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MTF Survey Finds Overall Decline in Teen Substance Abuse

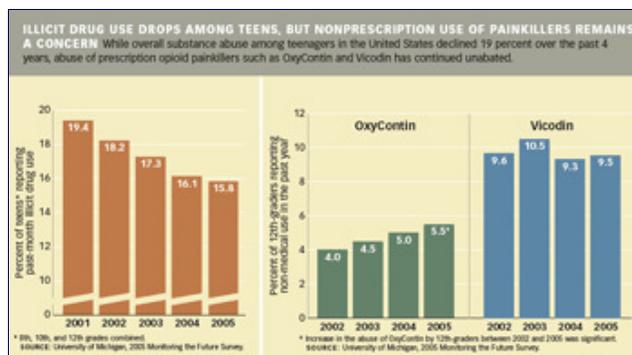
Tearoff
Vol. 20, No. 5 (April 2006)

Substance abuse among teenagers in the United States declined 19 percent over the past 4 years, with 15.8 percent reporting past-month abuse in 2005, compared with 19.4 percent in 2001, according to the latest Monitoring the Future Survey. The nationwide survey of 8th-, 10th-, and 12th-graders found that the overall decline was tempered by increases or unchanged rates of abuse of some prescription drugs, inhalants, and other substances.

The 4-year decline has been driven largely by decreasing rates of marijuana abuse. For example, since 2001, past-month abuse of marijuana fell by 28 percent among 8th-graders and by 23 percent among 10th-graders. Although most year-to-year changes in the annual survey are not statistically significant, teen abuse of five substances—GHB, LSD, MDMA/Ecstasy, methamphetamine, and steroids—showed significant declines from 2004 to 2005.

The survey findings are encouraging because teenagers are most vulnerable to the effects of drugs and youths who abstain in their teen years are less likely to abuse drugs later in life, NIDA Director Nora D. Volkow, M.D., says. She notes, however, that teens' abuse of prescription medications and inhalants has continued unabated in the past few years. NIDA is particularly concerned about the nonprescribed use of opioid painkillers, such as OxyContin and Vicodin. In 2005, 9.5 percent of 12th-graders reported abusing Vicodin in the past year, and 5.5 percent reported OxyContin abuse, which has increased more than one-third since 2002. "Using these drugs without a prescription is dangerous. It's imperative that teens get this message," Dr. Volkow stresses.

Abuse of inhalants, which are found in common household substances such as nail polish remover, glue, and cleaning fluids and are very toxic, also has been rising in recent years. Abuse among eighth-grade students has increased significantly since 2002, Dr. Volkow says.



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SMOKING DECLINE MAY BE TAPERING OFF

Dr. Lloyd Johnston of the University of Michigan, the principal investigator of the study, notes a worrisome signal that the decline in smoking may be tapering off: The smoking rate among eighth-graders held steady in the latest survey, following a long-term decline over the past several years. Eighth-graders are considered an important bellwether of drug-related trends among teenagers. Moreover, smoking declines in the upper grades also slowed in 2005. Survey data do not indicate long-term declines in the abuse of marijuana and other illicit drugs among 8th-graders, and declines among 10th- and 12th-grade students were very modest, Dr. Johnston notes.

On the positive side, cigarette smoking is at its lowest rate in the 30-year history of

the survey. Also, the proportion of eighth-graders reporting that they have ever tried to smoke cigarettes declined in the latest survey, which could reflect shifts in behaviors and intentions that occurred several years earlier.

The survey covered about 50,000 students in more than 400 public and private schools. The University of Michigan conducted the survey under a grant from NIDA, the National Institutes of Health, and the Department of Health and Human Services. Further details on the survey are available at www.drugabuse.gov/DrugPages/MTF.html and at monitoringthefuture.org.

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Research Findings
Vol. 21, No. 1 (October 2006)

Marijuana Smoking Is Associated With a Spectrum Of Respiratory Disorders

Two NIDA-funded studies identify health risks that underscore the importance of curbing marijuana abuse.

BY PATRICK ZICKLER, *NIDA Notes* Contributing Writer

A large new epidemiological study suggests that marijuana smoke can cause the same types of respiratory damage as tobacco smoke. Significant associations between marijuana smoking and a variety of respiratory diseases also have been confirmed by an extensive review of clinical literature.

MONITORING THE EFFECTS OF TOBACCO AND MARIJUANA

Dr. Brent Moore and colleagues at Yale University, the National Cancer Institute, and the University of Vermont evaluated data from a nationally representative sample of 6,728 adults. Their analysis indicated that a history of more than 100 lifetime episodes of smoking marijuana, with at least one episode in the past month, increased an individual's risk of chronic bronchitis, coughing on most days, wheezing, chest sounds without a cold, and increased phlegm.

"The most significant difference between tobacco smoke and marijuana smoke is their principal active ingredients—nicotine in tobacco and delta-9-tetrahydrocannabinol (THC) in marijuana. Beyond that, marijuana contains at least as much tar and half again as many carcinogens as smoke from conventional tobacco," says Dr. Moore. "Quitting marijuana smoking may benefit respiratory health as much as quitting cigarettes, in addition to the clear and considerable health, psychological, and social benefits of no longer abusing an illicit drug."

