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Contacts: Jared Wadley, 734-936-7819, jwadley@umich.edu

Janice Lee, 734-647-1083, mtfinformation@umich.edu

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Use of ecstasy, heroin, synthetic marijuana, alcohol, cigarettes declined among US teens in 2015

ANN ARBOR—The results from the latest national survey in the Monitoring the Future series on use of licit and illicit drugs by American teenagers show that some important improvements are taking place.

The use of both alcohol and cigarettes reached their lowest points since the study began in 1975. Use of several particularly dangerous illicit drugs—including MDMA (ecstasy, Molly), heroin, amphetamines and synthetic marijuana—also showed a decline this year. Marijuana use, however, remained level.

Monitoring the Future tracks trends in substance use by surveying over 40,000 8th-, 10th- and 12th-grade students each year located in about 400 public and private secondary schools across the contiguous 48 states. Now in its 41st year, MTF is conducted by a team of research professors at the University of Michigan and is sponsored by the National Institute on Drug Abuse.

ALCOHOL

Alcohol use by the nation's teens continued its long-term decline in 2015. The three grades combined (8, 10 and 12) showed a further decline in the proportion of students reporting any alcohol use in the 12 months preceding the survey (annual prevalence) and also in the 30 days preceding the survey (30-day prevalence).

In 2015, these rates are at 40 percent and 22 percent, respectively—the lowest levels seen since the study began. Although the one-year decline in these two measures did not reach statistical significance, their longer-term declines were highly significant. Further, binge drinking (having five or more drinks in a row on one or more occasions in the prior two weeks) did decline significantly in 2015. Binge drinking is now reported by 5 percent of 8th-graders, 11 percent of 10th-graders and 17 percent of 12th-graders.

"The recent peak rate in annual prevalence of alcohol use was in 1997, at 61 percent for the three grades combined. Since then, there has been a fairly steady downward march in alcohol use among adolescents," said Professor Lloyd Johnston, the study's principal investigator. "The rate has fallen by about a third, to 40 percent. More importantly, the percentage who report binge drinking has fallen by half, from 22 percent to 11 percent."

Some 12th-graders drink even more heavily than five or more drinks in a row, reporting 10 or more, or 15 or more, drinks in a row on at least one occasion in the prior two weeks—dangerously high levels of consumption that the investigators have labeled "extreme binge drinking."

Since 2005 (the first year that they were measured), these rates have declined, from 10.6 percent in 2005 to 6.1 percent in 2015 reporting having had 10 or more drinks in a row in the prior two weeks, and from 5.7 percent to 3.5 percent for having had 15 or more drinks in a row.

Peer disapproval of binge drinking had been rising since 2000 among teens, though it did not rise further in 2015. Declines in availability may be another contributing factor to the declines in teen drinking.

"In recent years, there has been a fair decline in all three grades in the proportion saying that alcohol is easy for them to get, with the steepest decline among the youngest teens," Johnston said. "This suggests that state, community and parental efforts have been successful in reducing underage access to alcohol."

Johnston points out, however, that the majority of students in all three grades still report that they can get alcohol if they want some.

CIGARETTES

Cigarette use by teens also reached an all-time low for the study in 2015. For more information on that finding, see <http://bit.ly/1TXvK3E>.

ILLCIT DRUGS

Several illicit drugs showed declines in use this year. There were declines in students' use of MDMA (ecstasy, Molly), heroin, synthetic marijuana ("K-2," "Spice") and amphetamines. The investigators say there were no statistically significant increases for any of the more than 50 classes and subclasses of drugs that MTF tracks among 8th-, 10th- and 12th-grade students.

MDMA (known as ecstasy and, more recently, as Molly) has been falling in use since about 2010. The advent of the term "Molly," referring to a strong form of ecstasy, led to its inclusion as an example in the question on ecstasy (MDMA) use in the 2014 and 2015 surveys. This resulted in a somewhat higher reported prevalence (in 2014, for example, 5.0 percent of 12th-graders reported MDMA use in the prior 12 months when

Molly was included as an example vs. 3.6 percent who indicated use when Molly was not included).

