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Short commentary

Redefining Addiction: A Modest Proposal

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Abstract

This opinion article highlights two recent articles that argue we need new terminology to address the modern notion that addictive behaviors fall along a continuum. Terms such as preaddiction or unhealthy drinking help highlight the early stages of addiction and reduce the morbidity and mortality of addictive disorders. It is then argued that our current definitions of addiction focus on the serious adverse effects of addictive behavior. In contrast, by defining addiction by its cardinal features, we can recognize the early signs of addiction and address the problem before the presentation of serious adverse effects. It is proposed that just as uncontrolled growth of tumor cells leads to cancer, the addictive cycle leads to uncontrolled growth of the desire to use drugs, and this takes over the motivation to engage in healthy behaviors. The cancer analogy helps convey the seriousness of addiction and offers a strategy to combat the disorder. For example, public health measures, addiction screening and monitoring, use of pharmacotherapy to reduce addictive behaviors prevent addiction relapse, and the use of live and digital psychosocial support can and should be aggressively used to reduce the growing morbidity and mortality associated with addictions.

Introduction

If we are fighting a war on drugs, we are currently losing. Last year in the United States, we suffered over 100,000 deaths from drug overdose (about 65% related to synthetic opioids) and another 100,000 deaths from excessive alcohol drinking [1]. The death toll represents a significant increase from previous years. If we were fighting a conventional war and seeing 200,000 casualties each year, any prudent leader would realize this is unsustainable, and a different approach is needed. Many of these deaths and other significant medical, social, and psychiatric morbidities could be prevented using evidence-based treatments. Yet sadly, in the United States, only 25% of people with Opioid Use Disorder (OUD) receive one of the three FDA-approved medications [2]. Of the 15 million people with Alcohol Use Disorder (AUD), only about 7% received any treatment [3], and less than 4% received treatment with a U.S. FDA-approved medication [4].

Those of us in the addiction and health care community share responsibility for reversing the course of this drug and alcohol epidemic by bringing quality addiction treatment to more people. We can do that by having a framework to effectively communicate to our colleagues and patients the clear nature of the problem and how to recognize its signs for early intervention.

Addiction needs to be addressed early in its course

The common view of addiction is that drug and alcohol use has become so unmanageable and the consequences so severe that a person with an addiction must be removed from their environment to "get clean." We often view addiction in dichotomous terms, pointing to people with severe addiction as the prototype "alcoholic" or "addict." Understandably, someone who does not fit that prototype will not see themselves as having an addiction and will, therefore, not seek treatment. Research shows that the most common reason for not entering alcohol treatment was the belief that they were strong enough to handle the problem without needing professional treatment [5].

More recently, we have seen addictions as falling along a continuum with mild, moderate, or severe levels of addiction. Two recent papers highlight the importance of labeling less severe forms of addiction. The first paper by McLellan et al., uses the phrase "preaddiction" to refer to mild and moderate cases of SUD [6]. They point to the success of the term prediabetes to help engage people with early-stage diabetes before severe consequences set in. By defining diabetes not by its consequences but by abnormal metabolic responses to increased glucose levels, one can identify people with early-stage diabetes (prediabetes). People with high levels of hemoglobin A1C can start medical and behavioral treatments to prevent progression to severe diabetes. They argued that the term preaddiction could similarly prompt the early diagnosis and treatment of addictive behavior.

A second paper [7] written by Percy Menzies and myself, reaches a similar conclusion. Drawing from data that small amounts of alcohol can have long-term harmful effects, we proposed that unhealthy drinking is present in people who do not meet the criteria for even mild AUD. We term this grey area between AUD and moderate drinking "unhealthy drinking." Like the term preaddiction, screening for unhealthy drinking is a fruitful place to intervene to prevent serious addiction consequences.

Problem with defining addiction by its consequences

Historically, attempts to define addiction have been confusing because the diagnosis of addiction (variously termed substance dependence, drug abuse, substance use disorder) has focused on three independent dimensions:1) physiological adaptation or physical dependence, 2) medical and psychosocial consequences of excessive drug and alcohol use and 3) the notion of impaired behavioral control of substance use. Various attempts to define addiction have focused

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on physiological adaptation or some arbitrary number of symptoms related to these three dimensions. However, no definition of addiction presents a clear conceptual model that outlines the necessary and sufficient conditions for addiction to be present. This prevents us from effectively communicating the core cardinal symptoms of addiction. Little wonder our healthcare colleagues and the general public are confused about when substance use has crossed the line into addiction.

Using physiological adaptation or physical dependence to define addiction has some appeal since it corresponds to our intuitive concept that addiction represents a physical need for a drug that was not present at birth and developed as a consequence of drug use. However, a physical dependence can occur with medications that improve functioning and when used appropriately. We would not consider this an addiction. Also, exposure to some drugs, such as stimulants, leads to severe addiction, but there is little physical dependence. So, while physiological adaptation may contribute to the emergence of addiction, physical dependence is not a necessary and sufficient condition to have an addiction.

In order to circumvent the problems of defining addiction by symptoms of tolerance and withdrawal, modern diagnostic systems include the notion that drug use must cause medical or psychosocial problems for the person. However, defining addiction or any disease by arbitrarily summing the number of its adverse consequences has many problems. First, the adverse consequences are not unique to addictions, such as less motivation for recreational activities, relationship issues, or failure to fulfill important work, school, or home obligations. No adverse consequences are necessary and sufficient to diagnose addiction. Secondly, the diagnosis is not made until after several consequences have already occurred. It follows that attention to the diagnosis and treatment of addiction will occur later in the course of the disorder.

