NIDA
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NewsScan

NIDA ADDICTION RESEARCH NEWS

NEWS UPDATE

This issue of NewsScan focuses on NIDA-supported research on nicotine addiction. Its issuance precedes the 9th Annual Meeting of the Society for Research on Nicotine and Tobacco to be held in New Orleans, Louisiana, February 19 through 22, 2003.

Several NIDA grantees and staff are making scientific presentations at this meeting on the latest findings regarding the effectiveness of reduced-exposure smoking products, the characteristics of psychiatric patients with nicotine problems, and nicotine-free cigarettes as research and treatment tools.

Dr. C. Everett Koop, former U.S. Surgeon General, will be the keynote speaker.

The authors of the papers described in the following research report on bidis and other reduced-exposure smoking products are among those presenting research findings at the conference.

Research News

Studies Show Bidis and Smoking Products Are No Safer Than Conventional Cigarettes

Studies published over the past several months disprove claims that products such as additive-free cigarettes, bidis, and novel cigarette-like devices are less toxic than conventional cigarettes.

A study published in the December 2002 issue of the journal *Nicotine and Tobacco Research* examined the effects of bidis—hand-rolled cigarettes from India—and additive-free American Spirit cigarettes. Bidis are popular with adolescents because many perceive them to be less of a risk to health than regular cigarettes, and because they are manufactured in a variety of flavors, such as chocolate or root beer.

For the study, lead investigator Dr. Wallace Pickworth from the NIDA Intramural Research Program asked 10 volunteers to smoke an unfiltered, additive-free American Spirit cigarette, a strawberry-flavored bidi, a non-flavored bidi, and one of the subjects' own brand of conventional cigarette.

After smoking the American Spirit cigarette or either type of bidi, the participants' blood nicotine levels were higher than when they smoked their own brand. Higher amounts of carbon monoxide were exhaled after smoking the strawberry-flavored bidi, but exhaled carbon monoxide levels were lower for the American Spirit cigarette and the unflavored bidi than for the volunteers' own cigarette brands.

Cigarette Products Marketed As Less Toxic Found to be Ineffective

A second study, published in the November 2002 issue of *Nicotine and Tobacco Research*, evaluated a clinical laboratory model for assessing whether potential reduced-exposure products (PREP) do reduce smokers' exposure to lethal constituents of smoke and whether they adequately suppress withdrawal symptoms. In this study, Philip Morris' Accord and R. J. Reynolds' Eclipse, both marketed as less harmful smoking systems, were used as examples.

The investigators found that, relative to normal cigarettes, Accord was less effective at suppressing withdrawal and produced minimal carbon monoxide boost, despite the fact that when using Accord, smokers took bigger and longer puffs than with conventional cigarettes. Eclipse fully suppressed withdrawal and increased carbon monoxide levels by 30 percent. Accord delivered about one-half and Eclipse about three-fourths the nicotine of the subjects' own cigarette brand.

The researchers concluded that neither Accord nor Eclipse is likely to be effective in reducing exposure to the harmful constituents of cigarette smoke.

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Dr. Thomas Eissenberg from the Virginia Commonwealth University headed the research team.

A study conducted by the same research team published in the December 2002 issue of the journal *Tobacco Control*, was similar to the Eclipse/Accord study, but used another product known as Advance. Advance is marketed as a product that will help smokers reduce their intake of some carcinogens and toxic gases.

The investigators found that Advance produced similar withdrawal suppression and heart rate increase, 11 percent less carbon monoxide, and 25 percent more nicotine when compared to the light or ultra-light cigarette brands smoked by 20 volunteers.

- **WHAT IT MEANS**: Despite manufacturers' claims and the perception of some users, low-smoke smoking devices, bidis, and non-additive cigarettes touted to reduce the harmful components of cigarette smoke are not effective and may not reduce the death and disease associated with tobacco use. On the contrary, some of these devices might promote heavier smoking and may introduce new risks not currently associated with cigarette smoking, including the potential of inhaling harmful elements such as glass fibers used in the manufacture of some low-smoke products.