Nevertheless, the use of MDMA as measured by the new question continued to show significant declines in 2015 among 10th- and 12th-graders, even with Molly included. Inclusion of Molly in the question about perceived risk to the user produced a considerable jump in the proportions of 8th- and 10th-graders saying MDMA use is dangerous to the user. Reported availability of ecstasy (MDMA), specifically, has been declining since the peak year of use in 2001, but there was little further decline in 2015.

Heroin, one of the most dangerous illicit drugs, is of particular importance. The proportion of secondary school students using heroin has been falling gradually in the past few years, and it continued to fall some in all three grades in 2015.

Among 8th-graders, the proportion reporting any heroin use in the prior 12 months fell significantly from 0.5 percent to 0.3 percent; and their annual prevalence is down by two-thirds since 2008, when it was 0.9 percent. In both 10th and 12th grades, annual prevalence fell in 2015 by one-tenth of one percent to 0.5 percent (not a statistically significant change, but the decline for the three grades combined was significant). Both of these upper grades did have an annual prevalence above 1.0 percent at the beginning of the 2000s, so their rates of heroin use have now fallen by more than half.

The improvements this year were almost entirely in taking heroin using a needle—the most dangerous form of use. There was little change in the prevalence of taking heroin without using a needle.

This decline in heroin use was not accompanied by an increase in the use of other narcotic drugs. Past year use of **narcotic drugs other than heroin** (reported only for grade 12) did not show any increase as heroin declined. In fact, annual prevalence fell from 6.1 percent to 5.4 percent in 2015 (not a statistically significant change). Use of this class of drugs actually has been in decline since 2009, when annual prevalence reached 9.2 percent.

"So, among secondary school students, at least, it appears that the use of heroin and of other narcotics both have been declining in parallel for the past five or six years, with no evidence of any overall displacement from use of one to use of the other," Johnston said. "That is not to say that individual users do not show displacement, as has been widely reported in the media."

In addition, evidence of a spike in heroin use in recent years, covered in many recent media reports, seems to be driven mainly by people of older ages and not adolescents.[1]

Synthetic marijuana ("K-2," "Spice") has synthetic chemical components of marijuana, or cannabinoids, sprayed onto shredded plant material, which is then smoked. It has

been sold over the counter in many states—particularly in gas stations, convenience stores and head shops. It is often imported from overseas and can be very potent and unpredictable both in its chemical content and in its effects, resulting in a number of emergency room admissions.

"Efforts at the federal and state levels to close down the sale of these substances appear to be having an effect," Johnston said.

Use fell by a statistically significant amount in 2015 for the three grades combined. The proportions saying they used any synthetic marijuana in the past 12 months now stand at 3 percent, 4 percent and 5 percent in grades 8, 10 and 12, respectively—down considerably from the 4 percent, 9 percent and 11 percent observed in those same grades in 2012.

"While there has been some increase in the proportion of students seeing use of this drug as dangerous, it hardly seems enough to account for the considerable declines in use, which leads us to conclude that efforts to reduce availability have been successful to some degree," Johnston said.

Amphetamine use showed some decline in 2015. The decrease in annual prevalence for the three grades combined from 6.6 percent to 6.2 percent did not reach statistical significance. But the decline in past 30-day prevalence from 3.2 percent to 2.7 percent did, suggesting that the decline is fairly recent. Reported availability of amphetamines has been in decline in all three grades for some years.

Prescription drug misuse is measured with an index that includes use of narcotics, sedatives, tranquilizers and/or amphetamines without medical supervision (only 12th-graders report on their use of all of these drugs). Prescription drug misuse has been of considerable public health concern in recent years because most of these drugs showed a substantial increase in use in the 1990s, which then continued into the first decade of the 2000s when many of the illegal drugs had already started to decline. But misuse of any prescription drug among 12th-graders has shown a gradual decline since 2005, when annual prevalence was 17 percent, including a nonsignificant further decline in 2015 from 14 percent to 13 percent.

