Negative Implications of Drug and Substance Use on Mental Health

Abstract

Mental health refers to a person's emotional, psychological, and social well-being, which encompasses aspects such as thoughts, feelings, behaviors, and the ability to cope with life's challenges. Several factors including drug abuse have been recognized to cause mental health disorders; hence, the urgent need to globally address these factors. Drug abuse emerges as a complex public health issue, involving the misuse of legal and illegal drugs, with consequences extending beyond individual health. The relationship between mental health and drug abuse intensifies challenges, as drug misuse contributes to the development or worsening of mental health disorders. This review examined biological, psychological, and social determinants, and advocate for a standardized approach to address the complex issue of drug abuse. Various electronic databases, such as PubMed, Scopus, Web of Science, Medline, and others, were used to access resources, in which thirty-three (33) literatures were reviewed. Results of the reviewed literatures revealed that the impact of drug abuse on mental health involves neurobiological alterations affecting neurotransmitter levels and structural changes in the brain. This does not only affect individuals, but also results in societal burdens, such as increased healthcare costs and criminal justice involvement, compounded by the stigma surrounding mental health and substance abuse. The classification of drugs into legal and illegal categories highlights the diversity of substances and emphasizes the need to understand their effects on mental well-being. Categories include legal drugs, prescription medications, socially accepted substances, and illegal drugs with varying dependency potentials. Addressing mental health disorders induced by drug abuse requires a comprehensive approach, involving strategies like Integrated Dual

Diagnosis Treatment (IDDT), Medication-Assisted Treatment (MAT), Cognitive-Behavioral Therapy (CBT), Motivational Interviewing (MI), Dialectical Behavior Therapy (DBT), Peer Support, 12-Step Programs, and Recovery-Oriented Systems of Care (ROSC). These methods guarantee a care continuum that centers on the individual and emphasizes recovery, acknowledging the relationship between mental health and drug abuse disorders. Nevertheless, the review highlights a research gap in that, in-depth research is needed to evaluate the effectiveness of the aforementioned interventions. Additionally, exploring innovative strategies to address challenges such as stigma, limited treatment accessibility, and the cyclical nature of addiction would enhance intervention effectiveness.

Keywords: mental health, drug abuse, well-being, global public health, depression, anxiety, bipolar disorder

1.0 Introduction

Mental health is a critical aspect of overall well-being that encompasses emotional, psychological, and social dimensions (Sun *et al*., 2023). It plays a fundamental role in how individuals think, feel, and behave, influencing their ability to cope with stress, relate to others, and make decisions. Mental health is not just the absence of mental disorders but also the presence of positive characteristics such as resilience, self-esteem, and emotional well-being (Pfefferbaum& North, 2020).

The prevalence of mental health disorders worldwide highlights the urgency of addressing this global public health challenge. Conditions like depression, anxiety, and bipolar disorder affect millions of people, impacting their daily lives, relationships, and overall quality of life

(Rajkumar, 2020). Furthermore, the social stigma linked to mental health concerns frequently results in reduced reporting and obstacles to seeking assistance (Rajkumar, 2020).

Drug abuse, being a pervasive and complex public health issue, possesses significant challenges globally (World Health Organization, 2018). It involves the misuse or overuse of substances, both legal and illegal, leading to adverse physical, psychological, and social consequences. This phenomenon has far-reaching implications for individuals, families, and communities, necessitating a comprehensive understanding of its causes, effects, and potential interventions (World Health Organization, 2018). The misuse of substances such as opioids, stimulants, and sedatives has become a major concern, contributing to a rising number of substance-related disorders and overdoses (National Institute on Drug Abuse, 2018). The consequences of drug abuse extend beyond individual health, affecting societal well-being through increased healthcare costs, crime rates, and strained social services (National Institute on Drug Abuse, 2018).

Mental health and substance abuse are intertwined aspects of human well-being that significantly influence each other (Joneset al., 2016). The relationship between mental health and drug abuse is complex and multifaceted, with each playing a key role in shaping the outcomes for individuals (Lim et al., 2016). Extensive research has examined this association, demonstrating that substance misuse can profoundly affect mental health by worsening existing conditions and, in some instances, triggering the onset of new mental health disorders (Gittins et al., 2021).In recent years, the prevalence of drug abuse and its impact on mental health has gathered increased attention from researchers, healthcare professionals, and policymakers (World Health Organization, 2017; National Institute on Drug Abuse, 2018).

