

Division of Epidemiology of Substance Abuse

Denise Kandel, PhD, Division Chief
Department of Psychiatry, Columbia University College of Physicians and Surgeons
New York State Psychiatric Institute
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Overview

The department investigates the natural history of drug involvement, the risk factors and consequences of drug abuse, and comorbidity of substance abuse with problem behaviors and psychiatric disorders among adolescents and adults. Cigarette smoking and nicotine dependence represent a major focus of current research activities. The research involves implementation of epidemiological studies based on general population samples as well as secondary analyses of national data sets. The Division has also initiated a completely novel area of research, focused on the molecular basis of epidemiological paradigms in mice, in collaboration with Drs. Eric Kandel and Amir Levine from the Center for Neurobiology and Behavior.

Staff

Denise B. Kandel, PhD, Chief, Research Scientist VII
Pamela Griesler, PhD, Research Scientist IV
Christine Schaffran, MA, Research Scientist IV
Mei-Chen Hu, PhD, Associate Research Scientist, Dept. of Sociomedical Sciences,
School of Public Health (CU)

Current Research

A major current research activity is the Transition to Nicotine Dependence in Adolescence (TND), a longitudinal follow-up of the transition to nicotine dependence in adolescence, which aims to describe the natural history and risk factors for nicotine dependence. The follow-up cohort includes 1,039 urban adolescents and their mothers. The researchers collected saliva samples for future investigation of the genetics of nicotine dependence in adolescence.

This past year, the Division focused on data analysis and investigated the sequencing in the acquisition of symptoms of nicotine dependence; commonalities and differences among three different measures of nicotine dependence (DSM-IV, mFTQ and NDSS); comorbidity between nicotine dependence and psychiatric disorders in adolescence. Based on national data sets, the Division also examined the relationship between educational attainment and smoking by women and the consequences for offspring of smoking in pregnancy.

Education and Training

The Division continues to monitor a post-doctoral fellow, Dr. Amir Levine, in the Center for Neurobiology and Behavior.

Highlights

- A most salient finding of the Division's research is that adolescents experience symptoms of nicotine dependence at low levels of tobacco consumption.
- Tolerance, impaired control and withdrawal are the three DSM-IV criteria experienced most frequently.
- Those who eventually meet criteria for the full syndrome of dependence experienced symptoms much faster than those who experienced only one or two criteria.
- A number of factors predict transition to dependence: pleasant experiences at initial tobacco use, extensiveness of smoking, conduct problems, parental nicotine dependence, and smoking by peers.
- The recently initiated program of research on the molecular basis of the Gateway Hypothesis in mice will enable the Division to establish causal relationships underlying smoking behaviors that cannot be established in epidemiological studies on human populations.

Publications

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Hu M-C, Muthén B, Schaffran C, Griesler PC, Kandel DB, (2008). Developmental trajectories of criteria of nicotine dependence in adolescence. *Drug and Alcohol Dependence*, 98(1-2), 94-104.