Current Models of Addiction

There are three primary models that form the foundation of our views on addiction:

1. The Moral Model
   - This model focuses on a ‘weakness of will’ and was the commonly held view towards addicts until the 1890s. It is why many solutions to addiction are punitive rather than therapeutic. The inference is that addiction and associated behaviors are the result of a moral failing and, therefore, an individual has the capacity to stop the addictive behavior but chooses to continue.

2. The Lack of Control Model
   - This model, best-known for its crucial role in Alcoholics Anonymous, posits that addiction is a result of complete loss of control. The addict has lost all freedom of will and must accept this and give up any remaining control in order to be ‘cured’.

3. The Disease Model
   - The Disease Model views addiction as an entirely physiological issue resulting from an imbalance of certain chemicals caused by the use of addictive substances. In order for an addict to be cured, the addictive substance intake must cease and be replaced by an alternative substance that blocks the pathways that result in addiction.

Problems with Current Models

Current models provide a black-and-white approach to addiction etiology. A person is either weak-willed or has no control; neither of these explanations is particularly helpful when examining addiction further. Addiction is not just about drugs and alcohol, nor is it limited to the wider definitions which include addictions of sex and gambling. Addiction is found in many more disorders and behaviors that are dubbed “mental illnesses” and treated as such. Mental illnesses and disorder symptoms such as eating disorders, self-harm, and obsessive compulsive disorder (OCD) all rely on many of the same underlying brain mechanisms found in drug and alcohol addicts. Research has shown that the same pathways affected by addictive drugs are also activated by food.1,4

The Evidence Supports the Need for a Paradigm Shift

Although the mechanisms of action may vary, all drugs of abuse have the same ultimate result: euphoria and reduction in pain and negative emotions. These effects result from one of two nervous system changes:

1. Flooding of the reward system with dopamine.7
2. Stimulating opioid receptors to enhance effects of dopamine.9

However, the other psychiatric disorders and behaviors discussed also create the same result:

- Sex: Sex is well-known to have a potentially euphoric effect, resulting from the release of dopamine in the brain.
- Gambling: Research shows that the same pathways in the brain (ventral striatum and orbitofrontal cortex) are activated for both gambling and cocaine addiction. Additionally, the “win” associated with gambling creates the same dopamine release seen in other addictive behaviors.5,9
- Eating Disorders: Research shows that success in achieving a starvation goal can result in the release of the bodies own endogenous opioids, mimicking the effects of heroin on the brain. Disordered eating behaviors result in highs and dependences similar to those seen in heroin and other drugs.5
- Self-Injury: When an individual inflicts pain and/or bodily harm on herself, the body releases natural opiates affecting the heroin effects on the brain. Disordered eating behaviors result in highs and dependences similar to those seen in heroin and other drugs.5

Self-Injurious behaviors are exceedingly similar and, as such, the treatment responses should be aligned with mental health treatment so as to focus on the underlying mental health problems.

What Has the Research Told Us?

The evidence overwhelmingly supports the fact that addiction is not just a disease in and of itself; it is most often a symptom of an underlying psychiatric problem. This is the way it should be treated. Neurosciences has shown that the brain’s response pathways to drugs and behaviors of addiction are exceedingly similar and, as such, the treatment responses should be aligned. If an individual with an eating disorder is treated for the medical effects of the eating disorder as well as by mental health professionals to determine the underlying trigger of the disorder, the same treatments should be used when treating drug addicts.

Discussion

As our knowledge and understanding of the brain expand, there is growing weight to the argument that humans have no free will. While this may be comforting to those who feel unable to control their own behaviors, it can also create a dangerous safety net that allows struggling individuals to “give up” on attempting to resolve their problems. Ethically, we cannot tell patients who suffer from any sort of mental illness that they have no free will or ability to change their condition. Not only would it be demoralizing and unlikely to result in a positive change,10-12 but it contradicts research that shows people do have the ability to change these addictive patterns.13-15 Logically, one could argue that if a person has no control over her addiction to a physically addictive drug then she would never be able to stop using it, which is not the case. More importantly, research has shown that certain mental illnesses and addictive behaviors often stem from a feeling of a lack of control over one’s life.16-22 Those affected need to regain this feeling of control to work on their problems, not take it away.

From differing perspectives, three disciplines—neuroscience, psychology, and neuroethics—all show that drug addiction is not an isolated disease, illness, or moral failing. It is a symptom of a much deeper issue. The public and medical and mental health professionals must approach addiction treatment and punishment differently. The current societal impact of treating addiction as an individual failing is extremely significant and results in addicts not receiving adequate treatment or care.

Using Neuroscience to Create a Paradigm Shift in Addiction Theory and Treatment

Tabitha Moses1,2
1School of Health Sciences, Human Services and Nursing, Lehman College, City University of New York, Bronx, NY
2The Johns Hopkins University School of Arts and Sciences Advanced Academic Programs

Zanvyl Krieger School of Arts and Sciences
Advanced Academic Programs