

Research News

First-Year College Students Show High Rate of Cannabis Use Disorders

In the first study to measure the prevalence of cannabis use disorders (CUD) among young adults attending college, researchers funded by NIDA found that in a group of students who had used cannabis 5 or more times in the past year, 1 in 10 met the clinical *Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV* definition for cannabis dependence, and 14.5 percent met the definition for cannabis abuse. The researchers screened 3,401 first-year college students and recruited 1,253 to participate in the study. Interviewers asked all participants about their use of 10 illicit substances. Students who had used cannabis 5 or more times in the past year (474 participants) were considered at risk for CUD and were asked to answer questions about problems they may have encountered in the past year because of their cannabis use. Of these students, 24.3 percent regularly put themselves in physical danger when under the influence, and 10.6 percent continued to use despite problems with family or friends. In addition, 40.1 percent reported concentration problems, and 13.9 percent reported missing class. In addition to the students who met the criteria for CUD, 12.6 percent met only one or two of the *DSM-IV* criteria for dependence (but not abuse) and were classified as diagnostic orphans, "suggesting that some cannabis-using college students might be at risk for cannabis-related problems even if they do not appear to be heavy users," explain the authors. "The prevalence of CUD and other cannabis-related problems are not trivial, and if replicated, these findings highlight the need for improved screening and early intervention for drug-related problems among first-year college students," they conclude.

Caldeira KM, Arria AM, O'Grady KE, Vincent KB, Wish ED. The occurrence of cannabis use disorders and other cannabis-related problems among first-year college students. *Addict Behav.* 2008;33(3):397-411.

Factors Associated With Detectable HIV Viral Load in a Vulnerable Population

Many factors that contribute to lower access to and utilization of medical care also correlate with HIV transmission and compromise treatment outcomes in affected individuals. In a study evaluating factors associated with a detectable HIV viral load (an undetectable viral load is associated with longer survival), researchers funded by NIDA found that men who were homeless or reported recently using drugs, particularly methamphetamines, were more than twice as likely to have a detectable viral load compared with those who were not homeless or did not report recent drug use. However, when participants utilized HIV health care services and took their HIV medications, these associations weakened. "This finding is similar to reports...showing a high penetration of antiretroviral medical care among the homeless and is also consistent with findings that persons who reported access to HIV specialists and adherence to antiretroviral medications were more likely to have better biological outcomes," explain the authors. The researchers recruited 193 HIV-positive men into their study using Respondent-Driven Sampling, a method that encourages the core group of participants to recruit additional participants from their social and sexual networks. All participants provided information about demographics, medical care access and utilization, sexual practices, sexual partnerships, HIV-related risk behaviors, friendships, and social networks; blood samples were collected for the measurement of viral load. "Isolating independent contributions of methamphetamine use and homelessness on HIV disease progression in HIV-infected groups with significant economic and healthcare disparities is an important future research direction," state the authors.

King WD, Larkins S, Hucks-Ortiz C, Wang PC, Gorbach PM, Veniegas R, Shoptaw S. Factors associated with HIV viral load in a respondent driven sample in Los Angeles. *AIDS Behav.* 2007 Dec 7;[Epub ahead of print].

Adolescents Who Work for Pay More Likely to Use Tobacco

A recent study of over 500 students, followed from first grade through high school, showed that adolescents who worked more than 10 hours a week were 3 times more likely to use tobacco than adolescents who did not work. Moderate work (less than 10 hours a week) did not have the same association. Researchers funded in part by NIDA studied data obtained from children who were enrolled in a program aimed at improving shy and aggressive behavior in the first grade and followed for at least 10 years. Starting in the 6 year of followup, participants were asked about their experiences with tobacco; and starting in the 10th year of followup, they were asked about the average time they spent working for pay during the school year. Of 799 adolescents who began participation in first grade, 570 participated in followup interviews at year 10, and 515 participated at year 11. At year 10, 26 percent of participants worked for pay; this number increased to 40 percent by year 11. Tobacco use also increased among study participants from 13 percent at year 10 to 17 percent at year 11. Further analysis showed that adolescents who worked more than 10 hours a week at year 10 were more likely to report current use of tobacco and to begin smoking at an average age of 13, compared to age 14 for adolescents who did not work and age 15 for moderate workers. While researchers could not absolutely determine whether adolescents who were more likely to use tobacco (based on early childhood characteristics associated with adolescent tobacco use) were also more likely to work at year 10 of followup or whether they were influenced to smoke by drug-using peers, including coworkers, "this research highlights the need for more careful and systematic evaluation of the impact that working for pay has on the substance-using behaviors of adolescents," conclude the authors.

