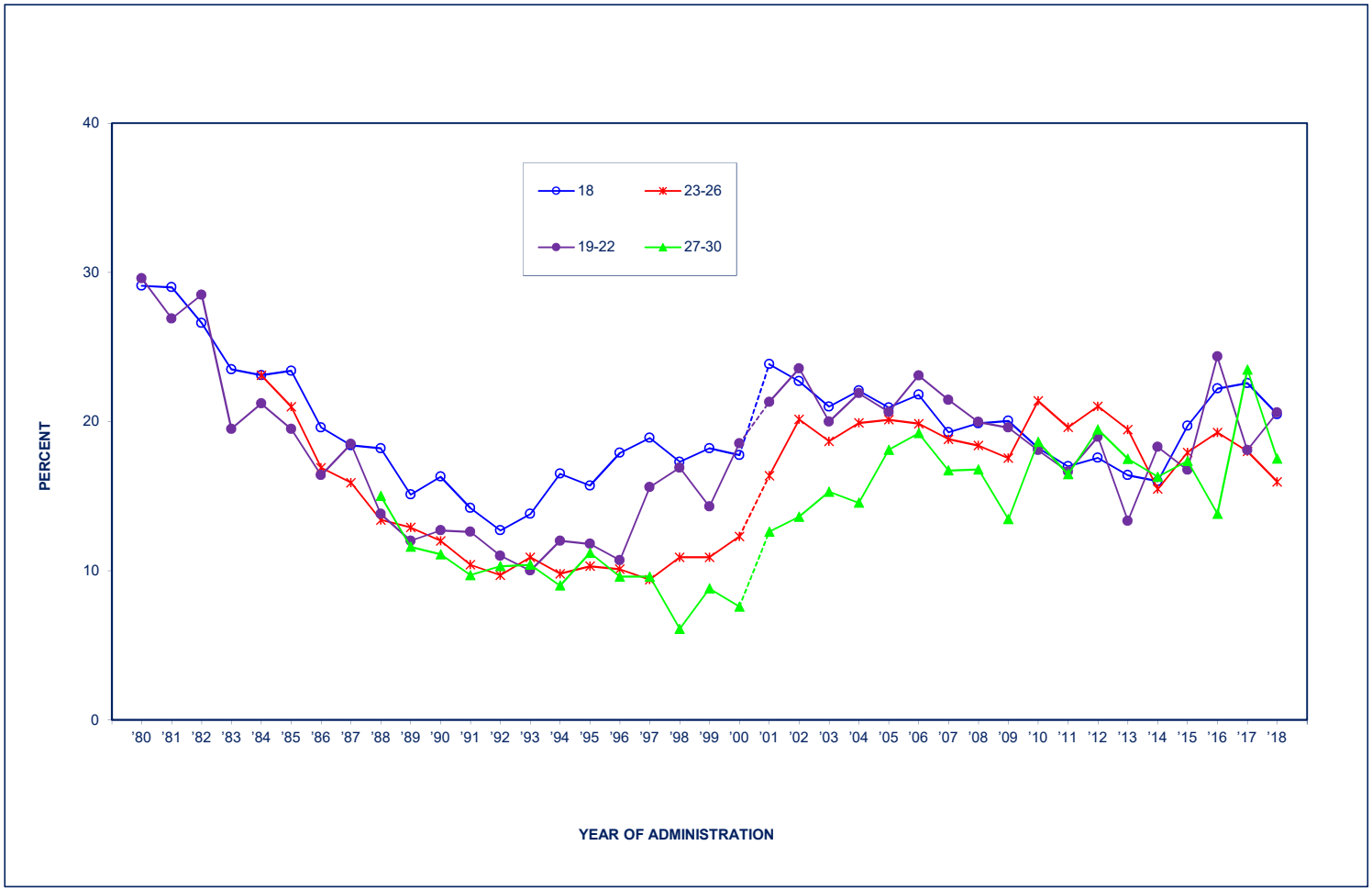
FIGURE 7-20
Trends in Direct Exposure to Use of SEDATIVES (BARBITURATES)[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

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

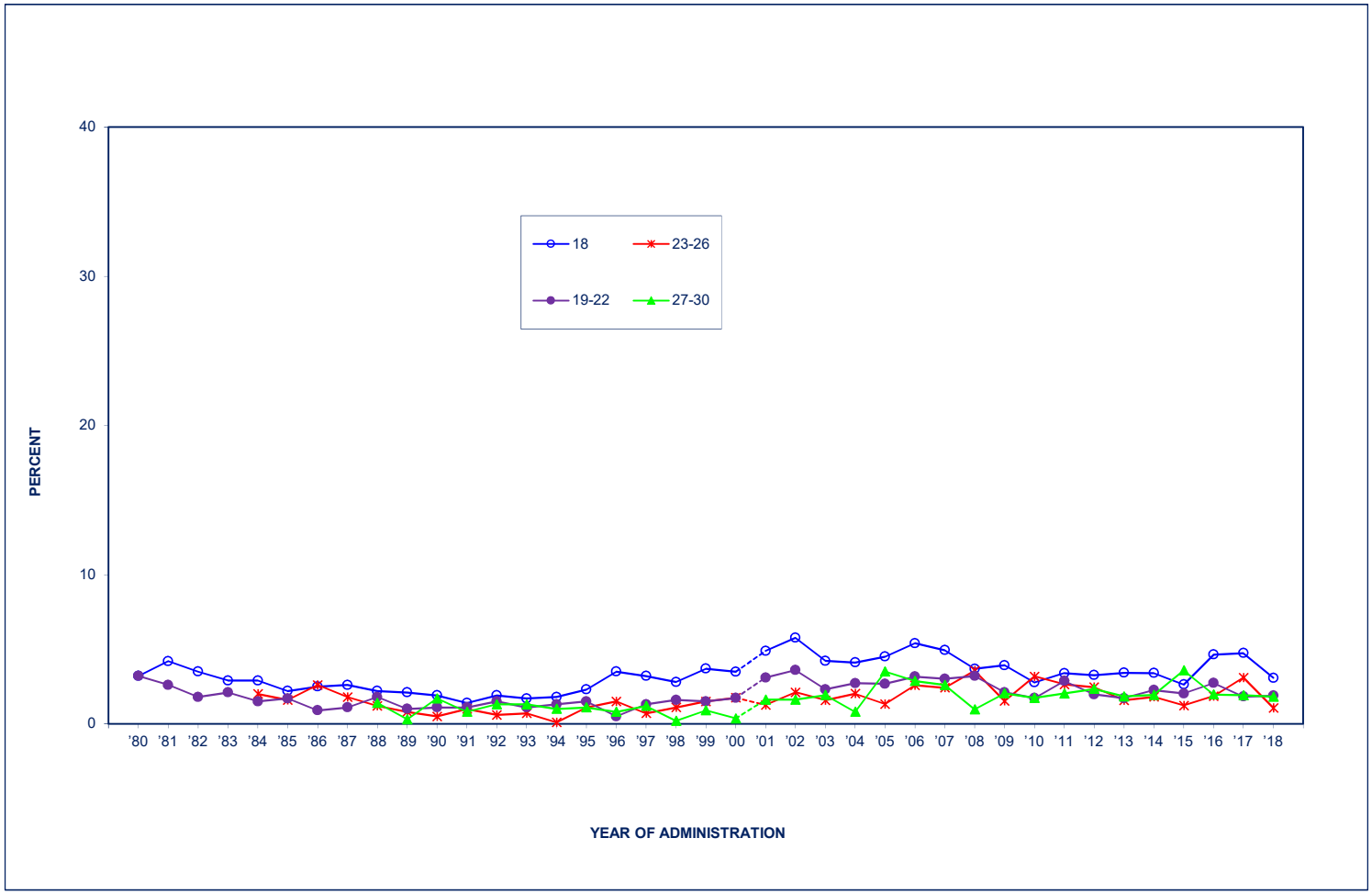
FIGURE 7-21
Trends in Direct Exposure to Use of TRANQUILIZERS[a]
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

[a]In 2001 Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

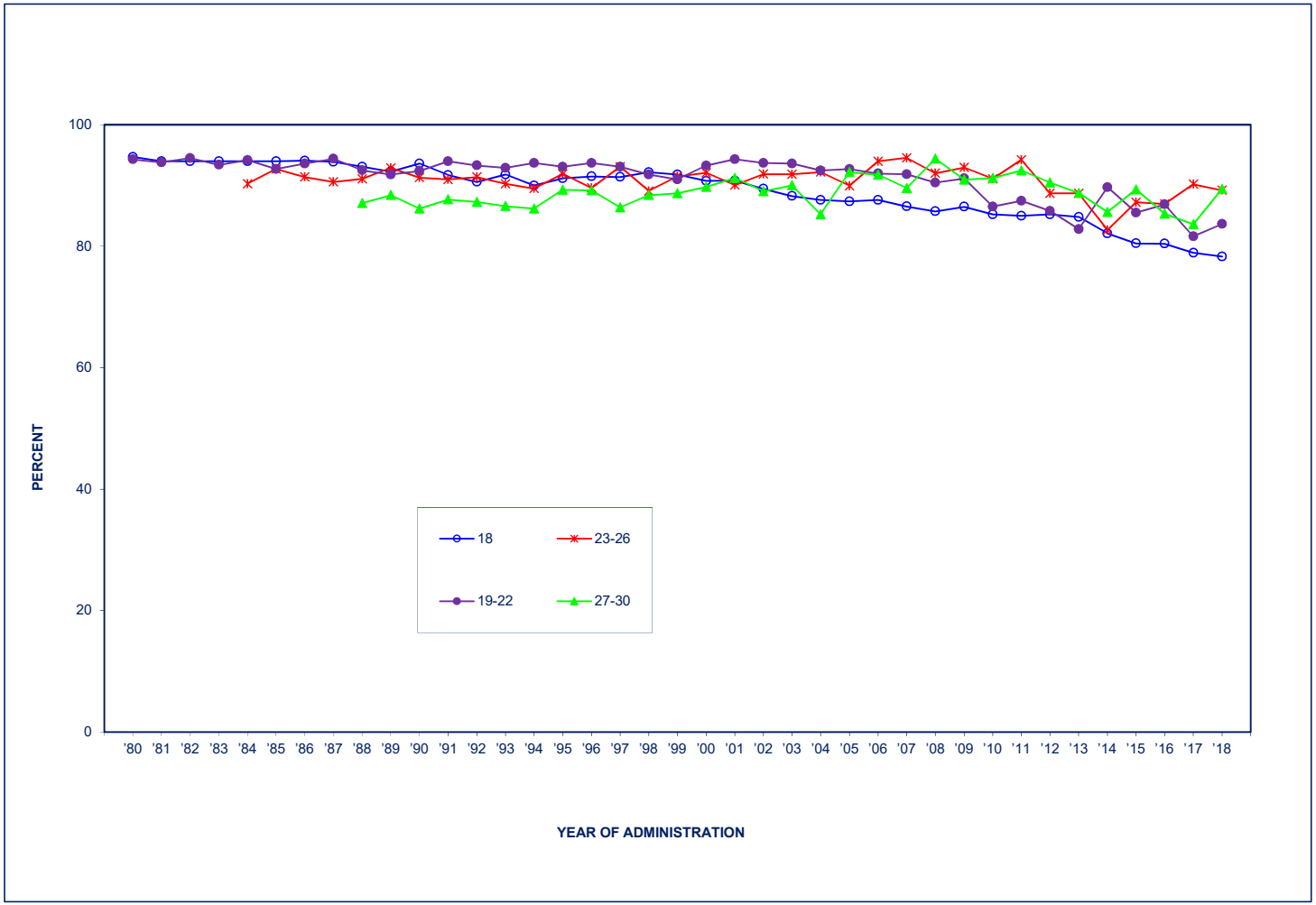
FIGURE 7-22
Trends in Direct Exposure to Use of TRANQUILIZERS[a] among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

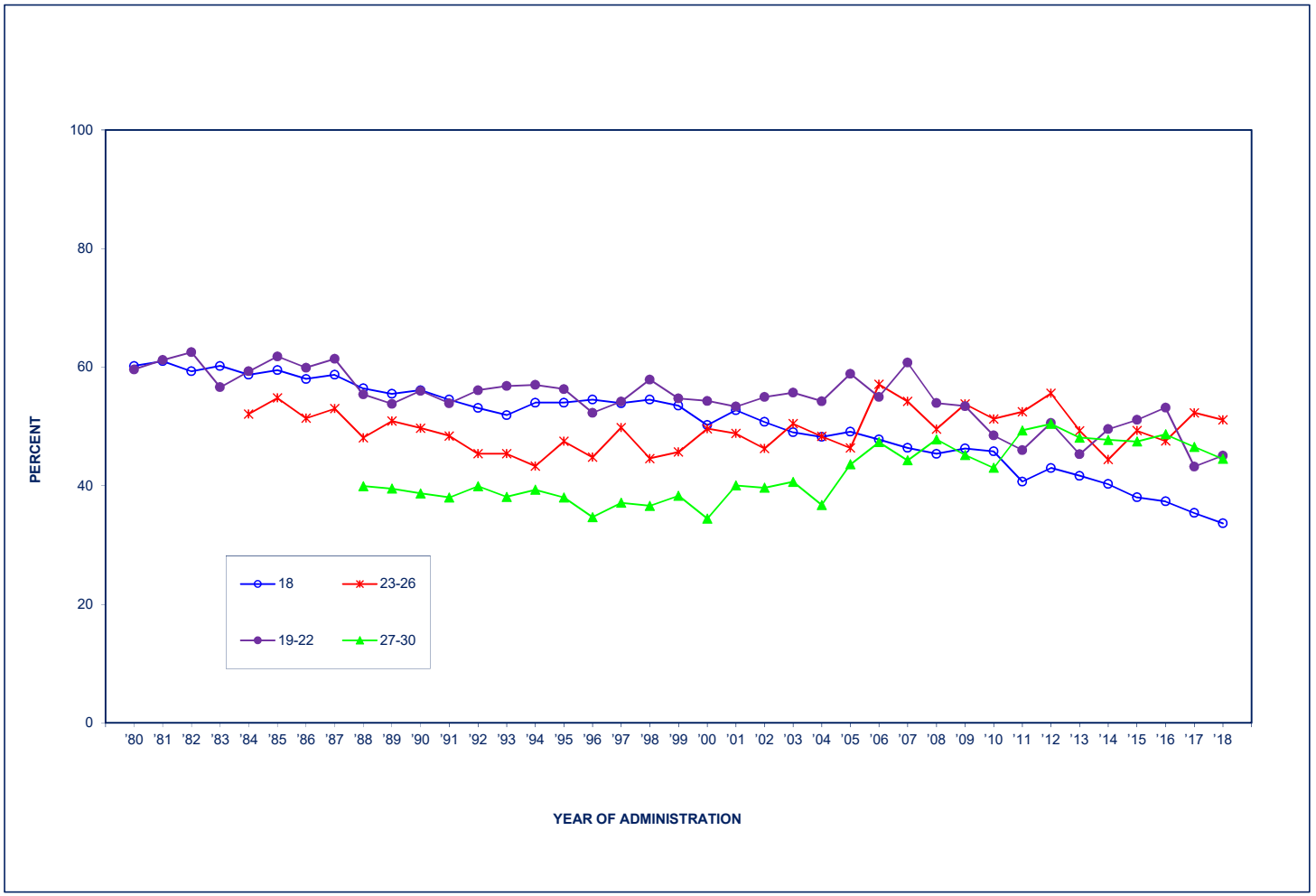
[a]In 2001 Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

FIGURE 7-23
Trends in Direct Exposure to Use of ALCOHOL
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

FIGURE 7-24
Trends in Direct Exposure to Use of ALCOHOL
among Respondents in Modal Age Groups of 18, 19–22, 23–26, and 27–30



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

Chapter 8

PREVALENCE OF DRUG USE AMONG COLLEGE STUDENTS AND THEIR NONCOLLEGE PEERS

College students have often been the harbingers of social and political changes that eventually spread to other segments of the population up and down the age spectrum. The Monitoring the Future (MTF) study tracks multiple forms of substance use among U.S. college students and has done so for nearly four decades. In this process, MTF has documented the fluctuations in college substance use as well as some patterns of influence on or by other age groups. This chapter focuses on the prevalence of drug use in 2018 by college students and their age-peers who graduated from high school and are not in college; the next chapter (Chapter 9) focuses on historical trends in drug use in these two groups.

Definition of College Students

College students are defined in this volume as those follow-up respondents *one to four years past high school* who report that they were taking courses as *full-time students* in a *two- or four-year undergraduate college* at the *beginning of March* of the year in question. Note that full-time students at two-year colleges, such as community colleges, are included.

The definition excludes those who are currently enrolled in college part-time and those who previously may have been college students or may have graduated from college by March one to four years after high school. MTF has been able to generate an unparalleled national sample of college students and peers not in college every year since 1980 by following representative samples of sequential high school classes after they graduate. The graduating class of 1976 was the first such class followed after high school graduation, and by 1980 the survey included college students one to four years past high school.

The absence of dropouts in the original high school senior samples should have practically no effect on the representativeness of these college samples, because very few high school dropouts go on to college. One notable limitation of the present design for the purpose of characterizing college students is that it limits the age range of the college sample. For trend estimation purposes (covered primarily in Chapter 9), we decided to limit the age band to the most typical one for college attendance, that is, one to four years past high school, which corresponds to modal ages 19 through 22. According to statistics available from the United States Census Bureau,[1] this age band should encompass about 75% of all undergraduate college students enrolled full-time in 2014, down slightly from the 79% covered in 1989. Although expanding the age band to include an additional two years would cover 79% of all enrolled college students of any age, it would slightly reduce the homogeneity of the college experience by including older classmates, it would bring more four-year college graduates into the noncollege group, and it would limit historical comparability. Special analyses conducted in 2017, which updated similar analyses done in 2011, 1997, and 1985, indicated extremely small differences in the estimates of drug use prevalence under the two definitions (four- vs six-year intervals) for college students. In all the years we evaluated this, the annual prevalence of all drugs shifted 0.5 percentage points or less, with few

[1] U.S. Census Bureau, October 2014. Available at: http://www.census.gov/

exceptions; specifically, based on the 2017 analyses, the difference was 0.6 percentage points for hallucinogens other than LSD, and 0.7 percentage points for MDMA (ecstasy, Molly). Thus, for purposes of estimating prevalence, the four- and six-year intervals are nearly interchangeable, suggesting that this limitation is negligible for our purposes of estimating current prevalence and historical trends (in Chapter 9).

The MTF panels also include high school graduates one to four years past high school who were *not* attending college full time during March in the year in question. Having data for both groups is a rare and valuable feature of the MTF follow-up design and makes it possible to compare differences and changes in the use of various substances after high school for each group. Full-time college students as defined here now constitute almost two-thirds (63%) of the entire follow-up sample one to four years past high school, which contributes to relatively smaller sample sizes for noncollege youth (and thus less precision in our estimates). If data from the missing high school dropout segment—which has declined from around 15% to roughly 6% of a class cohort as summarized in Chapter 1—were available for inclusion as part of the noncollege segment, any difference between the two groups in terms of their substance use would likely be enlarged; therefore, any difference observed here is only an indication of the direction and relative size of difference between the college and the *entire* noncollege population, not an absolute estimate of the difference.

PREVALENCE OF DRUG USE AMONG COLLEGE STUDENTS VERSUS THEIR NONCOLLEGE PEERS

As has been true in recent years, the prevalence of use for many illicit drugs among college students was similar to that of noncollege youth in 2018, but there were important exceptions we note below. Also, in 2018 college students tended to be higher on alcohol use and vaping but lower on cigarette use compared to noncollege youth. When there were differences between college and noncollege youth, the degree of differences varied considerably by type of drug and measure of prevalence (lifetime, annual, 30-day, and daily), as Tables 8-1 through 8-4 show. Important gender differences in the college vs. noncollege comparisons are shown in the tables and summarized in a subsection below.

- In 2018, annual prevalence of use of ***any illicit drug*** was similar for college students (45%) and for noncollege respondents (44%) (Table 8-2). The annual prevalence of using ***any illicit drug other than marijuana***[2] was 18% among both college students and noncollege respondents. Thirty-day prevalence was also similar among college and noncollege youth for use of any illicit drug (27% vs. 28%, respectively) and use of any illicit other than marijuana (7.7% vs. 7.9%, respectively) (Table 8-3).

- The annual prevalence of ***marijuana*** use was similar among college students and noncollege respondents in 2018 (42% vs. 41%, respectively) (Table 8-2); the same was true regarding 30-day marijuana prevalence (25% versus 27%, respectively) (Table 8-3).

[2] For the non-college youth estimate for annual use of Any illicit Drug other than Marijuana in 2018, there was a significant difference ($p<.05$) between the typical mail condition (22.4%) and new web-push condition (14.1%) of survey administration.

- *The prevalence of current **daily marijuana** use (using on 20 or more occasions in the past 30 days), however, was almost two times higher for the noncollege group (10.9%) compared to the college students (5.9%)* (Table 8-4).

- With regard to ***vaping marijuana*** (based on new questions added to two of the six young adult survey forms beginning in 2017), prevalence in 2018 was *higher* among college students than noncollege youth. For the two groups respectively, annual prevalence was 20%[3] and 11% (Table 8-2); 30-day prevalence was 10.8%[4] and 7.9%, respectively (Table 8-3).

- In 2018, 3.1% of the noncollege group and 2.7% of the college group reported annual use of ***narcotics other than heroin*** without medical supervision (Table 8-2). With respect to annual use of specific drugs in this class, ***Vicodin*** was used by 1.6% of the noncollege group vs. 1.4% of college students; the corresponding numbers for ***OxyContin*** were 1.3% and 1.6%. Thus, for this important class of illicit drugs, annual prevalence was relatively low in 2018 and similar between college students and noncollege youth.

- Several of the less commonly used drugs showed annual use rates for noncollege respondents in 2018 that were two or more times the college student rates, including ***heroin***, ***methamphetamine, crystal methamphetamine***, ***bath salts*** (***synthetic stimulants***), and ***sedatives (barbiturates)***.

- The use of ***hallucinogens*** was somewhat higher among noncollege youth in 2018. Among noncollege youth and college students, respectively, annual use of hallucinogens was 6.8% and 5.2%, annual use of ***LSD*** was 6.0% and 5.2%, and annual use of ***hallucinogens other than LSD*** was 4.3% and 2.5% (Table 8-2). However, annual use of ***MDMA (ecstasy, Molly)*** was higher among college students (4.4%) than noncollege youth (2.8%).

- ***Amphetamine*** use without a doctor's prescription was higher among college students than among their noncollege age-mates. Annual prevalence of amphetamine use among college students was 8.5% in 2018, compared to 4.8% in the noncollege group (Table 8-2). Specifically, annual prevalence of ***Adderall*** use without medical supervision was higher for college students (11.1%) than for noncollege respondents (8.1%) in 2018, as has been the case for the last several years. The higher use by college students is very likely because this amphetamine drug, intended for the treatment of attention deficit hyperactivity disorder (ADHD), is sometimes used by students to stay awake and alert in order to complete course work and to study for exams. The nonmedical use of ***Ritalin***, another but now less common stimulant drug prescribed for ADHD, was similarly low in the college and noncollege groups in 2018 (annual prevalence of 1.3% for both groups).

- In 2018, annual ***cocaine*** use somewhat higher among college students (5.3%) than noncollege youth (4.2%) (Table 4-2).

[3] For the college student estimate for annual Vaping Marijuana in 2018, there was a significant difference ($p<.05$) between the typical mail condition (15.2%) and new web-push condition (25.1%) of survey administration.
[4] For the college student estimate for 30-day Vaping Marijuana in 2018, there was a significant difference ($p<.05$) between the typical mail condition (7.3%) and new web-push condition (14.5%) of survey administration.

- In addition, for most all measures of annual and current ***alcohol*** use, 2018 prevalence was higher for the college group than the noncollege group. This was true for both annual prevalence (75% vs. 70%) (Table 8-2) and 30-day prevalence (60% vs. 50%) (Table 8-3).

- College students also had a higher prevalence (29%) of ***binge drinking*** (five or more drinks in a row at least once in the past two weeks) than their noncollege peers (25%) in 2018 (Table 8-4). Similarly, more college students (38%) reported having ***been drunk*** in the prior 30 days, compared to noncollege respondents (24%) (Table 8-3). Both groups had relatively low ***daily drinking*** prevalence, with it being similar in 2018 among college students (2.4%) and noncollege youth (2.6%) (Table 8-4). *Back in high school, college-bound students, especially in earlier grades, were far less likely to drink alcohol at any level compared to their noncollege-bound peers (see Volume I); thus, both relative and absolute increases in most indices of alcohol use among college students in the first few years following high school are quite striking and point to full-time college attendance as a risk factor for binge drinking.*

- Beginning in 2005, we have given explicit attention to the problem of ***extreme binge drinking*** (also referred to as high intensity drinking), introducing a set of questions on the subject into one of the six questionnaire forms used with young adults, including college students (they are included on a second form, but those data are not included in this volume due to inconsistent variations in responses between the two forms). The questions asked respondents about the frequency in the past two weeks of having 10 or more drinks in a row and of having 15 or more drinks in a row. The low numbers of cases that resulted from a single questionnaire form necessitate combining multiple years of data (2012–2018), making 1,162 weighted cases available from the college student segment and 662 for the noncollege segment of the same age. Across the 7 years from 2012 to 2018, about one in ten college students (9.5%) reported having ***10 or more drinks in a row*** at least once in the prior two weeks, and 3.1% reported ***15 or more drinks in a row*** at least once in the prior two weeks.[5] The noncollege respondents had similar respective rates (10.2% and 5.2%). Clearly, this type of extreme binge drinking is worrisome among both college students and noncollege youth.[6,7] Trends since 2005 are considered in Chapter 9 (Tables 9-4, 9-5, and 9-6), where we document a general downward trend, especially for college students. As will be discussed below, there are dramatic gender differences in the prevalence of these behaviors.

- In 2018, 58% of both college students and noncollege youth reported using ***flavored alcoholic beverages***[8] in the prior year (Table 8-2).

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[5] See Patrick & Terry-McElrath (2017) for differences in 5+, 10+, and 15+ drinking by non-attenders, part-time college attenders, 2-year college attenders, and 4-year college attenders. Patrick, M. E., & Terry-McElrath, Y. M. (2017). High-intensity drinking by underage young adults in the United States. *Addiction, 112*, 82-93.

[6] Patrick, M. E., Terry-McElrath, Y. M., Kloska, D. D., & Schulenberg, J. E. (2016). High-intensity drinking among young adults in the United States: Prevalence, frequency, and developmental change. *Alcoholism: Clinical and Experimental Research, 40*, 1905-1912.

[7] Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., Schulenberg, J. E., O'Malley, P. M., & Johnston, L. D. (2017). Age-specific prevalence of binge and high-intensity drinking among U.S. young adults: Changes from 2005 to 2015. *Alcoholism: Clinical and Experimental Research, 41*, 1319-1328.

[8] For the non-college youth estimate for annual use of Flavored Alcoholic Beverages in 2018, there was a significant difference ($p<.05$) between the typical mail condition (48.1%) and new web-push condition (71.3%) of survey administration.

- In 2018, prevalence of ***alcoholic beverages mixed with energy drinks*** was slightly higher for the college than the noncollege group (27% versus 24% respectively) (Table 8-2).

- Among all substances studied, the largest differences for annual, 30-day, and daily prevalence levels between college and noncollege groups occur for ***cigarette smoking***. For example, the prevalence of daily smoking for college students was 1.9% versus 10.1% for noncollege respondents in 2018 (Table 8-4). Smoking at the rate of a half pack or more per day stood at 0.5% versus 4.6% for these two groups, respectively. The 12th grade data show the college-bound to have much lower smoking rates in high school than the noncollege-bound; thus, in contrast to what was true for alcohol use, these substantial differences observed at college age actually largely preceded college attendance.[9] The smoking differences would be even greater if dropouts were included in the noncollege group, because dropouts have consistently shown an exceptionally high rate of smoking.[10]

- In 2017, we expanded the ***vaping*** questions on two of the six young adult survey forms to get at specific substances being vaped including nicotine, marijuana, and just flavoring. In 2018, annual prevalence of ***vaping nicotine*** was higher for college youth (26%)[11] than noncollege youth (21%) (Table 8-2); this was also true regarding 30-day prevalence (16% versus 13%, respectively) (Table 8-3). Prevalence of ***vaping just flavoring***, however, was lower for college students than noncollege youth; for the two groups, respectively, annual prevalence was 14% and 18% (Table 8-2) and 30-day prevalence was 4.6% and 8.5% (Table 8-3).

In sum, as has been true in recent years, prevalence of illicit drug use tended to be similar among 19-22 year old college students and noncollege youth in 2018. This was true for annual prevalence of ***marijuana*** (42% and 41%, respectively) and of ***any illicit drug other than marijuana*** (18% for both); it was also true for 30-day prevalence of marijuana (25% and 27%, respectively) and of any illicit drug other than marijuana (27% and 28%, respectively). However, noncollege youth had much higher prevalence of ***near-daily marijuana*** use than college students (10.9% vs. 5.9%, respectively). Annual prevalence of ***hallucinogens***, including ***LSD***, was somewhat higher among noncollege youth in 2018, whereas ***MDMA*** (ecstasy, Molly) was somewhat higher among college students than noncollege youth, which was also true for ***cocaine*** in 2018. As has been true for many years, the only substances that college students were appreciably more likely to use than their noncollege peers were ***amphetamines*** (including ***Adderall*** in particular) and ***alcohol*** (particularly ***getting drunk*** and ***binge drinking***). The higher rates of alcohol use among college students emerged only after high school; during high school alcohol use was lower among those who would later go on to college. As has been true all along, cigarette use is much more common among noncollege youth than college students. Finally, based on new vaping questions added to two of the six young adult survey forms, 30-day and annual prevalence of ***vaping marijuana*** and ***vaping nicotine*** were higher among college students than noncollege youth (as we consider in

[9] See also Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities.* Mahwah, NJ: Lawrence Erlbaum Associates.

[10] For an analysis showing much higher smoking rates among 8th graders who later dropped out before completing high school, see Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education–drug use connection: How successes and failures in school relate to adolescent smoking, drug use, and delinquency.* New York: Lawrence Erlbaum Associates/Taylor & Francis.

[11] For the college student estimate for annual Vaping Nicotine in 2018, there was a significant difference ($p<.05$) between the typical mail condition (19.0%) and new web-push condition (32.0%) of survey administration.

Chapter 9 when examining historical trends, this pattern was reversed in 2017, with prevalence being higher among noncollege youth than college students). Also in Chapter 9, we consider historical shifts in college vs. noncollege differences in prevalence of substance use.

As discussed above and in Chapter 3, in 2018 we began our transition to web-based surveys among young adults, with half being randomly assigned to our typical mail-based condition and half to the new web-push condition in order to gauge any impact of survey condition on the prevalence estimates. As indicated above and in footnotes to Tables 8-1 through 8-4, there were very few significant differences in prevalence estimates between the two conditions, and thus we combined estimates across the two conditions into an average (weighted for sample size per condition) for college students and for noncollege youth. About 4% of the comparisons reported in this chapter for college students and for noncollege youth across all drugs and intensities of use yielded significant differences (and all were at $p<.05$ level, indicating that on average, about 5% would be significant by chance). Except for the vaping questions, there was little consistency in the significant differences across substances and drug use intensities. To summarize, significant differences ($p<.05$) were found for the following in 2018: *lifetime* prevalence of narcotics other than heroin for noncollege youth (11% for typical mail condition, 6% for web-push condition) and of flavored alcoholic beverages for noncollege youth (63% for mail and 85% for web-push); *annual* prevalence of any illicit drug other than marijuana among noncollege youth (22% for mail and 14 % for web-push) and of flavored alcoholic beverages among noncollege youth (48% for mail, 71% for web-push). For the vaping items, significant differences were found for five of the 24 comparisons including for prevalence of lifetime marijuana vaping among noncollege youth (26% for mail and 13% for web-push), of annual any vaping among college students (27% for mail and 38% for web-push), of annual nicotine vaping among college students (19% for mail and 32% for web-push), of annual marijuana vaping among college students (15% and 25%), and of 30-day marijuana vaping among college students (7% for mail and 15% for web-push). We note that the vaping items are included on only two of the six young adult survey forms, meaning relatively small sample sizes for these comparisons (which argue against more finer-grained condition comparisons by sociodemographic characteristics). In general, the 2018 findings regarding typical mail-condition vs. new web-push condition of survey administration indicate that there are very few systematic differences between the two in terms of prevalence of numerous substances for college students and noncollege youth, providing a strong rationale for combining estimates across the two survey administration conditions. We are repeating this condition comparison in 2019 for young adults (which is an independent sample from 2018 given the biennial assessments for young adults), and will consider the extent to which significant differences between conditions hold in 2019. For additional information, see our published articles for earlier experiments on mail and web conditions among young adults.[12]

GENDER DIFFERENCES IN PREVALENCE OF USE AMONG COLLEGE STUDENTS AND THEIR NONCOLLEGE PEERS

Data stratified by gender (and college student status) are provided in Tables 8-1 to 8-4.

[12] Patrick, M. E., Couper, M. P., Laetz, V. B., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Miech, R. A. (2018). A sequential mixed mode experiment in the U.S. National Monitoring the Future study. *Journal of Survey Statistics and Methodology, 6*(1), 72-97. doi: 10.1093/jssam/smx011. Patrick, M. E., Couper, M. P., Jang, B., Laetz, V. B., Schulenberg, J., Johnston, L. D., Bachman, J., O'Malley, P. M. (2019). Two-year follow-up of the sequential mixed-mode experiment in the U.S. National monitoring the future study. *Survey Practice, 12*(1).

- Most gender differences, especially among college students, replicated those discussed in Chapter 4 for all young adults one to 12 years past high school, which in turn replicated gender differences among secondary school students. Thus among college students men tended to have similar or higher annual, 30-day, and daily prevalence than women; however among noncollege youth, gender differences in prevalence are more mixed as summarized below.

- Among college students in 2018, annual prevalence of use of ***any illicit drug*** was similar for men and women (45% for each) (Table 8-2); and the same was true for 30-day use (26% and 27%, respectively) (Table 8-3). For noncollege youth, annual prevalence was higher for women than for men (46% and 41%, respectively); and the same was true for 30-day use (31% and 24%, respectively).

- Among college students in 2018, annual prevalence of ***any illicit drug other than marijuana*** was higher for men (21%) than women (16%) (Table 8-2); and the same was true for 30-day use (9.2% and 6.7%, respectively) (Table 8-3). Among noncollege youth, annual prevalence was somewhat higher for women (19%) than men (17%); and the same was true for 30-day use (9.3% and 6.1%, respectively).

- Annual ***marijuana*** use was similar among college men (43%) and women (42%) in 2018 (Table 8-2); and the same was true for ***30-day marijuana*** use (24% and 25%, respectively) (Table 8-3). Among noncollege youth, annual use was higher for women (44%) than men (39%); and the same was true for 30-day use (30% and 23%, respectively)). In contrast, ***daily marijuana*** use was about twice as high among college men (8.4%) compared to college women (4.3%) and also higher for noncollege men (12.4%) than women (9.7%), although the prevalence of daily use for both genders was much higher for the noncollege than college group (Table 8-4).

- With regard to ***vaping marijuana***, based on new questions added to two of the young adult survey forms in 2017, annual prevalence in 2018 was somewhat higher among college men than women (23% vs. 18%), as well as among noncollege men than women (13% vs. 10%) (Table 8-2). Among college students, 30-day prevalence of vaping marijuana in 2018 was higher among men than women (13.1% vs. 9.3%); however, among noncollege youth, men and women were similar (8.1%% vs. 7.8%) (Table 8-3). Thus, in 2018, vaping marijuana was highest among college men.

- Among college students, annual prevalence of any ***hallucinogens*** in 2018 was more than twice as high for men than for women (8.2% vs. 3.4%), and the same was true for ***LSD*** specifically (6.8% vs. 2.6%); corresponding prevalence for ***hallucinogens other than LSD*** was 4.3% and 1.3%, and for ***MDMA*** (ecstasy and Molly) it was 7.2% and 2.7% (Table 8-2). Among noncollege respondents, the gender gap was narrower; annual prevalence was similar or slightly higher for men than for women for use of any hallucinogens (7.2% vs. 6.5%), for use of LSD specifically (6.3% vs. 5.8%), and for use of hallucinogens other than LSD (5.3% vs. 3.6%); however, annual prevalence was *lower* for men than for women for MDMA (ecstasy and Molly) (1.7% vs. 3.6%) (Table 8-2).

- Among college students, annual prevalence of ***narcotics other than heroin*** without medical supervision was slightly higher for men (3.3%) than for women (2.3%) in 2018, whereas in the noncollege group annual prevalence was similar for men (3.2%) and women (3.1%) (Table 8-2). For the specific narcotic ***Vicodin,*** annual prevalence was low; it was slightly higher for college men (2.3%) than women (0.8%) and slightly higher for noncollege women (2.0%) than men (1.1%). For ***OxyContin*** annual use, which was also low, college men and women were similar (1.9% vs. 1.4%); it was slightly higher for noncollege women (2.0%) than men (0.4%).

- Annual ***cocaine*** use in 2018 was higher among college men (7.0%) than women (4.3%); it was similar among noncollege men (4.5%) and women (4.0%) (Table 8-2).

- Annual ***amphetamine*** use in 2018 was higher among college men (9.5%) than women (7.8%); in contrast, it was higher among noncollege women (6.6%) than men (2.5%) (Table 8-2).

- Annual ***Ritalin*** use without medical supervision in 2018 was similar among college men (1.4%) and women (1.5%), and the same was true for noncollege men (1.1%) and women (1.4%) (Table 8-2).

- The annual prevalence of ***Adderall*** use outside of medical supervision in 2018 was higher for college men (14.6%) than women (8.8%), whereas use was higher among noncollege women (10.1%) than men (5.3%) (Table 8-2). Again, the higher use of amphetamines among male and female college students compared with male and female noncollege respondents suggests that some college students of both genders could be using these drugs to try to enhance their academic performance.

- Among college students in 2018, ***30-day alcohol*** use was slightly higher for women (61%) than men (58%); for noncollege youth, prevalence was similar for women (51%) and men (50%). ***Binge drinking*** (5+ drinks in a row at least once in the past two weeks) was higher for college men (32%) than women (27%); for noncollege youth it was similar for men and women (25% for each) (Table 8-4). Among college students, women were more likely than men to report ***being drunk*** in the past 30 days (40% vs. 36%) in 2018, and the same was true for noncollege women and men (26% vs. 23%) (Table 8-3).

