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Do Addicts Have Free Will? What Research Says About The Nature Of Addiction

By: Gene Heyman | April 25, 2018

"Going cold turkey" and "kicking the habit" are familiar idioms, but their origins are not. Some (and perhaps many) heroin addicts quit on their own and do so all at once, hence the goosebumps and spasms that often accompany withdrawal. In contrast, no one goes "cold turkey" from diabetes, heart disease, or schizophrenia. No one kicks the cancer habit.

Nevertheless, according to the directors and spokespersons for the National Institute on Drug Abuse (NIDA), addiction is a chronic, relapsing disease, similar to other chronic diseases. Dr. Nora Volkow, the current director NIDA, wrote that drugs "rob the brain of the capacity to exercise free will." Even if addicts want to stop taking drugs, they can't. Her predecessor, Alan Leshner, made similar claims. He wrote that drug use throws a "metaphorical switch" in the brain, resulting in compulsive, involuntary use. Which account is correct? The one implied by "going cold turkey" or the claim that drugs rob users of their free will?

The answer to this question is critical to our understanding of addiction and approaches to drug policy. Since NIDA's inception in 1974, drug epidemics have followed one upon the other, and the most recent one is by far the most deadly. In 2017 more than 60,000 Americans died of drug overdoses. Possibly what is needed is a re-examination of NIDA's guiding assumption that addiction is a disease. Well established research on behavior and advances in the understanding of the time course of addiction provide the means for testing whether addicts can say no to drugs.

How to measure free will and voluntary behavior

Behavior varies in the degree to which it is influenced by impinging stimuli, as occur in reflexes, and by costs and benefits, as occur in learned activities. Consider the contrasts: winks and blinks; kicking a ball and the patellar reflex; putting on rouge and blushing. The latter in each pair is triggered by an eliciting stimulus; the former is guided by feedback (e.g., costs and benefits). Of course, complex activities are a mixture of elicited processes and feedback-driven choices. For instance, illegal drug use involves feedback-guided subterfuge and planning, conditioned responses, and drug/receptor elicited physiological processes. Thus, we can ask, "Is drug use in addicts more like a series of elicited responses or more like a series of consequence-guided choices?" To make the implications of this question clearer, consider what the two accounts predict for the time course of addiction.

Logical implications of the disease and choice approach to addiction

The negative consequences of drug use for those who meet the American Psychiatric Association's (APA) criteria for "substance use disorder" must outweigh its positive ones. If this were not true, then shooting heroin every day is equivalent to a daily dose of medicine and alcoholism is long-term self-care. But costs and benefits are hard to judge, particularly for addiction. Notice that a common feature of all addictive substances and activities is that the positive consequences are immediate whereas the negative consequences are delayed and probabilistic.

Economists and psychologists argue about the exact shape of the discount functions for delayed and probabilistic outcomes, but this need not be settled to state that if drug use remains voluntary and net costs outweigh net benefits then self-destructive drug use must eventually resolve. Moreover, if drug use is voluntary then addicts should be able to quit on their own, although interventions may serve a catalytic function, speeding up remission.

On the other hand, if addicts are involuntary drug users who cannot quit because they no longer have the will power to do so, then an outside intervention is prerequisite for any chance of recovery. Notice that we are not asking whether drugs change the brain. Of course, they do; that is why we take them. The issues are whether drugs have the capacity to change the brain such that drug use is no longer voluntary and whether this is the typical course of events.

What the research shows

Most empirical studies relevant to whether addicts quit drugs take place in clinics. However, most addicts do not seek treatment. Thus, clinic-based studies may not provide a representative picture of addiction. Similar issues attend the understanding of other psychiatric disorders. In light of this problem, researchers undertook more ambitious, nation-wide studies that recruited subjects regardless of their treatment history.

In the preface to the first of these surveys (1991), the editor of the *Archives of American Psychiatry* wrote, "Here then is the soundest fundamental information about the range, extent and variety of psychiatric disorders ever assembled."

One of the key findings answers our questions regarding the time course of addiction: 76 to 83% of those who met the APA's criteria for a lifetime addiction to an illicit drug no longer did so by age 42. Most of those who were ever addicted were, now, ex-addicts. Moreover, as predicted by the idea that drug use remains voluntary, most of the addicts who quit drugs did so without the assistance of professional help.

It is natural to think that those who quit drugs without the benefits of treatment were not really addicts. This presumes once an addict always an addict. But this is the proposition we want to evaluate. Although there has been little research on the differences between addicts who do and do not make use of treatment, the available evidence supports the idea that addiction persists as a function of drug availability and whether drug users suffer from additional psychiatric and non-psychiatric medical disorders. For instance, the most recent national psychiatric survey shows that dependence on cigarettes and alcohol persists for much longer than does dependence on illicit drugs, and that among the illegal drugs, dependence on marijuana is most persistent.