The information Dr. Moore and his colleagues analyzed was gathered through the third National Health and Nutrition Examination Survey (NHANES III), conducted between 1988 and 1994. Participants included 4,789 nonsmokers of either tobacco or marijuana; 1,525 smokers of tobacco but not marijuana; 320 smokers of both marijuana and tobacco; and 94 who smoked marijuana only. On average, marijuana abusers had smoked the drug on 10 of the preceding 30 days, with 16 percent reporting daily or almost daily smoking. Tobacco smokers consumed roughly the same number of cigarettes—averaging 19.2 per day—whether or not they also smoked marijuana. Survey participants answered questions about their experiences of a range of respiratory symptoms and were examined for signs of respiratory abnormalities.

The researchers concluded that tobacco smokers who also smoked marijuana had a higher prevalence of most respiratory symptoms than tobacco-only

RESEARCHERS CITE PUBLIC HEALTH IMPACT More than 2 million adult Americans are heavy marijuana smokers, and increased efforts to prevent marijuana use may have

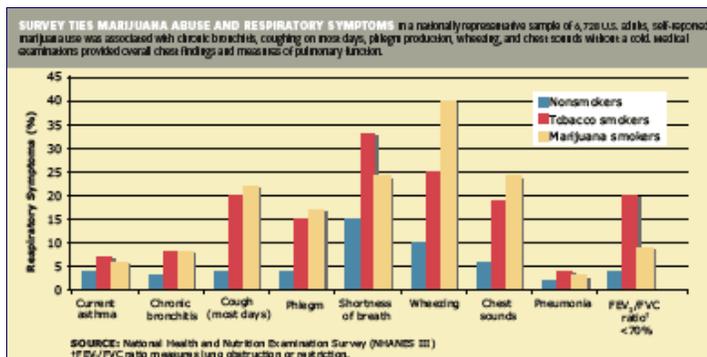
smokers. Compared with tobacco-only smokers, however, those who also smoked marijuana were less likely to have had pneumonia during the previous year or to show spirometric evidence of obstructive pulmonary disorder. Commenting on this finding, Dr. Moore says that it is important to note that the marijuana smokers in the sample were significantly younger (average age 31.2 years) than the tobacco smokers (average age 41.5 years). "The marijuana-related respiratory effects correspond to a relatively young population, and NHANES III did not ask participants older than age 59 about drug use," he adds. "It is likely that respiratory effects will be higher in older marijuana smokers, and, because of the high prevalence of tobacco use among marijuana smokers, there appears to be an increased risk for illness due to cumulative effects of smoking both drugs."

significant public health benefits.



MARIJUANA'S LONG-TERM PULMONARY EFFECTS

Further evidence of marijuana's respiratory toxicity emerged from a study conducted by Dr. Donald Tashkin at the University of California, Los



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Angeles. Dr. Tashkin conducted an extensive review of clinical and epidemiological research to determine the extent to which chronic marijuana smoking might lead to long-term pulmonary effects and diseases similar to those caused by tobacco. Unlike the NHANES III data examined by Dr. Moore, the studies evaluated by Dr. Tashkin made it possible to assess a possible association between marijuana smoking and respiratory cancers.

The results of animal and cell culture studies are mixed with respect to the carcinogenic effects of THC, some studies showing that THC promotes lung cancer growth and others showing an anti-tumoral effect on a variety of malignancies. Although the results of epidemiological studies are also mixed, a large, recently completed case-control study has failed to find a direct link between marijuana use (including heavy use) and lung, throat, or other head and neck cancers. "Nevertheless, there is evidence that suggests precarcinogenic effects in respiratory tissue," Dr. Tashkin says. "Biopsies of bronchial tissue provide evidence that regular marijuana smoking injures airway epithelial cells, leading to dysregulation of bronchial epithelial cell growth and eventually to possible malignant changes." Moreover, he adds, because marijuana smokers typically hold their breath four times as long as tobacco smokers after inhaling, marijuana smoking deposits significantly more tar and known carcinogens within the tar, such as polycyclic aromatic hydrocarbons, in the airways. In addition to precancerous changes, Dr. Tashkin found that marijuana smoking is associated with a range of damaging pulmonary effects, including inhibition of the tumor-killing and bactericidal activity of alveolar

macrophages, the primary immune cells within the lung.

Taken together, Dr. Tashkin's survey of clinical and epidemiological studies and Dr. Moore's assessment of self-reported and clinically observed effects provide an extensive catalog of respiratory and pulmonary damage associated with marijuana smoking. Smokers are subject to:

- Coughing and phlegm production on most days;
- Wheezing and other chest sounds;
- Acute and chronic bronchitis;
- Injury to airway tissue, including edema (swelling), increased vascularity, and increased mucus secretion; and
- Impaired function of immune system components (alveolar macrophages) in the lungs.

SOURCE

Moore, B.A., et al. Respiratory effects of marijuana and tobacco use in a U.S. sample. *Journal of General Internal Medicine* 20(1):33-37, 2005. [[Full Text](#)]

Tashkin, D.P. Smoked marijuana as a cause of lung injury. *Monaldi Archives for Chest Disease* 63(2):93-100, 2005. [[Abstract](#)]

Hashibe, M., et al. Marijuana use and aerodigestive tract cancers: a population-based case control study. *Cancer Epidemiology, Biomarkers & Prevention* (In Press).

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