- ***Extreme binge drinking*** (also known as ***high intensity drinking***; 10+ or 15+ drinks in a row in the past two weeks) showed a large gender difference in both groups. For the years 2012–2018 combined (as discussed above), the prevalence of having ***10 or more drinks in a row*** in the prior two weeks was over two times higher among college men (15.1%) than among college women (6.1%), and similarly higher among noncollege men (16.1%) than noncollege women (5.4%). Prevalence of 10+ drinks in a row were similar for college and noncollege men, and similar for college and noncollege women. Regarding the prevalence of having ***15 or more drinks in a row***, gender differences were similar across college and

noncollege respondents: it was 6.0% and 8.7% for college and noncollege men, respectively, and 1.4% and 2.3% for college and noncollege women, respectively.[13]

- ***Flavored alcoholic beverages*** were more likely to be consumed by college women than college men (60% vs. 55% reporting past-year use), and there was a considerably larger difference for the noncollege group (75% of women vs. 32% of men) in 2018 (Table 8-2).

- Annual prevalence of ***alcoholic beverages mixed with energy drinks*** in 2018 was similar among college men and women (27% for both); among noncollege youth, it was higher among men (28%) than women (20%) (Table 8-2).

- Among college students, 30-day prevalence of ***cigarette smoking*** was higher for men (10%) than for women (5%) in 2018, and that was true to a much lesser extent for the noncollege segment (18% and 16%, respectively) (Table 8-3); rates for both genders were much higher in the noncollege group. ***Daily smoking*** was slightly higher for men than women in the college segment (2.4% and 1.6%, respectively); the rates again were much higher in the noncollege segment (10% for both men and women) (Table 8-4). Put another way, *daily smoking was four times as high among noncollege men than college men (10% vs. 2.4%), and six times as high among noncollege women than college women (10% vs. 1.6%).* Rates of ***smoking a half pack or more per day*** among college students were 0.8% for men and 0.3% for women, compared with 4.1% and 5.0% for the noncollege segment, respectively.

- Prevalence of most other types of tobacco use was typically higher among men than women in both the college and noncollege groups in 2018, as shown in Tables 8-2 and 8-3.

- With regard to ***vaping nicotine***, annual prevalence was considerably higher among college men (34%) than women (21%); among noncollege youth, it was slightly higher among men than women (22% versus 19%) (Table 8-2). Thirty-day prevalence was much higher for college men than women (22% versus 12%); among noncollege youth it was similar for men and women (12% versus 13%) (Table 8-3). Thus, based on 2018 data, college men were at particularly high risk for this rapidly increasing health risk behavior.

In sum, many licit and illicit drugs were used by a higher proportion of college men than college women in 2018, with the largest proportional differences occurring for ***daily marijuana use***, ***extreme binge drinking, 30-day vaping of nicotine,*** and ***annual hallucinogen use***. However, for prevalence of annual and 30-day marijuana use in 2018, college men and women were similar. Gender differences for the noncollege segment were more mixed, with noncollege women having higher annual and 30-day prevalence of using ***marijuana*** and ***any illicit drug other than marijuana***, as well as higher annual prevalence of ***amphetamine*** and ***MDMA*** (ecstasy, Molly) use; but noncollege men had higher prevalence of ***daily marijuana use***, ***extreme binge drinking***, annual ***marijuana vaping***, and annual ***hallucinogen*** use. We consider recent historical shifts in gender differences in substance use in Chapter 9. Compared with noncollege men, college men were more frequent users of ***alcohol*** and ***amphetamines*** (particularly ***Adderall*** outside of medical

[13] For additional information on 10+ drinking by gender and college attendance, see Patrick, M. E., Terry-McElrath, Y. M., Kloska, D. D., & Schulenberg, J. E. (2016). High-intensity drinking among young adults in the United States: Prevalence, frequency, and developmental change. *Alcoholism: Clinical and Experimental Research, 40*, 1905-1912.

supervision) and more likely to ***vape marijuana and nicotine***, but considerably less likely to use ***marijuana daily***; this same pattern generally held for noncollege versus college women. The most striking difference between the college and noncollege segments remains for ***cigarette smoking***, with noncollege men and women showing much higher use than college men and women.

TABLE 8-1
Lifetime Prevalence of Use for Various Types of Drugs, 2018: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

	Total		Men		Women	
	Full-Time College	Others	Full-Time College	Others	Full-Time College	Others
Any Illicit Drug [a]	55.1	59.0	57.7	56.5	53.5	61.0
Any Illicit Drug other than Marijuana [a]	27.3	30.3	32.5	30.0	24.0	30.5
Marijuana	52.0	55.2	55.5	51.5	49.8	58.3
Inhalants [b]	3.1	6.8	3.6	6.4	2.7	7.1
Hallucinogens [c]	8.6	13.7	13.2	14.7	5.9	12.8
LSD [c]	7.0	11.8	11.4	12.9	4.4	10.9
Hallucinogens other than LSD [c]	5.1	8.9	8.3	11.3	3.1	7.1
MDMA (ecstasy, molly) [d]	7.8	8.2	10.7	6.9	5.9	9.3
Cocaine	7.6	7.1	9.1	6.6	6.7	7.6
Crack [c]	0.6	1.1	0.4	0.3	0.7	1.7
Other Cocaine [d]	6.8	7.8	7.0	6.9	6.7	8.4
Heroin	0.1	1.2	0.1	1.5	0.1	0.9
With a Needle [e]	0.2	0.6	*	*	0.3	1.1
Without a Needle [e]	0.2	0.6	0.4	1.3	*	*
Narcotics other than Heroin [f,k]	6.6	8.0	8.4	8.2	5.4	7.8
Amphetamines, Adjusted [f,g]	13.3	12.3	16.7	11.0	11.3	13.3
Methamphetamine [e]	1.0	1.4	1.5	0.6	0.6	2.2
Crystal Methamphetamine (Ice) [e]	0.8	0.5	1.3	0.5	0.6	0.6
Sedatives (Barbiturates) [f]	3.3	6.0	5.4	5.6	2.0	6.3
Tranquilizers [f]	7.3	9.5	7.7	7.1	7.0	11.5
Alcohol	77.5	72.9	75.5	65.8	78.7	78.6
Been Drunk [b]	66.9	60.2	65.9	53.1	67.5	66.2
Flavored Alcoholic Beverages [h,l]	70.8	72.9	71.7	55.3	70.4	83.7
Cigarettes	—	—	—	—	—	—
Any Vaping [e]	39.5	42.2	46.5	40.1	35.0	44.0
Vaping Marijuana [e,m]	23.6	18.0	27.1	23.3	21.4	13.8
Vaping Nicotine [e]	32.9	28.0	38.3	29.2	29.4	27.0
Vaping Just Flavoring [e]	26.6	33.3	30.7	29.0	24.0	36.8
Steroids [e]	0.3	0.6	0.8	1.2	*	*
Approximate Weighted N =	*880*	*520*	*340*	*230*	*540*	*280*

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

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

' — ' indicates data not available.

See footnotes following Table 8-4.

TABLE 8-2
Annual Prevalence of Use for Various Types of Drugs, 2018: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

	Total		Men		Women	
	Full-Time College	Others	Full-Time College	Others	Full-Time College	Others
Any Illicit Drug [a]	44.9	44.1	44.8	41.2	45.0	46.4
Any Illicit Drug other than Marijuana [a,n]	18.2	17.8	21.1	17.0	16.4	18.5
Marijuana	42.3	41.4	42.5	38.6	42.2	43.8
Synthetic Marijuana [b]	1.6	2.3	1.8	3.5	1.5	1.4
Inhalants [b]	1.3	1.1	2.5	1.3	0.5	0.9
Hallucinogens [c]	5.2	6.8	8.2	7.2	3.4	6.5
LSD [c]	4.2	6.0	6.8	6.3	2.6	5.8
Hallucinogens other than LSD [c]	2.5	4.3	4.3	5.3	1.3	3.6
MDMA (ecstasy, molly) [d]	4.4	2.8	7.2	1.7	2.7	3.6
Salvia [b]	0.9	0.3	0.4	0.6	1.3	*
Cocaine	5.3	4.2	7.0	4.5	4.3	4.0
Crack [c]	0.4	*	*	*	0.6	*
Other Cocaine [d]	4.7	5.2	4.6	4.7	4.7	5.5
Heroin	*	0.5	*	0.8	*	0.2
With a Needle [e]	*	*	*	*	*	*
Without a Needle [e]	*	*	*	*	*	*
Narcotics other than Heroin [f]	2.7	3.1	3.3	3.2	2.3	3.1
OxyContin [b,f]	1.6	1.3	1.9	0.4	1.4	2.0
Vicodin [b,f]	1.4	1.6	2.3	1.1	0.8	2.0
Amphetamines, Adjusted [f,g]	8.5	4.8	9.5	2.5	7.8	6.6
Ritalin [b,f]	1.3	1.3	1.8	1.1	1.0	1.4
Adderall [b,f]	11.1	8.1	14.6	5.3	8.8	10.1
Methamphetamine [e]	0.4	1.2	*	0.6	0.6	1.7
Crystal Methamphetamine (Ice) [e]	*	0.5	*	0.5	*	0.6
Bath Salts (synthetic stimulants) [b]	*	0.3	*	0.7	*	*
Sedatives (Barbiturates) [f]	1.5	3.1	2.7	2.8	0.7	3.4
Tranquilizers [f]	3.5	3.7	3.8	2.2	3.3	4.8
GHB [e]	*	*	*	*	*	*
Ketamine [e]	0.9	0.8	*	*	1.6	1.5
Alcohol	74.6	70.1	73.7	64.6	75.1	74.7
Been Drunk [b]	59.8	50.1	58.6	46.2	60.6	53.3
Flavored Alcoholic Beverages [h,o]	58.1	58.4	54.5	32.3	60.1	74.9
Alcoholic Beverages containing Caffeine [e,j]	27.0	23.7	27.3	27.8	26.7	20.0

(Table continued on next page.)

TABLE 8-2 (cont.)
Annual Prevalence of Use for Various Types of Drugs, 2018: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

	Total		Men		Women	
	Full-Time College	Others	Full-Time College	Others	Full-Time College	Others
Cigarettes	15.3	27.0	20.3	27.8	12.2	26.4
Tobacco using a Hookah [b]	11.2	16.2	16.5	13.1	7.9	18.5
Small Cigars [e]	15.4	13.5	23.1	22.5	10.1	6.1
Dissolvable Tobacco [e]	*	*	*	*	*	*
Snus [e]	*	2.0	*	4.4	*	*
Any Vaping [e,p]	32.2	31.6	39.5	29.8	27.5	33.1
Vaping Marijuana [e,r]	19.8	11.2	23.0	13.2	17.8	9.6
Vaping Nicotine [e,q]	25.9	20.6	33.7	22.1	21.0	19.4
Vaping Just Flavoring [e]	13.6	18.1	13.0	16.0	14.0	19.7
Steroids [e]	*	0.6	*	1.2	*	*
Approximate Weighted N =	*880*	*520*	*340*	*230*	*540*	*280*

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

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

See footnotes following Table 8-4.

TABLE 8-3
Thirty-Day Prevalence of Use for Various Types of Drugs, 2018: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

	Total		Men		Women	
	Full-Time College	Others	Full-Time College	Others	Full-Time College	Others
Any Illicit Drug [a]	26.7	27.7	26.2	24.0	27.1	30.5
Any Illicit Drug other than Marijuana [a]	7.7	7.9	9.2	6.1	6.7	9.3
Marijuana	25.0	26.8	24.4	23.4	25.4	29.6
Inhalants [b]	0.2	0.8	0.2	1.0	0.1	0.6
Hallucinogens [c]	1.1	2.1	1.8	2.0	0.7	2.2
LSD [c]	1.0	1.3	1.5	0.7	0.7	1.8
Hallucinogens other than LSD [c]	0.4	1.2	1.2	1.3	*	1.0
MDMA (ecstasy, molly) [d]	1.3	0.9	2.7	*	0.4	1.6
Cocaine	2.3	1.4	3.6	1.0	1.5	1.7
Crack [c]	0.2	*	*	*	0.3	*
Other Cocaine [d]	1.9	1.5	2.6	1.5	1.5	1.5
Heroin	*	0.1	*	0.2	*	*
Narcotics other than Heroin [f]	1.0	0.5	0.5	0.2	1.3	0.8
Amphetamines, Adjusted [f,g]	2.9	1.8	3.9	0.9	2.3	2.5
Crystal Methamphetamine (Ice) [e]	*	*	*	*	*	*
Sedatives (Barbiturates) [f]	0.5	1.3	0.4	0.6	0.5	1.8
Tranquilizers [f]	1.1	1.2	1.2	1.0	1.0	1.3
Alcohol	59.9	50.2	57.9	49.8	61.2	50.5
Been Drunk [b]	38.4	24.3	35.5	22.7	40.2	25.6
Flavored Alcoholic Beverages [h]	31.1	30.1	29.7	14.7	31.9	39.9
Cigarettes	6.8	16.8	9.6	17.9	5.0	16.0
Any Vaping [e]	21.2	20.8	27.7	18.5	17.1	22.7
Vaping Marijuana [e,s]	10.8	7.9	13.1	8.1	9.3	7.8
Vaping Nicotine [e]	15.7	12.5	22.3	12.4	11.5	12.6
Vaping Just Flavoring [e]	4.6	8.5	6.1	8.2	3.6	8.7
Large Cigars [h]	3.8	1.9	9.9	4.6	*	*
Flavored Little Cigars [h]	5.6	6.7	10.9	2.9	2.6	9.2
Regular Little Cigars [h]	1.4	6.6	3.8	9.4	*	4.6
Steroids [e]	*	0.6	*	1.2	*	*
Approximate Weighted N =	*880*	*520*	*340*	*230*	*540*	*280*

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

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

See footnotes following Table 8-4.

TABLE 8-4
Thirty-Day Prevalence of Daily [i] Use for Various Types of Drugs, 2018: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

	Total		Men		Women	
	Full-Time College	Others	Full-Time College	Others	Full-Time College	Others
Marijuana	5.9	10.9	8.4	12.4	4.3	9.7
Cocaine	*	*	*	*	*	*
Amphetamines, Adjusted [f,g]	*	*	*	*	0.1	*
Alcohol						
Daily	2.4	2.6	3.4	3.9	1.7	1.6
5+ Drinks in a Row in Last 2 Weeks	28.8	25.0	31.8	25.0	26.8	25.0
Cigarettes						
Daily	1.9	10.1	2.4	9.7	1.6	10.3
1/2 Pack+/Day	0.5	4.6	0.8	4.1	0.3	5.0
Approximate Weighted N =	*880*	*520*	*340*	*230*	*540*	*280*

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

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

See footnotes on the following page.

Footnotes for Tables 8-1 through 8-4

[a]Use of any illicit drug includes any use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in three of the six questionnaire forms. Total *N* in 2018 for college students is approximately 440.

[c]This drug was asked about in five of the six questionnaire forms. Total *N* in 2018 for college students is approximately 730.

[d]This drug was asked about in four of the six questionnaire forms. Total *N* in 2018 for college students is approximately 590.

[e]This drug was asked about in two of the six questionnaire forms. Total *N* in 2018 for college students is approximately 290.

[f]Only drug use that was not under a doctor's orders is included here.

[g]Based on the data from the revised question, which attempts to exclude inappropriate reporting of nonprescription amphetamines.

[h]This drug was asked about in one of the six questionnaire forms. Total *N* in 2018 for college students is approximately 150.

[i]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes, measured as actual daily use, and 5+ drinks, measured as having five or more drinks in a row in the last two weeks.

[j]In 2012 the alcoholic beverage containing caffeine question text was changed to alcoholic beverage mixed with energy drink. The data for 2011 and 2012 are not comparable due to this question change.

[k]For the non-college youth estimate for lifetime use of Narcotics other than Heroin in 2018, there was a significant difference (p<.05) between the typical mail condition (10.8%) and new web-push condition (5.8%) of survey administration.

[l]For the non-college youth estimate for lifetime use of Flavored Alcoholic Beverages in 2018, there was a significant difference (p<.05) between the typical mail condition (62.9%) and new web-push condition (84.7%) of survey administration.

[m]For the non-college youth estimate for lifetime Vaping Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (26.1%) and new web-push condition (12.9%) of survey administration.

[n]For the non-college youth estimate for annual use of Any illicit Drug other than Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (22.4%) and new web-push condition (14.1%) of survey administration.

[o]For the non-college youth estimate for annual use of Flavored Alcoholic Beverages in 2018, there was a significant difference (p<.05) between the typical mail condition (48.1%) and new web-push condition (71.3%) of survey administration.

[p]For the college student estimate for annual Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (26.9%) and new web-push condition (37.8%) of survey administration.

[q]For the college student estimate for annual Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (19.0%) and new web-push condition (32.0%) of survey administration.

[r]For the college student estimate for annual Vaping Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (15.2%) and new web-push condition (25.1%) of survey administration.

[s]For the college student estimate for 30-day Vaping Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (7.3%) and new web-push condition (14.5%) of survey administration.

Chapter 9

TRENDS IN DRUG USE AMONG COLLEGE STUDENTS AND THEIR NONCOLLEGE PEERS

In this chapter we consider current trends and longer-term trends of substance use among college students and their noncollege peers. In the 1970s through 1990s changes in drug use tended to move up or down the age spectrum, reflecting cohort effects. During the 1960–70s drug epidemic, illicit drug use increased dramatically among U.S. college students, then spread quickly to their noncollege peers and eventually down the age spectrum to high school and even middle school students. The diffusion process reversed during the epidemic relapse in the 1990s when drug use increased first among those in early adolescence and then radiated up the age spectrum as those cohorts grew older (reflecting a cohort effect). The cohort effect continued as use subsequently declined among adolescents and this decline moved up the age spectrum. In the early 2000s, college students and high school seniors showed simultaneous decreases and then increases in marijuana use as well as in the index of any illicit drug use (a secular trend, reflecting similar changes regardless of age/cohort).

More recently some evidence of a cohort effect has emerged particularly regarding marijuana. Annual marijuana use rose among high school seniors, particularly from 2009 through 2012; it rose among college students and their noncollege peers starting in 2011, continuing into 2016. Use leveled among high school seniors from 2013 through 2015 and, in 2017, leveled among both college students and noncollege youth. High school senior use then saw nonsignificant increases in 2016 and 2017 (and a leveling in 2018); as discussed below, the 2018 data showed a significant increase for college students and a nonsignificant increase for noncollege youth (Figure 9-3a).

Again, we define college students as *follow-up respondents (i.e., high school graduates) one to four years past high school who report that they were taking courses as full-time students in a two- or four-year undergraduate college at the beginning of March in the year in question.* For more information, see the "Definition of College Students" subsection in Chapter 8.

Trend data are also provided here on the other high school graduates, those follow-up respondents who are one to four years past high school but do not meet our definition of full-time college students (Figures 9-1 through 9-16c). These young people may be working full- or part-time, not working at all, and/or attending a two- or four-year college part-time. This is an important group by itself, given less is known about their substance use, as well as an important comparison group for the college students.

The proportion of young adult high school graduates one to four years beyond high school who attend college full-time has increased considerably since the MTF follow-ups began. In 2018, about 63% of the weighted number of follow-up respondents one to four years past high school met our definition of college students, compared with only 38% in the 1980 survey, the first survey to provide the full sampling of college students. This means, of course, that the proportion of our annual follow-up samples that is in the noncollege group of the same age has diminished considerably.

The difference between the college group and the noncollege group provides an estimate of the degree to which college students' usage levels for various substances are above or below other high school graduates in this age band. If we were able to include the high school dropout segment in the calculations for the noncollege group, many of the differences with the college-enrolled would be accentuated.[1]

For each year, approximately 900–1,500 weighted respondents constitute the college student sample (see Table 9-7 for numbers [*N*s] per year) and roughly 500–1,700 respondents constitute the noncollege group one to four years beyond high school. Trend comparisons for these two groups are provided in this chapter. The reported results begin with 1980, the first year that enough follow-up surveys had accrued to characterize young high school graduates one to four years past high school. The 2018 survey is thus the 39th in the annual series on college students and noncollege-attending youth 1 to 4 years out of high school. Methods, sampling, and procedures are summarized in Chapter 3. As we discuss in that chapter, for 2018 data collections of 19-30 year olds, we randomly assigned half to receive typical mail surveys and half to a web-push condition (in which they were encouraged to complete a web-based survey). As we show in Chapter 8 when discussing 2018 prevalence estimates for college and noncollege youth, very few prevalence estimates varied significantly between the two conditions for either college or noncollege respondents; thus the two conditions were combined in a weighted average in that chapter and exceptions (i.e., when estimates between the two conditions differ significantly) are noted. In this current chapter on trends, we combine the 2018 estimates from the two conditions and we note the very few significant differences between conditions in Tables 9-1 through 9-4.

Throughout much of the chapter, trends for the 12th grade samples are included for comparison purposes. It is important to keep in mind that the total 12th grade samples are shown and that there are substantial differences in rates of substance use *within* those samples between the college-bound and those who do not plan to complete a four-year college. As shown extensively in *Volume I*[2] and in *Occasional Paper 92*,[3] 12th grade students expecting to complete college are far less likely to smoke cigarettes and also less likely to use most other substances. So when considering figures that show higher rates of use among *all* 12th graders (regardless of college expectations) than among college students, it should not be concluded that usage declined after college entrance; the college-bound were already lower in usage rates than other 12th graders for almost all substances.

One additional point is relevant to interpreting differences over time for those attending college and those not attending college, both in terms of the differences between them and trends over time for either taken separately: the proportion of college students who are female has risen

[1] Panel analyses of samples from the high school classes of 1995–1997, followed for an eight-year period beginning when they were in 8th grade, clearly show that those who dropped out of high school had distinctly higher rates of substance use both before and after they left school. See Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education–drug use connection: How successes and failures in school relate to adolescent smoking, drinking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis.

[2] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). Monitoring the Future national survey results on drug use, 1975-2018: Volume I, secondary school students. Ann Arbor, MI: Institute for Social Research, The University of Michigan.

[3] Johnston, L. D., Schulenberg, J. E., O'Malley, P. M., Miech, R. A., Bachman, J. G. , & Patrick, M. E. (2019). *Demographic subgroup trends among adolescents in the use of various licit and illicit drugs, 1975-2018* (Monitoring the Future Occasional Paper No. 92). Ann Arbor, MI: Institute for Social Research, University of Michigan.

substantially since 1980. In 1980, females constituted about 50% of the college respondents, but by 2018 they constituted 64%[4]. As will be discussed below, we have charted the trends separately for male and female college students to permit an assessment of what effect these changing proportions may have on the overall rates observed for college students.

TRENDS IN PREVALENCE, 1980–2018: COLLEGE STUDENTS VERSUS THOSE NOT ENROLLED IN COLLEGE AND 12TH GRADERS

- Regarding recent trends among college students, the annual prevalence of using ***any illicit drug*** rose gradually from a recent low of 34% in 2006 to 45% in 2018, the highest it had been for over three decades, since 1986 (Table 9-2 and Figure 9-1). The 2.7 percentage point increase over 2017 was not statistically significant. The five-year trend (from 2013 to 2018) showed a 4.7 percentage point increase, which was statistically significant. This short-term (since 2013) and the longer-term (since 2006) increase through 2018 was driven primarily by an increase in marijuana use, as summarized below.

  Back during the first decade of MTF college student data, between 1980 and 1991, college student annual use of any illicit drug dropped fairly steadily, from 56% to 29%, a decrease of nearly half. After 1991, annual prevalence held fairly steady for a couple of years before rising gradually, reaching 38% in 1998 and again in 2001 before leveling at between 34% and 37% through 2012; since 2013 it increased to 2018 prevalence of 45%, the highest level for the past three decades (but still well below the 1980 peak of 56%). Annual use of any illicit drug among noncollege respondents moved similarly until 2000, when their annual use exhibited a four-percentage-point increase due largely to their sharper increases in marijuana, amphetamine, and tranquilizer use. Their use then declined unevenly until 2007, and has since increased unevenly through 2018. In recent years the noncollege annual prevalence has not differed much from that for college students, though in some of the past few years, it was higher for noncollege youth, reaching a recent high of 47% in 2016. In 2018, it was 45% (same as college students). Similar to college students, the five-year trend (from 2013 to 2018) for the noncollege respondents showed a 4.5 percentage point increase, but was not significant. (We should mention that because of the diminishing sample sizes for the noncollege group, their estimates have become less stable in recent years, as is illustrated in Figure 9-1.)

  Twelfth-graders' annual use of any illicit drug showed a declining trajectory parallel to the other two groups from 1980 through 1991, but then followed with a much steeper increase through 1997 (in what we have called the "relapse phase" of the drug epidemic), leaving their prevalence considerably above the two older groups. Their use leveled after 1998 and then declined some after 1999 (by about six percentage points), whereas among college students there was a continued increase through 2001, followed by a leveling as use among 12th graders continued to decline. As a result, all three groups had quite similar prevalence rates by 2007. After 2009, use increased among the high school seniors but did so somewhat later among the college students, creating some new divergence before they

[4] As discussed in Chapter 3 on methods, panel data for this volume are weighted to help account for attrition through a post-stratification strategy. One result of that strategy is that the differential attrition with respect to gender (i.e., as is common in longitudinal research, we are more likely to lose men than women to follow-up) is accounted for to some extent.

converged in 2013. Between 2013 and 2017, annual prevalence remained fairly steady for 12th graders and increased for both the college and noncollege groups; between 2017 and 2018, there was a nonsignificant decrease for 12th graders and nonsignificant increases for college students and noncollege respondents.

The divergences and convergences over the years among the three groups likely reflect cohort effects. After 2007 (2006 for college students), all three groups showed some increase in the annual prevalence of any illicit drug use—due largely to a turnaround in their use of marijuana, as described below—but the increase was greater and longer from 2007 to 2011 among the 12th graders, compared to college students, likely once again reflecting a cohort effect. The divergence we are now seeing between 12th graders and college students may reflect another emerging cohort effect.

- Regarding recent trends, annual prevalence of ***any illicit drug other than marijuana*** (Figure 9-2) has diverged among the three groups since 2012 (when it was 17% to 18% for all three groups), declining considerably for 12th graders (12% in 2018) and remaining fairly steady for college students (20% in 2016 and 18% in 2017). In 2018, the annual prevalence for college students was 18% (the five-year trend from 2013 was not significant). For noncollege respondents, it showed some uneven increase through 2016 (24%), and then decreased significantly in 2017 to 18%, where it remained in 2018. Figure 9-2 shows that since 1980, of the three groups the noncollege segment has usually had the highest levels of use of any illicit drug other than marijuana, although that was not the case in 2017 and 2018. An exception was during most of the 1990s (the relapse phase in the epidemic), when use among 12th graders rose sharply and exceeded use in the noncollege segment. The noncollege group also showed an increase during that phase, though slightly lagged, and passed the 12th graders in the early 2000s.

  An increase in use of any illicit drug other than marijuana among college students also occurred after around 1994, but it lagged considerably behind the upturn among 12th graders, reflecting a cohort effect. From 1986 through 2009, college students exhibited the lowest rates of use. In the earlier period from 1980 to 1994, use of any illicit drug other than marijuana declined appreciably among college students, with their annual prevalence dropping by nearly two thirds from 32% to 12% (Table 9-2). This generally paralleled the trends for the noncollege group and the 12th graders, indicating a secular trend during that period. All three groups showed some increase in use during the early 1990s; however, the rise in use of illicit drugs other than marijuana was again not as sharp among college students as it was in the other two groups, and it began two years later than among the 12th graders and one year later than among the noncollege group (Figure 9-2). This pattern is more consistent with a cohort effect.

  After 1999, use among 12th graders leveled off, whereas the college students and noncollege segment showed a continuing increase. In fact, the college students and noncollege respondents continued to show an increase in their annual prevalence rate from 1998 through 2004, before declining from 2005 through 2007 among the noncollege group and through 2008 among the college students. From 2008 to 2012 the rate increased among the college students and declined steadily among those in the noncollege group, closing the

considerable gap between the noncollege group and both college students and 12th graders. Between 2009 and 2012, annual prevalence for college students and 12th graders converged. In 2012 all three groups had comparable annual prevalence rates at 17-18%.

As summarized above, starting in 2013, the three groups began diverging again (Figure 9-2). In 2013 and 2014, college students and their noncollege peers showed increases in annual use while use among 12th graders remained unchanged in 2013 and declined after 2014. The increase in use of any illicit drug other than marijuana among college students, from 15% in 2008 to 21% in 2014, was significant (Table 9-2). Thus by 2014 annual use of any illicit drug other than marijuana by college students exceeded that by 12th graders, approached that of the noncollege segment, and reached a new recent peak rate. This increase appeared attributable mostly to college students' increased use of ***amphetamines*** (without a doctor's orders) and of ***MDMA*** (***ecstasy***, ***Molly***)**.** However, in 2015 all three groups showed a decline in their annual use of any illicit drug other than marijuana: the noncollege group declined by a significant 5.3 percentage points and the college students by a nonsignificant 2.4 percentage points. The net effect was to essentially eliminate the difference between those two groups; but their use remained above that of 12th graders and has in the years since then. In 2016, annual prevalence showed a rebound, with increases for college and noncollege youth and continued decline for 12th graders. In 2017, there was again a decline for college and noncollege respondents (with the decline for noncollege group being significant), resulting in similar prevalence across these two groups. In 2018, annual prevalence remained at 18% for college and noncollege respondents, and continued its gradual decline for 12th graders.

- Regarding recent trends, annual prevalence of ***marijuana*** use among college students and noncollege respondents rose from recent lows in 2006 (for college students at 30%) and 2007 (for noncollege youth at 32%) through 2016, reaching 39% and 41% respectively, both increasing about 5 percentage points from 2014 to and 2016 (Figure 9-3a); however, in 2017, both groups showed nonsignificant declines or leveling to 38% and 41%, respectively. In 2018, annual prevalence of marijuana for college students was 43%, increasing nonsignificantly 4.3 percentage points from 2017; the 5-year trend showed a significant increase of 7.1 percentage points from 2013 to 2018. In 2018, it was also 43% for noncollege students, a nonsignificant increase of 2 percentage points from 2017 (the five-year trend showed a nonsignificant increase of 2 percentage points). *For both college students and noncollege respondents, the 2018 prevalence of annual marijuana use (43%) was at the highest level in three and a half decades, since 1983 for both groups.* In contrast, prevalence for 12th graders increased from a recent low of 32% in 2007 through 2011 (to 36%) and has remained fairly level since (36% in 2018). Whereas there was little distinction among the three groups for most of the past decade, annual prevalence began to show some divergence in the past few years with use becoming higher for the young adult groups than for 12th graders.

  Looking back to an earlier period, from 1981 through 1991, annual prevalence of marijuana use dropped by nearly half from 51% to 27% among college students (Figure 9-3a). The noncollege group showed a comparable decline over the same time interval, as did the 12th graders; trends in annual prevalence for all three groups were fairly comparable across that

interval, reflecting a secular trend. Use among 12th graders rose sharply after 1992, while use among college students and noncollege respondents rose more gradually. From 1991 through 1998, annual prevalence rose by 14 percentage points among 12th graders, compared to 10 percentage points among college students and 7 percentage points among the noncollege group. As a result, the 12th graders came to exhibit the highest rate of marijuana use in the last half of the 1990s, but they were the first to show a leveling off in marijuana use (in 1998), followed by the college students in 1999 and the noncollege group in 2002. This suggests that a cohort effect was present during this period. All three groups had very similar rates of use by 2005 after use showed some decline, particularly among the 12th graders. The college students and 12th graders both showed some continuing decline in 2006, but they then both showed a gradual increase in their marijuana use from 2006 through 2011, with the sharpest increase occurring among the 12th graders, indicating in both cases the end of the gradual decline in marijuana use seen earlier in the decade.

- New questions about ***vaping marijuana*** were added to two forms of the young adult surveys in 2017 and 2018. *Annual* prevalence of vaping marijuana among college students in 2017 and 2018 was 10.7% and 20.2%, respectively (Table 9-2), *showing a significant 9.4 percentage point increase, among the greatest one-year increases for any substance since MTF began over 40 years ago.* For noncollege respondents in 2017 and 2018, annual prevalence was 13.7% and 11.2%, respectively, showing a nonsignificant decline of 1.5 percentage points.

  Thirty-day prevalence of vaping marijuana in 2017 and 2018 among college students was 5.2% and 10.9%, respectively (Table 9-3), showing a significant 5.7 percentage point increase. *This doubling of the 30-day prevalence of vaping marijuana for college students from 2017 to 2018 is among the largest one-year proportional increases for any substance for over 40 years*. Among noncollege respondents 30-day prevalence was level at 7.8% in 2017 and 7.9% in 2018.

- Regarding recent trends, ***daily marijuana use*** among college students rose from 3.5% in 2007 to 5.9% in 2014, which was the highest rate observed since 1980 (Figure 9-3b). In 2015 trends showed a nonsignificant decline to 4.6%, and that was the year after 12th graders showed some decline in daily use to 5.9%. Between 2015 and 2017, daily use was fairly level (4.4% in 2017). In 2018, daily use among college students increased a nonsignificant 1.4 percentage points to 5.8%, just shy of the historic high of 5.9% in 2014. For 12th graders, daily use has leveled since 2014 (5.8% in 2018). In a rather dramatic contrast, daily marijuana use rose for noncollege respondents from 2012 through 2016 (12.8%) and 2017 (13.0%), reaching a historic high for that population. In 2018, it declined for noncollege youth a nonsignificant 1.9 percentage points to 11.1%. After this dramatic increase in daily use of marijuana, as of 2018, *daily marijuana use is nearly twice as high among noncollege respondents as among college students and 12th graders.*

  Across the years, noncollege respondents have generally had the highest prevalence of daily marijuana use and college students have had the lowest (with college students and 12th graders showing convergence in 2014 and 2018). The differences have been greatest in periods of relatively high use and diminished considerably when use was at its nadir at

the beginning of the 1990s. Daily marijuana use has varied widely in all three groups since 1980. The period from 1980 through 1992 saw a large proportional decline in daily use in all three groups, with rates falling by half or more. Since 1992, the rates have climbed substantially in all three groups, though there were periods of leveling: for example, among high school seniors from 1999 through 2009, among college students from roughly 2003 through 2006, and among the noncollege group from 2003 through 2010.

- ***Synthetic marijuana*** (Figure 9-4) was first included in the study in 2011 and had an annual prevalence among college students of 8.5% at that time. Since then, annual use declined precipitously, to 0.9% in 2014, followed by some modest increase to 1.6% in 2018. Annual use among the noncollege and 12th grade respondents also has declined sharply since 2011, reaching 2.3% and 3.5%, respectively, in 2018, still higher than among college students. Since 2012 the 12th graders have shown the highest annual prevalence and college students the lowest.

- Use of ***salvia***, another fairly recent arrival to the drug scene, was added to the MTF questionnaires in 2009. It has seen a sharp decline in popularity among college students. Annual prevalence was 5.8% in 2009 but was 0.9% in 2018 (Table 9-2). Annual prevalence was 0.3% in the noncollege group in 2018 (Table 8-2 in Chapter 8).

- ***Bath salts*—**containing cathinones, a synthetic stimulant—the use of which was first measured in 2012, have shown only trace levels of use among college students in the years since then (0.3% or less, and <.05% in 2018; Table 9-2). Among the noncollege group, use in 2018 was at 0.3% (Table 8.2).

- In the past decade, annual ***amphetamine*** use without medical supervision rose substantially among college students (Figure 9-12), roughly doubling from 2008 (5.7%) through 2012 (11.1%); but has since declined to 8.3% in 2018 (one-year and five-year trends are nonsignificant). Similarly, there has been a recent decline among 12th graders since 2013, and among noncollege youth since 2014, both reaching 5% in 2018 (the five-year decline for noncollege respondents was significant). The 1980s saw a dramatic decline of annual prevalence among college students, from 22% in 1981 to 4% in 1991. Proportionately, this was a larger drop than that among 12th graders, who also showed a considerable decline, but fairly parallel to the overall change among the noncollege group. These large declines in all three groups suggest a secular trend in that period. Amphetamine use among college students and their noncollege peers began to increase during the relapse phase in the drug epidemic after 1992 and 1993, respectively, through 2001, with a leveling in 2002. Still, during the 1990s and early 2000s, the prevalence rates for amphetamine use in all three groups remained well below the rates observed in the early 1980s. Since 2002, there have been some divergence among the three groups, with amphetamine use among college students (who consistently had the lowest rate of use from the mid-1980s through the mid-2000s) holding steady through 2008, while use among 12th graders and the noncollege group declined, nearly closing the gaps among the three groups. In 2009, prevalence rates were similar for the college and noncollege groups (7.5% and 7.7%), and slightly lower among 12th graders (6.6%). Despite the recent declines for college students, their annual prevalence has remained the highest among the three groups since 2010. *It seems very*

likely that this is due to their higher interest in using these drugs to improve academic performance.[5] Regarding college students' nonmedical use of ***Adderall***, annual prevalence has been between 9% and 11% since 2009 (when it was first included in the surveys); ***Ritalin*** use was between 1.3% and 2.4% during the past five years.

- Use of ***inhalants*** has been very low among both college and noncollege respondents since 1980, when rates were first measured (Figure 9-5). Although it dropped for college students from a peak of 4.1% in 1997 to a low of 0.2% in 2016, it increased significantly in 2017 to 1.7%, the highest it has been since 2004; in 2018, it dropped nonsignificantly to 1.3%. For noncollege respondents, 2018 annual prevalence was 1.2%, down from its peak of 3.5% in 2006. Twelfth graders have typically had considerably higher rates of inhalant use than either of these segments of the young adult population; and as is documented in *Volume I*,[6] the 8th and 10th graders have had still higher levels of use. With the one exception of 2017, there has been a consistent age effect, with use of inhalants declining considerably with increasing age. The college, noncollege, and 12th grade groups have trended largely in parallel across the years, but the increase through the mid-1990s and subsequent decline were substantially more pronounced among 12th graders, opening and then shrinking the gap between them and the two young adult groups.

- Annual prevalence of ***LSD*** remains relatively low for all three groups, but has been showing some modest uneven increases for college and especially for noncollege youth over the past few years (Figure 9-7). Annual prevalence for the three groups was similar in 2012 (at about 2%), and since then it increased unevenly to 4.1% for college students and 6.1% for noncollege respondents in 2018 (the one-year increases were not significant; the five year increase for college students was not significant, but it was for noncollege respondents); it has remained fairly level for 12th graders (3.2% in 2018). The annual prevalence of ***hallucinogens*** overall, of which LSD is one component (Figure 9-6), has also been relatively low, though there has been little evidence of recent increases, as summarized below. During the early 1980s, one of the largest proportional declines observed among college students occurred with LSD: annual prevalence fell from 6.3% in 1982 to 2.2% in 1985. After 1989, use in all three groups increased, with the prevalence among college students reaching 6.9% by 1995. After 1995, use fell gradually among college students, their noncollege peers, and 12th graders until 2001, followed in 2002 by a particularly sharp decrease in all groups. As a result, there was a considerable convergence in usage rates, which remained for some years. College students maintained lower levels of use than the other two groups for most of the life of the study until 2007. Use rose some in all three groups between 2007 and 2012, with little consistent difference among them suggesting a secular trend. Beginning in 2013, noncollege use increased unevenly through 2018, increased somewhat for college students, and remained fairly level for 12th graders.

[5] Data from high school seniors in 2012 on their reasons for using amphetamines showed "To help me study" was the most frequently chosen reason among 17 reasons, and was mentioned by 59% of the college-bound vs. by only 18% of those not college bound. Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (2014). *Monitoring the Future: Questionnaire responses from the nation's high school seniors, 2012*. Ann Arbor, MI: Institute for Social Research, University of Michigan.