Other Drugs. Among the many other drugs covered in the study, none showed significant increases or decreases in use this year. A number already have shown appreciable declines in use in the past, such as "bath salts," LSD, other hallucinogens, salvia, crack, methamphetamine and inhalants.

Also relatively unchanged were the proportions of students saying that they used **any illicit drug** in the past 12 months (15 percent, 28 percent and 39 percent in grades 8, 10 and 12 in 2015), or **any illicit drug other than marijuana** (6 percent, 11 percent and 15 percent in 2015).

Marijuana, the most widely used of the illicit drugs, did not show any significant change in annual prevalence this year in any of the three grades, nor in the three grades combined. After rising for several years, the annual prevalence of marijuana has more or less leveled out since about 2010.

This year, 12 percent of 8th-graders, 25 percent of 10th-graders and 35 percent of 12th-graders reported using marijuana at least once in the prior 12 months. Of more importance, perhaps, is their daily or near-daily marijuana use (defined as smoking marijuana on 20 or more occasions in the past 30 days). These rates stand at 1.1 percent, 3.0 percent and 6.0 percent in 8th, 10th and 12th grades, respectively.

In other words, one in every 16 or 17 high school seniors is smoking marijuana daily or near daily. These rates have changed rather little since 2010, but are from three-to-six times higher than they were at their low point in 1991.

"The proportion of our young people smoking marijuana this frequently remains a matter of concern," Johnston said.[2],[3]

He notes that the percent of students who see regular marijuana use as carrying a great risk of harm has declined substantially since about 2005, and is still declining. Over the past 10 years, the percent seeing a great risk in regular marijuana use has fallen among 8th-graders from 74 percent to 58 percent, among 10th-graders from 66 percent to 43 percent and among 12th-graders from 58 percent to 32 percent.

"Perceived risk is usually a deterrent to use and it is clear that this deterrent has weakened considerably," Johnston said. "In sum, there is a lot of good news in this year's results, but the problems of teen substance use and abuse are still far from going away.

"We see a cyclical pattern in the more than 40 years of observations we have made with this study. When things are much improved is when the country is most likely to take its eye off the issue of drug abuse, as happened in the early 1990s, and fail to deter the incoming generation of young people from using drugs, including the many new drugs that inevitably come along."

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Monitoring the Future has been funded under a series of competing, investigator-initiated research grants from the National Institute on Drug Abuse, one of

the National Institutes of Health. The lead investigators are Lloyd Johnston (principal investigator), Patrick O'Malley, Jerald Bachman, John Schulenberg and Richard Miech—all research professors at the University of Michigan's Institute for Social Research.

Surveys of nationally representative samples of American high school seniors were begun in 1975, making the class of 2015 the 41st such class surveyed. Surveys of 8th- and 10th-graders were added to the design in 1991, making the 2015 nationally representative samples the 25th such classes surveyed. The 2015 samples total 44,892 students located in 382 secondary schools. The samples are drawn separately at each grade level to be representative of students in that grade in public and private secondary schools across the coterminous United States.

The findings summarized here will be published in January in a forthcoming volume: Johnston, L. D., O'Malley, P. M., Miech, R.A., Bachman, J. G., & Schulenberg, J. E. (2016). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2015*. Ann Arbor, Mich.: Institute for Social Research, the University of Michigan. The content presented here is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Drug Abuse, or the National Institutes of Health.

[1] See Lipari, R.N. & Hughes, A. (2015). The NSDUH Report: *Trends in heroin use in the United States: 2002-2013*. The CBHSQ Report: April 23, 2015. SAMSHA, Rockville, Md. Accessed December 7, 2015 at

www.samhsa.gov/data/sites/default/files/report_1943/ShortReport-1943.html

[2] For a review of the adverse effects of marijuana according to the National Institute of Drug Abuse see: www.drugabuse.gov/publications/drugfacts/marijuana

[3] See also: Volkow, N.D., Baler, R.D., Compton, W.M., and Weiss, S.R. (2014). [Adverse health effects of marijuana use](#). *New England Journal of Medicine*, 370, 2219-2227.