

New Reasons Counselors Should Address Smoking in Their Patients

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Smoking goes hand in hand with mental illness and substance use disorders. Although roughly a quarter of the U.S. population has a mental illness or substance use disorder, people with these conditions account for 40 percent of the cigarettes sold (SAMHSA, 2013). A recent study found that people with mental illness or substance use disorders die five years earlier than the rest of the population on average—often from cardiovascular diseases, cancer, and other conditions associated with smoking (Druss, Zhao, Von Esenwein, Morrato & Marcus, 2011). Drug users who smoke are four times more likely to die prematurely than those who don't smoke (Centers for Disease Control and Prevention, 2018).

In the past, treatment providers have tended to ignore smoking in patients with addiction or other psychiatric disorders due to the mistaken belief that there are bigger fish to fry in their treatment and even that smoking may serve as a form of self-medication, with that benefit outweighing the health risks. Tobacco companies themselves worked to foster these beliefs, along with the argument that encouraging smoking cessation in people with mental illness is ill-advised (Prochaska, Hall, & Bero, 2008). But as we learn more about the mutually reinforcing role of multiple substances in drug addiction (polypharmacy), these outworn and discredited notions must be set aside in favor of a comprehensive treatment philosophy that incorporates smoking cessation along with other aspects of treatment. In fact, continuing nicotine use may play an important role in maintaining an individual's other addictions.

Nicotine has long been suspected to be a “gateway” substance potentiating or fostering other kinds of drug misuse, yet the reasons users of “harder” drugs typically begin with tobacco have been debated. The simple fact that cigarettes are legal and widely available means that it is much more likely that an individual will initiate drug use with nicotine and not, say, heroin or cocaine. But recent research has shown that there really is something unique about nicotine in the way it fosters other addictive behaviors. Ironically, it may have a lot to do with the relatively milder pleasure or euphoria produced by nicotine compared to other drugs.

Although nicotine does not produce the extreme *reward* (pleasure) associated with other drug highs, smoking a cigarette is highly reinforcing—a crucial distinction. Like most other drugs, inhaling nicotine produces bursts of dopamine in circuits linking the limbic reward circuits (nucleus accumbens and striatum) with the areas like the amygdala that govern mood and with the prefrontal cortex, the seat of judgement and self-control. These dopamine bursts tie mood and judgment to the pleasure of the puff on a cigarette, strongly “teaching” the brain to repeat the experience of obtaining and smoking cigarettes. The fact that any single puff is only mildly rewarding means that the act is repeated—over the few minutes of smoking a cigarette and then from cigarette to cigarette over the course of the day. It adds up to a lot of opportunities to reinforce the act of smoking as a central, deeply reassuring part of the individual's life.

It was not known until relatively recently that nicotine can also potentiate the enjoyment of other behaviors, including other drug-taking behaviors. Animal research has shown that nicotine primes individuals to self-administer cocaine, whereas cocaine will not make them more likely





to self-administer nicotine—effectively supporting the hypothesis that nicotine is special as a gateway substance. Research by Denise B. Kandel and Eric R. Kandel at Columbia University has elucidated the underlying mechanisms for this effect: in the reward circuit, nicotine encourages the expression of a gene that underlies the dopamine teaching (reinforcement) signal mentioned previously (Levine et al., 2011).

Consistent with the stereotypical use of a cigarette to accompany other pleasurable activities, recent research by Joshua A. Karelitz and Kenneth A. Perkins at the University of Pittsburgh School of Medicine shows that nicotine also makes other, non-drug-related activities more enjoyable. Karelitz and Perkins showed that nicotine enhances the pleasure obtained from music and visual stimuli (videos) and that it made smokers become habituated to (that is, bored by) a visual reinforcer more slowly (Perkins, Karelitz, & Boldry, 2017; Karelitz & Perkins, 2018).

These secondary reinforcing effects of nicotine go a long way to helping explain why smokers have such a hard time quitting.

Besides contending with the cravings and withdrawal symptoms produced by nicotine addiction, smokers also have difficulty enjoying other activities without the presence of nicotine. These reinforcement-enhancing effects of nicotine apply also when using e-cigarettes (Perkins, Karelitz & Michael, 2015).

The ability of nicotine to enhance the pleasure of other activities and encourage other forms of drug use highlights the importance of addressing nicotine addiction in patients with other substance use disorders. Smoking is not a substitute for other drugs or a useful way to self-medicate; instead, it may be contributing to the intractability of other addictions. Although less is known about e-cigarettes and their nicotine content may be variable, these devices too may be detrimental to individuals undergoing drug addiction treatment, even if the long-term impact of vaping on lung health turns out to be less dire than smoked tobacco.

Nicotine addiction, like other addictions, is eminently treatable both behaviorally and pharmacologically, and as with the brain changes wrought by other forms of chronic substance use and misuse, the brain's reward circuitry can restore some or all of its original balance after prolonged abstinence from nicotine. This process can be a crucial part of helping addicted individuals regain the ability to live without the support of other substances (e.g., opioids, stimulants, or alcohol) that may be the more explicit focus of their addiction treatment.

Even though illicit drug misuse presents a clear and immediate health threat, both from overdose and from other consequences like infectious disease transmission, people with substance use disorders, like those with other mental illnesses, face a high likelihood of dying from the consequences of cigarette smoking. Since nicotine propagates other addictions, counselors and other treatment providers should not ignore smoking based on the old belief that it is an acceptable vice that possibly compensates or aids in some way the goal of kicking some more dangerous habit. Even in the era of the opioid crisis, it is the nicotine in tobacco products that remains the most quietly insidious addictive substance, and the deadliest.

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