Biological, psychological, and social determinants all play a role in the initiation and maintenance of substance misuse (Volkow et al., 2016). Also, genetic predispositions, mental health disorders, and environmental influences contribute to the complexity of drug abuse, making it necessary to adopt a standardized approach in addressing this issue (Volkow et al., 2016). However, despite ongoing efforts, challenges persist in addressing drug abuse. Stigma surrounding substance misuse, limited access to treatment, and the cyclical nature of addiction contribute to high rates of relapse (Volkow and McLellan, 2016). Furthermore, the changing availability of drugs and the appearance of new types of substances continue to be problems that policymakers and healthcare workers have to deal with (Volkow and McLellan, 2016). However, this review article aims to provide a comprehensive examination of the interplay between mental health and drug abuse.

1.1 Literature Search Methods

In this review a comprehensive literature search was conducted. Various electronic databases, including PubMed, Scopus, Web of Science, and Medline, were queried to access relevant publications. Additionally, books and other scholarly resources were consulted to gather comprehensive information on the topic.

1.2 Search Strategy and Keywords

The search strategy employed a structured approach, incorporating keywords, controlled vocabulary terms, and Boolean operators. The search was conducted across various electronic databases, including PubMed, Scopus, Web of Science, and Medline, to ensure comprehensive material collection. In PubMed, the following search strategy was utilized: (("Mental health"[MeSH Terms] OR "Mental health"[Title/Abstract] OR "Mental disorders"[MeSH Terms]

OR "Mental disorders"[Title/Abstract]) AND ("Substance-Related Disorders"[MeSH Terms] OR "Substance-Related Disorders"[Title/Abstract] OR "Substance Abuse, Intravenous"[MeSH Terms] OR "Substance Abuse, Intravenous"[Title/Abstract])) OR ("Drug Abuse"[MeSH Terms] OR "Drug Abuse"[Title/Abstract] OR "Drug Addiction"[MeSH Terms] OR "Drug Addiction"[Title/Abstract]). These elements, combined with Boolean operators such as "AND" and "OR," were strategically integrated to enhance precision and capture a broad spectrum of literature on the relationship between mental health and drug abuse.

2.0 Impact of Drug Abuse on Mental Health

The impact of drug abuse on mental health is a critical area of concern, reflecting the complex interconnection between substance misuse and psychological well-being. Substance abuse, encompassing the misuse of legal and illegal substances, has profound consequences on mental health, affecting individuals across various demographics and presenting challenges for both healthcare providers and policymakers (Smith and Johnson, 2020).

The relationship between drug abuse and mental health is bidirectional, with each influencing and exacerbating the other. Substance misuse can contribute to the development, aggravation, or recurrence of mental health disorders, including anxiety, depression, and psychosis (Magura et al., 2011). Additionally, individuals with pre-existing mental health conditions may be more vulnerable to the harmful effects of substance abuse, creating a complex cycle of mutual reinforcement (Volkow, 2020). One of the primary impacts of drug abuse on mental health is the alteration of neurobiological processes within the brain. Substance use can lead to changes in neurotransmitter levels, affecting mood, cognition, and behavior (Nestler, 2015). The chronic use of certain substances may also contribute to structural changes in the brain, further influencing mental health outcomes (Koob and Volkow, 2016).

The consequences of drug abuse on mental health extend beyond the individual level to impact families, communities, and society at large. Increased rates of substance use disorders contribute to societal burdens, including healthcare costs, criminal justice involvement, and lost productivity (Vigo et al., 2016). Moreover, the stigma associated with both mental health issues and substance abuse often leads to underreporting and barriers to seeking timely and effective treatment (Corrigan, 2005).

According to Barrett et al. (2014), the association between substance abuse and violent or offending conduct goes beyond community violence, including occurrences in domestic settings and institutions. The use of substances plays a substantial role in influencing the public health repercussions of the cycle of domestic violence, surpassing other contributing factors. Longman-Mills and her team investigated the link between childhood physical abuse and later instances of psychological distress and substance abuse among university students. Their study indicated that undergoing physical abuse in childhood heightens the probability of experiencing heightened psychological distress and engaging in substance abuse in adulthood (Longman-Mills et al., 2015), which would, in consequence, exacerbate their mental well-being.

