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EDITORS: Results of this year's Monitoring the Future survey are being released at a news conference at the National Press Club in Washington, D.C. at 10 a.m. Eastern Time by the National Institute on Drug Abuse, which sponsors the study, and the University of Michigan, which designed and conducted the study. Participating will be the Assistant Secretary for Health, Department of Health and Human Services (DHHS), Howard Koh; the director of the White House Office of National Drug Control Policy (ONDCP), R. Gil Kerlikowske; the director of the National Institute on Drug Abuse (NIDA), Nora Volkow; and the study's principal investigator, Professor Lloyd Johnston. For further information, contact Johnston at (734) 763-5043.

The rise in teen marijuana use stalls, synthetic marijuana use levels, and use of "bath salts" is very low

ANN ARBOR--- National samples of 45,000 to 50,000 students in three grades (8, 10, and 12) have been surveyed every year since 1991 as part of the nationwide Monitoring the Future study. Among the most important findings from this year's survey of U.S. secondary school students are the following:

Marijuana. After four straight years of increasing use among teens, annual marijuana use showed no further increase in any of the three grades surveyed in 2012. The 2012 annual prevalence rates (i.e., percent using in the prior 12 months) were 11%, 28%, and 36% for 8th, 10th, and 12th graders, respectively. (Among the 8th graders there was a modest decline across the past two years—from 13.7% in 2010 to 11.4% in 2012—that reached statistical significance.)

"Whether this is more than a pause in the ongoing increase that we have seen in teen marijuana use in recent years is unclear at this point," said Lloyd Johnston, the study's principal investigator. "One important variable that has been a lead indicator of use—namely the amount of risk teenagers perceived to be associated with marijuana use—continued its sharp decline in 2012 among teens, which would suggest further increases in use in the future." Reported availability of marijuana had been falling for some years, but it leveled out about four or five years ago.

Daily use of marijuana, which had also been rising in all three grades in recent years, remained essentially flat between 2011 and 2012 at relatively high levels. The recent increases have been substantial—up by a quarter to one third compared to their recent low points reached between 2006 and 2008 for the three grades. Today one in every fifteen high school seniors (6.5%) is a daily or near-daily marijuana user. The comparable rates in 8th and 10th graders are 1.1% and 3.5%.

Synthetic Marijuana. Synthetic marijuana (sold as K-2, Spice, etc.) has been of increasing concern both because of its adverse effects and its high rates of use, first documented by this study last year. Use held level among 12th graders in 2012—the second year of measurement—at 11.3% annual prevalence. “The fact that use of this dangerous drug has leveled is encouraging, but the fact that its prevalence rate has remained this high despite federal and state efforts to reduce its use is troublesome,” Johnston said. Synthetic marijuana use was measured for the first time this year in 8th and 10th grades—their annual prevalence rates were 4.4% and 8.8%, respectively. Aside from alcohol and tobacco, this is the second most widely used drug among 10th and 12th graders after marijuana, and the third most widely used among 8th graders after marijuana and inhalants.

Synthetic marijuana is made by spraying synthetically produced cannabinoids (chemical elements found in cannabis) on herbs or other plant materials. It is usually sold over-the-counter or on the Internet. In 2011 the Drug Enforcement Administration scheduled (banned) a number of specific chemicals commonly used to make it, but chemical variations continue to appear.

Bath salts. So-called “bath salts,” so-called because they are often marketed as such, really are products containing designer drugs—synthetic cathinones, which are stimulants that have effects something like amphetamines. Questions on the use of these powerful and dangerous drugs were included in the survey for the first time in 2012. Fortunately, a relatively small proportion of teens indicate having used bath salts in the prior 12 months. The annual prevalence rates were 0.8%, 0.6%, and 1.3% for grades 8, 10, and 12, respectively. Like synthetic marijuana, these drugs are frequently sold over the counter in gas stations and head shops under a number of different names. They are reported to have a number of serious side effects, including paranoia, suicidal thoughts, violent behavior, hallucinations, and increased heart rate. Calls to poison control centers about bath salts increased dramatically after 2010. Reportedly, there were 3,500 calls in the last six months of 2011, but that number fell by half to 1,700 in the first six months of 2012 and has been falling further since (<http://www.aapcc.org/alerts/bath-salts/>), quite likely due to the DEA scheduling some of the chemicals in bath salts and also to widespread publicity about the dangers they carry.