Defining Addiction: A New Conceptual Model

Rather, the concept of impaired control captures the core cardinal feature of addiction. Impaired control is shown by symptoms such as drinking or using more of a drug than intended, failed attempts to cut down or stop, and finding that alcohol or drug use is taking over one's life, the most important priority to the person. The empirical basis for this assumption is beyond the scope of this paper, but when one examines the criteria for SUD, the items related to impaired control are commonly found in all the people diagnosed with an addiction. In contrast, the other items that reflect the bad consequences of drug and alcohol use correspond to the severity of the disorder [8].

From this, I make a modest proposal; addiction is defined as a behavioral disorder in which a consequence of the behavior is increased need/desire/motivation to engage in more of the behavior. This addictive cycle leads to an uncontrolled increase in motivation for addictive behaviors that interfere with the motivation to engage in healthy behaviors. Drug use begets more drug use. At its most basic level, addiction is a disorder of an acquired motivation.

Viewed this way, a person who faithfully takes their prescribed dose of methadone daily to relieve pain or avoid illicit opioid use would not be considered an addiction. Defining addiction as a disorder of desire, not simply physical dependence, helps us explain to colleagues and the general public that methadone can be a treatment despite tolerance and withdrawal. In contrast, consider the gambler who leaves his toddler locked in the back seat of his car on a hot day to play a few hands of blackjack. When he returns hours later, he is arrested for child neglect. Which person has an addiction, the gambler or the methadone patient? Common sense intuition tells us it is the gambler with the severe addiction.

I would also like to propose a new medical analogy that communicates the malicious way addictive behaviors spread to overtake healthy behaviors. The analogy is to cancer. Cancer is a disease in which cells grow uncontrollably and spread to crowd out normal or non-cancerous cells. Similarly, addiction reflects an increasing growth in one's desire to engage in behavior that grows to overshadow the desire to engage in healthy behaviors. The cancer analogy helps us understand how a superficially identical situation can have different implications depending on the context. Three guys walk into a bar, each having five drinks. In the first case, the subject felt tired after three drinks and only finished the last two drinks at the urging of his friends. We might define this incident as a benign drinking incident since its likely well encapsulated and not likely to increase his desire to do this again. The second subject has little experience with drinking, but after three drinks, he feels a pleasant high, and his desire for the fourth and fifth drink is stronger than when he had the first drink. He stopped after five drinks when he remembered he had to study for an exam the next day. This subject may be at risk for addiction, and we would say he engaged in preaddictive drinking and has preaddiction. The third subject stops drinking after five drinks when the bartender flags him. He does not feel particularly intoxicated after five drinks, but the bartender remembers how the previous weekend, he got drunk and started a fight with another patron. The subject would like to continue drinking because he feels depressed after losing his girlfriend, who grew tired of his broken promises to cut back on his drinking. This subject likely has an addiction as the consequences of his drinking behavior are spreading to other areas of his life. The severity of the consequences helps us stage the addiction. The story's punchline is that addictive behavior, like a tumor, is not represented by a single snapshot in time but depends on its growth rate and metastatic spread.

The cancer analogy can help model a way to fight addictions

Addiction in its most malignant form is one of the leading causes of death in the United States and, given advances in evidence-based treatments, a preventable cause of death. A comparison to cancer mortality makes this point. In 2020, U.S. mortality from drug overdose and excessive alcohol drinking was higher than colorectal, pancreatic, breast, prostate and liver cancer combined [9]. Even lung cancer which claimed over 130,000 lives, is primarily caused by addiction to nicotine [9].

However, we can take heart in the success of the approach to cancer treatment which includes public health measures, early screening, proper staging, and surgical and medical interventions. While we have not won the war against cancer, we have made considerable progress. Between 1991 and 2019, there has been a 32% drop in cancer deaths [10]. Ironically, much of the drop in cancer mortality has come about from attention to reducing addiction to nicotine. It can be argued that our oncology colleagues have done more to reduce addiction mortality than those of us in the addiction treatment community.

Public health efforts can help prevent severe addictions by educating the general public about the health hazards of drugs and alcohol and being aware of the early signs of addiction. When severe

addictions occur, it is not enough to just physically remove a person with their addiction from their environment to break the addictive cycle and assume the addiction is cured. Just as the oncology treatment community has discovered, medical treatments not only effectively treat cancer, but long-term frequent check-ups and chemo or immunotherapy can prophylactically help prevent cancer recurrence. Similarly, the addiction community needs to take advantage of effective medications to control drug and alcohol craving, reduce harmful consequences of addictive behavior, and prevent addiction relapse. We also have evidence-based psychosocial therapies and support to improve treatment outcomes and enhance treatment engagement and adherence. We need to bring addiction treatment into the 21st century by taking advantage of digital apps and therapeutic programs to help monitor and improve relapse prevention skills. Online peer support groups offer a variety of tools that can be accessed anywhere and anytime there is an internet connection. Of course, we must remove other treatment barriers, such as social stigma. There needs to be an adequate supply of well-trained clinicians to provide quality care and the financial means for people to access that care.

The resolve to aggressively fight addiction depends on our model of how we understand the nature of addiction. What may start as a desire to feel good or avoid discomfort can morph into an all-encompassing need for more drugs. This acquired need is not due to some defect of will or character but presumably through physiological changes in the brain that fuel our motivational state. This new need for a drug supersedes other healthy desires leading to the familiar consequences we associate with addictions. By viewing addiction for the serious disorder it is, we can and should do better in the fight against addiction.

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