[6] Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). Monitoring the Future national survey results on drug use, 1975-2018: Volume I, secondary school students. Ann Arbor, MI: Institute for Social Research, The University of Michigan.

- Among college students the annual prevalence for ***hallucinogens other than LSD*** (Figure 9-8).was 2.4% in 2018, a new low for the study; it increased nonsignificantly for the noncollege group, while remaining steady for 12th graders. The three groups converged in 2012 at about 3.9%, after which use showed a slow decline for 12th graders (to 2.7% in 2018) and an uneven change for noncollege respondents (to 4.1% in 2018). Use of hallucinogens other than LSD (which primarily involves the use of psilocybin known as mushrooms or "shrooms") followed a track somewhat parallel to LSD use, at least up until about 2000. Other hallucinogen use declined in all three groups from the early 1980s through the early 1990s, followed by rising use during the relapse in drug use in the 1990s, and then some leveling. But the secular trends for these other hallucinogens diverged from those for LSD after about 2000, with an increase in their use, including among college students, just before and after the drop off in LSD use in 2002. While overall annual prevalence of LSD across the three groups was higher than that of the other hallucinogens in the first two decades of the study, overall annual prevalence is now about the same for these two classes of drugs.

- The annual use of ***MDMA*** (***ecstasy*** and, more recently, ***Molly***) by college students increased nonsignificantly to 4.3% in 2018, and decreased nonsignificantly to 2.8% for noncollege respondents. This follows significant declines for both groups in 2017 (2.5% and 4.7%, respectively), and before that, a leveling in 2016 for college students (4.7%) and an increase for noncollege respondents (8.6%). In contrast, use among 12th graders has continued to decline in the past five years (Figure 9-9). Use by college students and their noncollege peers began to rise after 1994 and their rates tracked closely through about 2000 (Figure 9-9). Questions about MDMA use were added to the 12th grade survey in 1996 and usage rates tracked similarly with those of the other two groups through about 2000. After 1997 there was a sharp increase in use in all three groups. The annual prevalence for college students, for example, rose from 2.4% in 1997 to 9.2% in 2001 and rose considerably more among the noncollege group. Use in all three groups declined sharply from 2001 to 2004, when annual rates were back to 2.2% for college students, 2.7% for 12th graders, and 4.0% for the noncollege segment. Both the college and noncollege groups showed some increase in use by 2012, after which use by college students began a decline while use in the noncollege group began an uneven increase. It is worth noting that "Molly"—which is a purer form of MDMA than MDMA and has its own street name—was added as an example of MDMA in half of the questionnaires in 2014 and in all of them a year later. Figure 9-9 shows in 2014 the prevalence reported by respondents with and without Molly included. There was rather little difference in the level for the two older groups, but the 12th graders showed a fair difference, with the inclusion of Molly leading to a higher prevalence. In 2015, even with Molly included, all three groups showed a decline in annual prevalence, a decline that continued into 2018 for 12th graders. In 2016, the college group and especially the noncollege group showed an increase, reaching levels that constituted a doubling of prevalence since 2007; 2017 saw significant declines for all three groups, with nonsignificant declines continuing in 2018 for noncollege respondents and 12th graders and the college students showing a nonsignificant uptick.

- Annual prevalence of nonmedical ***sedative (barbiturate)*** use has remained relatively low in recent years and has been declining in all three groups. It continued to decline

nonsignificantly in 2018 among college students (to 1.5%) and 12th graders (to 2.7%) and increased nonsignificantly for noncollege respondents (3.1 Figure 9-13). Throughout the time data have been available in this study (1980 through 2018), college students have had the lowest prevalence of use among the three groups. At that early date, sedative (barbiturate) use was already quite low among college students (at 2.9%), but it still fell by more than half to 1.3% by 1985. This proportional decline was sharper than among 12th graders and less sharp than among the noncollege respondents: both groups started at considerably higher levels of use than college students. Annual prevalence remained essentially unchanged between 1985 and 1993 for all three groups. A gradual increase in use occurred between 1994 and 2004 for college students and between 1993 and 2005 for the other two groups. After 2005, declines in use appeared in all three groups through 2011 (2012 for the noncollege group), before showing a rise in use through 2013 and 2014. In fact, among college students sedative (barbiturate) use rose from 1.7% in 2011 to 3.1% in 2014, before nonsignificant declines in use in the past four years; 12th graders have shown a similar recent trend, whereas noncollege respondents have shown an uneven decline since 2014, likely due in part to their smaller numbers of cases.

- Similar to what was found for sedatives (barbiturates), annual prevalence of nonmedical ***tranquilizer*** use also remains relatively low. It was level for college students in 2018 (3.5%) and declined nonsignificantly for noncollege respondents (to 3.7%) and for 12th graders (to 3.9%) (Figure 9-14). For a few years prior to 2017, the annual prevalence of nonmedical tranquilizer use increased slightly among college students and noncollege respondents, reaching 4.9% and 7.1% respectively in 2016, while 12th grade prevalence remained level. For college and noncollege respondents, the increases through 2016 reflected a reversal of a longer term downward trend that began in the early 2000s; 12th graders have also shown a long-term decrease since early 2000s. In general, tranquilizer annual prevalence trends have been similar to those for sedatives (barbiturates). Between 1980 and 1994, annual tranquilizer use among college students dropped by nearly three fourths from 6.9% to 1.8%, a period in which use declined in the other two groups as well. After this long period of decline, tranquilizer use by college students increased gradually, returning to 6.9% by 2003. Use by the noncollege segment and by 12th graders dropped more sharply from 1980 through 1992, eliminating the differences among the three groups. Use rose after 1992 for all, but the noncollege group showed the largest gain after 1999, again creating some differences. By 2002, tranquilizer use was once again at or near its recent high in all three groups, followed by a period of decline, until 2014, after which there was some slight increase in use through 2016, and then decreases through 2018 for all three groups, especially the noncollege group.

  The nonmedical use of ***narcotics other than heroin***[7] (Figure 9-11a) has been declining for all three groups in the past decade, dropping from peak levels in the mid-2000s. These declines continued into 2018. Annual use declined nonsignificantly for college students (2.7%) in 2018, with the five-year trend (2013-2018) showing a significant decline of 2.7 percentage points; for noncollege respondents, use declined nonsignificantly in 2018 (3.2%), with the five-year trend showing a significant decline of 5.8 percentage points; and

[7] As discussed in Chapters 4 and 5, because the questions about narcotics other than heroin were changed in 2002, the prevalence figures are adjusted estimates. See the earlier discussion for details.

for 12th graders, use declined significantly in 2018 (3.4%), with the five-year trend showing a significant decline of 3.7 percentage points (see Volume I[8]). These declines resulted in the lowest levels for all three groups since the late 1990s.

The long-term trends in use have been quite parallel to those for sedatives (barbiturates) and tranquilizers. From 1980 through the mid-1990s, there was a slight decline for all groups, with little distinctions among the groups. Annual prevalence then rose considerably after about the mid-1990s in all three groups. Prior to then, the use of narcotics other than heroin by college students was down to about half by 1994 from what it was in 1980 (2.4% in 1994 vs. 5.1% in 1980) as a result of a fairly gradual decline over that 14-year interval. This trend closely paralleled use among participants' noncollege counterparts and 12th graders. As with a number of other drugs, use among 12th graders began to rise after 1992, but use among college students did not begin to increase until after 1994, likely due to a cohort effect. In 2003, annual prevalence among college students reached a historic high point of 8.7% before leveling for three years. It then declined from 8.8% in 2006 to a two-decade low of 2.7% by 2018. For the past decade, college students have shown the lowest prevalence among the three groups. Use among 12th graders leveled after reaching a historic high of 9.5% in 2004, but it then declined fairly steadily to a recent low of 3.4% in 2018. The noncollege group emerged after 2000 as the most heavily using group for the first time, supplanting the high school seniors, as their use kept increasing through 2005, reaching an all-time high of 13%. After that, use in the noncollege group declined to a two-decade low of 3.2% in 2018. *It thus appears that all three groups have shown fairly steady and parallel declines in the use of these dangerous drugs since the early to mid-2000s, following a substantial increase in use by all three in the 1990s and into the early 2000s. Although there was a nonsignificant increase in 2016 for college and noncollege respondents, the 2018 results suggest that the overall declines for these two groups over the past decade are continuing.*

- Data on the nonmedical use of the specific narcotic drugs, ***OxyContin*** and ***Vicodin,*** were first collected in 2002 (Figures 9-11b and 9-11c and Table 8-2). The noncollege group had annual prevalence rates up to twice that for college students in the use of both drugs when their use was first measured in 2002, but the differences among the three groups have changed since then.

  Annual prevalence of nonmedical ***OxyContin*** use among college students rose fairly steadily, from 1.5% in 2002 to 5.0% in 2009, before dropping significantly to 1.2% in 2012; it has since shown a modest uneven increase to 1.6% in 2018 (Figure 9-11c). Use in the noncollege segment rose from 2002 (3.3%) to 2005 (6.2%) and then declined to 4% by 2010 and remained fairly level through 2015; in 2016 it declined to 2.1% and then to 1.6% in 2018. The trend line has been quite uneven, likely due to the limited numbers of cases in this segment. (Questions about OxyContin and Vicodin are in only three of the six questionnaire forms.) Among 12th graders, OxyContin use rose from 4.0% in 2002 to 5.1% in 2010 and then leveled for several years, before declining to 2.3% by 2018. It is clear that

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

OxyContin use increased among college students between 2002 and 2009, closing the previously existing gaps among the three groups; however, use has declined sharply among the college students since then, again opening a sizeable gap between them and the other two groups through 2015, after which the three groups have converged again at relatively low levels.

Vicodin use without medical supervision (Figure 9-11b) showed a somewhat different pattern of change, with annual prevalence among all three groups remaining fairly level, and substantially higher than use of OxyContin, from 2002 through about 2008. Since then, annual prevalence for all three groups declined sharply, reaching its lowest point in 2017 for college students (1.1%) and noncollege respondents (1.8%). Annual prevalence leveled for all three groups in 2018 (1.5%, 1.9%, and 1.7%, respectively). As with OxyContin, the noncollege group has consistently had higher Vicodin use than the college students. Twelfth-grade levels of Vicodin use have fallen in between. The 2017 and 2018 data show a convergence among the three groups at or near historical lows. Because of the limited numbers of cases, as with OxyContin, trend data for use of Vicodin have generally been uneven in the young adult groups.

- Beginning in the mid- to late-2000s, the annual prevalence of ***cocaine*** use among college students, noncollege peers, and 12th graders (Figure 9-10) began to decline to levels below those in the 1990s and far below those in the 1980s. The trend line for college students continued to decline until 2013, and then increased a significant 1.7 percentage points to 4.4% in 2014; it was level through 2016 and increased nonsignificantly the past two years to 5.2% in 2018 (the five-year trend from 2013 to 2018 showed a significant increase of 2.5 percentage points). Although annual cocaine use remains relatively low among college students, the 2018 prevalence is the highest over the past decade. In the noncollege group there was also a bump up in cocaine use in 2013, which held for a few years and then increased to 6.5% in 2016; it has declined nonsignificantly the past two years to 4.2% in 2018. For 12th graders, annual cocaine use has been level for the past decade (2.3% in 2018).

  Regarding longer-term trends, the early to mid-1980s saw a level period during which cocaine use was considerably greater among college students and their noncollege peers than among 12th graders. It was followed by a dramatic drop in annual prevalence among college students (nearly nine tenths, from 17.1% in 1986 to 2.0% by 1994) and noncollege counterparts (from 18.9% in 1986 to 5.1% in 1994). A cohort effect emerged as cocaine use began to rise among 12th graders after 1992, among the college segment after 1994, and among the noncollege segment after 1995. Since 2000 the 12th graders and college students have had similar rates of use and parallel trends, while use in the noncollege stratum has been considerably higher. After around 2006 all three groups showed declines in use until 2012 among the noncollege group and 2013 among college students, with 12th graders continuing to decline. These patterns of change suggest that a secular trend was underway through most of the 1980s, combined with a considerable age effect. After 1992 a cohort effect emerged through most of the 1990s, and since 2000 or so through 2012 a secular trend re-emerged with all three groups moving in parallel for the most part. After 2012 the three groups diverged.

- Despite different trend patterns among the three groups, college students have exhibited the highest levels and greatest constancy in ***binge drinking*** (defined as having five or more drinks in a row at least once in the past two weeks) since the first measurement in the MTF surveys in 1980 (Figure 9-15d; note that ***30-day alcohol*** use shows very similar patterns as shown in Figure 9-15b). From 1980 through 2018, college students' prevalence of binge drinking declined 16 percentage points (from 44% to 28%); the 2018 prevalence was a significant decline from 2017, and represents the first time that prevalence was below 30%. For noncollege respondents and 12th graders, prevalence has also declined considerably since 1980 through 2018; noncollege respondents' prevalence declined 16 percentage points (41% to 25%) and 12th graders' prevalence declined 27 percentage points (41% to 14%).

  As can be seen in Figure 9-15d, both the noncollege segment and 12th graders showed fairly substantial declines in the prevalence of binge drinking from 1981 through 1990. In contrast, college students showed no decline from 1981 to 1986 and then only a modest decline of five percentage points from 1986 through 1993. Between 1981 (when all three populations were very close in use) and 1992, this measure of binge drinking dropped by 14 percentage points among 12th graders, by 11 percentage points among the noncollege respondents, but by only two percentage points among college students. After 1992, binge drinking began to rise among 12th graders while still declining some among college students, narrowing the gap somewhat and likely reflecting a cohort effect emerging during this period, similar to that observed for a number of illicit drugs. Binge drinking subsequently began to increase among the noncollege segment after 1995, and by less among college students after 1996, modest increases that continued into 2001. Between 2001 and 2008, college students held fairly steady in their rates before showing some decline through 2015, followed by some leveling and then the significant decline in 2018; the noncollege segment held steady from roughly 2003 to 2007, followed by some uneven decline through 2018. Meanwhile, among 12th graders, binge drinking started a gradual decline after 1998 that continued into 2018, enlarging the difference between them and the two older groups. Once again there is evidence of cohort effects since the early 1990s, with the inflection points occurring later for the older strata.

  Why did college students' binge drinking decline so little for a decade (1981–1991) compared to their noncollege peers and 12th graders? One possibility is that campuses provided some insulation from the effects of changes in the drinking age laws that took place in many states during that interval. Similarly, entrenched in many college campuses is a culture of binge drinking that had proven to be impervious to many societal trends and intervention attempts.[9] Also, individuals who are under the legal drinking age in college are mixed in with peers who are of legal age to purchase alcohol; this was no longer true in high schools by the mid-1980s and was less true, perhaps, for many of those ages 19 to 22 who were not in college. Finally, much alcohol advertising and promotion was and is directed specifically at the college student population. As summarized above, binge drinking has decreased for all three groups over the past decade reflecting a secular trend.

[9] Schulenberg, J. E., & Maggs, J. L. (2002). A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. *Journal of Studies on Alcohol,* Supplement 14, 54–70.

Starting in 2005, we included a set of questions concerning ***extreme binge drinking***, also known as ***high-intensity drinking***, in one of the six questionnaire forms used with young adults, including college students. The questions asked respondents about the frequency in the past two weeks of having 10 or more drinks in a row and also of having 15 or more drinks in a row. The low numbers of cases that result from a single questionnaire form necessitate combining multiple years of data (this item is included on a second form, but those data are not included in this volume due to inconsistent variations in responses between the two forms). By combining data across 2005 through 2011 and across 2012 through 2018, we find that extreme binge drinking has declined for college students and noncollege respondents. As shown in Table 9-5, prevalence of ***10 or more drinks in a row*** at least once in the prior two weeks decreased for college students from 13.6% in 2005-2011 to 10.2% in 2012-2018; corresponding prevalence for noncollege respondents declined from 11.8% to 10.2%. Prevalence of ***15 or more drinks in a row*** at least once in the prior two weeks decreased for college students from 5.0% in 2005-2011 to 3.1% in 2012-2018; corresponding prevalence for noncollege respondents was level at 5.2% (Table 9-6). In table 9-4, extreme binge drinking prevalence levels (for both 10 or more and 15 or more drinks) are shown for college students each year from 2005 through 2018. These levels are based on small sample sizes and thus show uneven trend lines from year to year. Nonetheless, the overall downward trends are evident, with notable recent declines in 10 or more drinks after 2012, and notable recent declines in 15 or more drinks after 2014. These recent declines in prevalence of extreme binge drinking are consistent with declines in binge drinking (at the 5+ drinks level) for college students and noncollege respondents.[10] As we summarize below (and also discuss in Chapter 8), extreme binge drinking is much higher among males than females in both college and noncollege groups.

College students' ***daily drinking*** estimates (Figure 9-15c) showed a significant decline in 2017 to 2.2%, dropping by half (from 4.3% in 2016) and reaching a historic low; it was level in 2018 (2.3%). For noncollege respondents it declined nonsignificantly in 2018 (2.5%), and for 12th graders it continued on a long-term decline to 1.2%, reaching a historic low. Earlier trend data for college students appeared a little less stable, perhaps due to smaller sample sizes at those times, going from around 6.5% in the early 1980s to a considerable decline from 1984 through 1995 (to 3.0%), followed by a period of some increase during and after the relapse phase in the drug epidemic in the 1990s, reaching 5.0% in 2002. From 2002 through 2016, daily drinking among college students fluctuated at about 4% without a clear downward trend; however, 2017 showed a clear and significant downward trend, and then leveled in 2018. Twelfth graders showed a somewhat similar pattern of daily drinking with a long period of decline, followed by an earlier reversal beginning in 1994. After 1998, 12th grade daily drinking resumed its decline, reaching its lowest level of 1.2% in 2018. Of the three groups, 12th graders have typically had the lowest rates of daily drinking. The noncollege respondents have generally had the highest rate of current daily drinking and have shown the most change in daily drinking trends. After a 2008 decline in daily use among noncollege respondents, daily drinking levels have been fairly comparable between the college students and their noncollege peers; and both of

[10] Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., Schulenberg, J. E., O'Malley, P. M., & Johnston, L. D. (2017). Age-specific prevalence of binge and high-intensity drinking among U.S. young adults: Changes from 2005 to 2015. *Alcoholism: Clinical and Experimental Research, 41,* 1319-1328.

them showed some decline in daily use in 2015 and then uneven change through 2018, reaching levels that were at or near historic lows in 2018.

- The 30-day prevalence of ***cigarette smoking*** (Figure 9-16a) among college students has declined dramatically for the past decade and a half, with any smoking in the past *30 days* falling by more than three-fourths from a recent high of 31% in 1999 to an all-time low of 7% in 2018; *daily* smoking has fallen by about nine-tenths over the same interval, from 19% to 2% (also to an all-time low in 2018) (Figure 9-16b). In the early 1980s, cigarette smoking among U.S. college students declined modestly, and by less than the decline among their noncollege peers. Thirty-day prevalence for college students fell from 26% to 22% between 1980 and 1984, remained fairly stable through 1990 (22%), then increased gradually but substantially, reaching 31% by 1999. In 2000 the first evidence of a new decline in smoking among college students began to appear, two years after smoking had begun to decline among 12th graders, this lag reflects a cohort effect. The noncollege group, which has consistently had the highest smoking rate of the three groups, showed a fairly consistent decline in 30-day prevalence from 1980 through 1990, an offsetting increase from 1990 through 2001 (44%), and a considerable decline since then to an all-time low of 17% in 2018, showing a significant decline of 5.1 percentage points from 2017 (22%). Over the past decade and a half, 30-day use has declined in parallel form for noncollege and college respondents, with smoking being about twice as high among noncollege as among college respondents across the past seven years. Across the same period, prevalence of *daily* smoking also decreased in parallel form; it was three to four times as high among noncollege as among college respondents in recent years (Figure 9-16b and Table 9-4).

  While smoking rates have consistently been lower among college students than the noncollege segment, the trend lines for these two groups converged some after 1984, as smoking rates more or less stabilized among college students but continued to decline among young adults not in college (Figure 9-16a). In fact, between 1989 and 1991, use began to rise among college students while continuing to decline among noncollege respondents. Both groups showed fairly parallel increases in smoking between about 1991 and 1999, after which use continued to increase among the noncollege segment but began to decline among college students, opening up a large difference between them. (Twelfth graders exhibited an increase from 1992 to 1997— peaking two to three years prior to the older groups—reflecting a cohort effect, and their use has declined significantly since then.) All three groups have seen very substantial declines since those peaks, and the rates for college students and 12th graders have largely converged, but use among the noncollege group remains far higher than the other two groups.

  The popularity of Camel cigarettes among the college-bound may have helped to explain some of the narrowing of the gap between college students and their noncollege-attending peers in the 1990s. The Joe Camel advertising and promotion campaign, which commenced in the late 1980s and ended in the late 1990s, may have succeeded in initiating more college and college-bound students (particularly males) to smoking than had been the case previously or has been the case since.[11]

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

- New questions about ***vaping nicotine*** were added to two forms of the young adult surveys in 2017 and 2018. *Annual* prevalence of vaping nicotine among college students in 2017 and 2018 was 13.0% and 25.6%, respectively (Table 9-2), *showing a significant 12.6 percentage point increase, among the greatest one-year increases for any substance since MTF began over 40 years ago.* For noncollege respondents, annual prevalence of vaping nicotine was 21% in both 2017 and 2018.

  Thirty-day prevalence of vaping nicotine in 2017 and 2018 among college students was 6.1% and 15.5%, respectively (Table 9-3), showing a significant 9.4 percentage point increase. *This increase of two-and-one-half times in the 30-day prevalence of vaping nicotine for college students from 2017 to 2018 is among the largest one-year proportional increases for any substance for over 40 years*. Among noncollege respondents 30-day prevalence in 2017 and 2018 was 7.9% and 12.5%, respectively, showing a nonsignificant 4.6 percentage point increase.

Selective Summary of Recent Trends

The main story for recent trends among college students is the continued increase in annual prevalence of ***marijuana*** use, which reached 43% in 2018, a historic high over the past three-and-a-half decades; notably, the five-year trend from 2013 to 2018 showed a significant 7.1 percentage point increase. Likewise, for noncollege youth, annual marijuana use has continued to increase, also reaching 43% in 2018 and constituting a historic high over the past three-and-a-half decades. Meanwhile, among 12th graders, annual prevalence of marijuana use remained fairly steady from 2011 through 2018 (36% in 2018), resulting in a continued divergence between them and both the college and noncollege groups. ***Daily marijuana use*** increased for college students in 2018 to 5.8%, nearly the all-time high level of 5.9% reached in 2014; for noncollege respondents, daily marijuana use reached an all-time high of 13% in 2017 and dropped to 11% in 2018. Meanwhile, daily use among 12th graders has remained steady the past few years (5.7% in 2018). Thus, as of 2018, more than one-in-ten noncollege respondents aged 19-22, and about one-in-twenty college students and 12th graders, use marijuana on a daily or near daily basis.

Regarding annual prevalence of illicit drugs other than marijuana, recent trends have been level for college and noncollege respondents; it continued to decline for 12th graders. Two illicit drugs in particular have shown recent increases among college students, though prevalence for both drugs remains relatively low. The five-year trend in annual prevalence of ***cocaine*** use increased significantly from 2.7% in 2013 to 5.2% in 2018, the highest it has been over the past decade; for both noncollege respondents and 12th graders, annual cocaine use has declined somewhat or remained steady in the past few years (4.2% and 2.3% in 2018, respectively). Annual prevalence of ***LSD*** has shown some uneven increases in the past few years for college students (4.1% in 2018) and especially noncollege respondents (6.1% in 2018), with it remaining fairly level for 12th graders (3.2% in 2018).

The use of two illicit drugs in particular has continued to decline for college students and noncollege respondents. Annual prevalence of the nonmedical use of ***narcotic drugs other than heroin*** continued to decline for college students, with a significant five-year decline from 5.4% in 2013 to 2.7% in 2018; similarly, for noncollege respondents, there was a significant five-year

decline from 9.0% in 2013 to 3.2% in 2018 (use also declined significantly for 12th graders in the past five years to 3.4% in 2018). The 2018 prevalence in all three groups was at the lowest levels since the late 1990s. The annual use of ***amphetamines*** also continued to decline modestly for college students (to 8.3% in 2018), and more so for noncollege respondents and 12th graders (both at 5% in 2018). It is noteworthy that three newer drugs – ***synthetic marijuana***, ***salvia***, and ***bath salts*** – have also continued to decline among all three groups to very low levels.

Several illicit drugs with relatively low use have shown some leveling or uneven change in recent years among college students and noncollege respondents, including ***MDMA*** (***ecstasy***, ***Molly***) (annual prevalence of 4.3% and 2.8%, respectively in 2018) and nonmedical use of ***sedatives (barbiturates)*** (1.5% and 3.1%), and ***tranquilizers*** (3.5% and 3.7%). The trend in the use of ***inhalants*** has also been fairly level (1.3% and 1.2%).

Binge drinking continued to decline among college students and noncollege youth (as well as 12th graders). In 2018 for college students, it declined significantly in 2018 to 28%, representing the first time that it was below 30%; it declined to 25% for noncollege respondents and to 14% for 12th graders in 2018. And ***cigarette*** use continues to decline, with 30-day smoking reaching new lows in 2018 for college students (7%), noncollege respondents (22%), and 12th graders (8%).

Based on new vaping questions in 2017 and 2018, vaping marijuana and nicotine was found to dramatically increase among college students over the one-year period. Among college students, 30-day prevalence of ***vaping marijuana*** doubled between 2017 and 2018, from 5.2% to 10.9% (a significant increase), one of the largest one-year proportional increases for any substance since MTF began over 40 years ago. Among noncollege respondents, it was 8% in both 2017 and 2018. Among college students, 30-day prevalence of ***vaping nicotine*** more than doubled between 2017 and 2018, from 6.1% to 15.5% (a significant increase), also one of the largest proportional one-year increases for any substance over the past 40 years. It increased nonsignificantly for noncollege respondents, from 7.9% in 2017 to 12.5% in 2018. Beginning in 2019, the vaping items will be on four of the six young adult survey forms (they were on two forms in 2017 and 2018), providing more precise estimates on this rapidly growing phenomenon.

Finally, regarding long-term trends, the findings over the years concerning divergences and convergences among the three groups highlight the importance of cohort effects in determining the source of changes. The overall drug use trends among college students parallel the trends among 12th graders, though after the early 1990s they were generally lagged by a few years; still, declines in many drugs from 1980 to 1990 were proportionately larger among 19-22 year olds (both college and noncollege) than among 12th graders. Despite parallel trends in the early 1990s, 12th graders showed larger, and usually earlier, increases in the use of a number of drugs in the years since; as indicated in *Volume I*, 8th and 10th graders showed increases a year earlier than 12th graders. Clearly the upsurge, or what we have called a "relapse phase" in the illicit drug epidemic during the 1990s, did not originate on the nation's college campuses, as did the earlier epidemic. The relapse originated among secondary school students, and the younger ones at that, and was carried up the age spectrum through generational replacement. In other words, it exhibited a cohort effect.

GENDER DIFFERENCES IN TRENDS AMONG COLLEGE STUDENTS

As mentioned earlier, recent decades have seen a gradual rise in the proportion of college students who are female. Females constituted 50% of the 1980 sample of college students compared to 63% of our 2018 sample. Given that substantial gender differences exist in the use of some drugs, we have been concerned that apparent long-term trends in the levels of drug use among college students might actually be attributable to changes in the gender composition of each population. For this reason, in particular, we present separate trend lines for college men and women in the lower panels of Figures 9-1 through 9-16c. We do not focus on noncollege respondents in these figures or this subsection in large part due to the limited numbers of cases for subgroups.

In general, college student trends in use of the various drugs have been highly parallel for men and women, as an examination of the relevant figures will show. The most noteworthy exceptions are mentioned below.

- Certain drug use measures showed a convergence between the genders as use rates declined to low levels in the early 1990s. This was true for annual use of ***any illicit drug*** and ***any illicit drug other than marijuana***. After 1991 the genders diverged again, with a recent convergence especially for any illicit drug, due largely to a convergence for marijuana, discussed next.

- ***Marijuana*** use has been consistently higher among college men than among college women. There was some gender convergence in annual prevalence of marijuana use between 1980 and 1991 as overall use declined, and then some gender divergence between 1991 and 1999 as usage rates rose. After 2001, the two genders diverged further, with use among men remaining essentially unchanged through 2008 and use among women decreasing (Figure 9-3a). Since 2010, use among college men has remained fairly steady, whereas use among college women increased from 2010 through 2016, reaching a level not seen since the 1980s, narrowing the gap considerably; use decreased nonsignificantly for both genders in 2017, to 41% for men and 37% for women. In 2018, annual use increased nonsignificantly for college men and women to 43% and 42%, respectively, essentially closing the gender gap; the five-year trend from 2013 to 2018 showed a nonsignificant increase of 2 percentage points for men, and a significant increase of 8 percentage points for women.

- Among college students, 30-day prevalence of ***vaping marijuana*** increased from 2017 to 2018 nonsignificantly for men (8.7% to 13.1%) and significantly for women (2.9% to 9.3%), showing a gender gap that appears to be decreasing. Among noncollege respondents, it was fairly level between 2017 and 2018 for both men (6.6% to 8.1%) and women (8.6% to 7.8%), showing little difference between men and women.

- ***Daily marijuana use*** (Figure 9-3b) has generally been about twice as high among college men as among college women throughout the study; since the mid-1990s, such use has risen more among men, especially since 2007, opening a wide difference. Between 2014 and 2017, daily use declined some for men and remained fairly level for women. In 2018, daily use increased nonsignificantly for both to 8.4% and 4.3%, respectively; neither of the

five-year trends were significant, but the 2018 level for women represents a new high since 2003.

- From 1999 to 2005, ***LSD*** use dropped more steeply among men than among women, offsetting sizeable previous differences in which men had higher use and bringing the genders close together at very low prevalence rates (Figure 9-7). The relatively small increases in use that have occurred since 2005 through 2018 have been greater among men, with a five-year nonsignificant increase of 2.7 percentage points for men and a five-year nonsignificant increase of 1.0 percentage points for women.

- Use of ***hallucinogens other than LSD*** has dropped for both genders since 2002 or 2003, with percentages for men generally twice as high or more as those for women; in the past few years, it dropped more for men than for women, and there has been some convergence (Figure 9-8).

- Until recently, annual prevalence of ***MDMA*** (***ecstasy***, ***Molly***) use has been quite similar for college men and women since measures were first introduced in 1989, and changes in their usage levels have tracked closely (Figure 9-9). Between 2006-2007 and 2012-2013, men showed more increase than women; both showed some uneven declines from 2012-2013 through 2017 (3.1% for college men and 2.2% for college women). In 2018, use increased significantly for college men to 7.2% and increased nonsignificantly for college women to 2.7%. (Starting in 2014, Molly was included as an example of MDMA. See Figure 9-9.) From the first measurement in 1988 through 2005 the two genders tracked closely, including the period of rapid rise in use (1994-2001) and the subsequent period of rapid decline (2001-2004).

- Trends in the nonmedical use of ***narcotics other than heroin*** have generally moved in parallel for both male and female college students, with men generally higher, except during the nadir in use at the beginning of the 1990s when their rates were equivalent. (Figure 9-11a). Both genders have shown considerable declines in their use since about 2005 or 2006, with the past few years showing some convergence, dropping to 3.3% and 2.3%, respectively in 2018; the five-year decline was significant for college men, but not for college women.

- After 1986, ***cocaine*** use, which had been substantially higher among men until then, dropped more steeply for men than for women in general, and among male college students in particular, considerably narrowing the sizable gap between genders (Figure 9-10). Since 1991, both genders have moved in parallel, with men reporting higher annual usage rates. Both genders showed small and nonsignificant upticks in use in 2014, which continued unevenly for college men (reaching 7.0% in 2018) and college women (reaching 4.3% in 2018); the five-year increase was significant for women, but not for men.

- Nonmedical ***amphetamine*** use (Figure 9-12) also showed some convergence in the 1980s due to a greater decline among men; the two genders showed virtually equivalent annual prevalence from 1986 through 1998. From 1998 through 2016 men had slightly higher annual prevalence rates generally, as use increased for both through 2012. Use continued

to increase for men through 2015 while it declined for women. These trends reversed in 2016 and 2017, and as a result college women showed higher annual prevalence than college men in 2017 (9.2% and 7.7%, respectively); however, it decreased nonsignificantly for women in 2018 (7.8%) and increased nonsignificantly for men (9.5%).

- The gender differences for nonmedical ***sedative*** (***barbiturate***) and ***tranquilizer*** use have been modest through most of the life of the study, with college men usually having slightly higher prevalence than college women (Figures 9-13 and 9-14). After 1995, a somewhat larger gap emerged for tranquilizers, again with men being higher. Tranquilizer use by college women peaked in 2003, briefly closing the gender gap, but use by men has consistently been slightly higher since then. Since 2003, both have shown uneven declines through 2018. Both genders have shown declines in annual use of sedatives from the early 2000s through 2011 and converging during this period. Both then showed a slight rebound through 2014, followed by a leveling for men and decline for women, which has opened a gender gap.

- Among college students, the *annual* prevalence of ***alcohol*** use has been virtually identical for the two genders since 1980, when use by college students was first reported (Figure 9-15a). Both college men and women have shown a very gradual and modest decline over the past 35 years. Prior to 2000, *30-day* alcohol prevalence showed modest differences, with men slightly higher (Figure 9-15b); however, that difference largely disappeared by 2000. Since then, college men have had very slightly higher 30-day rates more years than not; but that difference disappeared after 2015.

  College men have consistently had considerably higher rates of *daily drinking* than college women (Figures 9-15c and 9-15d). But since about 2004 or 2005 the gender gap in daily drinking has narrowed, with little change among college women but an overall decrease among college men. Both showed declines in 2017 to historic low levels, and remained level in 2018.

- ***Binge drinking*** (having one or more occasions of having five or more drinks in a row in the prior two weeks) has shown a considerable gender gap, but a gradual long-term decline among college men since about 1985 that continued into 2018, reduced the gap (Figure 9-15d). Because there has been little change among college women, whose use has been consistently less than that of college men, the gender gap has narrowed. The gap in 2016 was the lowest it had been, with men at 35% and women at 31%. In 2018, binge drinking declined nonsignificantly for both (32% and 27%, respectively), again narrowing the gap and representing new historic lows for both; the five-year decline was significant for men, but not for women.

- The gender gap in ***extreme binge drinking*** also shows signs of decreasing, though two-week prevalence remains much higher among men (Tables 9-5 and 9-6). Between 2005-2011 and 2012-2018, having ten or more drinks in a row dropped from 24% to 15% for college men, whereas it declined somewhat for college women from 7% to 6%; corresponding prevalence for having 15 or more drinks in a row dropped for men from 10.1% to 6.0%, and dropped from 1.8% to 1.4% for women.

- For the interval between 1980 and 1988, the *30-day* prevalence of ***cigarette smoking*** was higher among college women than men (Figure 9-16a). However, the difference in 30-day prevalence narrowed because use by college women declined considerably between 1980 and 1989, while use by college men did not decline. After 1989, as prevalence for both genders increased considerably, the difference remained quite small and the genders reversed position, with college men catching up to and passing women in their rate of smoking by 1994 and then generally remaining higher thereafter. (A similar reversal had occurred among 12th graders a few years earlier, so the reversal among college students probably reflected a cohort effect.) Both genders exhibited a considerable decrease in 30-day smoking between 1999 and 2011, leaving only a modest difference between them (although the trend line for college men was irregular during this interval). Use then leveled for men through 2015 and continued to drop for women, widening the difference between them somewhat. In 2016 it dropped for men more than for women. Use leveled for men in 2017 (11%) and continued to decline for women (6%). In 2018 the 30-day prevalence levels dropped nonsignificantly for both (to 10% and 5%, respectively), at new historic lows. *Daily smoking* and *half-pack-a-day smoking* (Figures 9-16b and c) also were initially higher among college women than among college men, this time up through 1994, after which the two genders have tracked rather closely, both reaching historic lows in 2017 or 2018. It thus appears that college men in recent years have been more likely than college women to smoke at a less than daily rate but about equally likely as women to smoke at more frequent rates, though daily use is now very low for both.

- Among college students, 30-day prevalence of ***vaping nicotine*** increased significantly from 2017 to 2018 for both men (10.6% to 22.3%) and women (3.2% to 11.5%), showing a considerable gender gap both years. Among noncollege respondents between 2017 and 2018, it was level for men (12.4% both years) and increased significantly for women (from 4.9% to 12.6%), with no gender gap in 2018.