Ramchand R, Ialongo NS, Chilcoat HD. The effect of working for pay on adolescent tobacco use. *Am J Public Health*. 2007;97(11):2056-2062.

MDMA Use Does Not Appear to Cause Depression in Most People

The 2007 National Survey on Drug Use and Health found that 2.1 million Americans age 12 and older had abused methylenedioxymethamphetamine (MDMA, "ecstasy"), a drug that has both stimulant and psychedelic properties, at least once in the year prior to the survey. Research into whether people who use MDMA experience depression has produced conflicting results. Now, the first longitudinal study to use a standardized method of measuring depression in a large sample of MDMA users has found that "for most people MDMA...use is not associated with clinically meaningful depressive symptomatology in the long term," state the study's authors, who were funded in part by NIDA. The researchers enrolled 402 people between the ages of 18 and 30 (258 men and 144 women) who had used MDMA at least once in the past 6 months. The participants completed a baseline interview and returned for followup interviews every 6 months; 292 participants completed the followup interview at 2 years after the baseline. Depression was measured with the Beck Depression Inventory-II (BDI-II); higher scores indicated more severe depressive symptoms. Overall, BDI-II scores were low for MDMA users and decreased, on average, after 2 years of followup. Participants who had used MDMA more than 50 times had significantly higher scores than those who had used the drug less often. It remains unclear whether the depressive symptoms observed, regardless of level or severity, are related to MDMA use or whether the concurrent use of other drugs or interactions between those drugs and MDMA play a role, and what relationships exist between lifetime history of depression and the likelihood of MDMA use, explain the authors. "Additional research using more sensitive instrumentation would perhaps shed more light on this critically important issue," they conclude.

Falck RS, Wang J, Carlson RG. Depressive symptomatology in young adults with a history of MDMA use: A longitudinal analysis. *J Psychopharmacol*. 2008;22(1):47-54.

Starting Middle School in Sixth Grade Increases Behavior Problems

Recently, there has been a large shift away from junior high schools, comprising grades 7-8 or 7-9, and toward the creation of middle schools, which start at younger ages (grades 5-8 or 6-8) and will have included three-quarters of all sixth-grade students by the year 2000. A new study now suggests that "placing sixth grade in middle school increases behavior problems and reduces academic performance, both in sixth grade and subsequently," explain the authors, who were funded in part by NIDA. The researchers used an administrative database containing disciplinary infractions records for all public schools and students in North Carolina during the 2000-2001 school year. They found that "both the incidence and prevalence rate for every type of infraction were considerably higher for sixth-graders in middle school than for elementary school students." These infractions consisted of violence, drug infractions, weapons possession, truancy, rowdy behavior, property damage, sexual misbehavior, and minor behavioral events. Overall, the odds of having at least

more...

1 behavioral infraction in sixth grade increased 2.2 times for those students in middle school, and the odds of having a drug-related infraction increased 3.8 times. Higher infraction rates for sixth-graders placed in middle school persisted as far as the ninth grade. Many factors could account for the increase in behavioral problems, including different features of the elementary and middle school environments (such as the degree of freedom experienced by the students) and the potential influence of older peers. The sixth-graders who attended middle school also experienced a drop in math and reading scores on end-of-grade tests. "Together these findings cast serious doubt on the wisdom of the historic nationwide shift to the middle school format," conclude the authors.

Cook PJ, MacCoun R, Muschkin C, Vigdor J. The negative impacts of starting middle school in sixth grade. *J Policy Anal Manage*. 2008;27(1):104-121.