Any Illicit Drug. The index of any illicit drug use tends to be driven by marijuana, which is by far the most prevalent of the many illicitly used drugs. Like marijuana, it showed no significant changes in 2012 for annual prevalence. In 2012 the percentages of students indicating any use of an illicit drug in the prior 12 months were 13%, 30% and 40% in grades 8, 10, and 12, respectively. The percentages indicating any use in their lifetime were 19%, 37%, and 49%. In other words, about half of America’s high school seniors have tried an illicit drug by the time they graduate and four fifths of them used it in just the past year.

Any Illicit Drug Other than Marijuana. When marijuana is removed from the list of illicit drugs, far fewer students report use of any of the other drugs included in the index. (These include hallucinogens, cocaine, crack, and heroin, as well as use of any of the psychotherapeutic drugs—amphetamines, sedatives, tranquilizers, or narcotics—taken without medical supervision.) In 2012, 6%, 11%, and 17% of the students in the three grades, respectively, reported using *any* of these other drugs. Those percentages have continued to drop gradually since around 1996 or 1997, but the declines in annual prevalence between 2011 and 2012 were not statistically significant.

Most of the individual illicit drugs showed no significant change in use between 2011 and 2012. Only ecstasy, salvia, and use of heroin without a needle showed statistically significant declines this year.

Ecstasy. The annual prevalence of Ecstasy declined significantly this year in all three grades. Over the past dozen years, the use of Ecstasy has changed quite a bit, with rates being high in the early 2000s, decreasing through the mid-2000s, and then increasing since then, so this decline between 2011 and 2012 is welcome news. The 2012 annual prevalence rates are 1.1%, 3.0%, and 3.8% in grades 8, 10, and 12—less than half the peak rates observed in 2001.

Salvia. *Salvia divinorum* is an herb in the mint family that can induce relatively short-acting hallucinogenic effects when smoked or eaten. *Salvia*, first measured in 2009, had significant declines in 10th and 12th grade this year, and a non-significant decline in 8th grade. The annual prevalence rates in 2012 for *salvia* are 1.4%, 2.5%, and 4.4% in grades 8, 10, and 12.

Heroin. Use of *heroin without a needle* declined significantly in 8th and 12th grades and remained unchanged (but at lower than recent peak levels) in 10th grade. Annual prevalence rates are very low at 0.3% in grade 8 and 0.4% in grades 10 and 12. Use of *heroin with a needle* declined (not significantly) to 0.4% annual prevalence in all three grades. Both forms of heroin use are substantially below their recent peak levels, which generally occurred in the mid- to late-1990s.

Other Narcotics. The use of narcotic drugs other than heroin (most of which are prescription analgesics) has increased sharply in recent years, as have emergency room admissions involving these drugs, making this class of drugs of particular concern. Use in 12th grade—the only grade for which use of this drug is reported—showed some decline (but not a significant one) in 2012, as was true for the two major components of that class—*Vicodin* and *OxyContin*. For the three grades *combined*, however, both *Vicodin* and *OxyContin* declined significantly in 2012, a function of the greater precision gained with the larger combined sample.

Hallucinogens. *LSD* use remained at very low levels, which have held for a decade. Annual prevalence declined slightly (nonsignificantly) in all three grades in 2012. Use of *hallucinogens other than LSD* declined in all three grades, significantly so in 8th grade.

Inhalants. Inhalant use continued its long-term gradual decline in all grades, but only the 30-day prevalence decline among 8th graders was statistically significant. Younger students are most

likely to be using inhalants: the annual prevalence of use is 6%, 4%, and 3% in grades 8, 10, and 12, respectively—a reversal of the situation for virtually all other drugs.

Adderall. One drug class that showed some sign of increasing use this year was Adderall, but only among 12th graders and not significantly. While the misuse (use outside of medical supervision) of Adderall may still be rising at grade 12, use is down from peak levels in grades 8 and 10 where it held steady this year.

Tranquilizers. In 2012 there was some decline in all measures of tranquilizer use at all three grade levels, though none of them reached statistical significance. Nevertheless all three grades reached their lowest level of annual prevalence in some years in 2012. *Perceived availability* of tranquilizers continues a gradual decline that has been very substantial over the life of the study.

Sedatives (barbiturates). Sedative use (reported only for 12th graders) grew steadily from 1992 through 2005, reaching a peak level of 7.2%. From 2005 through 2011, there was a steady decline that halted in 2012. Annual prevalence in 2012 among 12th graders is 4.5%, down some 37% from the recent peak in 2005. As with tranquilizers, *perceived availability* of sedatives has shown an appreciable and continuing long-term decline.