TABLE 9-1
Trends in Lifetime Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

(Years cont.)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Approximate Weighted N =	*1,040*	*1,130*	*1,150*	*1,170*	*1,110*	*1,080*	*1,190*	*1,220*	*1,310*	*1,300*	*1,400*	*1,410*	*1,490*	*1,490*	*1,410*	*1,450*	*1,450*	*1,480*	*1,440*	*1,440*
Any Illicit Drug [a]	69.4	66.8	64.6	66.9	62.7	65.2	61.8	60.0	58.4	55.6	54.0	50.4	48.8	45.9	45.5	45.5	47.4	49.0	52.9	53.2
Any Illicit Drug other than Marijuana [a]	42.2	41.3	39.6	41.7	38.6	40.0	37.5	35.7	33.4	30.5	28.4	25.8	26.1	24.3	22.0	24.5	22.7	24.4	24.8	25.5
Marijuana	65.0	63.3	60.5	63.1	59.0	60.6	57.9	55.8	54.3	51.3	49.1	46.3	44.1	42.0	42.2	41.7	45.1	46.1	49.9	50.8
Inhalants [b]	10.2	8.8	10.6	11.0	10.4	10.6	11.0	13.2	12.6	15.0	13.9	14.4	14.2	14.8	12.0	13.8	11.4	12.4	12.8	12.4
Hallucinogens [c,x]	15.0	12.0	15.0	12.2	12.9	11.4	11.2	10.9	10.2	10.7	11.2	11.3	12.0	11.8	10.0	13.0	12.6	13.8	15.2	14.8
LSD [x]	10.3	8.5	11.5	8.8	9.4	7.4	7.7	8.0	7.5	7.8	9.1	9.6	10.6	10.6	9.2	11.5	10.8	11.7	13.1	12.7
Hallucinogens other than LSD [c,x]	11.6	9.0	10.6	8.3	9.2	8.1	7.8	6.8	6.2	6.2	6.0	6.0	5.7	5.4	4.4	6.5	6.5	7.5	8.7	8.8
MDMA (ecstasy, molly), original [d,z]	—	—	—	—	—	—	—	—	—	3.8	3.9	2.0	2.9	2.3	2.1	3.1	4.3	4.6	6.8	8.4
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	22.0	21.5	22.4	23.1	21.7	22.9	23.3	20.6	15.8	14.6	11.4	9.4	7.9	6.3	5.0	5.5	5.0	5.6	8.1	8.4
Crack [e]	—	—	—	—	—	—	—	3.3	3.4	2.4	1.4	1.5	1.7	1.3	1.0	1.8	1.2	1.4	2.2	2.4
Other Cocaine [f]	—	—	—	—	—	—	—	18.1	14.2	16.0	10.2	9.0	7.6	6.3	4.6	5.2	4.6	5.0	7.4	7.8
Heroin	0.9	0.6	0.5	0.3	0.5	0.4	0.4	0.6	0.3	0.7	0.3	0.5	0.5	0.6	0.1	0.6	0.7	0.9	1.7	0.9
Narcotics other than Heroin [g,h]	8.9	8.3	8.1	8.4	8.9	6.3	8.8	7.6	6.3	7.6	6.8	7.3	7.3	6.2	5.1	7.2	5.7	8.2	8.7	8.7
Amphetamines [g,i]	29.5	29.4	30.1	27.8	27.8	25.4	22.3	19.8	17.7	14.6	13.2	13.0	10.5	10.1	9.2	10.7	9.5	10.6	10.6	11.9
Methamphetamine [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.1
Crystal Methamphetamine (Ice) [j]	—	—	—	—	—	—	—	—	—	—	1.0	1.3	0.6	1.6	1.3	1.0	0.8	1.6	2.2	2.8
Sedatives (Barbiturates) [g,t]	8.1	7.8	8.2	6.6	6.4	4.9	5.4	3.5	3.6	3.2	3.8	3.5	3.8	3.5	3.2	4.0	4.6	5.2	5.7	6.7
Sedatives, Adjusted [g,k]	13.7	14.2	14.1	12.2	10.8	9.3	8.0	6.1	4.7	4.1	—	—	—	—	—	—	—	—	—	—
Methaqualone [g]	10.3	10.4	11.1	9.2	9.0	7.2	5.8	4.1	2.2	2.4	—	—	—	—	—	—	—	—	—	—
Tranquilizers [g,l]	15.2	11.4	11.7	10.8	10.8	9.8	10.7	8.7	8.0	8.0	7.1	6.8	6.9	6.3	4.4	5.4	5.4	6.9	7.7	8.2
Alcohol [m]	94.3	95.2	95.2	95.0	94.2	95.3	94.9	94.1	94.9	93.7	93.1	93.6	91.8	89.3	88.2	88.5	88.4	87.3	88.5	88.0
Been Drunk [n]	—	—	—	—	—	—	—	—	—	—	—	79.6	76.8	76.4	74.4	76.6	76.2	77.0	76.8	75.1
Flavored Alcoholic Beverages [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids [p]	—	—	—	—	—	—	—	—	—	0.4	1.5	1.4	1.7	1.9	0.5	0.8	0.6	1.6	0.9	1.3

(Table continued on next page.)

TABLE 9-1 (cont.)
Trends in Lifetime Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Approximate Weighted N =	*1,350*	*1,340*	*1,260*	*1,270*	*1,400*	*1,360*	*1,280*	*1,250*	*1,270*	*1,320*	*1,260*	*1,230*	*1,150*	*1,090*	*1,030*	*1,020*	*870*	*880*	*900*	
Any Illicit Drug [a]	53.7	53.6	51.8	53.9	52.2	52.3	50.6	50.5	49.5	51.4	49.1	49.2	50.5	53.3	52.4	53.4	54.4	55.4	55.5	+0.1
Any Illicit Drug other than Marijuana [a]	25.8	26.3	26.9	27.6	28.0	26.5	26.3	25.3	22.6	25.6	24.8	24.3	23.8	28.3	29.0	26.4	26.5	26.1	27.1	+1.0
Marijuana	51.2	51.0	49.5	50.7	49.1	49.1	46.9	47.5	46.8	47.5	46.8	46.6	49.1	47.7	48.5	50.4	51.0	50.5	52.4	+1.9
Inhalants [b]	12.9	9.6	7.7	9.7	8.5	7.1	7.4	6.3	4.9	6.9	5.5	3.7	5.7	4.3	3.5	3.1	3.2	3.4	3.0	-0.4
Hallucinogens [c,x]	14.4	14.8	13.6	14.5	12.0	11.0	10.6	9.1	8.5	8.0	7.8	7.4	7.6	7.8	7.6	6.5	7.7	7.2	8.5	+1.3
LSD [x]	11.8	12.2	8.6	8.7	5.6	3.7	3.5	3.3	4.3	3.3	4.0	3.7	3.1	4.4	4.5	4.8	5.1	5.3	6.9	+1.7
Hallucinogens other than LSD [c,x]	8.2	10.7	11.0	12.8	10.1	10.6	10.1	8.5	8.2	7.8	7.1	6.9	7.2	6.8	6.8	5.1	6.6	5.0	5.0	0.0
MDMA (ecstasy, molly), original [d,z]	13.1	14.7	12.7	12.9	10.2	8.3	6.9	5.4	6.2	6.5	6.2	6.8	8.7	8.1	8.2	—	—	—	—	—
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.1	8.9	8.4	5.3	7.6	+2.3
Cocaine	9.1	8.6	8.2	9.2	9.5	8.8	7.7	8.5	7.2	8.1	6.6	5.5	5.2	5.1	6.2	6.1	5.3	6.5	7.5	+1.0
Crack [e]	2.5	2.0	1.9	3.1	2.0	1.7	2.3	1.3	1.4	1.0	1.2	0.8	0.7	0.7	1.4	0.5	0.4	0.6	0.6	0.0
Other Cocaine [f]	8.1	8.3	8.6	8.5	9.3	8.1	6.2	8.0	7.1	7.9	6.7	5.4	5.1	5.2	6.2	6.4	6.5	6.1	6.7	+0.6
Heroin	1.7	1.2	1.0	1.0	0.9	0.5	0.7	0.5	0.7	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.5	0.1	0.1	+0.1
Narcotics other than Heroin [g,h]	8.9	11.0	12.2	14.2	13.8	14.4	14.6	14.1	12.4	14.0	12.2	12.4	10.3	10.8	9.9	6.6	7.4	6.8	6.6	-0.2
Amphetamines [g,i]	12.3	12.4	11.9	12.3	12.7	12.3	10.7	11.2	9.1	11.8	12.1	13.4	14.4	16.1	15.0	13.9	13.6	12.6	13.2	+0.5
Methamphetamine [j]	5.1	5.3	5.0	5.8	5.2	4.1	2.9	1.9	1.9	1.0	1.1	0.6	0.3	0.9	0.7	0.8	0.6	0.6	1.0	+0.4
Crystal Methamphetamine (Ice) [j]	1.3	2.3	2.0	2.9	2.2	2.4	1.7	1.3	1.1	0.7	0.8	0.2	0.6	0.0	0.3	0.3	0.6	0.4	0.8	+0.4
Sedatives (Barbiturates) [g,t]	6.9	6.0	5.9	5.7	7.2	8.5	6.3	5.9	6.4	6.0	5.3	3.6	3.5	5.4	5.9	4.4	3.3	3.9	3.3	-0.6
Sedatives, Adjusted [g,k]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers [g,l]	8.8	9.7	10.7	11.0	10.6	11.9	10.0	9.1	8.6	9.2	8.1	7.1	6.4	7.8	6.9	7.8	6.5	6.7	7.4	+0.7
Alcohol [m]	86.6	86.1	86.0	86.2	84.6	86.6	84.7	83.1	85.3	82.6	82.3	80.5	81.0	78.0	79.4	81.4	81.3	79.1	77.4	-1.7
Been Drunk [n]	74.7	76.1	75.1	74.9	73.4	72.9	73.1	71.6	72.5	69.1	70.5	67.9	70.0	66.5	68.8	68.6	66.7	64.8	66.8	+2.0
Flavored Alcoholic Beverages [o]	—	—	—	—	79.0	84.5	80.9	80.6	78.6	78.1	77.4	76.7	76.6	67.5	72.7	74.8	76.1	72.4	71.0	-1.4
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Any Vaping [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.0	26.8	36.0	39.9	+3.9
Vaping Marijuana [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4	23.8	+9.5 ss
Vaping Nicotine [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.5	32.4	+9.9 ss
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.7	27.1	+0.4
Steroids [p]	0.6	1.5	1.2	1.2	1.6	1.0	1.9	0.6	1.6	1.3	0.7	1.1	0.4	0.8	0.9	0.6	0.8	1.2	0.3	-0.9

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

See footnotes following Table 9-7.

TABLE 9-2
Trends in Annual Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

(Years cont.)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Approximate Weighted N =	*1,040*	*1,130*	*1,150*	*1,170*	*1,110*	*1,080*	*1,190*	*1,220*	*1,310*	*1,300*	*1,400*	*1,410*	*1,490*	*1,490*	*1,410*	*1,450*	*1,450*	*1,480*	*1,440*	*1,440*
Any Illicit Drug [a]	56.2	55.0	49.5	49.8	45.1	46.3	45.0	40.1	37.4	36.7	33.3	29.2	30.6	30.6	31.4	33.5	34.2	34.1	37.8	36.9
Any Illicit Drug other than Marijuana [a]	32.3	31.7	29.9	29.9	27.2	26.7	25.0	21.3	19.2	16.4	15.2	13.2	13.1	12.5	12.2	15.9	12.8	15.8	14.0	15.4
Synthetic Marijuana [u]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Marijuana	51.2	51.3	44.7	45.2	40.7	41.7	40.9	37.0	34.6	33.6	29.4	26.5	27.7	27.9	29.3	31.2	33.1	31.6	35.9	35.2
Inhalants [b]	3.0	2.5	2.5	2.8	2.4	3.1	3.9	3.7	4.1	3.7	3.9	3.5	3.1	3.8	3.0	3.9	3.6	4.1	3.0	3.2
Hallucinogens [c,x]	8.5	7.0	8.7	6.5	6.2	5.0	6.0	5.9	5.3	5.1	5.4	6.3	6.8	6.0	6.2	8.2	6.9	7.7	7.2	7.8
LSD [x]	6.0	4.6	6.3	4.3	3.7	2.2	3.9	4.0	3.6	3.4	4.3	5.1	5.7	5.1	5.2	6.9	5.2	5.0	4.4	5.4
Hallucinogens other than LSD [c,x]	5.2	4.7	5.4	3.9	4.1	3.9	3.8	3.1	3.4	3.1	3.0	3.1	2.6	2.7	2.8	4.0	4.1	4.9	4.4	4.5
MDMA (ecstasy, molly), original [d,z]	—	—	—	—	—	—	—	—	—	2.3	2.3	0.9	2.0	0.8	0.5	2.4	2.8	2.4	3.9	5.5
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Salvia [v]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	16.8	16.0	17.2	17.3	16.3	17.3	17.1	13.7	10.0	8.2	5.6	3.6	3.0	2.7	2.0	3.6	2.9	3.4	4.6	4.6
Crack [e]	—	—	—	—	—	—	—	2.0	1.4	1.5	0.6	0.5	0.4	0.6	0.5	1.1	0.6	0.4	1.0	0.9
Other Cocaine [f]	—	—	—	—	—	—	—	10.7	10.6	9.3	5.1	3.2	2.4	2.5	1.8	3.3	2.3	3.0	4.2	4.2
Heroin	0.4	0.2	0.1	*	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.6	0.2
Narcotics other than Heroin [g,h]	5.1	4.3	3.8	3.8	3.8	2.4	4.0	3.1	3.1	3.2	2.9	2.7	2.7	2.5	2.4	3.8	3.1	4.2	4.2	4.3
OxyContin [g,j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vicodin [g,j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines [g,i]	22.4	22.2	21.1	17.3	15.7	11.9	10.3	7.2	6.2	4.6	4.5	3.9	3.6	4.2	4.2	5.4	4.2	5.7	5.1	5.8
Ritalin [g,j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adderall [g,j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.3
Crystal Methamphetamine (Ice) [j]	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.2	0.7	0.8	1.1	0.4	0.8	1.0	0.5
Bath Salts (synthetic stimulants) [n]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sedatives (Barbiturates) [g,t]	2.9	2.8	3.2	2.2	1.9	1.3	2.0	1.2	1.1	1.0	1.4	1.2	1.4	1.5	1.2	2.0	2.3	3.0	2.5	3.2
Sedatives, Adjusted [g,k]	8.3	8.0	8.0	4.5	3.5	2.5	2.6	1.7	1.5	1.0	—	—	—	—	—	—	—	—	—	—
Methaqualone [g]	7.2	6.5	6.6	3.1	2.5	1.4	1.2	0.8	0.5	0.2	—	—	—	—	—	—	—	—	—	—
Tranquilizers [g,l]	6.9	4.8	4.7	4.6	3.5	3.6	4.4	3.8	3.1	2.6	3.0	2.4	2.9	2.4	1.8	2.9	2.8	3.8	3.9	3.8
Rohypnol [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GHB [w]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketamine [w]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol [m]	90.5	92.5	92.2	91.6	90.0	92.0	91.5	90.9	89.6	89.6	89.0	88.3	86.9	85.1	82.7	83.2	83.0	82.4	84.6	83.6
Been Drunk [n]	—	—	—	—	—	—	—	—	—	—	—	69.1	67.3	65.6	63.1	62.1	64.2	66.8	67.0	65.4
Flavored Alcoholic Beverages [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcoholic Beverages containing Caffeine [j,s]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	36.2	37.6	34.3	36.1	33.2	35.0	35.3	38.0	36.6	34.2	35.5	35.6	37.3	38.8	37.6	39.3	41.4	43.6	44.3	44.5
Any Vaping [j,aa,bb]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana [j,aa,cc]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine [j,aa,dd]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tobacco Using a Hookah [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Small Cigars [y]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Snus [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dissolvable Tobacco [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids [p]	—	—	—	—	—	—	—	—	—	0.4	0.5	0.6	0.2	0.9	0.2	0.4	0.2	0.7	0.2	0.9

(Table continued on next page.)

TABLE 9-2 (cont.)
Trends in Annual Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Approximate Weighted N =	*1,350*	*1,340*	*1,260*	*1,270*	*1,400*	*1,360*	*1,280*	*1,250*	*1,270*	*1,320*	*1,260*	*1,230*	*1,150*	*1,090*	*1,030*	*1,020*	*870*	*880*	*900*	
Any Illicit Drug [a]	36.1	37.9	37.0	36.5	36.2	36.6	33.9	35.0	35.2	36.0	35.0	36.3	37.3	40.5	38.6	41.4	42.8	42.4	45.2	+2.7
Any Illicit Drug other than Marijuana [a]	15.6	16.4	16.6	17.9	18.6	18.5	18.1	17.3	15.3	16.9	17.1	16.8	17.1	19.3	20.8	18.5	19.7	18.1	18.0	-0.1
Synthetic Marijuana [u]	—	—	—	—	—	—	—	—	—	—	—	8.5	5.3	2.3	0.9	1.5	1.3	0.5	1.6	+1.1
Marijuana	34.0	35.6	34.7	33.7	33.3	33.3	30.2	31.8	32.3	32.8	32.7	33.2	34.9	35.5	34.4	37.9	39.3	38.3	42.6	+4.3
Inhalants [b]	2.9	2.8	2.0	1.8	2.7	1.8	1.5	1.5	1.1	1.2	1.7	0.9	1.5	0.5	1.3	0.6	0.2	1.7	1.3	-0.5
Hallucinogens [c,x]	6.7	7.5	6.3	7.4	5.9	5.0	5.6	4.9	5.1	4.7	4.9	4.1	4.5	4.5	4.0	4.3	4.5	4.1	5.1	+1.1
LSD [x]	4.3	4.0	2.1	1.4	1.2	0.7	1.4	1.3	2.6	2.0	2.1	2.0	1.9	2.6	2.2	3.0	3.1	2.8	4.1	+1.3
Hallucinogens other than LSD [c,x]	4.4	5.5	5.8	7.1	5.6	5.0	5.4	4.7	4.4	4.1	4.4	3.4	3.9	3.7	3.2	3.0	3.4	2.5	2.4	-0.1
MDMA (ecstasy, molly), original [d,z]	9.1	9.2	6.8	4.4	2.2	2.9	2.6	2.2	3.7	3.1	4.3	4.2	5.8	5.3	5.0	—	—	—	—	—
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.9	4.2	4.7	2.5	4.3	+1.8
Salvia [v]	—	—	—	—	—	—	—	—	—	5.8	3.5	3.1	1.5	1.0	1.1	0.4	0.7	0.3	0.9	+0.5
Cocaine	4.8	4.7	4.8	5.4	6.6	5.7	5.1	5.4	4.4	4.2	3.5	3.3	3.1	2.7	4.4	4.3	4.0	4.8	5.2	+0.5
Crack [e]	0.9	0.9	0.4	1.3	1.3	0.8	1.0	0.6	0.5	0.3	0.4	0.3	0.3	0.3	0.8	0.2	0.0	0.2	0.4	+0.2
Other Cocaine [f]	4.1	4.1	5.0	5.1	6.3	5.0	3.8	5.3	4.2	4.2	4.0	3.0	3.0	2.8	4.1	4.2	4.7	4.4	4.6	+0.2
Heroin	0.5	0.4	0.1	0.2	0.4	0.3	0.3	0.2	0.3	0.4	0.2	0.1	0.1	0.3	0.0	0.1	0.2	0.0	*	0.0
Narcotics other than Heroin [g,h]	4.5	5.7	7.4	8.7	8.2	8.4	8.8	7.7	6.5	7.6	7.2	6.2	5.4	5.4	4.8	3.3	3.8	3.1	2.7	-0.4
OxyContin [g,q]	—	—	1.5	2.2	2.5	2.1	3.0	2.8	3.6	5.0	2.3	2.4	1.2	2.3	1.3	1.5	1.9	1.7	1.6	-0.2
Vicodin [g,q]	—	—	6.9	7.5	7.4	9.6	7.6	6.7	6.7	8.4	4.9	5.8	3.8	4.4	2.8	1.6	1.3	1.1	1.5	+0.4
Amphetamines [g,i]	6.6	7.2	7.0	7.1	7.0	6.7	6.0	6.9	5.7	7.5	9.0	9.3	11.1	9.6	10.1	9.7	9.8	8.6	8.3	-0.2
Ritalin [g,q]	—	—	5.7	4.7	4.7	4.2	3.9	3.7	3.2	1.7	1.9	2.3	1.8	3.6	1.6	2.0	2.4	1.4	1.3	-0.2
Adderall [g,q]	—	—	—	—	—	—	—	—	—	10.2	9.0	9.8	9.0	10.7	9.6	10.7	9.9	9.4	11.0	+1.6
Methamphetamine [j]	1.6	2.4	1.2	2.6	2.9	1.7	1.2	0.4	0.5	0.3	0.4	0.2	0.0	0.4	0.1	0.5	0.0	0.4	0.4	-0.1
Crystal Methamphetamine (Ice) [j]	0.5	0.6	0.8	0.9	1.1	1.4	0.6	0.7	0.1	0.1	0.5	0.1	0.6	*	*	*	*	0.4	*	-0.4
Bath Salts (synthetic stimulants) [n]	—	—	—	—	—	—	—	—	—	—	—	—	0.3	0.1	0.2	0.1	0.0	0.2	*	-0.2
Sedatives (Barbiturates) [g,t]	3.7	3.8	3.7	4.1	4.2	3.9	3.4	3.6	3.7	3.1	2.5	1.7	2.2	2.7	3.1	2.3	2.1	1.9	1.5	-0.4
Sedatives, Adjusted [g,k]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone [g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers [g,l]	4.2	5.1	6.7	6.9	6.7	6.4	5.8	5.5	5.0	5.4	4.9	4.2	3.4	4.4	3.5	4.3	4.9	3.6	3.5	-0.1
Rohypnol [j]	—	—	0.7	0.4	0.3	0.1	0.2	0.1	0.3	*	—	—	—	—	—	—	—	—	—	—
GHB [w]	—	—	0.6	0.3	0.7	0.4	*	0.1	0.2	*	0.1	0.1	*	0.1	0.2	*	—	—	—	—
Ketamine [w]	—	—	1.3	1.0	1.5	0.5	0.9	0.2	0.4	0.1	0.7	0.6	0.4	0.9	0.1	0.6	0.5	0.3	0.9	+0.6
Alcohol [m]	83.2	83.0	82.9	81.7	81.2	83.0	82.1	80.9	82.1	79.4	78.6	77.4	79.2	75.6	76.1	79.0	78.9	75.8	74.6	-1.2
Been Drunk [n]	64.7	68.8	66.0	64.7	67.1	64.2	66.2	64.8	66.8	61.5	63.8	60.1	61.5	57.9	60.5	61.6	60.7	58.0	59.2	+1.2
Flavored Alcoholic Beverages [o]	—	—	—	—	63.2	67.0	63.5	62.6	65.0	66.1	60.3	63.0	58.1	57.6	64.2	64.5	68.5	60.3	58.4	-1.9
Alcoholic Beverages containing Caffeine [j,s]	—	—	—	—	—	—	—	—	—	—	—	33.6	33.8	39.1	32.8	34.1	29.4	31.3	27.4	-3.9
Cigarettes	41.3	39.0	38.3	35.2	36.7	36.0	30.9	30.7	30.0	29.9	28.1	25.8	23.4	23.2	22.6	20.1	18.7	16.7	15.5	-1.3
Any Vaping [j,aa,bb]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.5	32.4	+8.9 s
Vaping Marijuana [j,aa,cc]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.7	20.2	+9.4 ss
Vaping Nicotine [j,aa,dd]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	25.6	+12.6 sss
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	14.0	+0.9
Tobacco Using a Hookah [j]	—	—	—	—	—	—	—	—	—	—	—	27.9	25.7	26.1	32.7	23.4	16.9	10.0	11.4	+1.4
Small Cigars [y]	—	—	—	—	—	—	—	—	—	—	—	23.6	20.3	19.0	24.2	19.6	17.6	14.0	15.6	+1.6
Snus [j]	—	—	—	—	—	—	—	—	—	—	—	6.5	4.7	4.8	5.0	5.8	3.3	4.3	1.0	-3.3
Dissolvable Tobacco [j]	—	—	—	—	—	—	—	—	—	—	—	*	0.3	0.2	0.5	1.1	0.3	0.7	0.0	-0.7
Steroids [p]	0.1	0.6	0.5	0.3	0.6	0.5	0.8	0.6	0.1	0.7	0.3	0.2	0.3	0.8	0.5	0.3	0.0	0.6	0.0	-0.6

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

See footnotes following Table 9-7.

TABLE 9-3
Trends in 30-Day Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

(Years cont.)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Approximate Weighted N =	*1,040*	*1,130*	*1,150*	*1,170*	*1,110*	*1,080*	*1,190*	*1,220*	*1,310*	*1,300*	*1,400*	*1,410*	*1,490*	*1,490*	*1,410*	*1,450*	*1,450*	*1,480*	*1,440*	*1,440*
Any Illicit Drug [a]	38.4	37.6	31.3	29.3	27.0	26.1	25.9	22.4	18.5	18.2	15.2	15.2	16.1	15.1	16.0	19.1	17.6	19.2	19.7	21.6
Any Illicit Drug other than Marijuana [a]	20.7	18.6	17.1	13.9	13.8	11.8	11.6	8.8	8.5	6.9	4.4	4.3	4.6	5.4	4.6	6.3	4.5	6.8	6.1	6.4
Marijuana	34.0	33.2	26.8	26.2	23.0	23.6	22.3	20.3	16.8	16.3	14.0	14.1	14.6	14.2	15.1	18.6	17.5	17.7	18.6	20.7
Inhalants [b]	1.5	0.9	0.8	0.7	0.7	1.0	1.1	0.9	1.3	0.8	1.0	0.9	1.1	1.3	0.6	1.6	0.8	0.7	0.6	1.5
Hallucinogens [c,x]	2.7	2.3	2.6	1.8	1.8	1.3	2.2	2.0	1.7	2.3	1.4	1.2	2.3	2.5	2.1	3.3	1.9	2.1	2.1	2.0
LSD [x]	1.4	1.4	1.7	0.9	0.8	0.7	1.4	1.4	1.1	1.4	1.1	0.8	1.8	1.6	1.8	2.5	0.9	1.1	1.5	1.2
Hallucinogens other than LSD [c,x]	1.9	1.2	1.4	1.0	1.2	0.7	1.2	0.8	0.8	1.1	0.8	0.6	0.7	1.1	0.8	1.6	1.2	1.2	0.7	1.2
MDMA (ecstasy, molly), original [d,z]	—	—	—	—	—	—	—	—	—	0.3	0.6	0.2	0.4	0.3	0.2	0.7	0.7	0.8	0.8	2.1
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	6.9	7.3	7.9	6.5	7.6	6.9	7.0	4.6	4.2	2.8	1.2	1.0	1.0	0.7	0.6	0.7	0.8	1.6	1.6	1.2
Crack [e]	—	—	—	—	—	—	1.3	0.4	0.5	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Other Cocaine [f]	—	—	—	—	—	—	—	3.5	3.2	3.2	1.0	1.0	0.9	0.6	0.3	0.8	0.6	1.3	1.5	1.0
Heroin	0.3	*	*	*	*	*	*	0.1	0.1	0.1	*	0.1	*	*	*	0.1	*	0.2	0.1	0.1
Narcotics other than Heroin [g,h]	1.8	1.1	0.9	1.1	1.4	0.7	0.6	0.8	0.8	0.7	0.5	0.6	1.0	0.7	0.4	1.2	0.7	1.3	1.1	1.0
Amphetamines [g,i]	13.4	12.3	9.9	7.0	5.5	4.2	3.7	2.3	1.8	1.3	1.4	1.0	1.1	1.5	1.5	2.2	0.9	2.1	1.7	2.3
Methamphetamine [j]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2
Crystal Methamphetamine (Ice) [j]	—	—	—	—	—	—	—	—	—	—	*	*	*	0.3	0.5	0.3	0.1	0.2	0.3	*
Sedatives (Barbiturates) [g,t]	0.9	0.8	1.0	0.5	0.7	0.4	0.6	0.5	0.5	0.2	0.2	0.3	0.7	0.4	0.4	0.5	0.8	1.2	1.1	1.1
Sedatives, Adjusted [g,k]	3.8	3.4	2.5	1.1	1.0	0.7	0.6	0.6	0.6	0.2	—	—	—	—	—	—	—	—	—	—
Methaqualone [g]	3.1	3.0	1.9	0.7	0.5	0.3	0.1	0.2	0.1	0.0	—	—	—	—	—	—	—	—	—	—
Tranquilizers [g,l]	2.0	1.4	1.4	1.2	1.1	1.4	1.9	1.0	1.1	0.8	0.5	0.6	0.6	0.4	0.4	0.5	0.7	1.2	1.3	1.1
Alcohol [m]	81.8	81.9	82.8	80.3	79.1	80.3	79.7	78.4	77.0	76.2	74.5	74.7	71.4	70.1	67.8	67.5	67.0	65.8	68.1	69.6
Been Drunk [n]	—	—	—	—	—	—	—	—	—	—	—	45.0	45.0	43.8	42.8	37.9	40.3	46.4	44.3	44.6
Flavored Alcoholic Beverages [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes	25.8	25.9	24.4	24.7	21.5	22.4	22.4	24.0	22.6	21.1	21.5	23.2	23.5	24.5	23.5	26.8	27.9	28.3	30.0	30.6
Any Vaping [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Marijuana [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Nicotine [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Large Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flavored Little Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regular Little Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids [p]	—	—	—	—	—	—	—	—	—	*	0.2	0.3	0.2	0.2	0.2	0.1	*	0.2	0.2	0.4

(Table continued on next page.)

TABLE 9-3 (cont.)
Trends in 30-Day Prevalence of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017– 2018 change	
Approximate Weighted N =	*1,350*	*1,340*	*1,260*	*1,270*	*1,400*	*1,360*	*1,280*	*1,250*	*1,270*	*1,320*	*1,260*	*1,230*	*1,150*	*1,090*	*1,030*	*1,020*	*870*	*880*	*900*		
Any Illicit Drug [a]	21.5	21.9	21.5	21.4	21.2	19.5	19.2	19.3	18.9	20.7	19.2	21.4	22.3	22.8	22.7	23.4	24.3	23.3	26.3	+3.0	
Any Illicit Drug other than Marijuana [a]	6.9	7.5	7.8	8.2	9.1	8.2	8.2	8.1	7.3	8.4	8.1	8.2	7.8	8.8	10.0	9.2	8.4	7.0	7.6	+0.6	
Marijuana	20.0	20.2	19.7	19.3	18.9	17.1	16.7	16.8	17.0	18.5	17.5	19.4	20.5	20.6	20.8	21.1	22.2	21.2	24.7	+3.5	
Inhalants [b]	0.9	0.4	0.7	0.4	0.4	0.3	0.4	0.1	0.4	0.1	0.5	0.3	0.2	0.1	0.3	0.2	*	0.9	0.2	-0.7	
Hallucinogens [c,x]	1.4	1.8	1.2	1.8	1.3	1.2	0.9	1.3	1.7	1.0	1.4	1.2	1.1	1.0	1.0	1.4	0.8	1.2	1.1	-0.1	
LSD [x]	0.9	1.0	0.2	0.2	0.2	0.1	0.3	0.3	0.8	0.3	0.7	0.5	0.4	0.4	0.5	0.7	0.4	0.8	1.0	+0.1	
Hallucinogens other than LSD [c,x]	0.8	0.8	1.1	1.7	1.2	1.1	0.7	1.1	1.3	0.8	1.2	0.8	0.7	0.8	0.7	0.9	0.5	0.6	0.4	-0.2	
MDMA (ecstasy, molly), original [d,z]	2.5	1.5	0.7	1.0	0.7	0.8	0.6	0.4	0.6	0.5	1.0	0.7	1.4	0.8	1.3	—	—	—	—	—	
MDMA (ecstasy, molly), revised [d,z]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.0	0.7	1.0	0.5	1.3	+0.8	
Cocaine	1.4	1.9	1.6	1.9	2.4	1.8	1.8	1.7	1.2	1.3	1.0	1.2	1.1	0.9	1.8	1.5	1.4	1.3	2.2	+0.9	
Crack [e]	0.3	0.1	0.3	0.4	0.4	0.1	*	0.1	0.1	0.1	0.1	0.1	*	0.3	0.1	*	*	*	0.2	+0.2	
Other Cocaine [f]	0.9	1.5	1.4	1.9	2.2	1.8	1.3	1.6	1.1	1.2	1.0	1.2	1.3	0.9	1.8	1.4	1.7	1.1	1.9	+0.9	
Heroin	0.2	0.1	*	*	0.1	0.1	0.2	0.1	*	0.1	*	*	0.1	0.2	*	*	0.2	*	*	0.0	
Narcotics other than Heroin [g,h]	1.7	1.7	3.2	2.3	3.0	3.1	3.1	2.2	2.3	2.7	2.3	2.1	2.2	1.5	1.2	1.3	1.1	0.7	1.0	+0.3	
Amphetamines [g,i]	2.9	3.3	3.0	3.1	3.2	2.9	2.5	3.1	2.8	3.4	4.1	4.5	4.6	5.0	4.8	4.2	3.8	3.6	2.9	-0.8	
Methamphetamine [j]	0.2	0.5	0.2	0.6	0.2	0.1	0.2	0.1	*	0.1	*	*	*	*	0.1	*	*	*	*	0.0	
Crystal Methamphetamine (Ice) [j]	*	0.1	*	0.3	0.1	0.2	*	0.1	*	*	0.2	*	0.3	*	*	*	*	0.4	*	-0.4	
Sedatives (Barbiturates) [g,t]	1.1	1.5	1.7	1.7	1.5	1.3	1.3	1.4	1.4	1.2	0.6	0.8	0.8	0.9	0.7	1.0	0.9	0.5	0.5	0.0	
Sedatives, Adjusted [g,k]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Methaqualone [g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Tranquilizers [g,l]	2.0	1.5	3.0	2.8	2.7	2.2	2.1	1.8	1.6	2.2	1.3	1.6	1.1	1.2	1.7	1.6	1.8	0.9	1.1	+0.2	
Alcohol [m]	67.4	67.0	68.9	66.2	67.7	67.9	65.4	66.6	69.0	65.8	65.0	63.5	67.7	63.1	63.1	63.2	63.2	62.0	59.6	-2.4	
Been Drunk [n]	43.9	44.7	44.4	40.4	47.4	43.1	47.6	46.8	45.3	42.4	43.6	39.9	40.1	40.2	42.6	38.4	40.8	34.8	37.8	+3.0	
Flavored Alcoholic Beverages [o]	—	—	—	—	34.0	30.9	26.2	27.5	35.8	32.3	31.5	29.5	31.3	29.1	32.9	30.5	33.5	36.7	30.9	-5.8	
Cigarettes	28.2	25.7	26.7	22.5	24.3	23.8	19.2	19.9	17.9	17.9	16.4	15.2	12.5	14.0	12.9	11.3	8.9	8.0	6.8	-1.2	
Any Vaping [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.8	6.9	11.3	21.3	+10.0	sss
Vaping Marijuana [j,aa,ee]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.2	10.9	+5.7	s
Vaping Nicotine [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.1	15.5	+9.4	sss
Vaping Just Flavoring [j,aa]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.8	+0.6	
Large Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.4	4.9	4.4	1.7	3.7	+2.1	
Flavored Little Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.8	5.6	5.6	4.9	5.6	+0.7	
Regular Little Cigars [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.6	4.1	3.6	1.7	1.4	-0.3	
Steroids [p]	*	0.3	*	0.1	*	*	*	0.1	*	0.2	*	0.2	*	*	*	0.3	*	0.3	*	-0.3	

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

See footnotes following Table 9-7.

TABLE 9-4
Trends in 30-Day Prevalence of Daily [r] Use of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

(Years cont.)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Approximate Weighted N =	*1,040*	*1,130*	*1,150*	*1,170*	*1,110*	*1,080*	*1,190*	*1,220*	*1,310*	*1,300*	*1,400*	*1,410*	*1,490*	*1,490*	*1,410*	*1,450*	*1,450*	*1,480*	*1,440*	*1,440*
Marijuana	7.2	5.6	4.2	3.8	3.6	3.1	2.1	2.3	1.8	2.6	1.7	1.8	1.6	1.9	1.8	3.7	2.8	3.7	4.0	4.0
Cocaine	0.2	*	0.3	0.1	0.4	0.1	0.1	0.1	0.1	*	*	*	*	*	0.1	*	*	*	*	*
Amphetamines [g]	0.5	0.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines, Adjusted [g,i]	—	—	0.3	0.2	0.2	*	0.1	0.1	*	*	*	0.1	*	0.1	0.1	0.1	*	0.2	0.1	0.1
Alcohol [m]																				
Daily	6.5	5.5	6.1	6.1	6.6	5.0	4.6	6.0	4.9	4.0	3.8	4.1	3.7	3.9	3.7	3.0	3.2	4.5	3.9	4.5
Been Drunk [n]	—	—	—	—	—	—	—	—	—	—	—	0.5	0.2	0.3	0.8	0.5	0.1	1.3	0.8	1.0
5+ Drinks in a Row in Last 2 Weeks	43.9	43.6	44.0	43.1	45.4	44.6	45.0	42.8	43.2	41.7	41.0	42.8	41.4	40.2	40.2	38.6	38.3	40.7	38.9	40.0
10+ Drinks in a Row in Last 2 Weeks [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15+ Drinks in a Row in Last 2 Weeks [o]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cigarettes																				
Daily	18.3	17.1	16.2	15.3	14.7	14.2	12.7	13.9	12.4	12.2	12.1	13.8	14.1	15.2	13.2	15.8	15.9	15.2	18.0	19.3
1/2 Pack+/Day	12.7	11.9	10.5	9.6	10.2	9.4	8.3	8.2	7.3	6.7	8.2	8.0	8.9	8.9	8.0	10.2	8.5	9.1	11.3	11.0

(Table continued on next page.)

TABLE 9-4 (cont.)
Trends in 30-Day Prevalence of Daily [r] Use of Various Types of Drugs among College Students 1 to 4 Years beyond High School

(Entries are percentages.)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Approximate Weighted N =	*1,350*	*1,340*	*1,260*	*1,270*	*1,400*	*1,360*	*1,280*	*1,250*	*1,270*	*1,320*	*1,260*	*1,230*	*1,150*	*1,090*	*1,030*	*1,020*	*870*	*880*	*900*	
Marijuana	4.6	4.5	4.1	4.7	4.5	4.0	4.3	3.5	3.9	4.9	4.4	4.7	4.8	5.1	5.9	4.6	4.9	4.4	5.8	+1.4
Cocaine	*	*	*	*	*	0.1	0.1	*	*	*	*	*	*	*	*	*	0.1	*	*	0.0
Amphetamines [g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphetamines, Adjusted [g,i]	0.1	0.2	0.1	0.3	0.2	0.2	0.4	0.1	0.2	0.1	*	0.2	0.1	*	0.2	0.1	*	0.1	0.0	-0.1
Alcohol [m]																				
Daily	3.6	4.7	5.0	4.3	3.7	4.6	4.8	4.3	4.0	4.3	3.6	3.8	3.9	3.6	4.3	3.1	4.3	2.2	2.3	+0.2
Been Drunk [n]	0.7	0.5	0.8	1.1	0.8	0.5	0.6	0.7	0.5	0.7	0.3	1.3	0.4	0.5	0.4	0.7	0.4	0.0	0.6	+0.6
5+ Drinks in a Row in Last 2 Weeks	39.3	40.9	40.1	38.5	41.7	40.1	40.2	41.1	40.0	36.9	37.0	36.1	37.4	35.2	35.4	31.9	32.4	32.7	28.4	-4.3 s
10+ Drinks in a Row in Last 2 Weeks [o]	—	—	—	—	—	12.5	13.7	13.9	13.0	15.8	11.6	14.6	13.7	10.4	9.1	7.3	9.0	10.5	5.1	-5.4
15+ Drinks in a Row in Last 2 Weeks [o]	—	—	—	—	—	5.1	4.2	5.1	4.7	6.4	4.0	5.4	4.7	3.6	5.1	1.2	2.1	1.3	3.4	+2.1
Cigarettes																				
Daily	17.8	15.0	15.9	13.8	13.8	12.4	9.2	9.3	9.2	8.0	7.6	7.3	5.2	5.6	5.2	4.2	2.6	2.0	1.9	-0.1
1/2 Pack+/Day	10.1	7.8	7.9	7.6	6.8	6.7	4.9	4.3	4.3	3.8	3.9	2.5	2.4	2.4	2.4	1.4	1.7	0.2	0.5	+0.3

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

See footnotes following Table 9-7.

TABLE 9-5
Trends in Having 10+ Drinks in a Row in the Last Two Weeks: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

Total	2005-2011	2012-2018	Change
Full-Time College	13.6	9.5	-4.1
Weighted N	*1296*	*1162*	
Others	11.8	10.2	-1.6
Weighted N	*884*	*662*	
Males			
Full-Time College	23.6	15.1	-8.5
Weighted N	*584*	*430*	
Others	17.9	16.1	-1.8
Weighted N	*373*	*298*	
Females			
Full-Time College	7.2	6.1	-1.1
Weighted N	*915*	*732*	
Others	7.4	5.4	-2.0
Weighted N	*510*	*364*	

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

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

See footnotes following Table 9-7.