Selegiline Hydrochloride May Help Smokers Quit

NIDA-supported researchers from Yale University Transdisciplinary Tobacco Use Research Center (TTURC) have found more evidence that monoamine oxidase-B (MAO-B) inhibitors may be an effective treatment for nicotine addiction. MAO-B is an enzyme that breaks down dopamine. The symptoms of nicotine withdrawal have been associated with a decrease in the concentration of dopamine, so increasing dopamine levels with MAO-B inhibitors may be helpful for the treatment of nicotine addiction.

Prior to the start of the study, researchers administered a battery of tests to volunteers to assess their dependence on nicotine and the intensity of their nicotine cravings. Those with current symptoms of major depression or alcohol or drug dependence were excluded from the study. Volunteers currently prescribed antidepressant or opioid medications were also excluded.

Forty cigarette smokers were then assigned to receive the MAO-B inhibitor, selegiline hydrochloride (SEL), or a placebo for 8 weeks. During the first 7 days, the medication was administered once per day and on day eight, it was increased to twice daily for the remainder of the study. Day 15 was designated as the smoking "quit date." Smoking cessation counseling, which included motivational enhancement therapy and relapse prevention strategies, was provided. Each month, volunteers answered a series of standardized questionnaires to assess symptoms of depression and the intensity of their nicotine cravings. Their breath and plasma were also analyzed to verify abstinence from using tobacco. After completion of the study, medication was tapered for one week and then discontinued. Six months later, smoking abstinence rates were also determined.

After 8 weeks of treatment, 45 percent of participants receiving SEL had quit smoking tobacco, compared to 15 percent of those receiving placebo. During the last 4 weeks of the study, 30 percent of participants receiving SEL reported that they had completely abstained from smoking, compared to 5 percent of those receiving placebo. At the 6-month follow-up, smoking cessation rates were 20 percent for those who received SEL and 5 percent for placebo recipients. Cravings for nicotine were not affected by SEL.

- **WHAT IT MEANS:** These findings suggest that the MAO-B inhibitor, selegiline hydrocholoride (SEL), may be an effective treatment for nicotine addiction. Further studies of this medication for smoking cessation are needed.

This study was published by lead investigator Dr. Tony George in the January 15, 2003 issue of *Biological Psychiatry*.

Quitting Smoking Offers Psychological Benefits; Unsuccessful Attempts May Change Perceptions of Health Risk

Researchers from Arizona State University and Indiana University found that after a 6-year period, smokers who succeeded in quitting reported less stress and did not experience increases in negative moods, such as depression or nervousness. Successful quitters also came to view smoking as being less beneficial psychologically and more harmful to their health, compared to their perceptions when they were smokers. Quitters who relapsed to smoking did not

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report additional stress—other than that associated with being a smoker. However, relapsers altered their perceptions of smoking to view it as less harmful to their health, which ultimately may undermine their decision to try again to quit in the future.

In 1993 and 1999, the researchers surveyed 3,077 participants from an ongoing longitudinal study about tobacco use. Participants were asked questions about their smoking habits and plans to quit, their beliefs about the psychological and health effects of smoking, and their stress. They were then classified as smokers, non-smokers, successful quitters (abstinent from smoking for at least 1 year), or relapsers (ex-smoker in 1993, smoker in 1999).

- **WHAT IT MEANS:** These findings suggest that there are psychological benefits of quitting and that relapsers should be encouraged to continue their efforts at smoking cessation. However, relapsers' declining perceptions of health risk must be changed to help them continue to try to quit in the future.

This study, funded by the National Institute on Drug Abuse, was published by Dr. Laurie Chassin in the September, 2002 issue of *Health Psychology*.

Parental Smoking, Behaviors, and Attitudes May Be Associated with Adolescent Smoking

A parent who quits smoking may lower the risk of his or her adolescent starting to smoke, according to a study by NIDA-supported researchers from Arizona State University and Indiana University. However, this benefit of parents' smoking cessation was most noticeable when the other parent was not a current smoker. Mothers' attitudes toward smoking and adolescents' perceptions of their parents' anti-smoking attitudes also affected the prevalence of adolescent smoking.

The researchers interviewed 446 adolescents aged 10-17 years and their parents about their smoking behavior, their attitudes toward smoking, and anti-smoking parenting practices (such as discussing reasons not to smoke or taking away privileges if the adolescent smoked). Levels of carbon monoxide in expired air samples helped to measure current smoking.

