

Research attributes high rates of smoking among mentally ill to addiction vulnerability

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People with mental illness smoke at much higher rates than the overall population. But the popular belief that they are self-medicating is most likely wrong, according to researchers at the Indiana University School of Medicine. Instead, they report, research indicates that psychiatric disease makes the brain more susceptible to addiction.

As smoking rates in the general population have fallen below 25 percent, smoking among the mentally ill has remained pervasive, encompassing an estimated half of all cigarettes sold. Despite the well-known health dangers of [tobacco consumption](#), smoking among the mentally ill has long been widely viewed as "self-medication," reducing the incentive among [health care professionals](#) to encourage such patients to quit.

"This is really a devastating problem for people with mental illness because of the broad [health consequences](#) of [nicotine addiction](#)," said R. Andrew Chambers, M.D., associate professor of psychiatry at the IU School of Medicine. "Nicotine addiction is the number one cause of premature illness and death in the United States, and most of that morbidity and mortality is concentrated in people with mental illness."

In a report published recently in the journal *Addiction Biology*, the research team lead by Dr. Chambers reported the results of experiments using an established animal model of schizophrenia in which rats display a neuropsychiatric syndrome that closely resembles the disease.

Both the schizophrenia-model rats and normal rats were given access to

intravenous self-administration of nicotine.

"The mentally ill rats acquired nicotine use faster and consumed more nicotine," Dr. Chambers said. "Then when we cut them off from access to nicotine, they worked much harder to restore access to nicotine than did the normal 'control' rats."

In additional testing, the researchers found that administration of nicotine provided equal, but minimal, [cognitive benefits](#) to both groups of rats when performing a [memory test](#). When the nicotine was withdrawn, however, both groups of rats were more cognitively impaired, so that any cognitive benefits to nicotine administration were "paid for" by cognitive impairments later.

"These results strongly suggest that what has changed in mental illness to cause smoking at such high rates results in a co-morbid addiction to which the mentally ill are highly biologically vulnerable. The evidence suggests that the vulnerability is an involuntary biological result of the way the brain is designed and how it develops after birth, rather than it being about a rational choice to use nicotine as a medicine," Dr. Chambers said.

The data, he said, point to neuro-developmental mechanisms that increase the risk of addiction. Better understanding of those mechanisms could lead to better prevention and treatment strategies, especially among mentally ill smokers, Dr. Chambers said.

Provided by Indiana University

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