TABLE 9-6
Trends in Having 15+ Drinks in a Row in the Last Two Weeks: Full-Time College Students vs. Others among Respondents 1 to 4 Years beyond High School by Gender

(Entries are percentages.)

Total	2005-2011	2012-2018	Change
Full-Time College	5.0	3.1	-1.9
Weighted N	*1267*	*1162*	
Others	5.2	5.2	0.0
Weighted N	*886*	*660*	
Males			
Full-Time College	10.1	6.0	-4.1
Weighted N	*585*	*430*	
Others	9.4	8.7	-0.7
Weighted N	*373*	*296*	
Females			
Full-Time College	1.8	1.4	-0.4
Weighted N	*913*	*732*	
Others	2.1	2.3	+0.2
Weighted N	*512*	*364*	

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

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

See footnotes following Table 9-7.

TABLE 9-7
Trends in Lifetime, Annual, and 30-Day Prevalence of an Illicit Drug Use Index [a] among College Students 1 to 4 Years beyond High School, by Gender

	1980 [i]	1981 [i]	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
										Percentage who used in lifetime										
Any Illicit Drug																				
Total	69.4	66.8	64.6	66.9	62.7	65.2	61.8	60.0	58.4	55.6	54.0	50.4	48.8	45.9	45.5	45.5	47.4	49.0	52.9	53.2
Males	71.0	67.5	68.1	71.3	66.4	69.8	64.7	63.5	56.0	56.5	52.5	51.3	50.8	45.7	49.5	47.3	50.3	52.1	54.4	58.4
Females	67.5	66.3	61.5	63.0	59.2	61.6	59.4	57.4	60.2	54.9	55.1	49.7	47.1	46.0	42.6	44.3	45.6	46.7	52.0	49.6
Any Illicit Drug other than Marijuana																				
Total	42.2	41.3	39.6	41.7	38.6	40.0	37.5	35.7	33.4	30.5	28.4	25.8	26.1	24.3	22.0	24.5	22.7	24.4	24.8	25.5
Males	42.8	39.8	45.1	44.6	40.9	42.1	38.2	37.2	31.8	30.6	26.2	27.6	26.3	24.3	24.6	26.6	25.0	27.3	27.3	29.4
Females	41.6	42.6	34.7	39.2	36.4	38.3	37.0	34.6	34.6	30.4	30.1	24.3	26.1	24.3	20.1	22.9	21.2	22.2	23.3	22.8
										Percentage who used in last 12 months										
Any Illicit Drug																				
Total	56.2	55.0	49.5	49.8	45.1	46.3	45.0	40.1	37.4	36.7	33.3	29.2	30.6	30.6	31.4	33.5	34.2	34.1	37.8	36.9
Males	58.9	56.2	54.6	53.4	48.4	50.9	49.8	43.3	37.0	38.2	34.2	30.2	32.8	32.6	33.9	36.1	36.6	38.3	40.1	42.5
Females	53.3	54.0	44.9	46.7	41.9	42.7	41.1	37.7	37.6	35.4	32.5	28.4	28.7	29.1	29.5	31.7	32.7	31.1	36.4	33.2
Any Illicit Drug other than Marijuana																				
Total	32.3	31.7	29.9	29.9	27.2	26.7	25.0	21.3	19.2	16.4	15.2	13.2	13.1	12.5	12.2	15.9	12.8	15.8	14.0	15.4
Males	33.7	32.8	33.4	33.5	29.2	29.7	28.6	23.5	19.4	18.7	15.7	14.4	13.8	15.0	14.9	19.5	15.1	18.1	17.0	19.0
Females	31.1	30.8	26.9	26.8	25.2	24.4	22.1	19.6	19.0	14.6	14.8	12.1	12.6	10.5	10.2	13.3	11.3	14.1	12.1	12.8
										Percentage who used in last 30 days										
Any Illicit Drug																				
Total	38.4	37.6	31.3	29.3	27.0	26.1	25.9	22.4	18.5	18.2	15.2	15.2	16.1	15.1	16.0	19.1	17.6	19.2	19.7	21.6
Males	42.9	40.6	37.7	33.8	30.4	29.9	31.0	24.0	18.8	20.0	18.2	16.0	18.0	16.0	20.5	23.7	20.6	23.4	23.1	26.7
Females	34.0	34.8	25.6	25.5	23.7	23.2	21.7	21.1	18.3	16.7	12.7	14.6	14.5	14.5	12.7	15.7	15.8	16.2	17.6	18.1
Any Illicit Drug other than Marijuana																				
Total	20.7	18.6	17.1	13.9	13.8	11.8	11.6	8.8	8.5	6.9	4.4	4.3	4.6	5.4	4.6	6.3	4.5	6.8	6.1	6.4
Males	22.8	18.6	20.2	16.0	16.1	12.6	14.4	9.0	8.2	8.0	4.9	4.8	5.1	7.3	6.2	8.8	6.1	7.8	8.6	7.5
Females	18.7	18.5	14.2	12.1	11.5	11.2	9.3	8.5	8.8	6.0	4.0	3.9	4.2	3.8	3.4	4.5	3.4	6.1	4.6	5.6
										Approximate Weighted N										
All Respondents																				
Total	*1,040*	*1,130*	*1,150*	*1,170*	*1,110*	*1,080*	*1,190*	*1,220*	*1,310*	*1,300*	*1,400*	*1,410*	*1,490*	*1,490*	*1,410*	*1,450*	*1,450*	*1,480*	*1,440*	*1,440*
Males	*520*	*530*	*550*	*550*	*540*	*490*	*540*	*520*	*560*	*580*	*620*	*640*	*680*	*660*	*590*	*610*	*560*	*630*	*570*	*590*
Females	*520*	*600*	*610*	*620*	*570*	*600*	*650*	*700*	*750*	*720*	*780*	*770*	*810*	*830*	*820*	*840*	*890*	*860*	*880*	*850*

(Years cont.)

(Table continued on next page.)

TABLE 9-7 (cont.)
Trends in Lifetime, Annual, and 30-Day Prevalence of an Illicit Drug Use Index [a]
among College Students 1 to 4 Years beyond High School, by Gender

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017–2018 change
Any Illicit Drug																				
Total	53.7	53.6	51.8	53.9	52.2	52.3	50.6	50.5	49.5	51.4	49.1	49.2	50.5	53.3	52.4	53.4	54.4	55.5	55.1	-0.4
Males	54.4	53.9	54.3	54.1	54.9	54.2	55.0	52.3	50.7	53.2	53.5	52.3	52.4	53.7	54.5	55.1	54.5	57.8	57.7	-0.1
Females	53.2	53.5	50.2	53.7	50.6	51.3	47.8	49.4	48.8	50.2	46.2	47.3	49.2	53.0	50.9	52.5	54.3	54.1	53.5	-0.5
Any Illicit Drug other than Marijuana																				
Total	25.8	26.3	26.9	27.6	28.0	26.5	26.3	25.3	22.6	25.6	24.8	24.3	23.8	28.3	29.0	26.4	26.5	26.3	27.3	+1.0
Males	28.9	27.0	30.4	27.6	31.1	29.0	29.2	26.5	25.2	29.9	27.8	27.8	26.0	30.4	29.8	31.0	28.1	27.0	32.5	+5.6
Females	23.5	25.9	24.6	27.5	26.2	25.1	24.4	24.6	21.0	22.7	22.8	22.1	22.2	26.8	28.3	23.8	25.6	25.8	24.0	-1.8
Any Illicit Drug																				
Total	36.1	37.9	37.0	36.5	36.2	36.6	33.9	35.0	35.2	36.0	35.0	36.3	37.3	40.5	38.6	41.4	42.8	42.5	44.9	+2.4
Males	38.0	38.8	39.5	39.2	40.9	40.7	39.2	38.0	38.7	37.6	40.3	41.2	39.5	41.3	39.2	45.2	44.9	46.4	44.8	-1.7
Females	34.7	37.3	35.4	34.8	33.4	34.2	30.6	33.1	32.9	35.0	31.6	33.2	35.7	40.0	38.2	39.2	41.5	40.0	45.0	+5.0
Any Illicit Drug other than Marijuana																				
Total	15.6	16.4	16.6	17.9	18.6	18.5	18.1	17.3	15.3	16.9	17.1	16.8	17.1	19.3	20.8	18.5	19.7	18.2	18.2	0.0
Males	18.6	17.2	19.2	19.3	22.1	21.1	22.6	19.0	17.8	19.7	20.3	20.1	19.6	22.0	21.8	24.6	22.7	19.8	21.1	+1.3
Females	13.5	15.8	15.0	17.1	16.5	16.9	15.2	16.3	13.7	15.0	15.1	14.7	15.4	17.4	20.1	14.9	17.9	17.1	16.4	-0.7
Any Illicit Drug																				
Total	21.5	21.9	21.5	21.4	21.2	19.5	19.2	19.3	18.9	20.7	19.2	21.4	22.3	22.8	22.7	23.4	24.3	23.5	26.7	+3.3
Males	24.0	25.0	25.1	22.8	26.1	22.9	23.4	22.7	23.1	23.4	25.9	27.0	27.0	27.8	25.9	27.4	25.4	26.4	26.2	-0.3
Females	19.6	19.8	19.3	20.5	18.4	17.5	16.6	17.1	16.2	19.0	15.0	17.9	19.1	19.3	20.2	21.1	23.6	21.5	27.1	+5.5 s
Any Illicit Drug other than Marijuana																				
Total	6.9	7.5	7.8	8.2		8.2	8.2	8.1	7.3	8.4	8.1	8.2	7.8	8.8	10.0	9.2	8.4	7.0	7.7	+0.7
Males	8.2	9.0	8.4	8.1	11.3	10.3	10.3	9.5	9.6	9.0	10.4	10.6	9.2	11.2	12.4	12.9	11.8	7.2	9.2	+2.0
Females	6.0	6.4	7.4	8.3	7.8	7.0	6.9	7.2	5.8	8.0	6.7	6.7	6.8	7.2	8.3	7.1	6.4	6.9	6.7	-0.2
All Respondents																				
Total	*1,350*	*1,340*	*1,260*	*1,270*	*1,400*	*1,360*	*1,280*	*1,250*	*1,270*	*1,320*	*1,260*	*1,230*	*1,150*	*1,090*	*1,030*	*1,020*	*870*	*870*	*880*	
Males	*560*	*540*	*490*	*480*	*520*	*500*	*500*	*470*	*510*	*530*	*500*	*480*	*480*	*430*	*440*	*380*	*340*	*340*	*340*	
Females	*790*	*800*	*770*	*790*	*880*	*860*	*780*	*770*	*760*	*790*	*760*	*750*	*670*	*660*	*590*	*640*	*540*	*530*	*540*	

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

See footnotes on the following page.

Footnotes for Tables 9-1 through 9-7

Notes. Level of significance of difference between the two most recent years: s = .05, ss = .01, sss = .001. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. ' — ' indicates data not available. ' * ' indicates a prevalence rate of less than 0.05%.

[a]Any illicit drug includes use of marijuana, hallucinogens, cocaine, heroin or other narcotics, amphetamines, sedatives (barbiturates), methaqualone (until 1990), or tranquilizers not under a doctor's orders.

[b]This drug was asked about in four of the five questionnaire forms in 1980–1989, in five of the six forms in 1990–1998, and in three of the six forms beginning in 1999.

[c]In 2001 the question text was changed on three of the six questionnaire forms. Other psychedelics was changed to other hallucinogens, and shrooms was added to the list of examples. Beginning in 2002 the remaining forms were changed to the new wording.

[d]This drug was asked about in two of the five questionnaire forms in 1989, in two of the six questionnaire forms in 1990–2001, in three of the six questionnaire forms in 2002–2015, and in four of six questionnaire forms beginning in 2015.

[e]This drug was asked about in one of the five questionnaire forms for annual use only in 1986, two of the five questionnaire forms in 1987–1989, in all six questionnaire forms in 1990–2001, and in five of the six questionnaire forms beginning in 2002..

[f]This drug was asked about in one of the five questionnaire forms in 1987–1989 and in four of six questionnaire forms beginning in 1990.

[g]Only drug use that was not under a doctor's orders is included here.

[h]In 2002 the question text was changed on three of the six questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced by Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is three sixths of *N* indicated. In 2003 the remaining forms were changed to the new wording. The data are based on all forms in 2003 and beyond.

[i]Revised questions about amphetamine use were introduced in 1982 to more completely exclude inappropriate reporting of nonprescription amphetamines. In 2013 the question wording was changed slightly in thee of the six questionnaire forms. 2013 data are based on the changed forms only; N is one half of N indicated.

[j]This drug was asked about in two of the six questionnaire forms. Questions about Rohypnol use were dropped from the questionnaires beginning in 2010.

[k]Sedatives, adjusted data are a combination of barbiturate and methaqualone data.

[l]In 2001 the question text was changed on three of the six questionnaire forms. Miltown was replaced with Xanax in the list of examples. Beginning in 2002 the remaining forms were changed to the new wording.

[m]In 1993 and 1994, the question text was changed slightly in three of the six questionnaire forms to indicate that a drink meant more than just a few sips. Because this revision resulted in rather little change in reported prevalence in the surveys of high school graduates, the data for all forms combined are used in order to provide the most reliable estimate of change. After 1994 the new question text was used in all six of the questionnaire forms.

[n]This drug was asked about in three of the six questionnaire forms.

[o]This drug was asked about in one of the six questionnaire forms.

[p]This drug was asked about in one of the five questionnaire forms in 1989 and in two of the six questionnaire forms beginning in 1990.

[q]This drug was asked about in two of the six questionnaire forms through 2010 and in three of the six questionnaire forms beginning in 2011.

[r]Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes, measured as actual daily use, and 5+ drinks, measured as having five or more drinks in a row in the last two weeks.

[s]In 2012 the alcoholic beverage containing caffeine question text was changed to alcoholic beverage mixed with an energy drink. The data in 2011 and 2012 are not comparable due to this question change.

[t]In 2013 the question text was changed on all forms: Tuinal, Nembutal, and Seconal were replaced with Ambien, Lunesta, and Sonata. The data in 2012 and 2013 are not comparable due to this question change.

[u]This drug was asked about in two of the six questionnaire forms in 2011-2012; N is two sixths of N indicated. Data were based on three of the six questionaire forms beginning in 2013; N is three sixths of N indicated.

[v]This drug was asked about in one of the six questionnaire forms in 2009; N is one sixth of N indicated; Data were based on two of the six questionnaire forms in 2010-2011; N is two sixths of N indicated. Data were based on three of the six questionnaire forms beginning in 2012; N is three sixths of N indicated.

[w]This drug was asked about in two of the six questionnaire forms in 2002-2009; N is two sixths of N indicated; Data were based on three of the six questionnaire forms in 2010-2011; N is three sixths of N indicated. Data were based on two of the six questionnaire forms in 2012-2015; N is two sixths of N indicated.

[x]This drug was asked about in all six questionaire forms from 1980-2013. Data based on five of six forms beginning in 2014; N is five sixths of N indicated.

[y]This drug asked about in three of six questionnaire forms from 2011-2013; N is one half of N indicated. Beginning in 2014, data based on two of six questionnaire forms; N is two sixths of N indicated.

[z]In 2014 a revised question on use of ecstasy (MDMA) including "Molly" was added to one form at each level. The 2013 and 2014 "Original wording" data reported here are for only the questionnaires using the original question wording. The 2014 and 2015 "Revised wording" data reported here are for only the questionnaires using the version which includes "Molly."

[aa]In 2017, the surveys switched from asking about vaping in general to asking separately about vaping nicotine, marijuana, and just flavoring. Beginning in 2017, data presented for any vaping are based on these new questions.

[bb]For the estimate of annual Any Vaping in 2018, there was a significant difference (p<.05) between the typical mail condition (26.9%) and new web-push condition (37.8%) of survey administration.

[cc]For the estimate of annual Vaping Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (15.2%) and new web-push condition (25.1%) of survey administration.

Footnotes for Tables 9-1 through 9-7 (continued)

[dd]For the estimate of annual Vaping Nicotine in 2018, there was a significant difference (p<.05) between the typical mail condition (19.0%) and new web-push condition (32.0%) of survey administration.

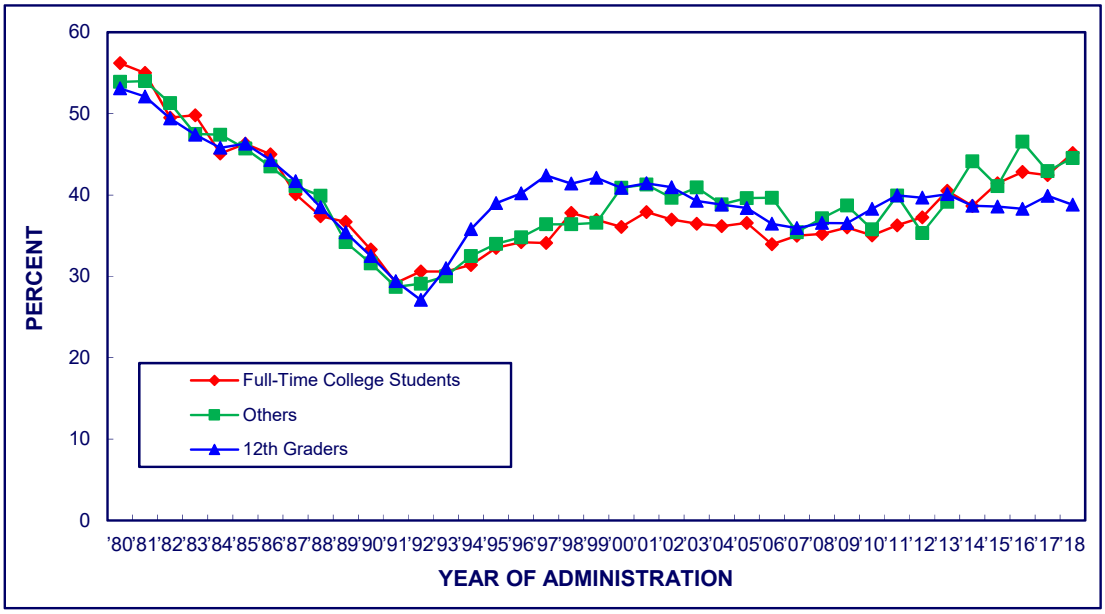
[ee]For the estimate of 30-day Vaping Marijuana in 2018, there was a significant difference (p<.05) between the typical mail condition (7.3%) and new web-push condition (14.5%) of survey administration.

FIGURE 9-1

ANY ILLICIT DRUG

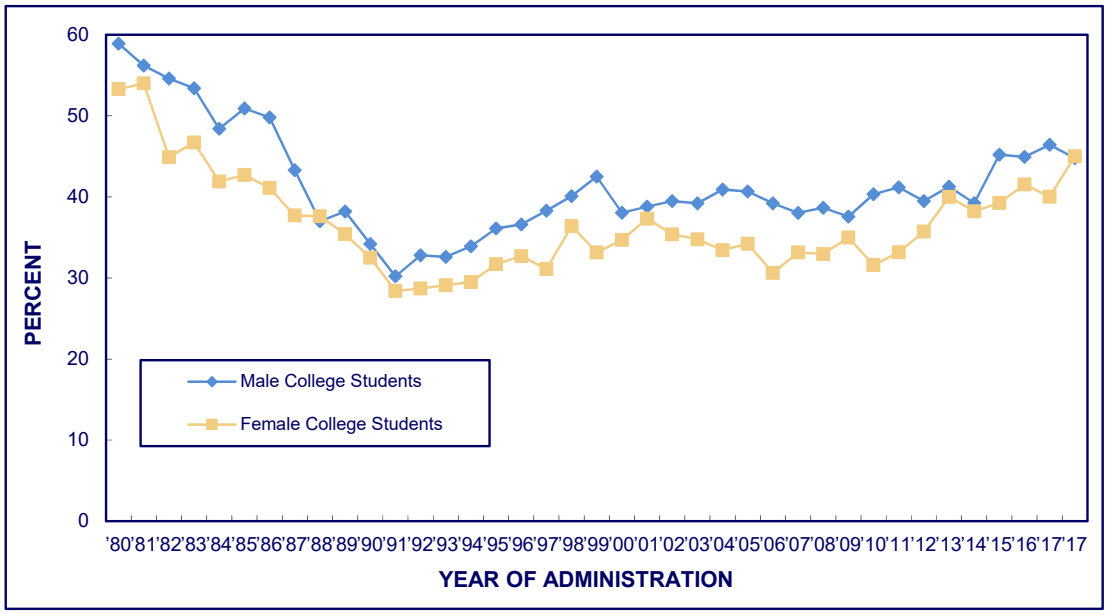
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ANY ILLICIT DRUG

Trends in Annual Prevalence among Male vs. Female College Students



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

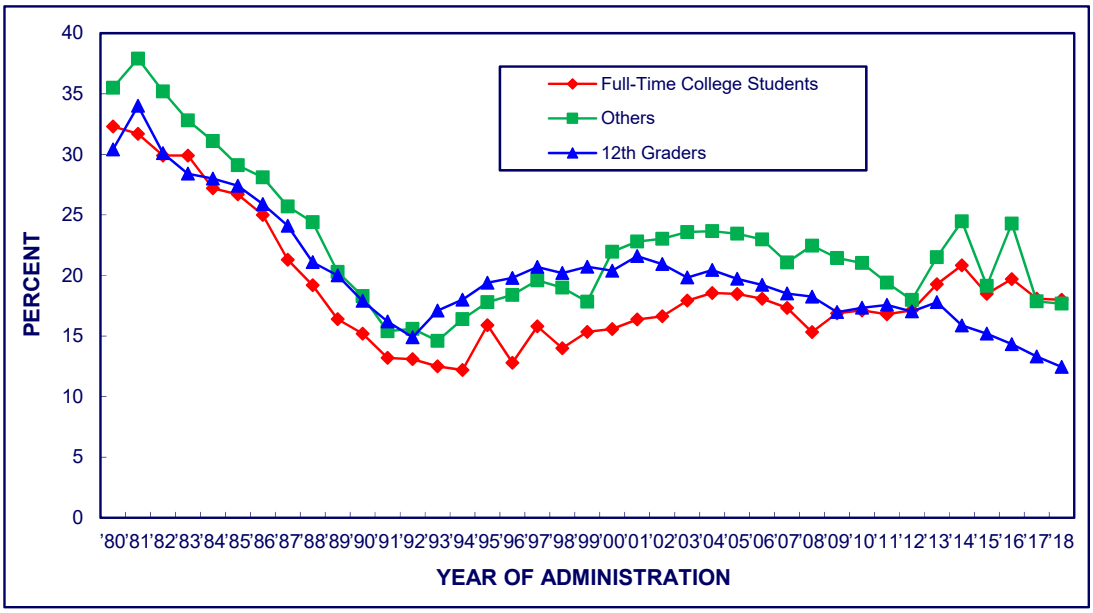
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-2

ANY ILLICIT DRUG OTHER THAN MARIJUANA

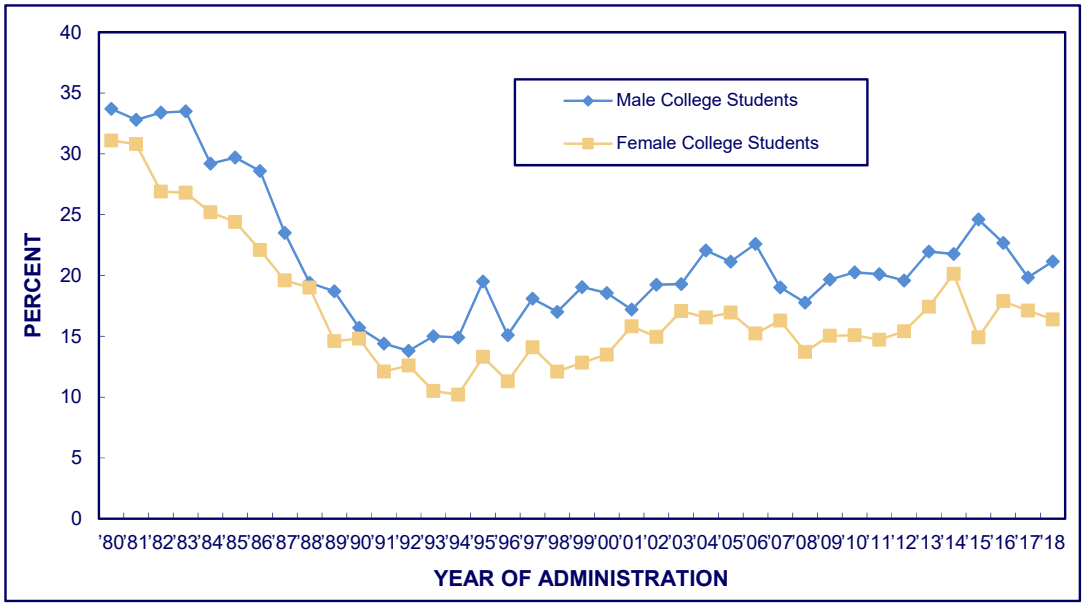
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ANY ILLICIT DRUG OTHER THAN MARIJUANA

Trends in Annual Prevalence among Male vs. Female College Students

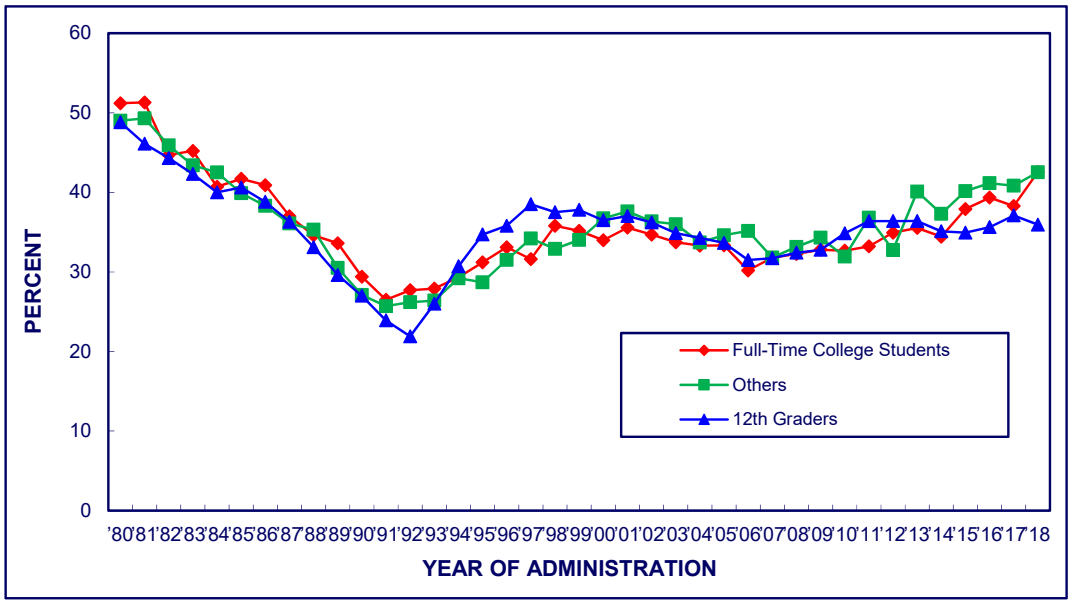


Source. The Monitoring the Future study, the University of Michigan.

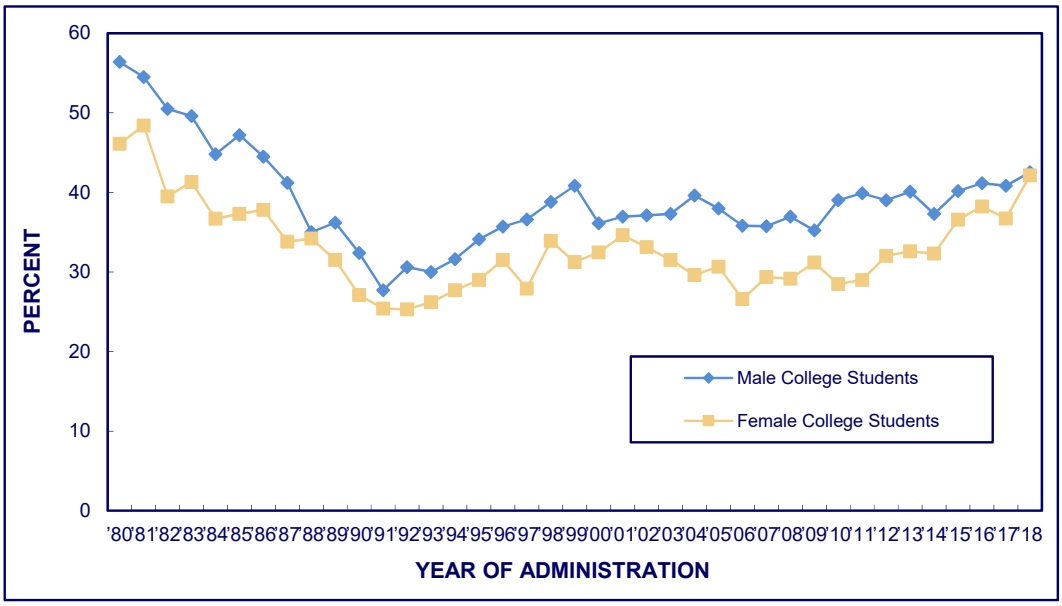
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-3a
MARIJUANA
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



MARIJUANA
Trends in Annual Prevalence
among Male vs. Female College Students



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

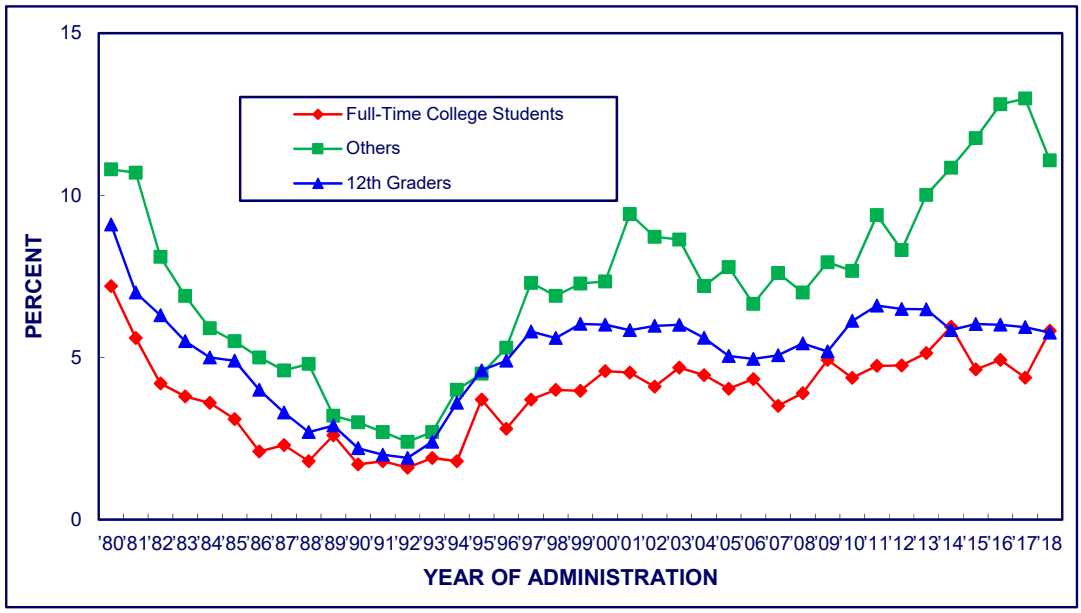
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-3b

MARIJUANA

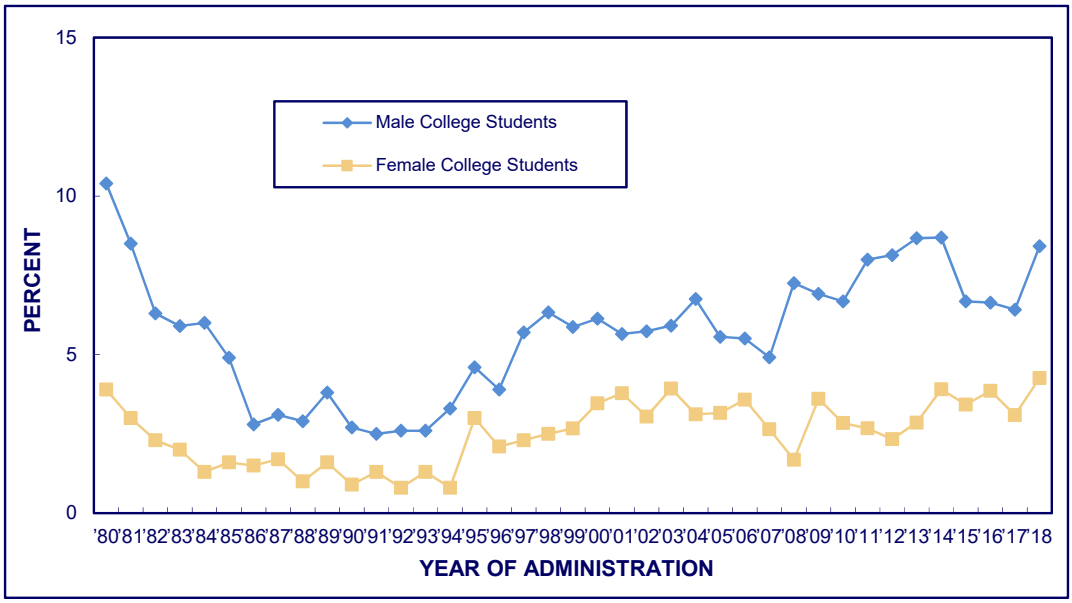
Trends in 30-Day Prevalence of Daily Use among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



MARIJUANA

Trends in 30-Day Prevalence of Daily Use among Male vs. Female College Students



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

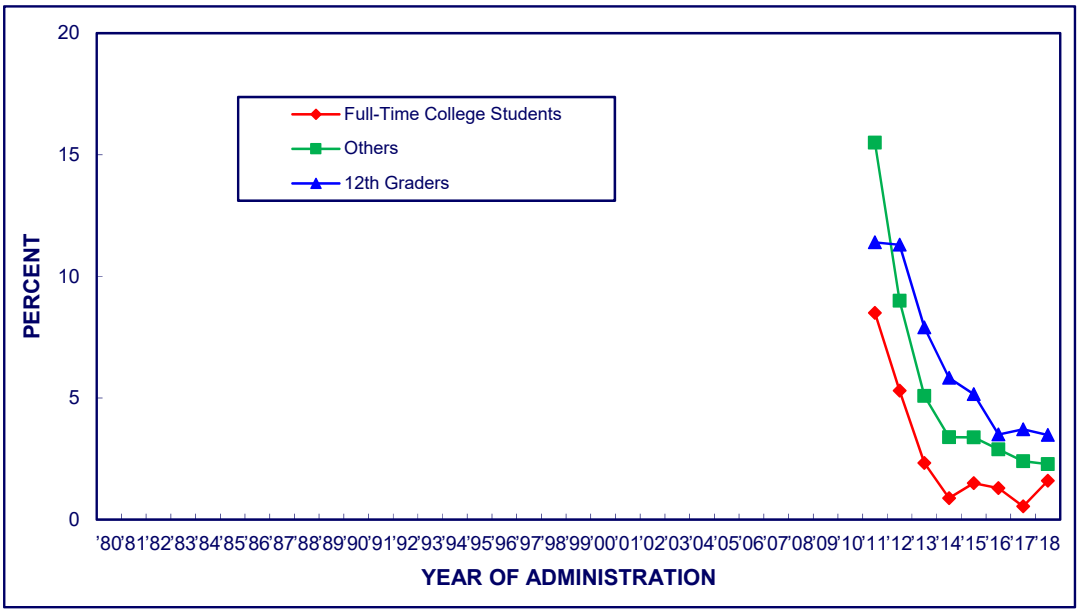
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-4

SYNTHETIC MARIJUANA

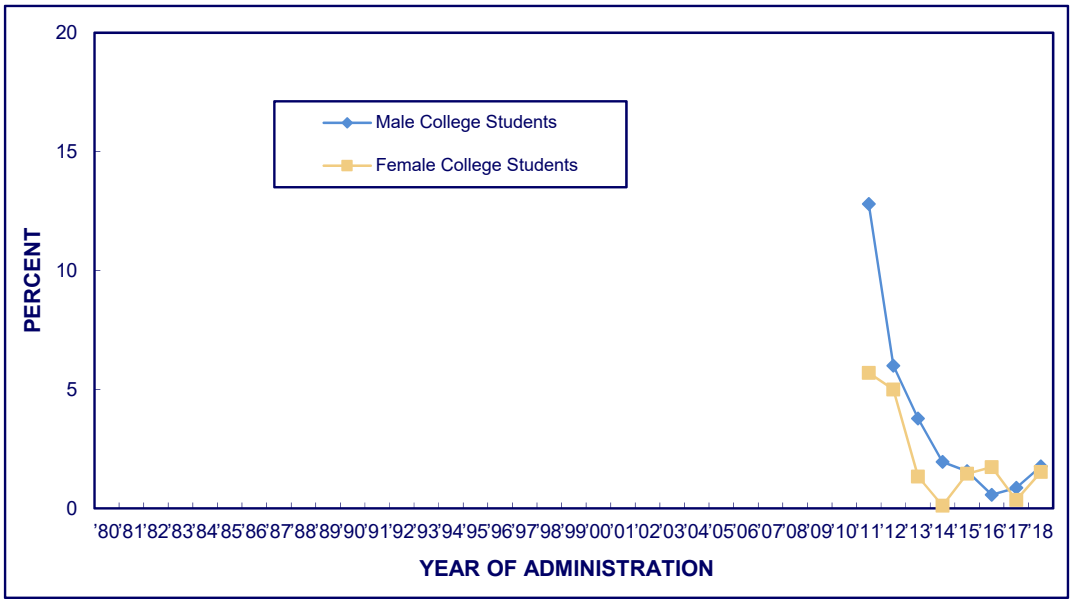
Trends in Annual Use among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



SYNTHETIC MARIJUANA

Trends in Annual Prevalence among Male vs. Female College Students



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

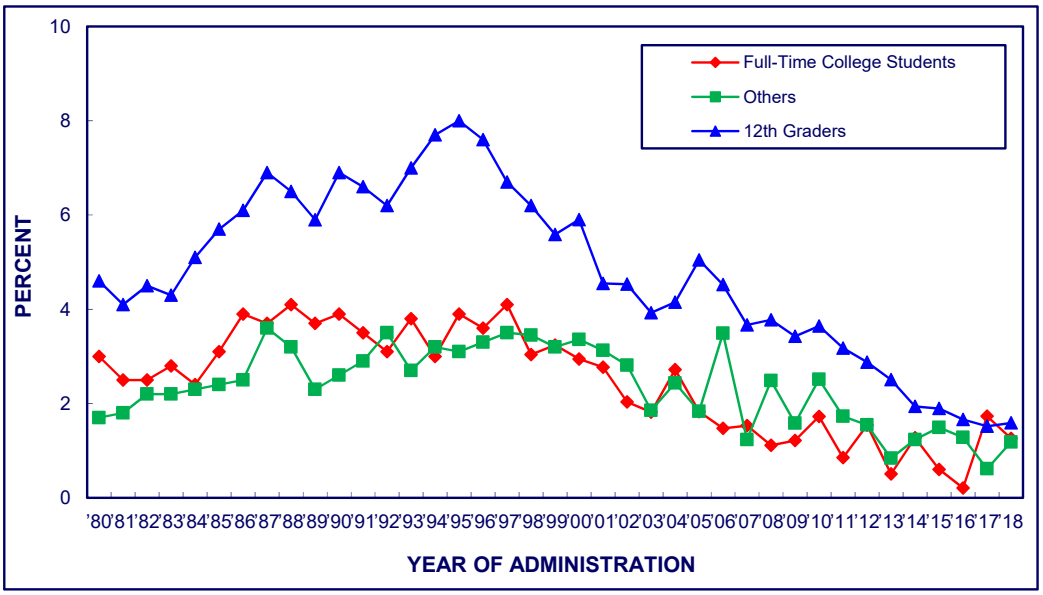
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-5

INHALANTS [a]

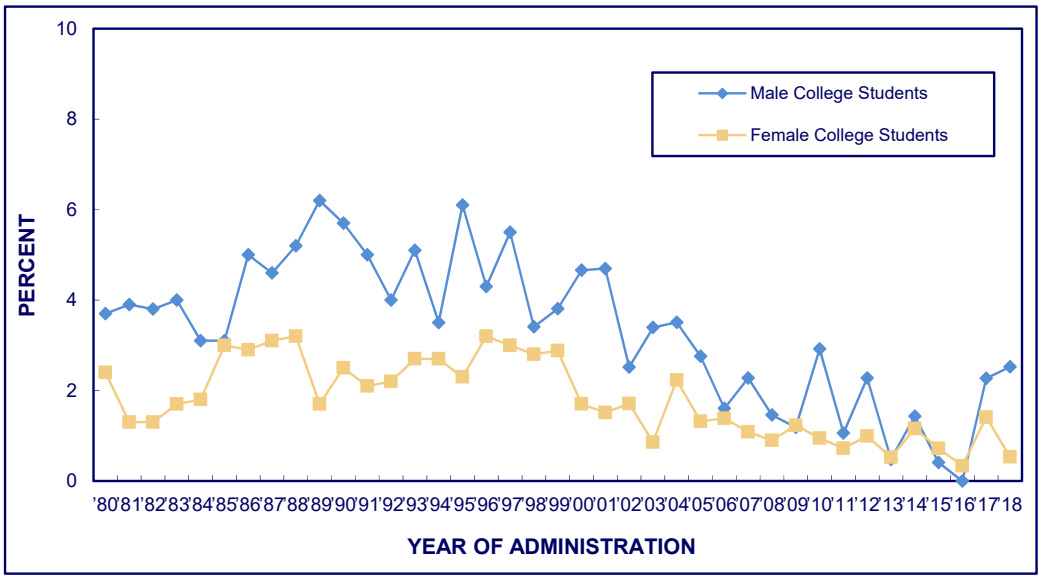
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



INHALANTS [a]

Trends in Annual Prevalence among Male vs. Female College Students



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

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

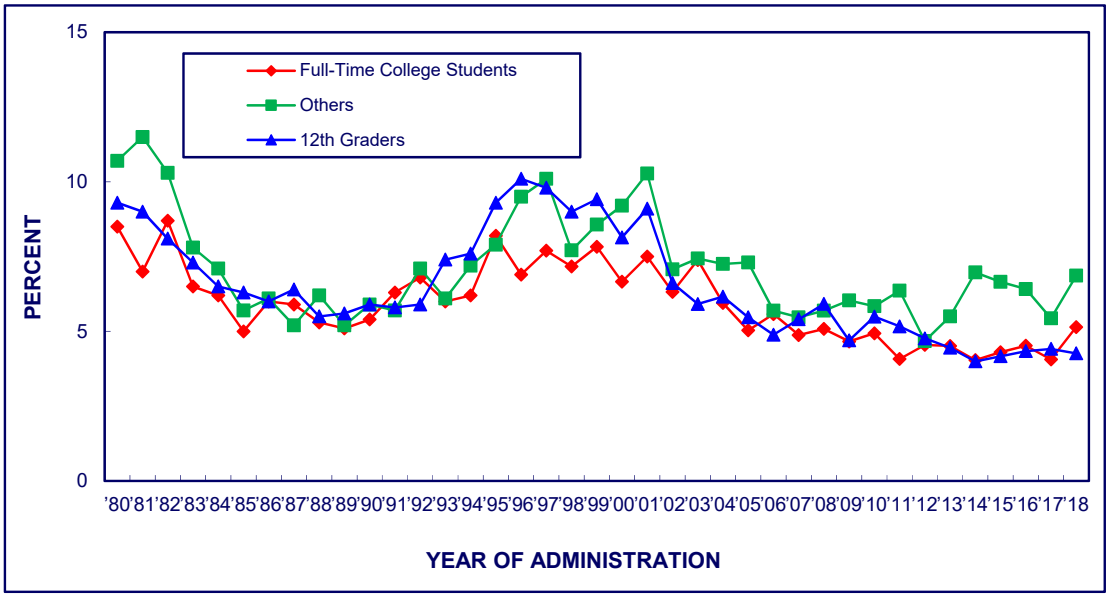
[a]Unadjusted for the possible underreporting of amyl and butyl nitrites.

