

How should healthcare students view addiction and substance abuse?

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ABSTRACT

Addiction to alcohol, nicotine and illegal substances is both a major medical and social concern. It is a common presentation to primary care with subsequent medical complications not uncommonly being managed by secondary care services. Therefore, it is suggested by the National Institute for Drug Abuse that healthcare students develop an understanding of some of the biological and social debate in this area to aid clinical practice.

Key Words: psychiatry; addiction; substance misuse

Addiction in Context

Addiction to alcohol, nicotine and illegal substances is both a major medical and social concern. Research by the National Institute for Drug Abuse, calculated that the economic cost of drug addiction is estimated to exceed half a trillion dollars annually in the United States.¹ This figure includes health, crime-related costs, and losses in productivity.¹ Addiction has long been known to impact individuals lives in multiple domains and addiction itself is associated with a number of adverse social and medical events.^{2,3}

For centuries the social and medical impact of addiction has stimulated intense social debate. This debate encompasses both the causes of addiction and what the state, clinicians and addicts themselves can do to manage the impact of addiction on the lives of patients and communities. Interestingly, over the last 5-10 years there has been a significant change in the language used when describing patients who are addicted to legal or illegal substances. In line with scientific research⁴⁻⁵ both in the UK and US there has been a campaign to change the public perception of drug addiction to a brain disease rather than a moral failing or a strictly social concern.⁶⁻⁷ This essay will review the major aspects that form both sides of this topical debate.

Addiction – A Disease of the Brain

"Addiction is a neurobiological disease, not a lifestyle choice and it's about time we start treating it as such" US Vice-President Joe Biden discussing the 2010 Fair Sentencing Act⁸

Over the last 10 years there has been a movement toward defining addiction as a disease of the brain. In 2007 the American government passed the Recognizing Addiction as a Disease Act. This led to addiction being classified as a 'chronic and relapsing brain disease' and renamed the health institutions working with drug users to try and reduce social stigma and personal shame associated with drug addiction which may affect an individuals decision to seek treatment.⁸ Proponents of this act draw comparisons between addiction and other biological diseases as addiction disrupts the normal functioning of the brain, has serious and

harmful short-term and long-term sequelae and may last indefinitely if no medical treatment is provided.

Over the last decade neurobiologists have improved their understanding of the physiological changes associated with drug use.⁹⁻¹⁰ Recent research has established that activity of the dopaminergic system is lastingly reduced in patients who use drugs of abuse.^{4-5,9} Furthermore, these changes in dopamine function are involved in the different phases of drug addiction and may be a potential therapeutic target.⁹ The medical model of addiction leads to the idea that an increment in the dopaminergic system, to restore pre-drug levels, may yield significant clinical improvements (including reduction of drug craving and relapses).⁹

Advancements in neuroimaging has shown that drugs have a significant impact upon the brain, both structurally and physiologically.¹¹⁻¹² Imaging modalities have shown that the nucleus accumbens, amygdala and ventral tegmental areas of the limbic system are important structures of the brain reward pathway. Drugs of abuse target these structures both directly and indirectly. In addition, brain scans have noted that cerebral metabolism decreases in the brains of long-term drug addicts (as with other body organs) even when they have no detectable drug levels in their blood system.¹³ Therefore, the substantial changes in neurophysiology and cerebral metabolism do suggest that individuals that become addicts of drugs of abuse could be diagnosed with a brain disease.

Characterizing Addiction as Brain Disease Misappropriates Definitions

There are a number of reasons why considering addiction a brain disease may be helpful and useful for medical practitioners. However, referring to addiction as a 'brain disease' may be unhelpful for untrained individuals mental health literacy. Changing the definition of addiction from a disorder where personal and community factors play a vital role in the early stages (before addiction itself develops)², to a fatalistic 'disease' may imply addicts of all substances will struggle to fully free themselves from addiction.⁶ Furthermore, addiction is unlike other commonly quoted brain diseases, such as schizophrenia or Parkinson's, as these other pathologies will arise in spite of the patients desire to be well and currently cannot be fully cured.¹⁴ However, this point is debatable as the concept that addiction can be cured is currently an area of intense debate. Some clinicians suggest that addiction can be cured whilst others state that drug dependency can be cured but the person will always remain an addict.⁸

There is a key difference between personal autonomy and personal choice in the eyes of the judicial system between patients with traditional diseases of the brain and patients with addictions. Individuals who are under the influence of drugs and commit a criminal act (excluding possession of illegal substances), even if addicted, are held to account for their actions in a court of law. The judge may include compulsory drug rehabilitation but fundamentally holds the person to account rather than their brain disease. In contrast, someone who was in the throes of a psychotic episode may not be held accountably and may be detained under the Mental Health Act to ensure psychiatric treatment is commenced. Although healthcare professionals will clearly be able to understand the term disease in a helpful context for clinical practice this may not be so for the general public and may lead to confusion in the political arena as well.⁸

Finally, it is pertinent to note that addicts are not always in the throes of a neurochemical crisis. Therefore, addicts do have the opportunity to make other choices, although this may be very challenging depending upon personal circumstance. This could include attending relapse prevention therapy, visiting their general practitioner or ensuring they meet with their alcohol liaison nurse. In fact, promoting self-governance can provide the bedrock of behavioural therapies.

Conclusion

Managing addiction involves a complex mix of drug approaches and psychosocial approaches. Currently pharmaceutical treatment modalities for addiction include replacement and cross-tapering therapies and have confirmed clinical effectiveness in clinical trials.² However, there is concern that many of these drug interventions lack high levels of clinical efficacy in the real life setting¹⁵ and may be associated with adverse events for some patients.¹⁶⁻¹⁸ Therefore, the benefits of addressing both the psychological components and the pharmacological components of drug addiction is becoming recognized. For example, electronic cigarettes provide nicotine to addicts but also help resolve the psychological aspects surrounding tobacco dependence and talking therapies (support groups etc) have proven efficacy by dealing with psychological aspects of addiction.^{2,19} As with all medical conditions it is unlikely that drug treatments alone will lead to effective long-term management of addiction related health problems. A holistic patient approach is vital which ensures that pharmacological, psychological and practical support is provided to patient.

This article has noted that current political change in how to consider addiction in society at large. Indeed, the arguments for considering drug addiction as a form of brain disease are compelling. Neuroimaging and an increased understanding of neurophysiology has shown that there are clear differences between the structure and function of brains of drug addicts and age-matched controls.² However, there have been concerns voiced about referring to addiction as a brain disease as it may send the wrong message to individuals with addictive related health problems.

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Scottish Universities Medical Journal [Dundee] Online Healthcare Student Journal of Scotland