Adolescents with two parents who smoked were 3.8 times more likely to smoke cigarettes than were adolescents with two parents who had quit smoking, and 3 times more likely to smoke than were adolescents with a non-smoking mother and an ex-smoking father. However, there were no significant differences in smoking between adolescents who had two smoking parents and those who had an ex-smoking father and a smoking mother. Adolescents who viewed their parents as providing anti-smoking parenting were less likely to smoke as were adolescents, whose mothers had negative implicit attitudes toward smoking. The effect of parents' smoking on adolescents' smoking was, in part, accounted for by mothers' negative implicit attitudes and by children's views of the parenting that they received.

- **WHAT IT MEANS:** Parents who quit smoking may reduce the likelihood that their adolescent will smoke, but this benefit is clearest in families in which the other parent is also a non-smoker. Non-smoking and ex-smoking parents may reduce adolescent smoking because they have negative implicit attitudes towards smoking and because they provide anti-smoking parenting. Families with two non-smoking parents and with parents who have negative implicit attitudes toward smoking may be most effective because they most clearly and consistently communicate anti-smoking messages to their adolescents.

Dr. Laurie Chassin and colleagues published the study in the September, 2002 issue of *Pediatric Psychology*.

Study Finds Short-Term Benefit from Both Antidepressant Therapy and Counseling in Smoking Cessation

A study to determine whether counseling increases the efficacy of antidepressants in smoking cessation programs found that such combination therapy did not add benefit to antidepressant therapy. It also found that counseling increased short-term abstinence rates when it was added to medical management, but neither counseling nor antidepressant therapy produced long-term sustained abstinence. Counseling produced higher 7-day abstinence rates than medical management alone, but this improvement was not sustained over the course of the study.

During a year-long study of 220 cigarette smokers, researchers compared the effectiveness of nortriptyline, a drug used to treat depression– and sustained release bupropion–a drug that has FDA approval for smoking cessation treatment. The researchers then assessed the effectiveness of the drugs in combination with counseling and with

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medical management alone. The medical management intervention included advice to stop smoking, medication, side effects monitoring, and educational materials. The counseling consisted of five group sessions to provide discussion of cessation and health-related information for mood management and smoking cessation.

Less than one-third of the participants were able to remain cigarette-free for a year.

- **WHAT IT MEANS:** Both drugs and counseling have limited effectiveness in helping smokers to completely stop smoking for at least a year, but both can help smokers attain periods of abstinence.

Dr. Sharon Hall, the study's lead author, published the research in the October 2002 issue of the journal *Archives of General Psychiatry*.

NIDA News

Dr. Nora D. Volkow Named Director of NIDA

Nora D. Volkow, M.D., has been appointed the new director of NIDA by National Institutes of Health Director Dr. Elias A. Zerhouni. She is expected to assume her duties on April 15, 2003.

As the first woman to head NIDA, Dr. Volkow replaces Glen R. Hanson, Ph.D., D.D.S., who has served as NIDA's Acting Director since the resignation of the NIDA Director Dr. Alan I. Leshner in 2001.

Dr. Volkow is recognized as an expert on the brain's dopamine system. She is particularly known for her work investigating the mechanisms underlying the reinforcing, addictive, and toxic properties of drugs of abuse in the human brain. As a researcher, she has been supported by grants from NIDA, the National Institute on Alcohol Abuse and Alcoholism, and the Department of Energy. A recipient of multiple awards, she was elected to membership in the Institute of Medicine, National Academy of Sciences, and was named "Innovator of the Year" in 2000 by *U.S. News and World Report*.

Dr. Volkow is currently Associate Director for Life Sciences at Brookhaven National Laboratory (BNL), Director of Nuclear Medicine at BNL, and Director of the NIDA-DOE Regional Neuroimaging Center at BNL. She also is a professor in the Department of Psychiatry and Associate Dean for the Medical School at the State University of New York-Stony Brook.

Dr. Volkow received her B.A. from Modern American School, Mexico City, Mexico; M.D. from the National University of Mexico, Mexico City; and postdoctoral training in psychiatry at New York University.

For more information about any item in this *NewsScan*:

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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 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 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**.

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