NIDA
NATIONAL INSTITUTE
ON DRUG ABUSE

January 2001

NewsScan

NIDA ADDICTION RESEARCH NEWS

For more information, contact Michelle Muth at 301-443-6245.

RESEARCH NEWS

Teen Marijuana Use Can Lead to Anxiety, Depression, or Aggression

Mount Sinai School of Medicine researchers have found that adolescents who smoke marijuana exhibit a variety of behavior problems, including anxiety, depression, or aggression, throughout their teen years and into adulthood.

The researchers studied 2,226 Colombian teens between the ages of 12 and 17. The youth were first surveyed in 1995-1996 and again in 1997-1998. Trained interviewers talked to adolescents in their homes in three Colombian cities, obtaining information about frequency of marijuana use and measures of psychological distress. Marijuana use was categorized as either regular use (one or more times a month) or less than regular use.

The first analysis of interview data examined the influence of early adolescent distress and aggression on regular marijuana use in late adolescence. The second analysis looked at the detrimental effect of early marijuana use on psychological distress and aggression in older teens.

Psychological stress and aggression during early adolescence first appeared to predict regular marijuana use during late adolescence. But when marijuana use in early adolescence was factored in, the results changed. Anxiety, symptoms of depression, and aggression all lost significance as predictors of late adolescent marijuana use, while marijuana use in early adolescence significantly predicted increases in measures of distress and aggression in late adolescence. The study indicated also that marijuana use was related to decreased functioning over time.

- WHAT IT MEANS: These findings imply early drug use can be a factor in the development of later psychiatric disorders and problem behaviors.

The study, led by Dr. Judith S. Brook, appears in the January 2001 issue of the *New York State Psychologist.*

New Treatment Approach for Marijuana Dependence

Researchers at the University of Vermont have found that combining the use of vouchers with other behavioral therapies improves treatment outcome for heavy marijuana users.

The investigators recruited 60 long-time, heavy users of marijuana and randomly assigned them to one of three treatment methods: motivational enhancement (M), M plus behavioral coping skills therapy (MBT), or MBT plus voucher-based incentives (MBTV).

The MBTV group consistently exceeded the other two groups in documented continuous marijuana abstinence. At the end of the 14-week treatment period, 35 percent of the voucher group had stopped using marijuana; 10 percent of the MBT group and 5 percent of the M group had stopped.

Individuals in the study were at least 18 years old and had used marijuana within the preceding month. The majority of the patients were white males, and the average age was 32. Most had long histories of regular marijuana use, smoked marijuana almost daily, and smoked more than once a day.

To earn vouchers, patients had to produce urine tests negative for marijuana. The patients never received cash, but vouchers could be exchanged for retail goods or services designated by the participants.

- WHAT IT MEANS: The value of using vouchers in conjunction with other behavioral therapies has been demonstrated in treatment of cocaine and opiate addiction, but this is the first time the efficacy of this practice has been demonstrated in treatment of marijuana dependence.

The study, led by Dr. Alan J. Budney, appeared in the December 2000 issue of the *Journal of Consulting and Clinical Psychology.*

more...

NIDA NATIONAL INSTITUTE ON DRUG ABUSE
NewsScan
NIDA ADDICTION RESEARCH NEWS

RESEARCH ADVANCES

Blocking Morphine Receptor Prevents Tolerance—But Not Dependence—From Developing in Mice

Scientists at Duke University Medical Center blocked the development of tolerance for morphine in test animals, but the genetically-engineered mice still developed morphine dependence, illustrating that the underlying mechanisms for tolerance and dependence are different.

Morphine's usefulness as a long-term pain reliever is limited because the drug quickly induces both tolerance—the drug amount required for pain relief must be ever-increasing to compensate for diminished responsiveness—and dependence—characterized by craving and withdrawal symptoms when the drug is stopped.

A team of scientists used "knockout" mice (lacking a specific opioid receptor protein in the brain) to assess the contribution of the μ opioid receptor to the development of morphine tolerance and the subsequent onset of physical dependence. The analgesic actions of morphine are mediated predominantly through the μ opioid receptor.

The researchers found that in the mice lacking this protein, desensitization of the μ opioid receptor did not occur, and the animals did not develop morphine tolerance. However, further study showed that the "knockout" mice did develop physical dependence on the drug.

- WHAT IT MEANS: Finding a way to block the development of tolerance and dependence would greatly enhance the clinical value of morphine. By demonstrating that tolerance and physical dependence are separable, and that their underlying biochemical mechanisms are different, this study brings that goal closer.

The study, led by Dr. Marc G. Caron, is published in the December 7, 2000, issue of *Nature.*

Neonatal Stress in Rats Increases Vulnerability to Cocaine Use Later in Life

Researchers at the Yale University School of Medicine found that isolated newborn rats took less time as adults to learn to self-administer cocaine than did rats not subjected to isolation stress.

The more rapid learning was noticeable only in the animals' ability to acquire the cocaine self administration behavior. There were no differences between the stressed and non-stressed rats in their ability to learn other behaviors, such as obtaining food.

Rats in the experimental group were placed in isolation for an hour a day on the 2nd through 9th days after birth. Rats in the nonstressed group were not handled until they were weaned.

The study investigators concluded, "Neonatal isolation, which occurred almost 3 months prior to the behavioral assessments, leads to an enduring and specific increase in the vulnerability to acquire cocaine self-administration behavior." The results, they say, have important implications for the role of early childhood stress in vulnerability to cocaine addiction.

- WHAT IT MEANS: These results are consistent with reports that early life stress is common among drug addicts. Understanding how the enduring effects of stress early in life influence vulnerability to drug addiction is necessary to the development of effective preventive interventions for high-risk children.

This study, led by Dr. Therese A. Kosten, was published in the September 1, 2000, issue of *Brain Research*.

For more information about any item mentioned in this *NewsScan*, please call NIDA's Press Office at 301-443-6245.

The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports more than 85 percent 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 can be ordered free of charge in English and Spanish by calling *NIDA Infofax* at 1-888-NIH-NIDA (644-6432) or 1-888-TTY-NIDA (889-6432) for the deaf. 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.