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Alcohol Abuse: Causes, Effects, and Potential Solutions through a Biopsychosocial Lens

ABSTRACT

Substance use disorder is defined as the perpetual craving and repeated use of a drug despite its negative impact on the user and their overall well-being. One drug that is very common in substance use disorders is alcohol. Alcohol serves as a stimulant drug in small doses, but when large amounts are consumed, it acts as a depressant. There are a number of biological, psychological, and social causes and negative effects of alcohol use disorder. Despite often being taken for granted, alcohol contributes to a significant number of deaths in the United States every year. Studying and understanding alcohol use disorder through what is termed a “biopsychosocial lens” can help researchers and health officials continue to determine the causes for this disorder, as well as potential treatments for individuals living with it. Additionally, cultural differences must be considered when making any generalizations about alcohol use disorder, or the groups of people that it impacts. Future research will likely continue to build on what researchers already know and may eventually lead to a better understanding of the disorder, and even more effective methods of treatment.

KEY WORDS

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SUBSTANCE ABUSE AND ALCOHOLISM

Substances such as drugs and other chemicals have the ability to temporarily alter an individual's state of consciousness and bend their reality. There is a variety of reasons a person may choose to use drugs including to improve health or relieve pain, for religious purposes, or sometimes just for fun. Moderate use of prescribed or legalized recreational drugs can often give users their desired experience without any maladaptive consequences; however, many individuals use the drug so frequently that their moderate use becomes a substance abuse disorder (Myers & DeWall, 2018, 101). Substance abuse disorder refers to the perpetual craving and repeated use of a drug despite its negative impact on the user's physical health and overall life. Those who struggle with this disorder face its devastating impacts on their lives every day, and often struggle to recover from it.

One drug common with substance abuse disorders is alcohol. Alcohol is classified as a stimulant drug in small doses, but if the user consumes a large amount of the drug it functions as a depressant. Like any drug, alcohol alters the brain's regular functioning. When it enters the brain, its effects include (a) increasing the efficiency of the inhibitory neurotransmitter GABA, and (b) impeding the ability of glutamate, an excitatory neurotransmitter, to bind to receptor sites in the brain (Genetic Science Learning Center, 2013). This double inhibitory effect is what slows the brain's neural activity as well as the bodily functions, producing the depressant effect. For many Americans, drinking alcohol is a "cool" and highly sought-after way to relax or have fun. In many cases, it seems like a nearly harmless way to kick off a weekend for a wide range of ages. Unfortunately, this perception that drinking alcohol is a casual, completely harmless activity is far from accurate, as the drug contributes to roughly 95,000 deaths a year in the United States alone, making it the country's third most common preventable cause of death (National Institute on Alcohol Abuse and Alcoholism, 2021).

ALCOHOLISM: PROBLEM JUSTIFICATION

Because of the common misconception that alcohol is a casual and harmless drug, it is one that many individuals start using at a very young age. According to the National Institute on Alcohol Abuse and Alcoholism, approximately 4% of all alcohol consumed in the United States is consumed by individuals ages 12 to 20, making it the most used drug among the country's youth (National Institute on Alcohol Abuse and Alcoholism, 2021). While the reasons for consuming alcohol at any age are specific to the individual, the oftentimes tragic effects impact many.

An individual's drinking may physically harm only themselves directly, with slowed body functions, impaired memory, and liver damage, but it can indirectly harm others in numerous ways as well. The Motor Vehicle Crash Data Report released in 2021 by the National Highway Traffic Safety Administration (NHTSA) showed that in the year 2019, 28% of all traffic fatalities in the United States were alcohol related (pg. 1). In many cases, the impaired driver is not the only one injured in these car crashes, and innocent lives are lost. Aside from alcohol's effects behind the wheel, alcohol use contributes to around 700,000 assaults, including nearly 97,000 sexual assaults in the United States each year (Myers & DeWall, 2018). Like most abused drugs, alcohol affects many more people than just the user, with those additional people impacted typically being those closest to the user. When an individual has crossed the threshold to alcohol use disorder, family and friends begin to suffer the consequences of alcoholism. Every substance abuse disorder involves maladaptive effects on the user's daily life. Whether they are actively out drinking or away seeking treatment for their condition, an individual's reliance on alcohol may impede their ability to maintain relationships. In any case, the loss of these relationships may lead to the loss of support that an individual dealing with alcoholism may have in their life, possibly extending their battle with addiction by decreasing the

likelihood of them seeking treatment. In a broader spectrum, alcohol use disorder also negatively affects the nation overall, costing the United States more than \$249 billion every year (Witkiewitz et al., 2019). While it is true that people who drink alcohol responsibly typically experience few negative effects, many do not do so responsibly. These devastating effects have the potential to worsen as an individual's drinking becomes more excessive, resulting in the development of alcohol use disorder.

ALCOHOLISM: CAUSES AND EFFECTS

Approximately 14.5 million people were diagnosed with alcohol use disorder in 2019 (Substance Abuse and Mental Health Services Administration, 2019, pg. 35). Many individuals allow their cognitive bias to overrule logic and ignore the evidence, becoming overconfident in their ability to refrain from developing such disorders, and ultimately believing that they are an exception to the statistics. For years, researchers have studied possible causes as to why people develop alcohol use disorder, thoroughly studying the issue from biological, social-cultural, developmental, and physical/mental health perspectives.