Use of Any Prescription Drug without Medical Supervision. The proportion of 12th graders indicating that they have used any prescription drug outside of medical supervision has remained relatively stable since 2008. (This is based on their answers to questions about use without a doctor's orders of amphetamines, tranquilizers, sedatives, and narcotics.) In 2012, 21.2% indicated use without a doctor's orders of at least one prescription drug in their lifetime, while 14.8% indicated such use in the past year. (In 2008 these rates were 21.5% and 15.4%, respectively.)

The sources of such prescription drugs remain primarily informal networks of friends and, to a lesser extent, relatives. In the years 2009–2012 combined, among past-year users of **amphetamines** the most prevalent sources were “given by a friend” (55%), “bought from a friend” (44%), and “bought from a drug dealer or stranger” (20%). Among past-year users of **tranquilizers**, the same three sources topped the list at 56%, 42%, and 25%, respectively. Among past-year users of **narcotics other than heroin**, these three sources were endorsed by 52%, 34%, and 17%, respectively—however, the response “from a prescription I had” ranked second at 36%. It thus appears that for narcotics other than heroin, having leftover pills from an earlier prescription is a significant source for non-medically-supervised use. (See Table 5.)

Other Drugs Holding Steady. The use of a number of other drugs held steady this year. These include **cocaine powder, crack, methamphetamine, crystal methamphetamine, Rohypnol, GHB, Ketamine, steroids**, and **over-the-counter cough and cold medicines taken to get high**.

Alcohol. Use of alcohol declined on all measures in 2011, bringing rates down to historic lows during the life of the study. For 8th graders, these significant declines continued into 2012 for 30-day prevalence of drinking and 2-week prevalence of having five or more drinks in a row (binge drinking). For 10th and 12th graders, however, the declines in alcohol use halted in 2012. In fact there is some evidence to suggest a turn-around. In particular, binge drinking among 12th

graders increased significantly in 2012 by 2.0 percentage points to 24%. In other words, about a quarter of the seniors reported that they engaged in binge drinking in just the two weeks prior to taking the survey.

“This possible turnaround in alcohol consumption among the older teens is somewhat unexpected,” stated Johnston, “and certainly not a welcome development.” There was no decline in perceived risk or disapproval of binge drinking, nor any increase in perceived availability of alcohol, that might have helped to explain the change in use. (Availability of alcohol to 8th graders did continue its sharp decline this year.)

“Despite the modest increases in alcohol use this year among the older teens, it still is important to put them into perspective,” notes Johnston. “The percent of 8th, 10th and 12th graders who report binge drinking in the prior two weeks is 5%, 16%, and 24% in 2012; however, these rates, reflect proportional declines of 62%, 36%, and 25%, respectively, since the peak years of use in the mid-1990s.”

Tobacco. This year’s findings on cigarette use and the use of other tobacco products are presented in a separate, companion press release to this one.

http://www.monitoringthefuture.org/pressreleases/12cigpr_complete.pdf.

Summary. The overall story this year is that the use of most illicit drugs among the nation's teenagers are either holding steady from last year or showing some modest declines. In particular, marijuana use has stopped trending upward and synthetic marijuana did not show a rise this year, although it remains at high levels and is *not* declining despite DEA attempts to schedule many of the most common ingredients of synthetic marijuana. Another exception to this generally positive story is the appearance of a turnaround in alcohol use among the older teens.

“The nation’s teenage drug problems are far from disappearing,” concluded Johnston. “We continue to see a number of new drugs coming onto the scene, like synthetic marijuana and ‘bath salts.’ Synthetic drugs like these are particularly dangerous, because they have unknown, untested, and ever-changing ingredients that can be unusually powerful, leading to severe consequences. Users really don’t know what they are getting and, as the thousands of calls to the nation’s poison control centers relating to these drugs indicate, they may be in for a very unpleasant surprise.”

One important question for the future will be whether the continuing decline in the risk teens associate with marijuana use will lead to increases in their use in the future, as generally has occurred in previous historical periods. Another is what will be the impact on teen attitudes and beliefs nationally of legalizing the use of marijuana in states like Colorado and Washington.

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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, in addition to Lloyd Johnston, are Patrick O’Malley, Jerald Bachman, and John Schulenberg—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 2012 the 38th such class surveyed. Surveys of 8th and 10th graders were added to the design in 1991, making the 2012 nationally representative samples the 22nd such classes surveyed. The 2012 samples total 45,449 students located in 395 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., Bachman, J. G., & Schulenberg, J. E. (2013). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2012*. Ann Arbor, MI: 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.