Ovarian Hormones May Play a Role in Smoking Cessation for Women

In the first randomized study to test the impact of the menstrual cycle on smoking cessation success, researchers found that women who attempted to quit smoking during the follicular phase of their menstrual cycle (which ends with ovulation) were more likely to relapse than women who attempted to quit smoking during the luteal phase (the latter part of the cycle). Researchers funded by NIDA recruited 294 women between the ages of 18 and 40 who smoked more than 10 cigarettes a day, had regular periods, and were motivated to quit smoking. Ninety-two dropped out of the study before quitting; of the remaining participants, 106 were randomly assigned to quit during the follicular phase, and 96 to quit during the luteal phase—quit days were assigned to ensure that the peak symptoms of withdrawal would also fall within the assigned quit phase. Participating women tracked their menstrual cycle phase using home urine testing kits. For 26 weeks following their assigned quit dates, all participants were required to keep daily menstrual cycle calendars, smoking diaries, and records of withdrawal symptoms, premenstrual symptoms, and smoking urges. Women who quit during the luteal phase of their menstrual cycle achieved significantly more days of abstinence before relapse, defined as seven slips in 7 days, than women who quit during the follicular phase. However, overall success at quitting was low: 23 percent of women in the luteal quit group never relapsed, compared to only 9 percent in the follicular group. While the precise reasons for the difference in relapse rates between the groups is unclear, the authors suggest that hormone differences linked to the different menstrual phases could affect the severity of nicotine withdrawal symptoms felt by the quitters. "More research is needed to understand the biological mechanisms underlying these observed phase-related differences. Our findings add to existing literature that supports an important role for ovarian hormones in nicotine addiction and smoking cessation," they conclude.

Allen SS, Bade T, Center B, Finstad D, Hatsukami D. Menstrual phase effects on smoking relapse. *Addiction*. 2008;103(5):809-821.

Researchers Estimate Number of Injection Drug Users in the United States, 1992-2002

The stigma of injection drug use (IDU) makes calculating the number of injection drug users in a given place and time difficult; increasing the difficulty is users' reluctance to report illicit activity. A group of investigators funded by NIDA have now created national IDU prevalence estimates for the United States for 1992 to 2002. The investigators used existing estimates of the number of IDUs in the Nation in 1992 and 1998, then adjusted these estimates using information from databases containing records of injectors' encounters in the United States with health services and with the criminal justice system during these years. These national IDU prevalence estimates were then apportioned to 96 large metropolitan statistical areas (MSAs) using an estimate derived from published estimates of IDUs in each area in 1992 and in 1998, as well as data on IDUs' AIDS diagnoses and related service use (such as the use of HIV counseling and testing, and drug treatment services). The new estimates revealed that the number of IDUs per 100,000 persons varied across metropolitan areas from 30 to 348 in 1992, and from 37 to 336 in 2002. While the researchers found substantial variation in IDU prevalence across the 96 MSAs, overall, "the results...show a decreasing average trend across the 96 [metropolitan areas] until 2000, after which there was a slight increase," state the authors. Using reapportioned prevalence estimates such as these may be used to better predict overall and local trends in IDU prevalence, which will help public health researchers and policymakers develop new strategies to reduce IDU incidence and provide better services to at-risk populations.

Brady JE, Friedman SR, Cooper HL, Flom PL, Tempalski B, Gostnell K. Estimating the prevalence of injection drug users in the U.S. and in large U.S. metropolitan areas from 1992 to 2002. *J Urban Health*. 2008;85(3):323-351.

Notes

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- **Congressional staffers**, call **Geoffrey Laredo** at 301-594-6852.

The National Institute on Drug Abuse (NIDA) is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. The Institute carries out a large variety of programs to ensure the rapid dissemination of research information and its implementation in policy and practice. Fact sheets on the health effects of drugs of abuse and other topics are available in English and Spanish. These fact sheets and further information on NIDA research and other activities can be found on the NIDA home page at <http://www.drugabuse.gov>. To order publications in English or Spanish, call NIDA's new *DrugPubs* Research Dissemination center at 1-877-NIDA-NIH (1-877-643-2644) or 240-645-0228 (TDD), or fax or e-mail requests to 240-645-0227 or drugpubs@nida.nih.gov.

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