Research suggests that individuals with a certain nucleotide polymorphism in their DNA may be more prone to alcohol dependence and abuse (Kareken et al., 2010). The altered DNA affects their brains' reward responses, which in experienced drinkers can lead to more positive experiences associated with alcohol, and therefore increased usage, which increases the odds of addiction. Regardless of age or gender, the more alcohol an individual consumes, the higher their tolerance becomes, and hence the more they must consume to achieve those reward responses in the brain. Biologically speaking, men are more likely than women to develop a dependence on the drug (National Institute on Alcohol Abuse and Alcoholism, 2021). This may be a result of differences in emotion processing or coping mechanisms for trauma or stress.

Furthermore, those diagnosed with mental illnesses such as bipolar disorder and depression are likely to use alcohol and other substances as a coping mechanism and worsen their illness as a result (Smith et al., 2021). Excessive consumption of alcohol contributes to the development of certain psychiatric disorders (U.S. Department of Health and Human Services, 2021). Though alcohol has temporary stimulating effects, and sometimes gives those who are struggling with stress an “escape,” the drug provides no long-term positive effects.

From a social-cultural perspective, researchers have found that those who engage in drinking alcohol do so to fit in or keep up with what they think society’s expectation is for them. One study found that drinking in adolescents is heavily influenced by their friendship statuses with their peers. The study concluded that in social groups where “friendship status” mattered (such as cooperative team sports), adolescents were more likely to drink with only “reciprocated friends” (in other words, those who mutually considered said peer as a friend). Conversely, in groups where friendships status was less important, such as school clubs and activities, adolescents drank with peers regardless of whether they were reciprocated friends (Fujimoto & Valente, 2013). In teams and cooperative groups, one may be more concerned with their peers’ perception of them, only engaging in activities that they are sure will be accepted. In less cooperative groups, the adolescents subsequently paid less attention to what was acceptable in the group, perhaps in an attempt to act “cool” or rebellious. Regardless of what is socially acceptable or expected at a given time, people tend to act in ways based on what they believe would make them fit into a particular group. The more a person believes they should be drinking, the more they will, which can often lead to abuse, and is a large reason so many people ages 12-17 have alcohol use disorder (U.S. Department of Health and Human Services, 2021).

In terms of social-cultural effects of alcohol use disorder, an individual abusing alcohol tends to neglect many important social aspects of their life to make time for alcohol. This includes but is not limited to decreasing time spent with family and friends and declining motivation for work. This neglect results in a deterioration of the user's relationships and support systems.

ALCOHOLISM: POTENTIAL SOLUTIONS

As more knowledge is gained on the causes and effects of alcohol use disorder, researchers have investigated more effective methods of treatment and prevention. Currently, many individuals seek recovery through Alcoholics Anonymous (AA), a fellowship of "sobriety seekers" who meet with one another to share their stories, strength, and hope with one another as they commit themselves to accepting their wrongs, mending affected relationships, and actively work towards recovering themselves and their lives from their illness (Alcoholics Anonymous). According to one study, AA was 60% more successful than other methods of intervention or no intervention at all, by reducing the participants' consumption of alcohol and increasing the length of time they abstained from drinking alcohol (Erickson, 2020). Though the statistics support AA's effectiveness, some professionals skepticize that the lack of professional involvement in such treatment is cause for concern (Erickson, 2020). This led researchers to a newer method of treatment being studied, motivational interviewing and intervention.

Motivational interviewing and intervention is a communication style that, like AA, encourages the patient to establish their own meaning for their disorder and develop a genuine desire to change their behavior. Several studies, each utilizing different samples of people, have tested the effectiveness of motivational interviewing. In one, over-the-phone motivational interviewing followed by either feedback or psychoeducation (an approach that combines educating the participant about their disorder with

structure and feedback in a safe environment) was used to treat active members of the military dealing with untreated alcohol use disorder (Lukens, 2015). Though all participants decreased their alcohol consumption, those who received feedback reported fewer drinks per week than those who received psychoeducation (Walker et al., 2017). In a different study, individual motivational interventions were used to treat adolescents abusing alcohol. When combined with family checkups, the treatment was found to be even more effective than it was without family checkups at short-term follow-ups three, six, and twelve months into treatment (Spirito et al., 2011). While therapy has been used in the past, motivational interviewing and intervention has since proven to be a more effective method of treatment because it encourages the patient to actively take steps toward their recovery with professional guidance.

The effectiveness of these interviews will also depend on other factors such as cultural and societal expectations. As the country moves toward becoming more open about mental health awareness, and subsequently the rehabilitation of those suffering from said disorders, there will be more success in the researching and studying of ways to treat individuals with alcohol use disorder. However, if a struggling individual's culture and way of life inhibits them from reaching out for help, several previously stated methods will not benefit them. For example, in some cultural groups there is a stigma around seeking help for mental health problems or a preference for seeking help from spiritual or community leaders over health professionals; people may also legitimately be leery after prior experiences, either personal or observed with discrimination in treatment settings (Modir et al., 2022). In addition, although alcohol use disorder does not discriminate by wealth, those who lack financial resources may not be able to afford adequate treatment. Continuing to study this ever-growing issue and its causes may lead to a better understanding of substance abuse in general,

and eventually the development of more effective treatment options and methods of prevention. When discussing alcohol abuse and similar problems, it is important to understand not only the biological, psychological, and social causes and effects, but the interactions between them. Alcohol abuse does not have just one cause or one effect, and these causes are never only biological, one psychological, or only social. Any effective treatment needs to address multiple domains of thought and behavior.

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AUTHOR NOTE

We have no known conflict of interest to disclose.

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