FIGURE 9-6

HALLUCINOGENS [a]

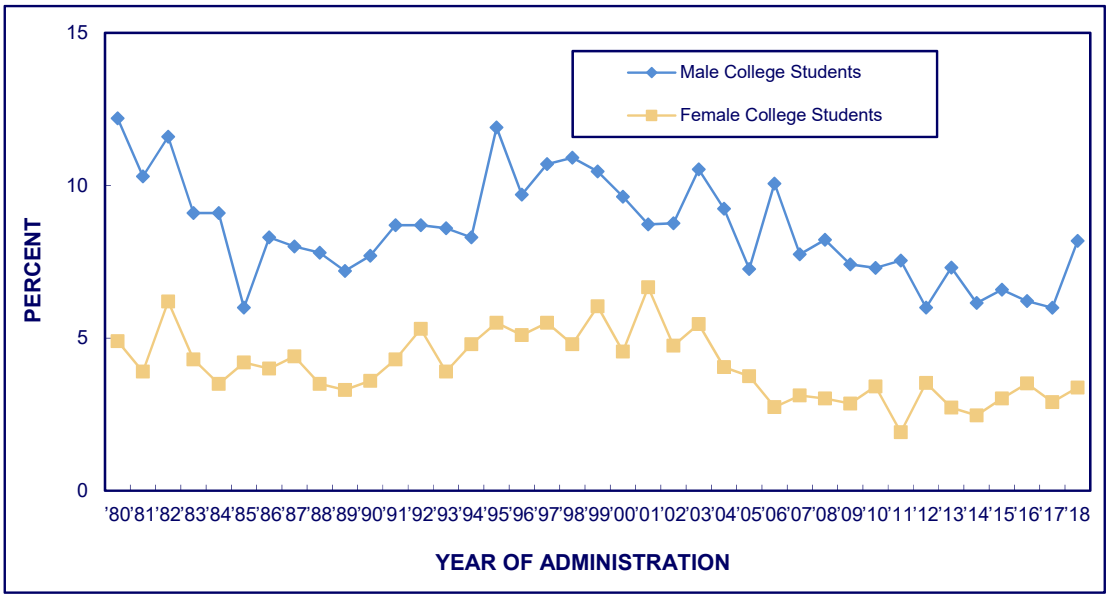
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



HALLUCINOGENS [a]

Trends in Annual Prevalence among Male vs. Female College Students



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

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

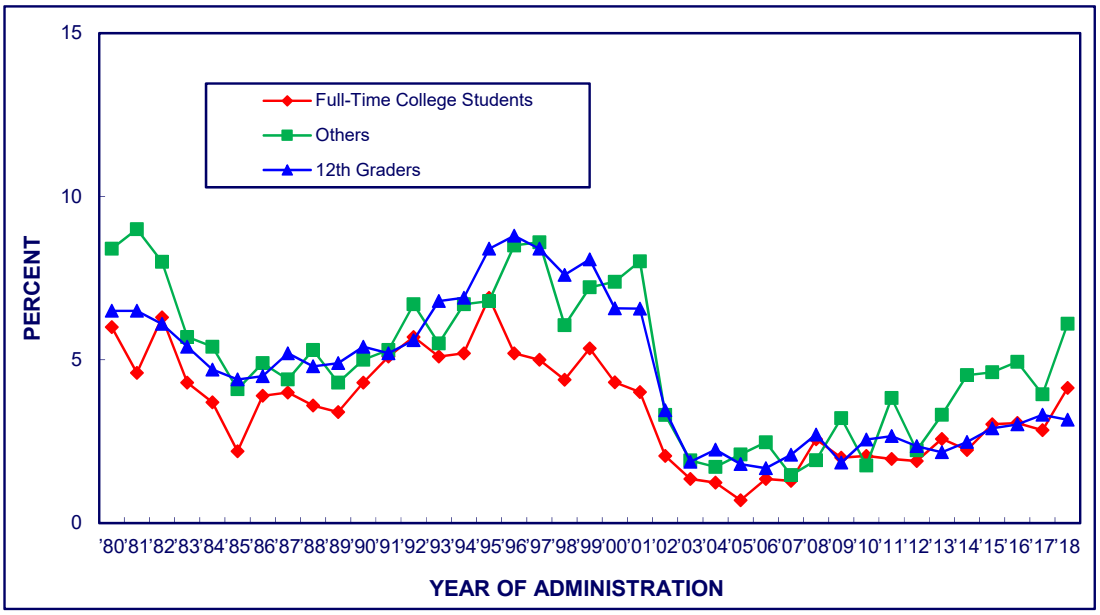
[a]Unadjusted for the possible underreporting of PCP.

FIGURE 9-7

LSD

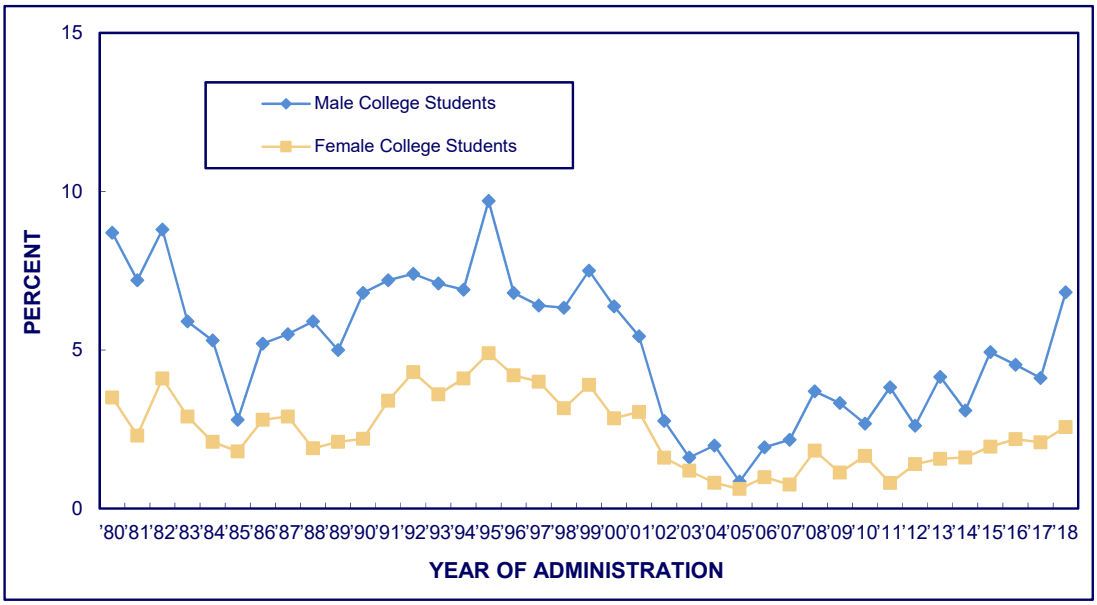
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



LSD

Trends in Annual Prevalence among Male vs. Female College Students



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

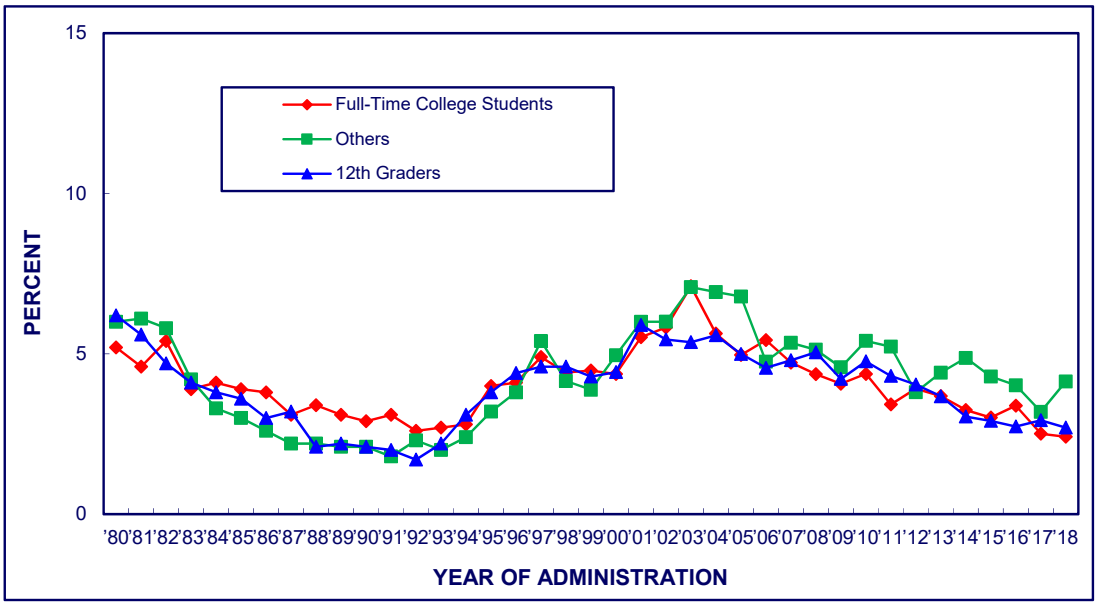
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-8

HALLUCINOGENS OTHER THAN LSD

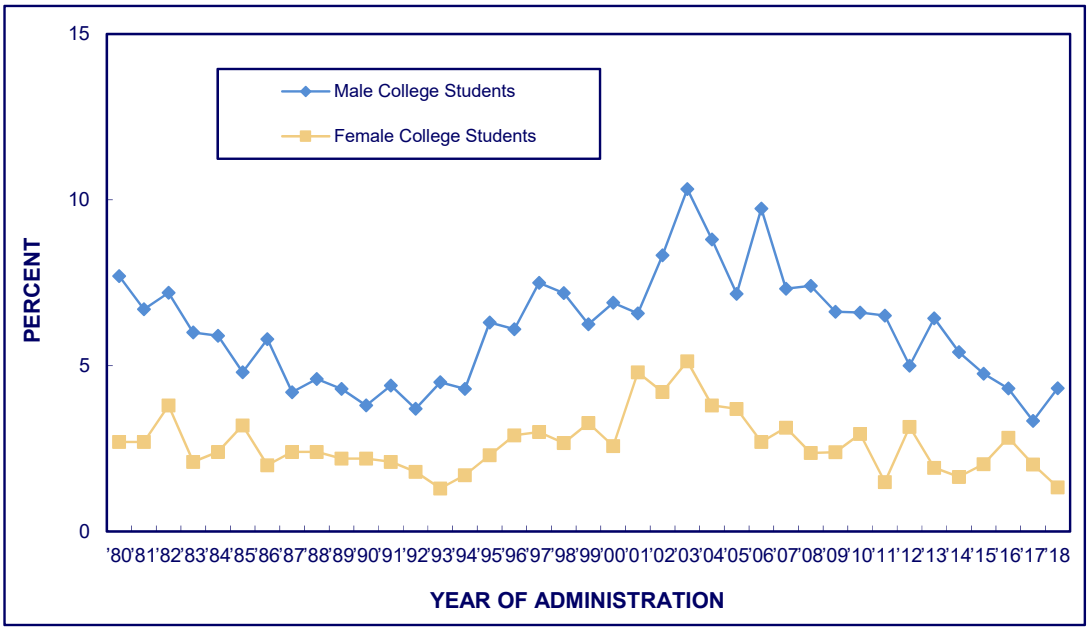
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



HALLUCINOGENS OTHER THAN LSD

Trends in Annual Prevalence among Male vs. Female College Students



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

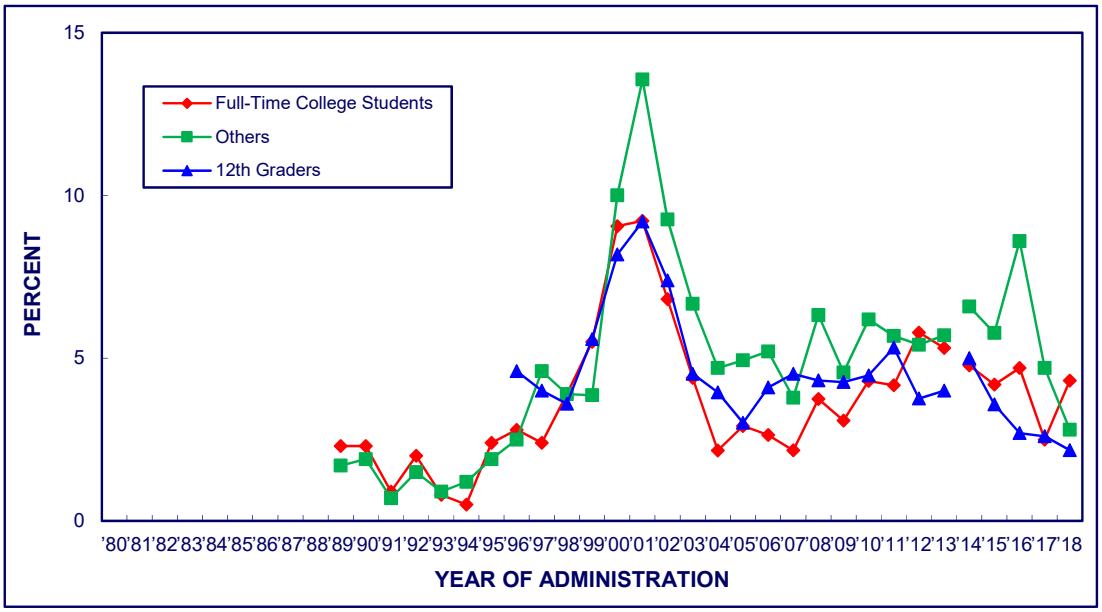
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-9

ECSTASY (MDMA, Molly) [a]

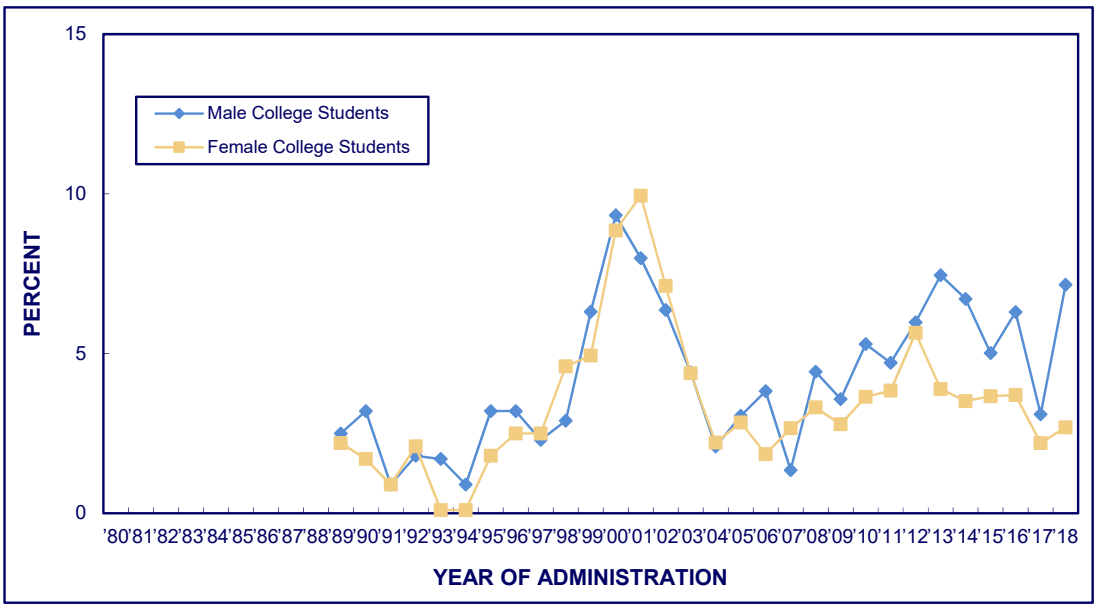
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ECSTASY (MDMA, Molly) [a]

Trends in Annual Prevalence among Male vs. Female College Students

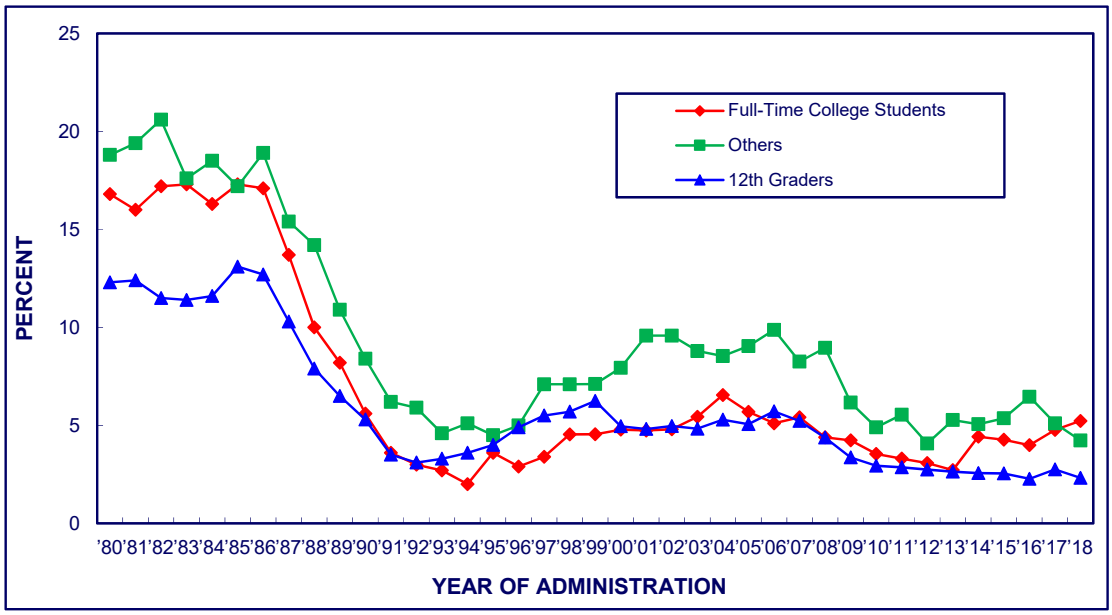


Source. The Monitoring the Future study, the University of Michigan.

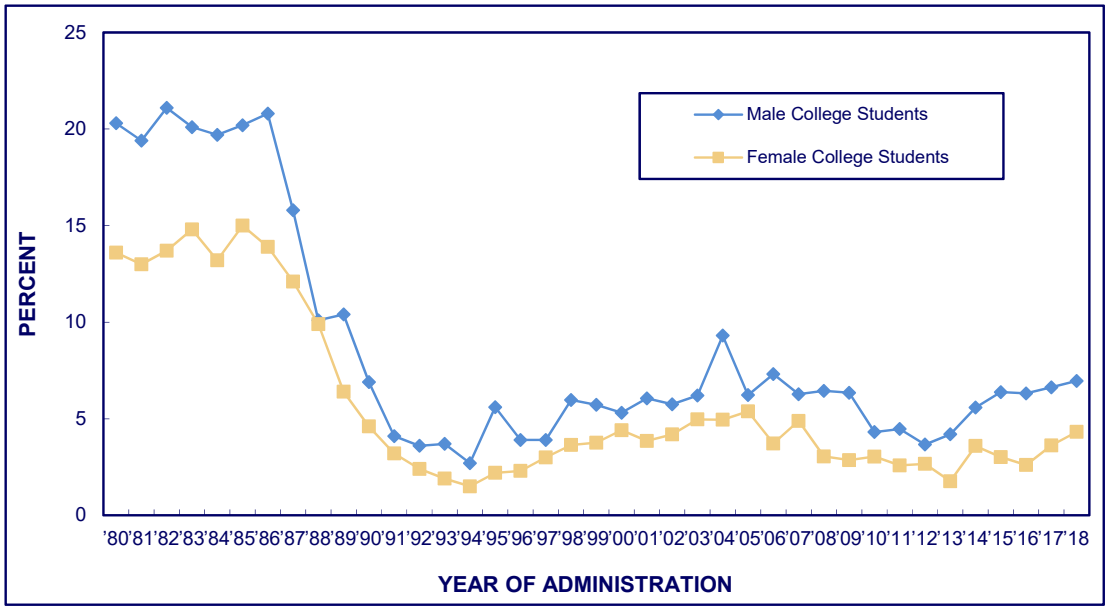
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

[a]In 2014, a version of the question was added to an additional form that included "molly" in the description. In 2015, the remaining forms were changed to this updated wording. Data for both versions of the question are included here.

FIGURE 9-10
COCAINE
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School
(Twelfth graders included for comparison.)



COCAINE
Trends in Annual Prevalence
among Male vs. Female College Students



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

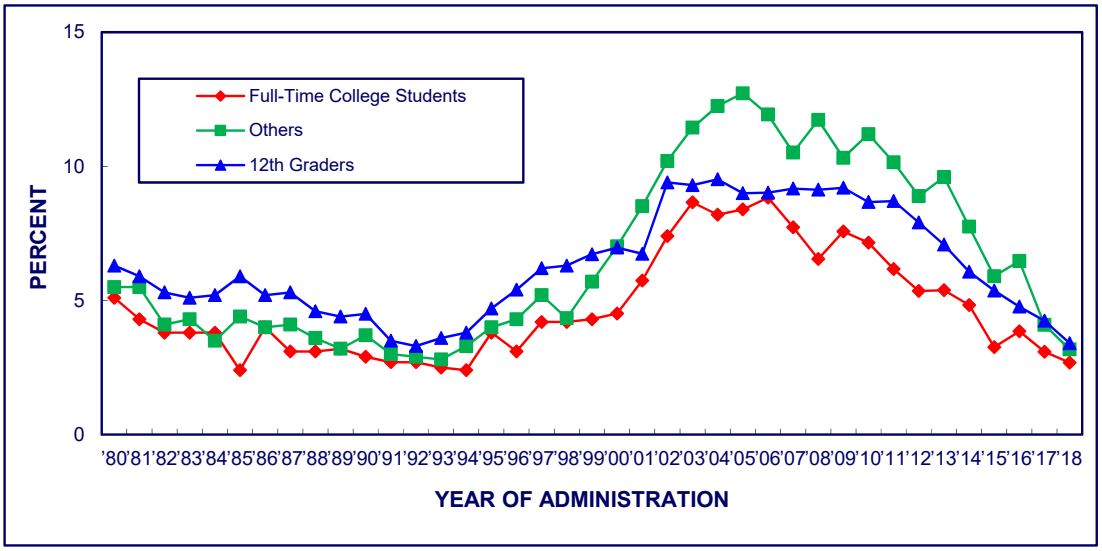
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-11a

NARCOTICS OTHER THAN HEROIN [a]

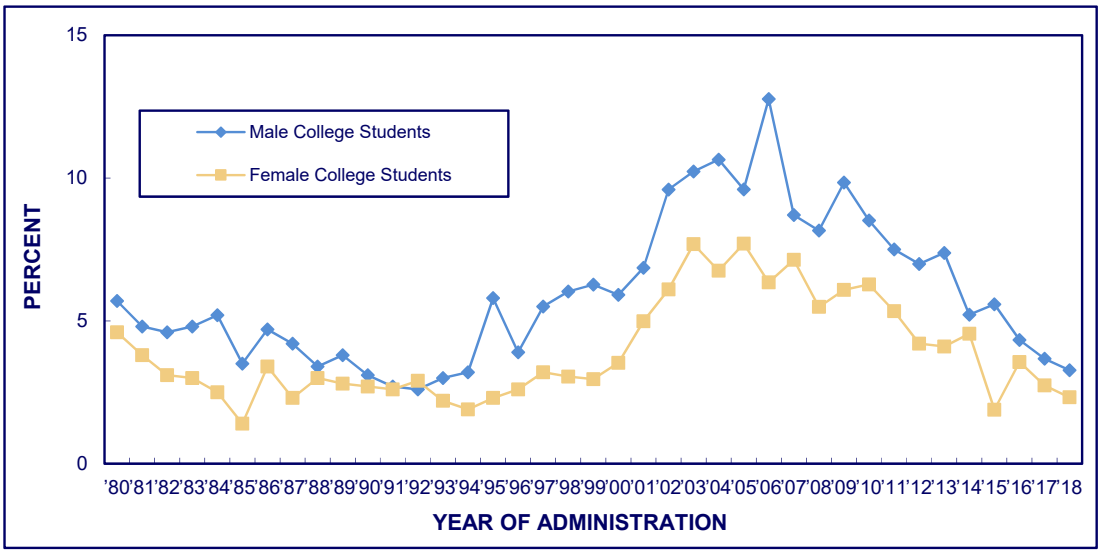
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



NARCOTICS OTHER THAN HEROIN [a]

Trends in Annual Prevalence among Male vs. Female College Students

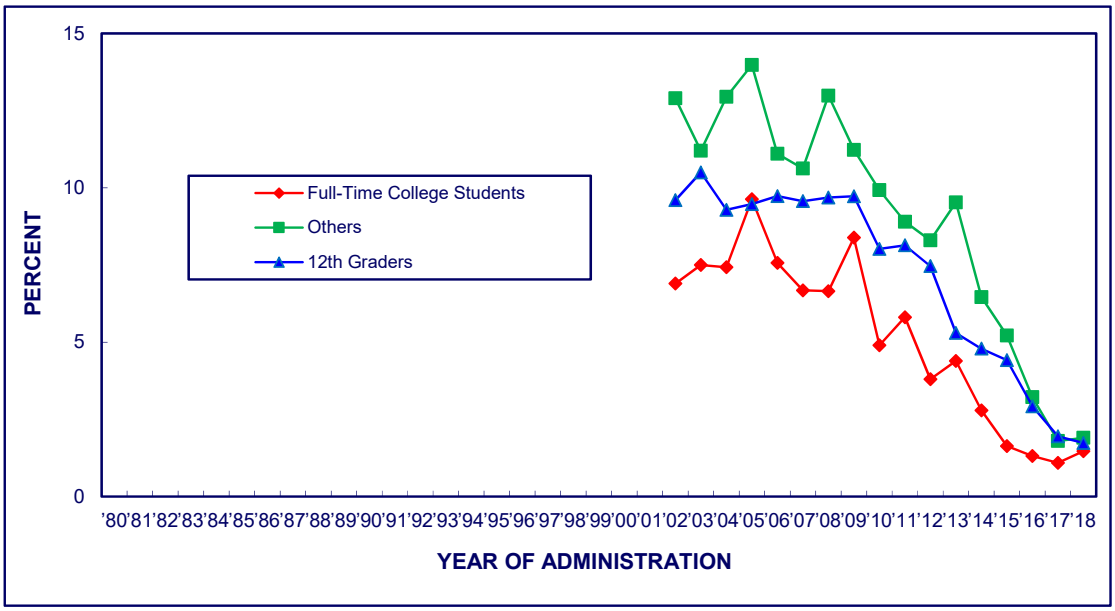


Source. The Monitoring the Future study, the University of Michigan.

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

[a]In 2002 the question text was changed on half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced by Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only. In 2003 the remaining forms were changed to the new wording.

FIGURE 9-11b
VICODIN
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School
(Twelfth graders included for comparison.)

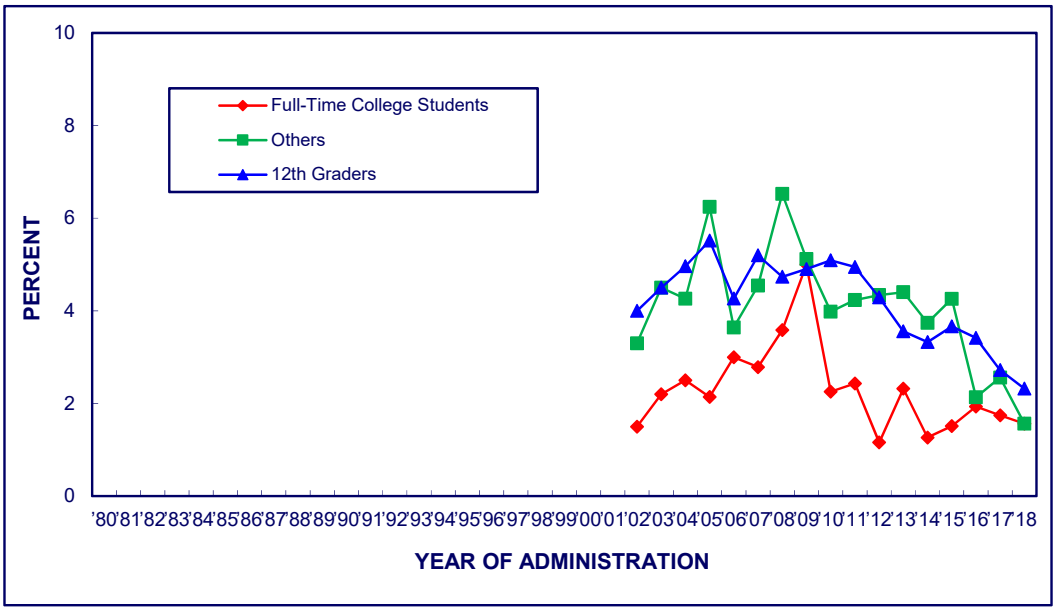


Source. The Monitoring the Future study, the University of Michigan.

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-11c
OXYCONTIN
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School

(Twelfth graders included for comparison.)

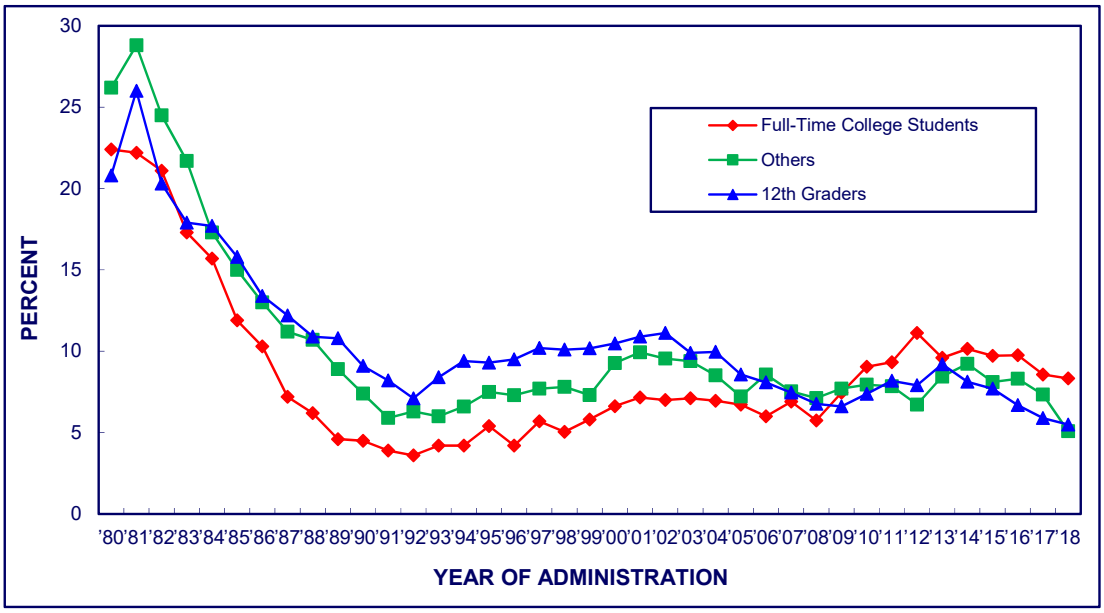


Source. The Monitoring the Future study, the University of Michigan.

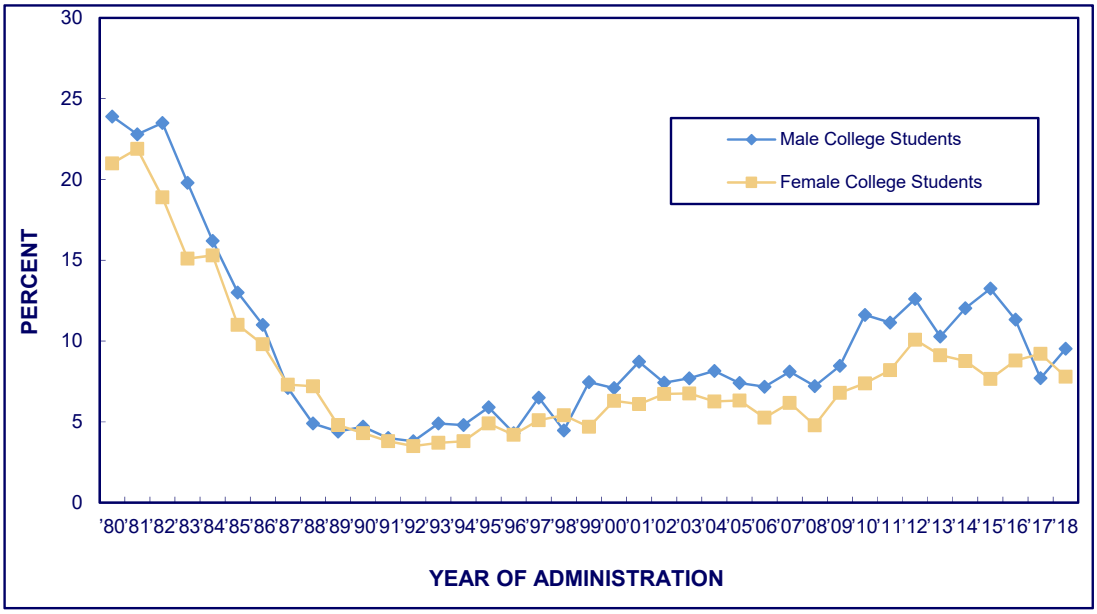
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-12
AMPHETAMINES
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



AMPHETAMINES
Trends in Annual Prevalence among Male vs. Female College Students

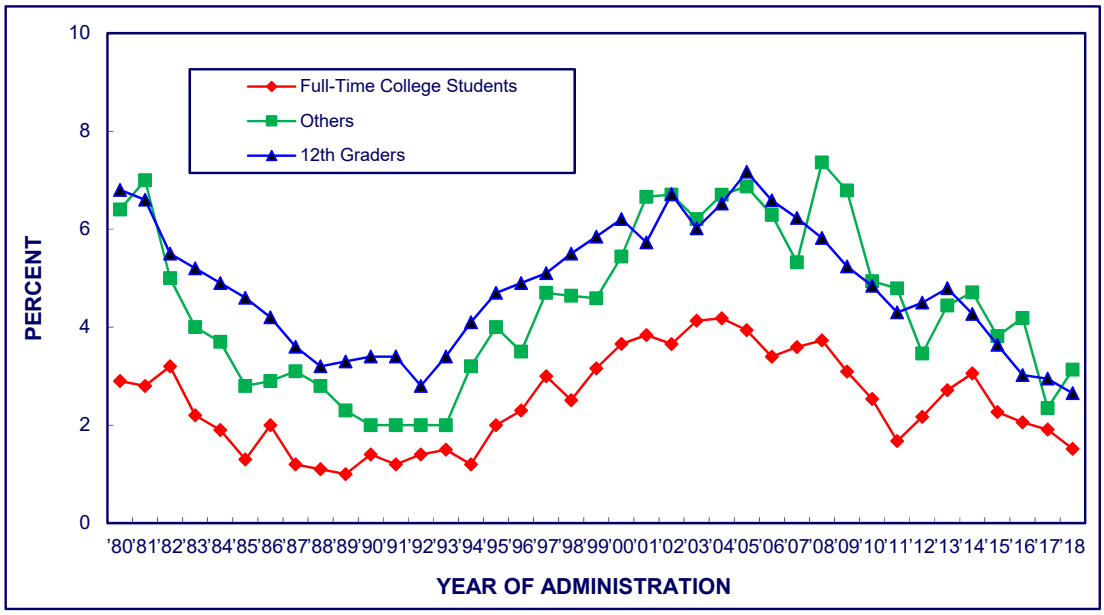


Source. The Monitoring the Future study, the University of Michigan.