Other studies reveal that the duration of dependence is inversely related to educational attainment. These findings are neatly summarized by the ideas that drug use persists as a function of opportunity costs and the degree to which addicts are able to access rewarding nondrug alternatives. In other words, what matters are the factors that affect the choice to use or quit drugs.

Free will as "self-regulation"

Our understanding of free will usually involves more than the capacity to respond to costs and benefits. In this vein, the philosopher Harry Frankfurt argued that among the many creatures susceptible to the influence of costs and benefits, humans are unique in that they can evaluate whether they have the desires that they want to have and can change their behavior to better match the desires that they desire (so-called "second-order" desires and "second-order" volitions). Research on addicts offers an opportunity to test these interesting ideas.

A study conducted some years ago at McLean Hospital evaluated whether heroin addicts can modify their cravings for heroin. The researchers manipulated drug availability. On some days the addicts could use as much heroin as they wished (given that two hours had elapsed since the last injection); on other days, heroin was unavailable or was combined with an opioid antagonist or competing agonist. On days that heroin was available, craving increased; on days that heroin was unavailable or its effects blocked, craving decreased. As a function of circumstances, heroin addicts regulated their drug cravings.

Conclusions

Addicts can say no to drugs, and they can even regulate their drug cravings. The likelihoods for both are correlated with drug availability and the availability of rewarding non-drug alternatives. According to the ideas that free will entails the capacity to make choices and to reflect upon and regulate desires, addicts have free will. Notice, though, that in this account, free will has antecedents; it is a predictable function of drug availability (and other yet identified factors).

Addicts and the public need to know that addiction is not a disease and that addicts retain the capacity to say no to drugs. Accordingly, preventative programs and interventions should focus on measures that increase the opportunities for rewarding nondrug activities and which promote capacities prerequisite for taking advantage of nondrug opportunities. This is common sense, not medicine. Corollaries of these results include the more general point that persistent self-destructive behavior does not necessarily signal a disease state and that the disease interpretation of addiction seriously underestimates the capacity for self-righting.

These observations are age-old themes in the arts; they will only come as a surprise to those who assume that choice is necessarily rational or take seriously the slogans of the disease interpretation of addiction (e.g., "drugs hijack the brain"). Drugs change the brain, but so does everything else that affects mood, thought, and action. The issue is whether drugs change the brain so as to rob users of their "free will." The answer is no.

These findings are described in the article entitled Do addicts have free will? An empirical approach to a vexing question, recently published in the journal *Addictive Behaviors Reports*. This work was conducted by Gene M. Heyman from Boston College.

About The Author

Gene Heyman

After earning a BA in anthropology at the University of California at Riverside, I moved to Boston to work at a large psychiatric hospital. The move eastward retraced in reverse my parents' journey. They had moved to California from the East Coast, eventually settling in idyllic Mill Valley, a small town, nestled in the redwoods, across the Golden Gate Bridge from San Francisco. Their parents had also moved westward as young adults, but from Eastern Europe.

My academic interests were initially in clinical psychology, but a lab course in experimental psychology at Harvard awakened an interest in basic research, and I switched from clinical to experimental, focusing on the determinants of choice in pigeons and rats and the behavioral effects of dopaminergic drugs. I earned a PhD in 1977 and then took a post-doctoral position in the Department of Pharmacological and Physiological Sciences at the University of Chicago. The psychopharmacological studies led to a research position at a pharmaceutical company. There, I ran an animal lab that tested drugs for the treatment of anxiety, depression, and age-related cognitive decline. In 1987, I returned to the Harvard Psychology Department to teach and do research. My goals included developing an animal model of drug use (see papers on preference for alcohol in rats) and to teach the experimental psychology laboratory course that so changed my life. I also taught courses on learning, decision-making, and addiction. In 2007, I began teaching at Boston College. Here, I am teaching courses that reflect a natural science approach to psychology and advising students engaged in new research projects on cognition and choice.

What attracted me to research was the opportunity to scientifically explore important, long-standing psychological questions. My first experiments tested whether a widely observed behavioral pattern in studies of choice and decision-making was at root an optimizing process, as predicted by economic theory. The results were orderly and surprising. A number of simple equations neatly summarized how pigeons, rats and people made choices, but they were not the equations that the economists believed in. Also surprising, the results from these early studies have proven relevant to the understanding of addiction and other forms of excessive behavior (as described in my more recent writings). So, a circle of coincidences and contingencies: my

clinical interests led to research with pigeons and rats on choice, which led to psychopharmacology research, which led to the study of addiction, which is one of the most prevalent clinical syndromes of our time.