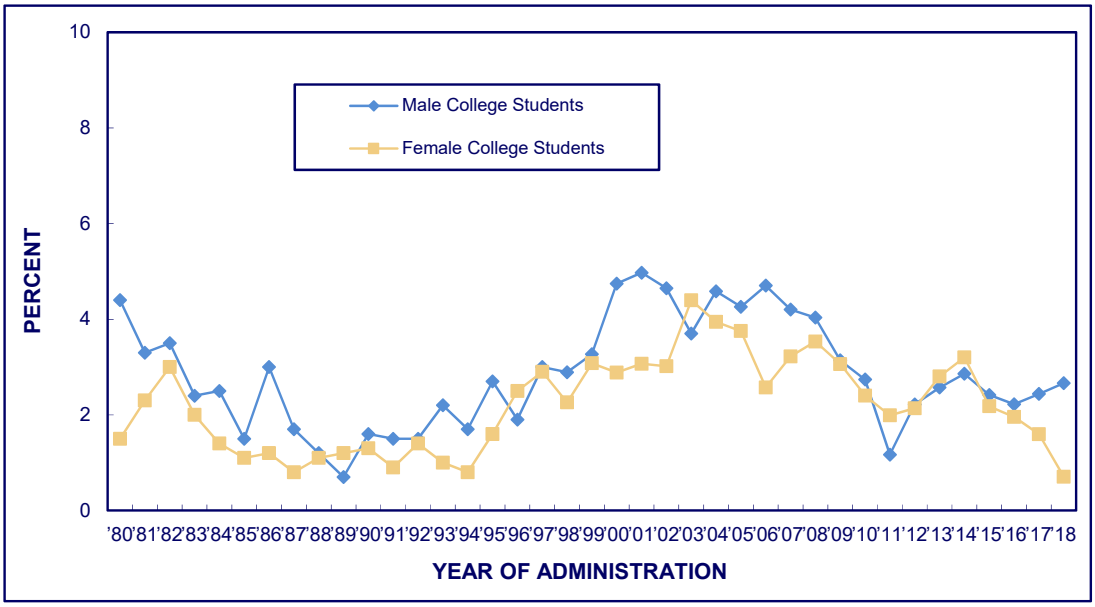
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-13
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



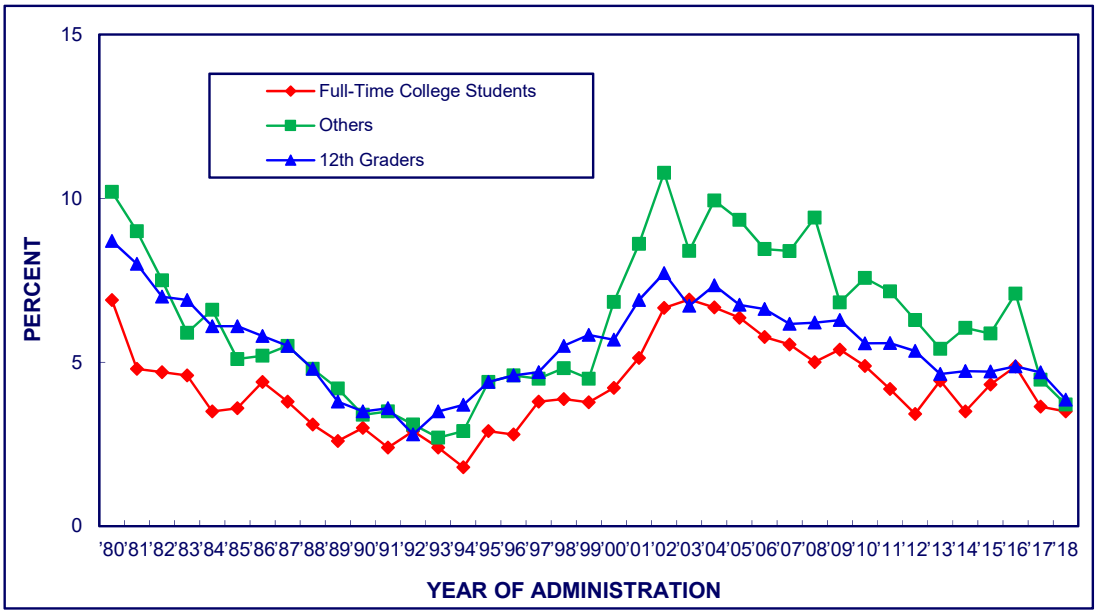
SEDATIVES (BARBITURATES)
Trends in Annual Prevalence
among Male vs. Female College Students



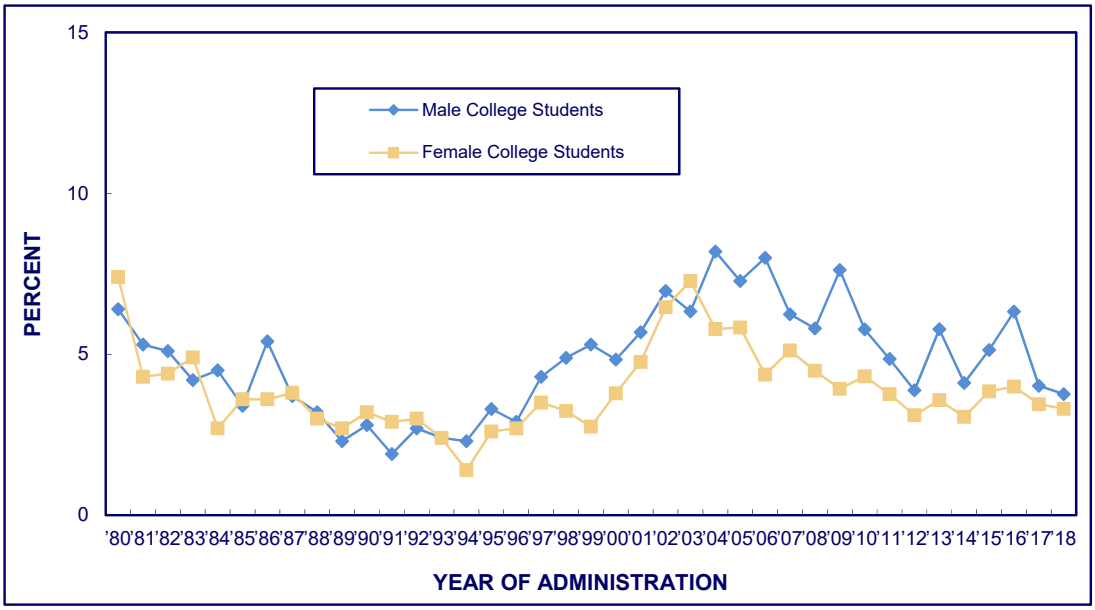
Source. The Monitoring the Future study, the University of Michigan.

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-14
TRANQUILIZERS
Trends in Annual Prevalence among College Students vs. Others
1 to 4 Years beyond High School
(Twelfth graders included for comparison.)



TRANQUILIZERS
Trends in Annual Prevalence
among Male vs. Female College Students

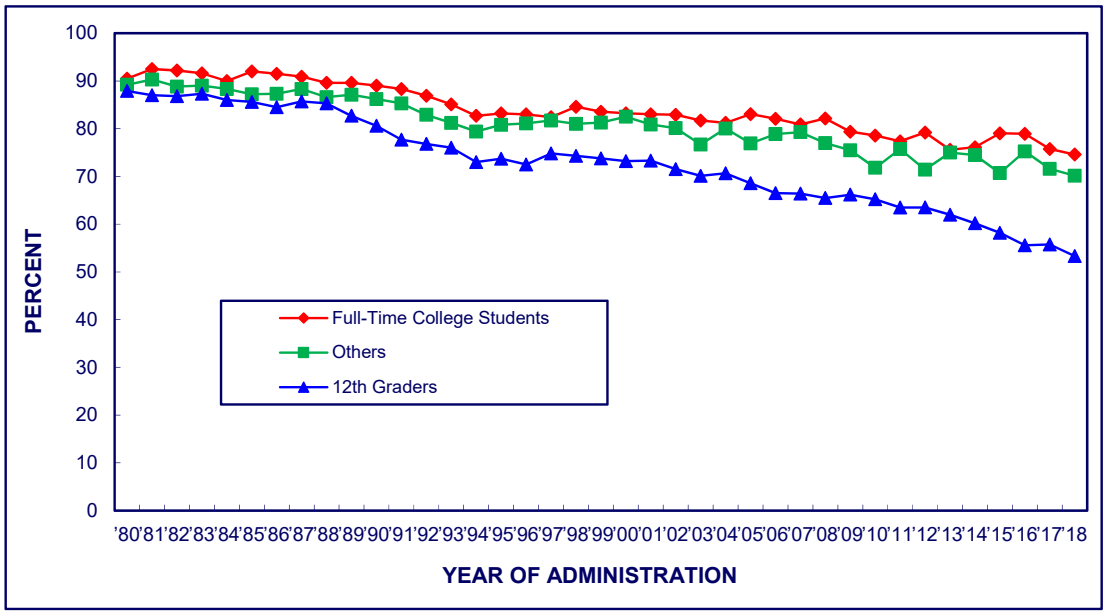


Source. The Monitoring the Future study, the University of Michigan.

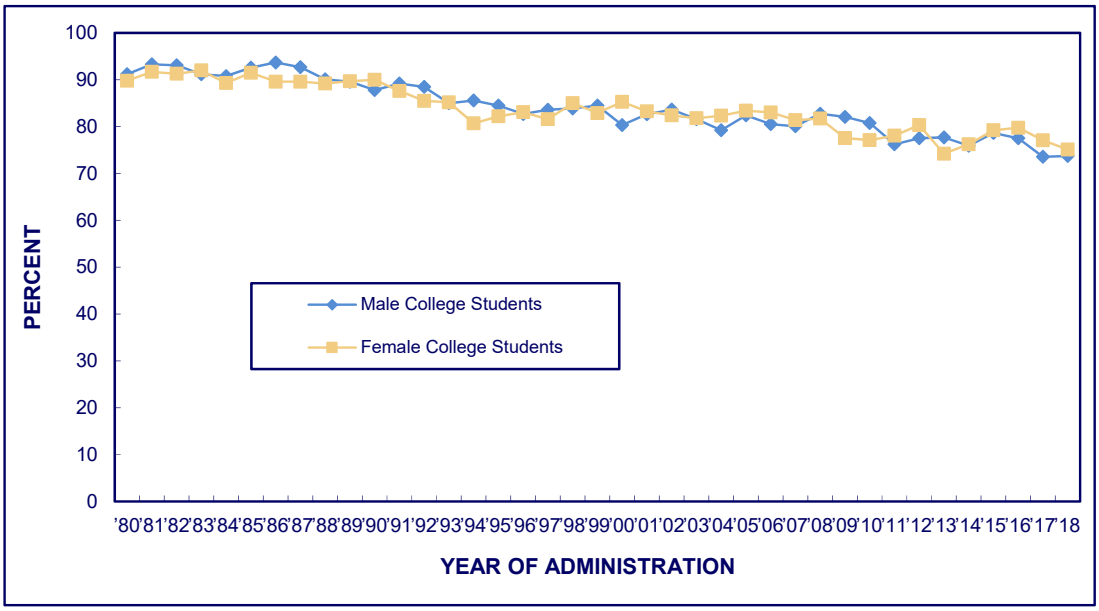
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-15a
ALCOHOL
Trends in Annual Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ALCOHOL
Trends in Annual Prevalence among Male vs. Female College Students



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

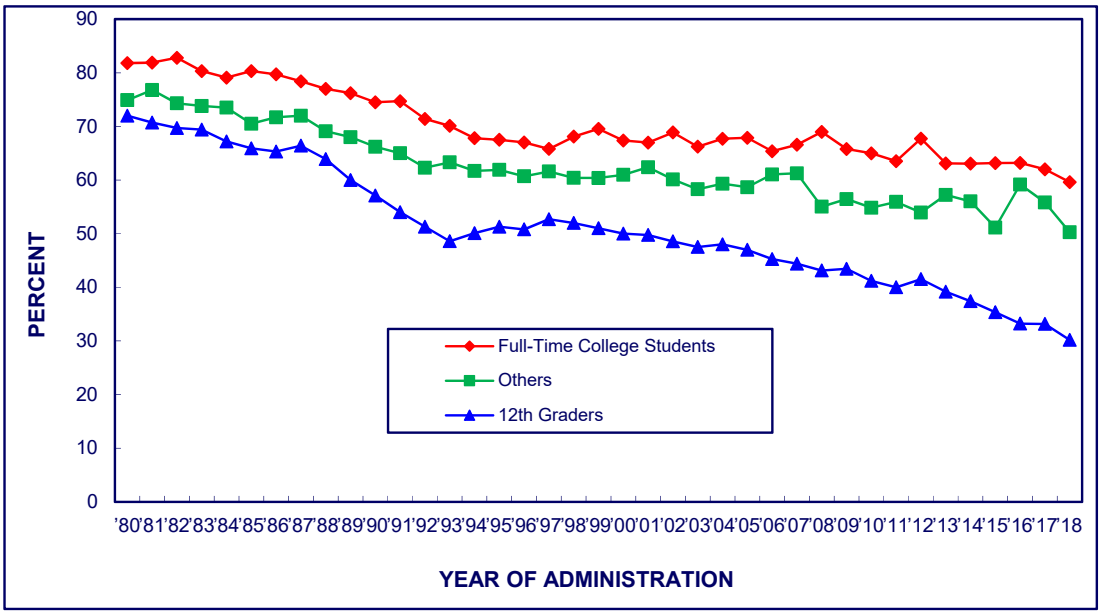
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-15b

ALCOHOL

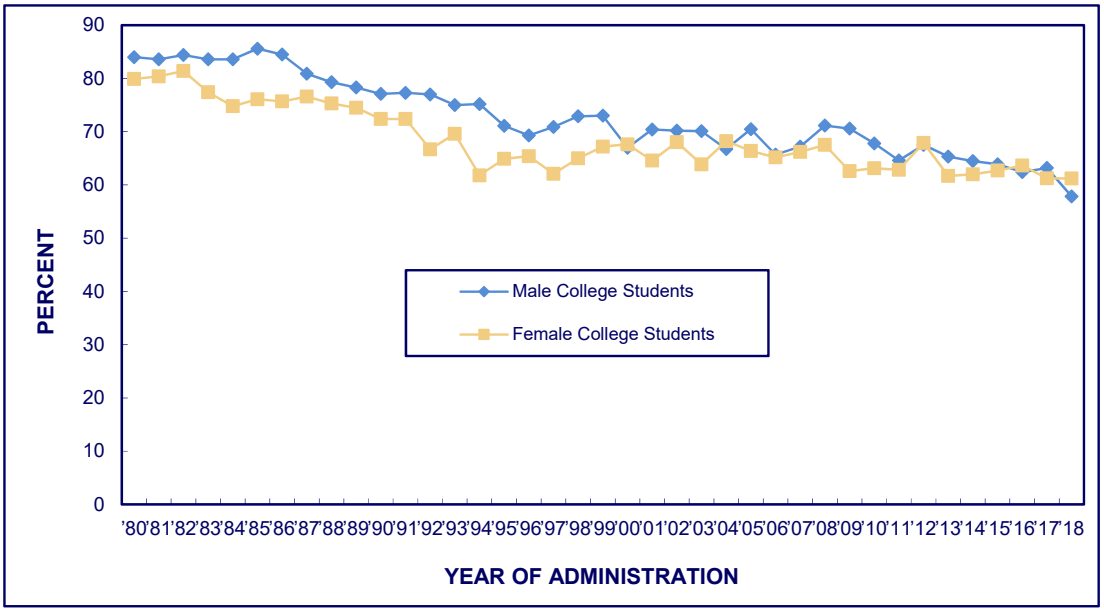
Trends in 30-Day Prevalence among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ALCOHOL

Trends in 30-Day Prevalence among Male vs. Female College Students



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

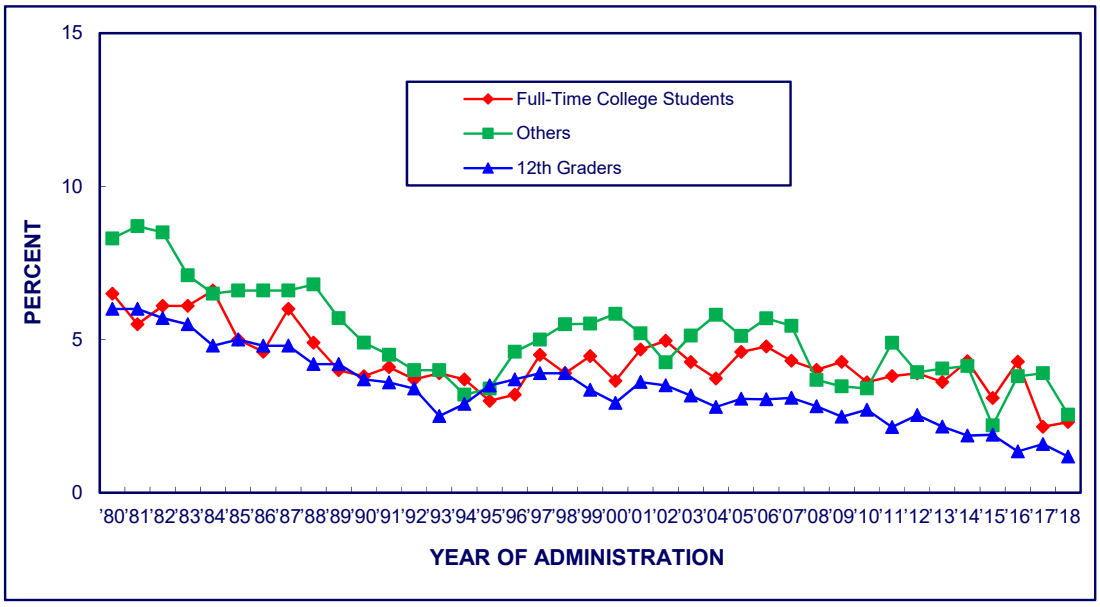
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-15c

ALCOHOL

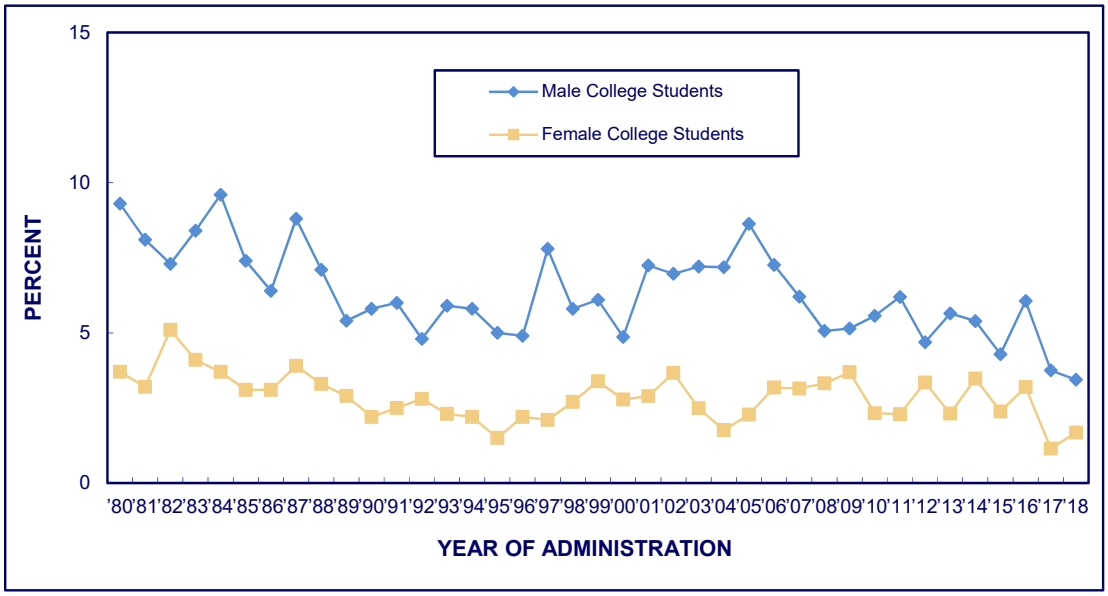
Trends in 30-Day Prevalence of Daily Use among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ALCOHOL

Trends in 30-Day Prevalence of Daily Use among Male vs. Female College Students



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

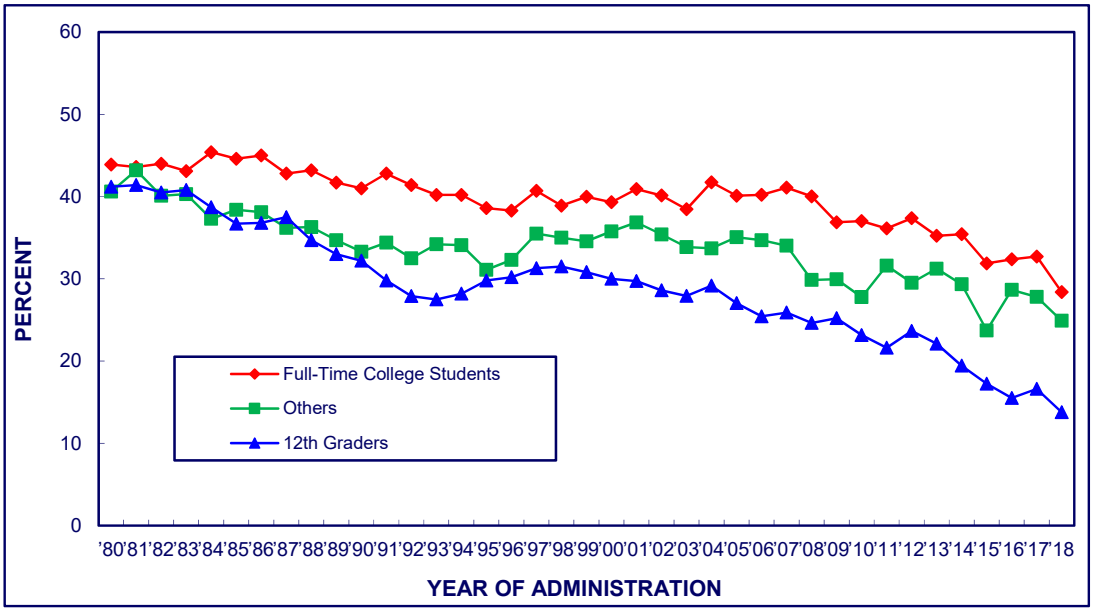
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-15d

ALCOHOL

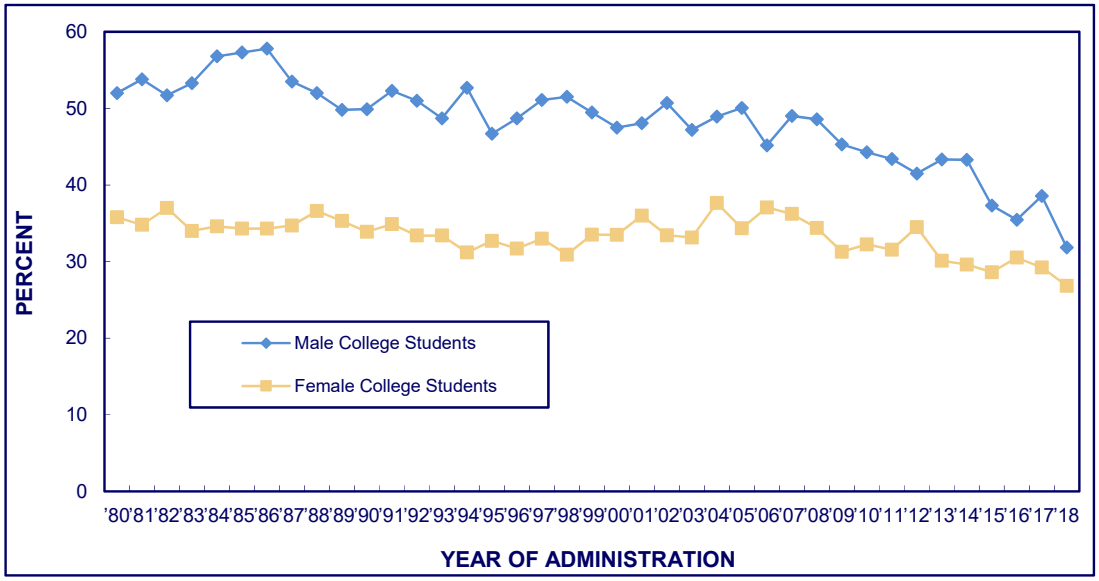
Trends in 2-Week Prevalence of 5 or More Drinks in a Row among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



ALCOHOL

Trends in 2-Week Prevalence of 5 or More Drinks in a Row among Male vs. Female College Students

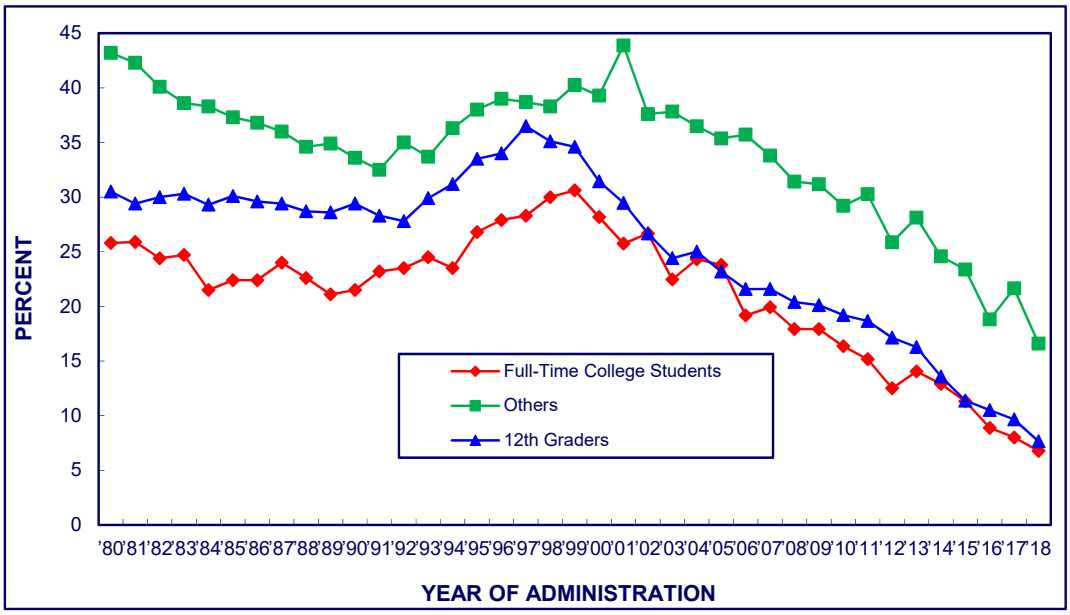


Source. The Monitoring the Future study, the University of Michigan.

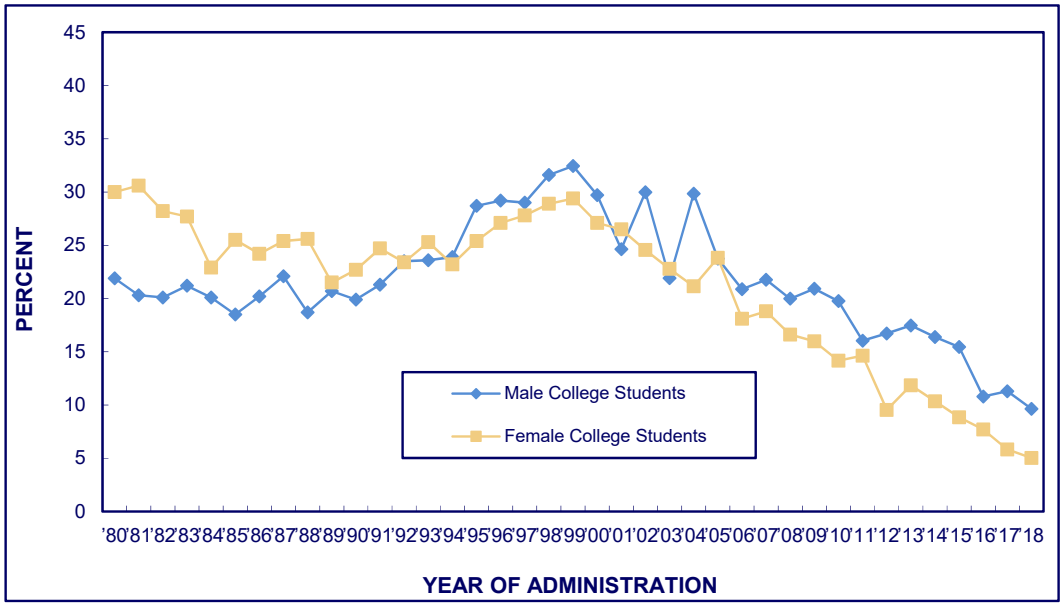
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-16a
CIGARETTES
Trends in 30-Day Prevalence among College Students vs. Others
1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



CIGARETTES
Trends in 30-Day Prevalence
among Male vs. Female College Students



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

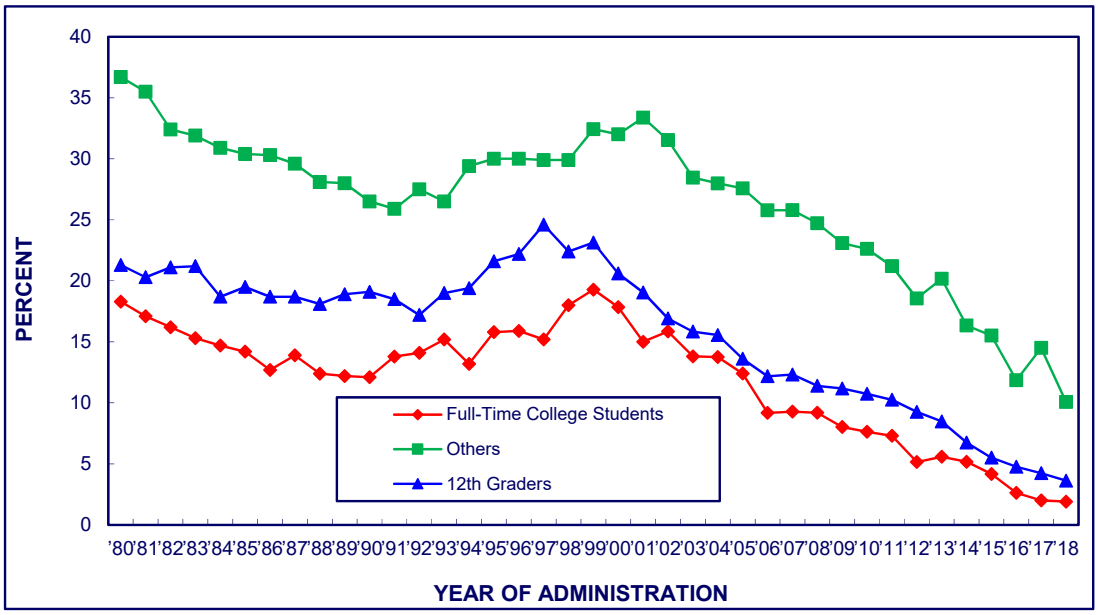
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-16b

CIGARETTES

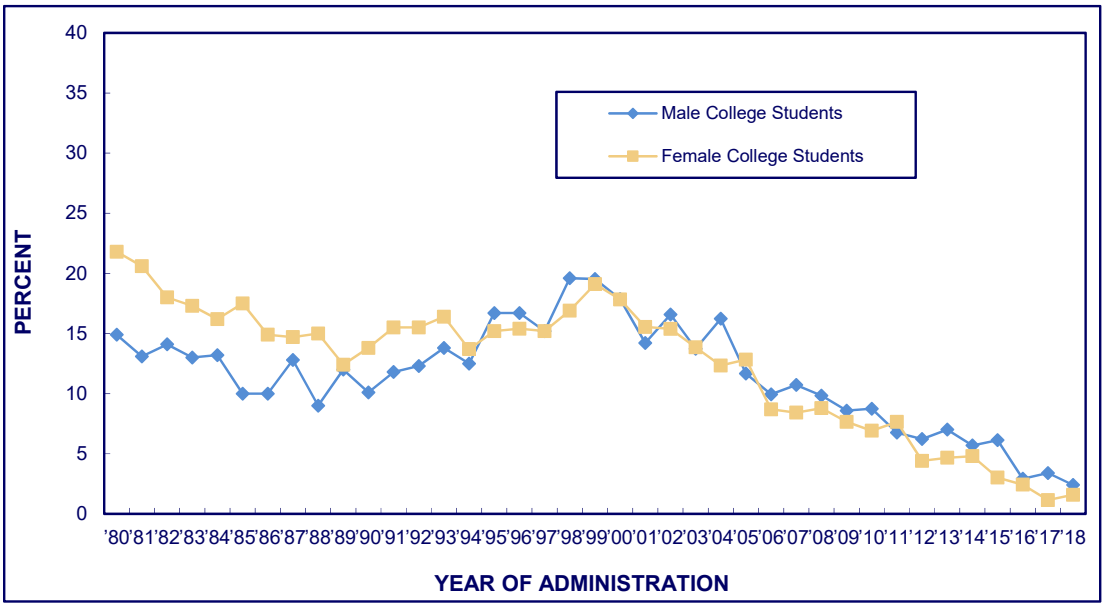
Trends in 30-Day Prevalence of Daily Use among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



CIGARETTES

Trends in 30-Day Prevalence of Daily Use among Male vs. Female College Students



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

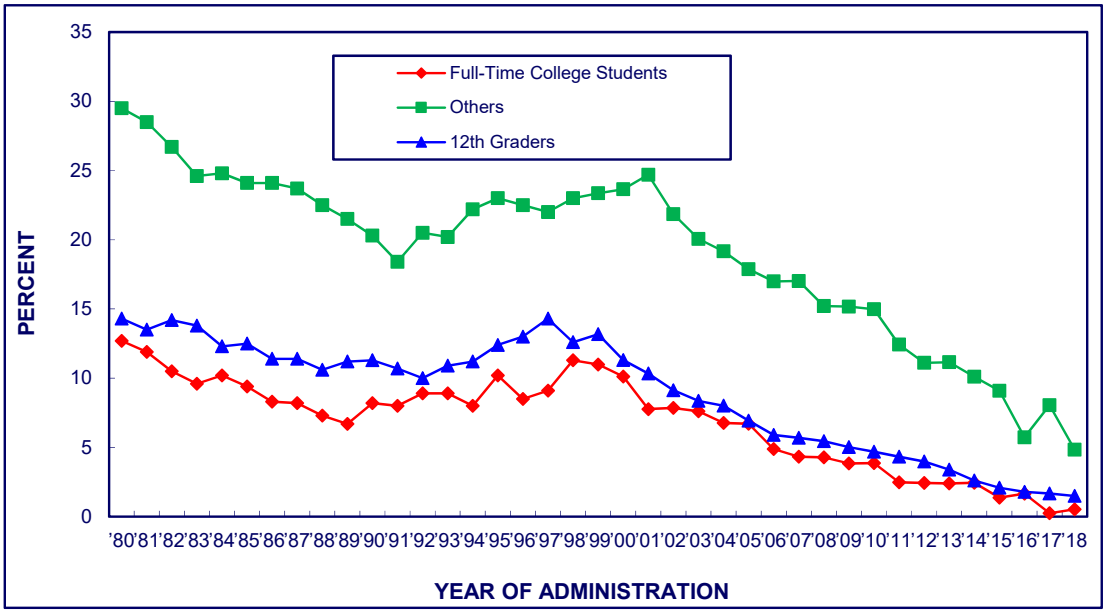
Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

FIGURE 9-16c

CIGARETTES

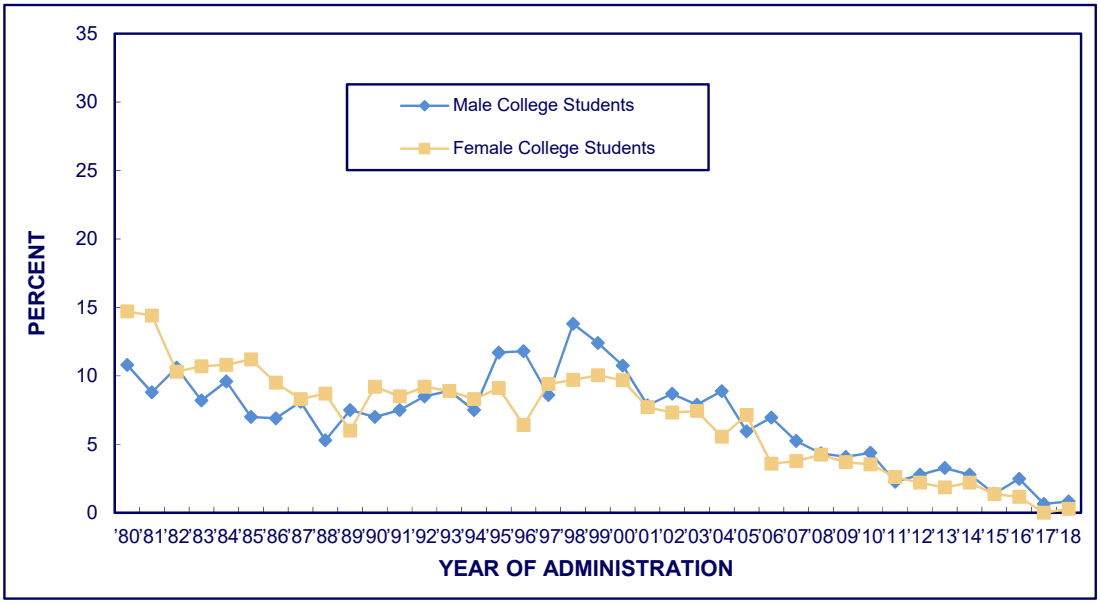
Trends in 30-Day Prevalence of Smoking a Half Pack or More per Day among College Students vs. Others 1 to 4 Years beyond High School

(Twelfth graders included for comparison.)



CIGARETTES

Trends in 30-Day Prevalence of Smoking a Half Pack or More per Day among Male vs. Female College Students



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

Note. Others refers to high school graduates one to four years beyond high school not currently enrolled full-time in college.

Chapter 10

STUDY PUBLICATIONS

MTF results are reported in a number of other types of publications, in particular peer-reviewed journals. Selected articles published by MTF Investigators since the last release of this Volume or are in press as of this writing are summarized below. These publications used MTF data from the 8th, 10th, and 12th grade samples, and/or the panel data. Further details, as well as more listings of publications from previous years, may be found on the Monitoring The Future website.

Two-year follow-up of a sequential mixed-mode experiment in the U.S. national Monitoring the Future study[1]

Introduction: This study examines the two-year follow up of an original mixed-mode longitudinal survey experiment, comparing participant retention in the experimental conditions to retention in the standard Monitoring the Future (MTF) control condition.
Methods: Two-year MTF follow-up data were collected in 2016 at modal age 21/22 based on original data collected in 2014 at modal age 19/20. The control group consisted of participants who completed an in-school baseline survey in 12th grade in 2012 or 2013 and were selected to participate in the first follow-up survey by mail in 2014 (*N*=2,451). A supplementary sample who completed the 12th grade baseline survey in 2012 or 2013 but were *not* selected to participate in the main MTF follow-up (*N*=4,950) were recruited and randomly assigned to one of three experimental conditions in 2014 and 2016: 1: Mail Push, 2: Web Push, 3: Web Push + Email.
Results: The first experiment found Condition 3 (Web Push + Email) promising based on similar response rates and lower costs (Patrick et al. 2018). The current study examines associations between the experimental response in 2014 and 2016, change in response mode and device type from 2014 to 2016, and cumulative cost comparisons across conditions. Results indicated that responding via web in 2014 was associated with greater odds of participation again in 2016 regardless of condition; respondents tended to respond in the same mode although the "push" condition did move respondents toward web over paper; device type varied between waves; and the cumulative cost savings of Web Push + Email grew larger compared to the MTF Control.
Conclusion: The web push strategy in MTF is promising for maintaining respondent engagement while reducing cost.

Historical trends in the grade of onset and sequence of cigarette, alcohol, and marijuana use among adolescents from 1976-2016: Implications for "Gateway" patterns in adolescence[2]

Introduction: In the past decade, marijuana use prevalence among adolescents has remained relatively steady while cigarette and alcohol prevalence levels have declined. We examined historical trends in: average grade of onset of marijuana, alcohol, and cigarette use by 12thgrade; proportion who try alcohol/cigarettes before first marijuana use, among those who use by 12th grade; and conditional probability of marijuana use by 12th grade after trying

[1] Patrick, M. E., Couper, M. P., Jang, B., Laetz, V. B., Schulenberg, J., Johnston, L. D., Bachman, J., & M., O. M. P. (2019). Two-year follow-up of a sequential mixed-mode experiment in the U.S. national Monitoring the Future study. *Survey Practice*.
[2] Keyes, K. M., Rutherford, C., & Miech, R. (2018). Historical trends in the grade of onset and sequence of cigarette, alcohol, and marijuana use among adolescents from 1976-2016: Implications for "Gateway" patterns in adolescence. *Drug and Alcohol Dependence, 194*, 51-58. doi: 10.1016/j.drugalcdep.2018.09.015.

alcohol/cigarettes.
Methods: Data were drawn from 40 yearly, cross-sectional surveys of 12th grade US adolescents. A subset of students (N = 246,050) were asked when they first used each substance. We reconstructed cohorts of substance use from grade-of-onset to determine sequence of drug use, as well as probability of marijuana use in the same or later grade.
Results: Average grade of first alcohol and cigarette use by 12th grade increased across time; e.g., first cigarette increased from grade 7.9 in 1986 to 9.0 by 2016 (β=0.04, SE = 0.001, $p < 0.01$). The proportion of 12th grade adolescents who smoke cigarettes before marijuana fell below 50% in 2006. Each one-year increase was associated with 1.11 times increased odds of first cigarette in a grade after first marijuana (95% C.I. 1.11-1.12). Among those who initiate alcohol/cigarettes prior to marijuana by 12th grade, the probability of subsequent marijuana use is increasing.
Conclusion: Marijuana is increasingly the first substance in the sequence of adolescent drug use. Reducing adolescent smoking has been a remarkable achievement of the past 20 years; those who continue to smoke are at higher risk for progression to marijuana use.

College degree attainment by age of first marijuana use and parental education[3]

Background: Age of first marijuana use is a key predictor of later educational outcomes, but limited work has identified demographic factors that impact this association across continuous ages of first use. The purpose of this study was threefold: (1) to identify the age-varying prevalence of later college degree attainment as a function of age of first marijuana use; (2) to examine the age-varying association of gender and college degree attainment as a function of age of first use; and (3) to examine the age-varying association of parent education and college degree attainment as a function of age of first use.
Methods: Data were from the panel portion of the Monitoring the Future (MTF) study, an ongoing longitudinal study of adolescents and young adults. Those who used marijuana by age 22 were included in analyses. Among these participants (N = 2134), 47.0% were male, 67.5% were white, 53.2% reported having at least one parent with a bachelor's degree or higher, and 44.1% attained a bachelor's degree or higher by age 25/26.
Results: Intercept-only and logistic time-varying effect models (TVEMs) modeled prevalence levels and associations as functions of age of first marijuana use. Prevalence of college degree completion was relatively linear across age of first use; such that college degree attainment increased as age of first use increased. Results indicated that college degree attainment varied across age of first use similarly for men and women. Degree attainment differences existed based on parent education. Parental education and degree attainment were most strongly linked at an age of first use between 16 and 19 years.
Conclusions: Findings suggest that age of first marijuana use has an association with academic achievement such that earlier ages of first use are associated with lower academic achievement later in adulthood. Parental education serves as a protective factor for college degree attainment in late adolescence.

[3] Linden-Carmichael, A. N., Kloska, D. D., Evans-Polce, R., Lanza, S. T., & Patrick, M. E. (2018). College degree attainment by age of first marijuana use and parental education. *Substance Abuse*, 1-5. doi: 10.1080/08897077.2018.1521354

E-cigarette price sensitivity among middle and high school students: Evidence from Monitoring the Future[4]

Aims: We estimated associations between e-cigarette prices (both disposable and refill) and e-cigarette use among middle and high-school students in the United States. We also estimated associations between cigarette prices and e-cigarette use.
Design: We used regression models to estimate the associations between e-cigarette and cigarette prices and e-cigarette use. In our regression models, we exploited changes in e-cigarette and cigarette prices across four periods of time and across 50 markets. We report the associations as price elasticities. In our primary model, we controlled for socio-demographic characteristics, cigarette prices, tobacco control policies, market fixed effects and year-quarter fixed effects. Setting: United States of America. Participants: A total of 24 370 middle- and high-school students participating in the Monitoring the Future Survey in years 2014 and 2015. Measurements: Self-reported e-cigarette use over the last 30 days. Average quarterly cigarette prices, e-cigarette disposable prices and e-cigarette refill prices were constructed from Nielsen retail data (inclusive of excise taxes) for 50 US markets.
Findings: In a model with market fixed effects, we estimated that a 10% increase in e-cigarette disposable prices is associated with a reduction in the number of days vaping among e-cigarette users by approximately 9.7% [95% confidence interval (CI) = -17.7 to 1.8%; P = 0.02] and is associated with a reduction in the number of days vaping by the full sample by approximately 17.9% (95% CI = -31.5 to -4.2%; P = 0.01). Refill e-cigarette prices were not statistically significant predictors of vaping. Cigarette prices were not associated significantly with e-cigarette use regardless of the e-cigarette price used. However, in a model without market fixed effects, cigarette prices were a statistically significant positive predictor of total e-cigarette use.
Conclusions: Higher e-cigarette disposable prices appear to be associated with reduced e-cigarette use among adolescents in the US.

Recent rapid decrease in adolescents' perception that marijuana is harmful, but no concurrent increase in use[5]

Background: National trends in adolescent's marijuana risk perceptions are traditionally used as a predictor of concurrent and future trends in adolescent marijuana use. We test the validity of this practice during a time of rapid marijuana policy change.
Methods: Two repeated cross-sectional U.S. nationally-representative surveys of 8th, 10th, and 12th-graders: Monitoring the Future (MTF) (1991-2015; N=1,181,692) and National Survey on Drug Use and Health (NSDUH) (2002-2014; N=113,317). We examined trends in the year-to-year prevalence of perceiving no risk of harm in using marijuana regularly, and prevalence of regular marijuana use within the previous month. A piecewise linear regression model tested for a change in the relationship between trends. Similar analyses examined any past-month use and controlled for demographic characteristics.
Results: Among MTF 12th-graders, the prevalence of regular marijuana use and risk perceptions changed similarly between 1991 and 2006 but diverged sharply afterward. The prevalence of regular marijuana use increased by approximately 1 percentage point to 6.03% by 2015. In contrast, the proportion of 12th-graders that perceived marijuana as posing no risk increased over

[4] Pesko, M. F., Huang, J., Johnston, L. D., & Chaloupka, F. J. (2018). E-cigarette price sensitivity among middle and high school students: Evidence from Monitoring the Future. *Addiction, 113*(5), 896-906. doi: 10.1111/add.14119
[5] Sarvet, A. L., Wall, M. M., Keyes, K. M., Cerda, M., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Hasin, D. S. (2018). Recent rapid decrease in adolescents' perception that marijuana is harmful, but no concurrent increase in use. *Drug and Alcohol Dependence, 186*, 68-74. doi: 10.1016/j.drugalcdep.2017.12.041

11 percentage points to 21.39%. A similar divergence was found among NSDUH 12th-graders and other grades, for any past month marijuana use, and when controlling demographic characteristics.
Conclusions: An increase in adolescent marijuana use has not accompanied recent rapid decreases in marijuana risk perceptions. Policy makers may consider broader prevention strategies in addition to targeting marijuana risk perceptions. Further monitoring of predictors of marijuana use trends is needed as states legalize recreational marijuana use.

Simultaneous alcohol and marijuana use among young adult drinkers: Age-specific changes in prevalence from 1977-2016[6]

Background: The overall prevalence of U.S. young adult alcohol use has decreased, but little is known about historical change in related behaviors such as simultaneous alcohol and marijuana (SAM) use that may increase alcohol-related risks and societal costs. The purpose of this paper was to examine historical change in SAM use prevalence among U.S. young adult alcohol users from 1977 to 2016, and consider the extent to which observed historical change in SAM use among alcohol users reflects co-occurring change in marijuana use during these years.
Methods: Data on past 12-month alcohol, marijuana, and SAM use at up to 6 modal ages (19/20, 21/22, 23/24, 25/26, 27/28, and 29/30) were collected from 11,789 individuals (45.0% men) participating in the Monitoring the Future panel study. Annual prevalence estimates within modal age group were obtained; historical SAM use trends among alcohol and marijuana users were estimated.
Results: From 2014 to 2016, SAM use was reported by approximately 30% of alcohol users aged 19/20 and 21/22, and 20 to 25% of alcohol users aged 23/24 through 29/30. Since the mid-1990s, age-specific historical trends in SAM use prevalence among alcohol users followed 1 of 4 patterns: significant increase followed by oscillating increases/decreases (at modal age 19/20), consistent and significant increases (at modal ages 21/22, 23/24, and 25/26), stability followed by increase (at modal ages 27/28), or stability (at modal ages 29/30). In contrast, SAM use trends among marijuana users primarily reflected stability, with some evidence of a decrease across time at modal ages 19/20 and 23/24. Historical change in SAM prevalence among alcohol users was strongly and positively correlated with changes in overall marijuana use prevalence.
Conclusions: A growing proportion of early and mid-young adult alcohol users reported SAM use, with the highest risk among those in the early years of young adulthood. Young adult SAM use may continue to increase in proportion to the degree that young adult marijuana use continues to increase.

The end of convergence in developmental patterns of frequent marijuana use from ages 18 to 30: An analysis of cohort change from 1976–2016[7]

Background: This study examines the extent to which the developmental pattern of frequent marijuana use prevalence from ages 18 to 30 (overall and by gender) has varied across historical time (cohort groups) using data from a national sample of US young adults.
Methods: Self-reported data on frequent marijuana use (use on 20+ occasions in the past 30 days) from modal ages 18 to 30 were obtained from 58,059 individuals from 29 sequential cohorts (graduating high school classes of 1976-2004) participating in the Monitoring the Future study.

[6] Terry-McEllrath, Y. M., & Patrick, M. E. (2018). Simultaneous alcohol and marijuana use among young adult drinkers: Age-specific changes in prevalence from 1977-2016. *Alcoholism: Clinical and Experimental Research, 42*(11), 2224-2233. doi: 10.1111/acer.13879
[7] Terry-McElrath, Y. M., Patrick, M. E., O'Malley, P. M., & Johnston, L. D. (2018). The end of convergence in developmental patterns of frequent marijuana use from ages 18 to 30: An analysis of cohort change from 1976–2016. *Drug and Alcohol Dependence, 191*, 203-209. doi: 10.1016/j.drugalcdep.2018.07.002

Time-varying effect modeling was used to model cohort group differences in developmental patterns of frequent use overall and by gender.
Results: Developmental patterns of frequent marijuana use prevalence varied meaningfully across cohort groups. Frequent use at age 18 differed significantly across cohort groups as expected based on national data. Among earlier cohort groups (reaching age 30 during 1987-2008), developmental patterns converged by age 30 to relatively low frequent marijuana use prevalence. In contrast, among cohort groups reaching age 30 during 2008-2016, frequent marijuana use at age 30 was significantly higher than all previous cohort groups. Observed cohort differences did not vary significantly by gender.
Conclusions: Cross-cohort convergence in developmental patterns of frequent marijuana use prevalence by age 30 was not observed among recent cohort groups, among whom age 30 frequent marijuana use prevalence was at the highest levels observed since the study began. Higher frequent marijuana use prevalence in late young adulthood has meaningful health risk and service provision implications.

Recent increases in depressive symptoms among US adolescents: trends from 1991 to 2018[8]

Background: Mental health problems and mental health related mortality have increased among adolescents, particularly girls. These trends have implications for etiology and prevention and suggest new and emerging risk factors in need of attention. The present study estimated age, period, and cohort effects in depressive symptoms among US nationally representative samples of school attending adolescents from 1991 to 2018.
Methods: Data are drawn from 1991 to 2018 Monitoring the Future yearly cross-sectional surveys of 8th, 10th, and 12th grade students (N = 1,260,159). Depressive symptoms measured with four questions that had consistent wording and data collection procedures across all 28 years. Age-period-cohort effects estimated using the hierarchical age-period-cohort models.
Results: Among girls, depressive symptoms decreased from 1991 to 2011, then reversed course, peaking in 2018; these increases reflected primarily period effects, which compared to the mean of all periods showed a gradual increase starting in 2012 and peaked in 2018 (estimate = 1.15, $p < 0.01$). Cohort effects were minimal, indicating that increases are observed across all age groups. Among boys, trends were similar although the extent of the increase is less marked compared to girls; there was a declining cohort effect among recently born cohorts, suggesting that increases in depressive symptoms among boys are slower for younger boys compared to older boys in recent years. Trends were generally similar by race/ethnicity and parental education, with a positive cohort effect for Hispanic girls born 1999-2004.
Conclusions: Depressive symptoms are increasing among teens, especially among girls, consistent with increases in depression and suicide. Population variation in psychiatric disorder symptoms highlight the importance of current environmental determinants of psychiatric disorder risk, and provide evidence of emerging risk factors that may be shaping a new and concerning trend in adolescent mental health.

[8] Keyes, K. M., Gary, D., O'Malley, P. M., Hamilton, A., & Schulenberg, J. (2019). Recent increases in depressive symptoms among US adolescents: trends from 1991 to 2018. *Social Psychiatry and Psychiatric Epidemiology*. doi: 10.1007/s00127-019-01697-8

A prospective study of nonmedical use of prescription opioids during adolescence and subsequent substance use disorder symptoms in early midlife[9]

Background: This longitudinal study assesses characteristics associated with adolescents' nonmedical use of prescription opioids (NMUPO) including: frequency, co-ingestion, motives, specific opioid type; sequence of initiation of medical use of prescription opioids and NMUPO in relationship to subsequent substance use disorder (SUD) symptoms.
Methods: Twenty-one independent national cohorts of U.S. high school seniors (n = 8,373) were surveyed and followed 17 years from adolescence to age 35.
Results: The majority of adolescents who engaged in NMUPO reported occasional/frequent NMUPO, non-pain relief motives for NMUPO, simultaneous co-ingestion involving NMUPO and other drugs, opioid analgesics with high misuse potential, and multiple types of opioid analgesics. Adolescents who reported NMUPO for pain relief, NMUPO involving opioid analgesics with high misuse potential, or multiple prescription opioids had significantly greater odds of SUD symptoms at age 35, relative to those who had no history of NMUPO during adolescence. In addition, medical use of prescription opioids after initiating NMUPO (or NMUPO only) during adolescence was associated with significantly greater odds of subsequent SUD symptoms at age 35 relative to those who reported the medical use of prescription opioids only or had no medical use or NMUPO during adolescence.
Conclusions: This is the first U.S. national prospective study to examine the relationships between adolescents' NMUPO characteristics and later SUD symptoms in early midlife. Several characteristics (frequency, co-ingestion, motives, opioid type, and medical/NMUPO initiation history) were identified that could be used to screen and detect high-risk youth for indicated interventions to reduce prescription opioid misuse and SUDs.

Adolescent vaping and nicotine use in 2017-2018 - U.S. national estimates[10]

Background: Multiple media reports highlighted a surge in nicotine vaping among U.S. adolescents in 2018. This study is the first to use nationally representative data to assess the magnitude of increases in nicotine vaping from 2017 to 2018.
Methods: Data for this study come from Monitoring the Future, which surveyed nationally representative, independent samples of 12^{th}, 10^{th}, and 8^{th} grade students in 2017 and 2018. Analyses are based on a total of 13,850 completed survey responses. For a randomly selected subsample of the 12th grade respondents the surveys included a cluster of questions on both vaping and the six most common forms of tobacco use, thereby allowing examination of overall nicotine use with any nicotine product.
Results: Nicotine vaping significantly increased by 9.9, 7.9, and 2.6 percentage points in 12^{th}, 10^{th}, and 8^{th} grade, respectively. In 12^{th} grade overall use of nicotine by any method measured in the survey increased by 5.2 percentage points. This increase in overall nicotine use was driven solely by nicotine vaping, which more than offset declines the prevalence of use of the six of the most commonly used tobacco products.
Conclusions: Increases in vaping in 2018 are the largest ever seen for any of the 30-day prevalence outcomes monitored by Monitoring the Future in the 44 years it has continuously tracked

[9] McCabe, S. E., Veliz, P. T., Boyd, C. J., Schepis, T. S., McCabe, V. V., & Schulenberg, J. E. (2019). A prospective study of nonmedical use of prescription opioids during adolescence and subsequent substance use disorder symptoms in early midlife. *Drug and Alcohol Dependence, 194*, 377-385. doi: 10.1016/j.drugalcdep.2018.10.027
[10] Miech, R., Johnston, L., O'Malley, P. M., Bachman, J. G., & Patrick, M. E. (2019). Adolescent vaping and nicotine use in 2017-2018 - U.S. national estimates. *New England Journal of Medicine*. doi: 10.1056/NEJMc1814130

adolescent substance use. These results document a recent increase in adolescent nicotine use, due to an epidemic of nicotine vaping among U.S. adolescents in 2018.

Increasing marijuana use for black adolescents in the United States: A test of competing explanations[11]

Aims: In the last decade the relatively lower levels of marijuana use for black relative to non-black high school seniors has grown smaller and disappeared, drawing to a close a unique disparity that actually favored a disadvantaged group for at least thirty years. In this study we test trends in cigarette smoking and religiosity as possible explanations for this closing disparity. The study also examines whether increasing marijuana levels for black adolescents is better characterized as a cohort effect or an historical period effect.
Design: Analyses use relative risk regression and focus on data from yearly, cross-sectional surveys from the time period 2008-2017. Data come from the nationally representative Monitoring the Future survey, which conducts in-school surveys of secondary school students. The analysis uses data from 114,552 high school seniors (in 12th grade), 123,594 in 10th grade, and 136,741 in 8th grade.
Findings: Past 12-month marijuana prevalence significantly increased for black as compared to non-black adolescents from 2008 to 2017 in 12th grade, 10th grade, and 8th grade. The increase attenuated by more than half and was not statistically significant after adjusting for cigarette smoking. In contrast, the increase was little changed after adjusting adolescent levels of religiosity. The increase is better characterized as a cohort effect than a period effect.
Conclusions: These results support the increase in marijuana use for black relative to non-black adolescents as an unexpected consequence of the great decline in adolescent cigarette smoking, which has occurred more slowly for black adolescents.

The national prevalence of adolescent nicotine use in 2017: Estimates taking into account student reports of substances vaped[12]

Introduction: This study presents the first nationally-representative estimates of adolescent nicotine prevalence that take into account adolescent reports of substances vaped. These reports allow nicotine estimates that consider the impact of the newly-emerged group of adolescents who report vaping only non-nicotine substances such as flavoring and/or marijuana and do not use nicotine in any form – a group typically treated as nicotine users.
Methods: Data come from Monitoring the Future and are a randomly-selected subsample of 2231 U.S. 12th grade students who answered surveys with detailed questions on tobacco use and vaping in 2017.
Results: Among 12th grade students 24.7% used nicotine in the last 30 days. This estimate does not include the 3.8% of students who vaped only non-nicotine substances and did not use nicotine in any other form. These students more closely resemble their peers who do not use nicotine than those who do, in terms of perceived risk and disapproval of cigarettes, as well as percentage of friends who use cigarettes.
Conclusions: A decline in overall nicotine prevalence was statistically significant, but not strikingly large, after taking into account students who vape non-nicotine substances and do not

[11] Miech, R. A., Terry-McElrath, Y. M., O'Malley, P. M., & Johnston, L. D. (2019). Increasing marijuana use for black adolescents in the United States: A test of competing explanations. *Addictive Behaviors, 93*, 59-64. doi: 10.1016/j.addbeh.2019.01.016
[12] Miech, R. A., Johnston, L. D., O'Malley, P. M., & Terry-McElrath, Y. (2019). The national prevalence of adolescent nicotine use in 2017: Estimates taking into account student reports of substances vaped. *Addictive Behaviors Reports, 9*, 100159. doi: 10.1016/j.abrep.2019.100159

use nicotine in any form. These students are largely similar to their peers who do not use nicotine, which underscores the importance of efforts to alert youth that they may be vaping nicotine unknowingly, and prevent them from doing so.

"Flakka" use among high school seniors in the United States[13]

Background: Use of synthetic cathinones, commonly referred to as "bath salts", has been associated with tens of thousands of emergency department visits in the US; however, few national studies have estimated prevalence of use and we know very little about use among adolescents. In this study we estimate prevalence and correlates of use of "Flakka" (alpha-PVP), a highly-potent "bath salt" associated with at least 80 deaths in the US.
Methods: We analyzed data from the 2016/2017 Monitoring the Future study, which surveyed a nationally representative sample of high school seniors in the US (n = 3786). Bivariable and multivariable models were used to determine demographic and drug-related correlates of use.
Results: Overall, 0.8% (95% CI: 0.5-1.2) of high school seniors in 2016/2017 are estimated to have used Flakka in the past year. Students whose parents have less than a high school education were at higher odds for use (aOR = 4.12, 95% CI: 1.00-16.94). Flakka users reported high prevalence of use of other drugs, particularly synthetic cannabinoids (85.6%), ketamine (72.3%), marijuana (59.1%), and GHB (47.5%). Flakka use was also associated with use of a higher number of other drugs and higher frequency of use of other drugs, with 51.7% using 4-12 other drugs and 22.4% using 4-12 other drugs >6 times.
Conclusions: Students who use multiple drugs are elevated risk for Flakka use, suggesting synthetic cathinone use alone is rare and the use of multiple substances may compound adverse effects of these drugs. Socio-economic disparities are concerning given reduced access to prevention and intervention.

Faster escalation from first drink to first intoxication as a risk factor for binge and high-intensity drinking among adolescents[14]

Introduction: Age of first drink is a key risk factor for adolescent high-risk alcohol use. The current study examined whether speed of escalation from first drink to first intoxication is an additional risk factor, and whether these two factors are associated with binge and high-intensity drinking among adolescents.
Methods: Data collected in 2005-2017 from a nationally-representative sample of 11,100 U.S. 12th grade students participating in the Monitoring the Future study were coded to indicate grade of first drink, grade of first intoxication, and speed of escalation from first drink to first intoxication. Logistic regression models estimated bivariate and multivariable odds of past 2-week binge (5+ drinks in a row) and high-intensity (10+ drinks in a row) drinking in 12th grade.
Results: Of those who reported intoxication by 12th grade, almost 60% reported first drunkenness in the same grade in which they first drank. The likelihoods of 12th grade binge and high-intensity drinking were significantly associated with both grade of first drink and speed of escalation to intoxication. Past two-week high-intensity drinking prevalence was 17.4% among those with immediate (same-grade) escalation from first drink to first intoxication; 15.8% among those with a 1-grade delay, and 12.6% among those with a 2+ grade delay to intoxication.

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[13] Palamar, J. J., Rutherford, C., & Keyes, K. M. (2019). "Flakka" use among high school seniors in the United States. *Drug and Alcohol Dependence, 196*, 86-90. doi:10.1016/j.drugalcdep.2018.12.014.
[14] Patrick, M. E., Evans-Polce, R., & Terry-McElrath, Y. M. (2019). Faster escalation from first drink to first intoxication as a risk factor for binge and high-intensity drinking among adolescents. *Addictive Behaviors, 92*, 199-202. doi: 10.1016/j.addbeh.2019.01.003

Conclusions: The majority of students escalate quickly from having their first drink to being intoxicated for the first time. Both earlier age of first drink and a faster escalation from first drink to first intoxication are important indicators of binge and high-intensity drinking risk among adolescents.

Prevalence of high-intensity drinking from adolescence through young adulthood: National data from 2016-2017[15]

High-intensity drinking (HID; ie, having 10+ drinks in a row) is a recognized public health concern due to the individual and public risks (eg, alcohol-related injuries, alcohol poisoning, memory loss, sexual risk) associated with consumption of a large quantity of alcohol over a relatively short time period. Using nationally representative samples of US 8th, 10th, and 12th grade students, and follow-up of subsamples of 12th graders, we present overall and sex-specific prevalence estimates of past 2-week HID from 29 966 individuals at the modal ages of 14 to 30 in 2016-2017. Similar data for the more commonly studied measure of binge drinking (having 5+ drinks in a row) are provided for comparison. HID prevalence ranged from 1% to 11.5% and was significantly higher for males than females at all ages other than modal age 14 (8th grade). Binge drinking prevalence ranged from 3.5% to 32.5%; males reported a higher prevalence than females at approximately half of the ages examined. Peak binge drinking and HID age for males was earlier (modal age 21/22) than that for females (modal age 21-24 for binge drinking and 25/26 for HID). The observed rapid increase in HID from adolescence through the early to mid-20s highlights the importance of prevention and intervention efforts targeted to these ages.

Reasons high school students use marijuana: Prevalence and links with use across four decades[16]

Objective: Changes in the legality and prevalence of marijuana raise questions about whether adolescents' reasons for using marijuana and associations between reasons for use and recent marijuana use have changed historically.
Method: Using nationally representative data from Monitoring the Future for 1976-2016 (N = 39,964; 47.6% female), we examined changes in self-reported reasons for marijuana use and in the associations between reasons for use and past-30-day marijuana use among 12th graders who used marijuana in the past 12 months.
Results: Time-varying effect modeling showed variation in reasons for use among adolescent past-year marijuana users from 1976 to 2016. Social/recreational reasons for marijuana use (i.e., Boredom, Feel Good/Get High, Experiment, Fit In) generally declined in prevalence; the exception was Good Time, which remained quite stable. Prevalence of coping with negative affect reasons (i.e., Anger/Frustration, Escape Problems, Relax, Get Through Day) approximately doubled across 40 years. Over time, social/recreational reasons were consistently associated with greater odds (i.e., Boredom, Feel Good/Get High, Good Time) or lower odds (i.e., Experiment, Fit In) of recent marijuana use. Coping with negative affect reasons, drug effect reasons, and compulsive use were consistently associated with greater odds of recent use.
Conclusions: The most common reasons for marijuana use among high school students have shifted markedly in 40 years, with particular increases for coping-related reasons. However,

[15] Patrick, M. E., & Terry-McElrath, Y. M. (2019). Prevalence of high-intensity drinking from adolescence through young adulthood: National data from 2016-2017. *Substance Abuse: Research and Treatment, 13*. doi: 10.1177/1178221818822976
[16] Patrick, M. E., Evans-Polce, R., Kloska, D., & Maggs, J. L. (2019). Reasons high school students use marijuana: Prevalence and links with use across four decades. *Journal of Studies on Alcohol and Drugs, 80*(1), 15-25.

reasons for use remain significant, stable predictors of use. This suggests a move toward riskier (coping-related) use but supports the continued salience of motivation-based approaches for prevention and intervention.

Shifting age of peak binge drinking prevalence: Historical changes in normative trajectories among young adults aged 18 to 30[17]

Background: This study examined the extent to which the developmental pattern of prevalence of binge drinking in the past 2 weeks from ages 18 through 30 has changed across 29 cohorts of U.S. young adults, and whether the changes differed by gender.
Methods: Analyses used national longitudinal data from 58,019 12th-grade students (from graduating high school classes 1976 to 2004) participating in the Monitoring the Future study followed through modal age 30 (with age 29/30 data collected from 1987 to 2016). Weighted time-varying effect modeling was used to model cohort group differences in age-related patterns of binge drinking.
Results: The age of peak binge drinking prevalence increased across cohorts (from age 20 in 1976 to 1985 to 22 in 1996 to 2004 for women, and from 21 in 1976 to 1985 to 23 in 1996 to 2004 for men). Historical change in the developmental pattern of binge drinking across all ages of young adulthood differed for men and women. Even after controlling for key covariates, women in the more recent cohort group reported significantly higher binge drinking prevalence than women in earlier cohorts from ages 21 through 30. Men in the more recent cohort group reported higher binge drinking prevalence at ages 25 to 26, but prevalence levels then converged to those seen in earlier cohort groups by age 30.
Conclusions: An older age of peak binge drinking and a decreased rate of decline in the prevalence of binge drinking in later young adulthood among more recent cohorts have resulted in an extension of individual and societal risks associated with binge drinking, particularly for women, across young adulthood. High-risk alcohol use prevention efforts are needed throughout at least the third decade of life.

Simultaneous alcohol and marijuana use among underage young adults in the United States[18]

Objective: The current study examines the prevalence, stability, and correlates of simultaneous alcohol and marijuana (SAM) use among underage US young adults, a population at high risk for participating in this behavior.
Method: Analyses used data from 1719 respondents (46.8% men) who participated in the nationally representative 12th-grade Monitoring the Future study and provided responses to SAM use items at longitudinal follow-up at modal ages 19/20 between 2007 and 2016. Prevalence estimates and covariate associations with SAM use were estimated.
Results: SAM use prevalence at modal age 19/20 was 22.5%. Multivariable models indicated that odds of age 19/20 SAM use were significantly ($p<.05$) higher for men (vs. women) and for respondents who started alcohol use by age 18 (vs. those who delayed uptake until after high school). Odds of SAM use were especially high for individuals attending college full-time and not living with parents. Among those who reported SAM use at modal age 18, 56.2% continued to

[17] Patrick, M. E., Terry-McElrath, Y. M., Lanza, S. T., Jager, J., Schulenberg, J. E., & O'Malley, P. M. (2019). Shifting age of peak binge drinking prevalence: Historical changes in normative trajectories among young adults aged 18 to 30. *Alcoholism: Clinical and Experimental Research*. doi: 10.1111/acer.13933.
[18] Patrick, M. E., Terry-McElrath, Y. M., Lee, C. M., & Schulenberg, J. E. (2019). Simultaneous alcohol and marijuana use among underage young adults in the United States. *Addictive Behaviors, 88*, 77-81. doi: 10.1016/j.addbeh.2018.08.015.

report SAM use at modal age 19/20. Among those who did not report SAM use at modal age 18, only 14.2% reported SAM use at modal age 19/20.
Conclusions: SAM use among young adults aged 19/20 in the US is relatively common, but especially so for those who began such use by age 18, highlighting the early onset and stability of this behavior. Among underage drinkers, SAM risk varies by sex, race/ethnicity, college status, and living arrangements.

Young adult longitudinal patterns of marijuana use among US national samples of 12th grade frequent marijuana users: A repeated measures latent class analysis[19]

Background and Aims: Long-term frequent marijuana use is associated with significant negative outcomes, yet little is known about the longitudinal course of marijuana use among those who start frequent use during adolescence. Objectives are (a) to identify latent patterns of within-person marijuana use from ages 19-30 among 12th graders reporting frequent marijuana use, (b) to examine if membership in identified patterns has changed across historical time, and (c) to examine if key covariates differentiate class membership.
Design: Setting and participants: Longitudinal, national US panel data from 4,423 individuals (53.4% of the eligible sample; 2,744 [62%] males) who reported frequent marijuana use in 12th grade (modal age 18 years; senior year cohorts 1976-2006) followed biennially from age 19/20 through 29/30. Measurements: Self-reported past 30-day marijuana use (frequent use defined as use on 20+ occasions), demographics, college graduation, marriage, and parenthood.
Findings: Repeated measures latent class analysis (RMLCA) identified five latent classes of past 30-day marijuana use from ages 19/20 through 29/30: Continued Frequent Users (estimated membership 23.4%); Frequent to Non-Frequent Users (15.5%); Consistent Non-Frequent Users (18.4%); Non-Frequent Users to Discontinuers (19.5%); and Discontinuers (23.2%). In multivariable models, membership in the highest-risk latent class (Continued Frequent Users) versus one or more of the lower-risk latent classes was more likely for recent cohorts ($p=0.038$ to <0.001), as well as those who did not marry ($p=0.039$ to <0.001) or become parents ($p=0.001$) by modal age 29/30.
Conclusions: Nearly one in four 12th grade (modal age 18 years) frequent marijuana users in the US continues to report high frequency use through age 30; the proportion continuing high frequency use across young adulthood has increased among more recent cohorts.

Lifetime prevalence of self-reported concussion among adolescents involved in competitive sports: A national U.S. study[20]

Purpose: Examine lifetime prevalence of diagnosed concussion in US-national samples of 8th, 10th, and 12th graders involved in 16 different competitive sports; examine associations between concussion and individual sports, controlling for demographic characteristics and multiple sports involvement.
Methods: Analysis of nationally representative Monitoring the Future data from 2 cohorts (2016-2017; n=25,408).
Results: Adolescents who participated in baseball, basketball, football, gymnastics, ice hockey, lacrosse, soccer, track, weightlifting, and 'other sports' had greater odds of reporting multiple

[19] Terry-McElrath, Y. M., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2019). Young adult longitudinal patterns of marijuana use among US national samples of 12th grade frequent marijuana users: A repeated measures latent class analysis. *Addiction*. doi: 10.1111/add.14548.
[20] Veliz, P., Eckner, J. T., Zdroik, J., & Schulenberg, J. E. (2019). Lifetime prevalence of self-reported concussion among adolescents involved in competitive sports: A national U.S. study. *Journal of Adolescent Health*. doi: 10.1016/j.jadohealth.2018.08.023.

diagnosed concussions compared with peers not participating in these sports. Adolescents who participated in tennis had lower odds of reporting any diagnosed concussion or multiple concussions. Females who participated in gymnastics, soccer, and swimming showed a stronger association in reporting a diagnosed concussion when compared with males who participated in these same types of sports.
Conclusions: The study provides needed epidemiological information on prevalence of reported diagnosed concussion among teens participating in popular school and community sports. Certain high contact (e.g., football) and high volume (e.g., basketball) sports need increased efforts to manage adolescent athletes who already have a history of concussion or repeated concussions.

OTHER DATA ON CORRELATES AND TRENDS

Drug use correlates and trends not presented in this monograph or in the papers above can be calculated using the publicly available MTF data archive at the Inter-university Consortium of Political and Social Research (ICPSR). In addition, interested users can use the online interface at the National Addiction and HIV Data Archive Program (sponsored in part by the National Institute on Drug Abuse) to produce cross-tabulations for variables of interest, also available at the ICPSR website.

These online resources allow users to calculate hundreds of correlates of drug use. For data previous to 2013, MTF published bivariate correlates without accompanying interpretation in a series of annual volumes entitled Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors. For each year between 1975 and 2012, a separate volume presents univariate and selected bivariate distributions on all questions asked of 12th graders. A host of variables dealing explicitly with drugs—many of them not covered here—are contained in that series. Bivariate tables are provided for all questions asked of high school seniors each year distributed against an index of lifetime illicit drug involvement, making it possible to examine the relationships between hundreds of potential risk factors and illicit drug use. These reference volumes are available on the MTF website and include MTF data up to 2012. They were discontinued thereafter as the online resources make it possible for interested readers to themselves calculate these statistics and any combination thereof, for 8th and 10th grade as well as for 12th grade respondents.

An annual occasional paper on subgroups[21] presents trends in both graphic and tabular form for the various subgroups of adolescents for each of the many drug classes. It covers all years for all three grades in which data have been collected. It is available on the MTF website. An additional occasional paper on subgroup trends among young adults[22] is also available on the website.

WEBSITE

Any reader wishing to obtain more information on the study, or to check for recent findings and publications, may visit the MTF website. Prior to publication in this series of annual monographs,

[21] Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). Demographic subgroup trends among adolescents in the use of various licit and illicit drugs 1975-2018 (Monitoring the Future Occasional Paper No. 92). Ann Arbor, MI: Institute for Social Research, University of Michigan.

[22] Johnston, L. D., Schulenberg, J. E., O'Malley, P. M., Bachman, J. G., Miech, R. A., Patrick, M. E. (2019). *Demographic subgroup trends among young adults in the use of various licit and illicit drugs, 1988-2018* (Monitoring the Future Occasional Paper No. 93). Ann Arbor, MI: Institute for Social Research, University of Michigan.

many recent MTF findings on substance use trends and related attitudes and beliefs are posted on the website in two forms: (1) press releases issued in mid-December of the year in which the data were collected; and (2) an *Overview of Key Findings* monograph posted at the end of the following January.

Monitoring the Future website:
http://www.monitoringthefuture.org

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