3.0 Classification of Drugs

Nowadays, various classification systems for drugs exist, broadly dividing them into two major groups:

1. Legal Drugs

Legal drugs are those manufactured, produced, bought, and sold within the boundaries of the law. Examples include aspirin, cough syrups, laxatives, antacids, vitamins, and certain contraceptives. These non-prescription drugs serve various purposes such as hunger control,

sedation, stimulation, and relief and are produced and marketed globally for billions of dollars. Drugs and medications dispensed by pharmacists based on prescriptions from doctors and dentists fall under the category of prescription drugs. These encompass analgesics, contraceptives, antibiotics, medicated shampoos, stimulants, sedatives, antidepressants, anesthetics, and others. However, some psychoactive prescription drugs, like amphetamines, barbiturates, and narcotics, are abused to alter states of consciousness. Socially accepted psychoactive drugs, such as alcohol, tobacco, coffee, and tea, fall into three categories: non-prescription drugs, prescription drugs, and social drugs (nicotine, caffeine, and alcohol)(Koob and Volkow, 2016).

2. Illegal Drugs

Illegal drugs are those not used legally but are abused. They can be further divided based on their potential to produce high or low dependence. Substances like amphetamines, cocaine, depressants, and narcotics tend to produce high dependency, while marijuana and other hallucinogens result in low dependency. The nature of illegal drugs varies concerning their ability to induce clinical dependency. Heroin, cocaine, amphetamines, and barbiturates strongly produce dependence, while marijuana, lysergic acid diethylamide (LSD), and psilocybin create weaker dependence (Koob and Volkow, 2016).

4.0 The Mechanism of Action of Drugs of Abuse

The mechanism of action of drugs of abuse on the central nervous system (CNS) involves complex interactions with neurotransmitter systems (Koob and Volkow, 2016). Various classes of drugs, including stimulants, depressants, opioids, hallucinogens, and cannabinoids, exert their

effects by targeting specific receptors and neurotransmitter pathways within the CNS. Some of the drugs of abuse, and their respective mechanism of action include the following:

a) Stimulants (for example, Cocaine, Amphetamines)

Stimulant drugs primarily target the dopamine system. Cocaine, for instance, inhibits the reuptake of dopamine in the synapses, leading to an accumulation of dopamine and prolonged signaling in reward pathways (Volkow et al., 2007). Amphetamines, on the other hand, promote the release of dopamine and other neurotransmitters, contributing to heightened arousal and euphoria (Sulzer et al., 2005).

b) Depressants (for example, Alcohol, Benzodiazepines)

Depressant drugs primarily enhance the activity of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA). Alcohol, for example, potentiates GABAergic signaling, leading to sedation and relaxation (Koob and Volkow, 2016). Benzodiazepines act on GABA-A receptors, increasing the inhibitory effects of GABA (Sieghart, 2015).

c) Opioids (for example, Heroin, Prescription Painkillers)

Opioid drugs activate opioid receptors in the CNS, modulating pain perception and reward pathways. Heroin and prescription opioids bind to mu-opioid receptors, leading to analgesia and euphoria (Kieffer and Evans, 2009).

d) Hallucinogens (for example, LSD, Psilocybin)

Hallucinogenic drugs primarily interact with serotonin receptors. Lysergic acid diethylamide (LSD), for instance, activates serotonin receptors, leading to altered perceptions and

hallucinations (Nichols, 2004). Psilocybin, found in "magic mushrooms," has a similar mechanism of action.

e) Cannabinoids (for example, THC)

Cannabinoid drugs, like delta-9-tetrahydrocannabinol (THC), activate cannabinoid receptors (CB1 and CB2) in the CNS. CB1 receptors are abundant in the brain and play a role in the psychoactive effects of cannabis (Pertwee, 2006).

5.0 Drugs of Abuse and their Effects on Mental Well-being

Categorization of drugs of abuse is based on their nature, origin, mechanism of action, and effects. Among these categories are narcotic analgesics, such as codeine and morphine, which slow down a person and induce feelings of euphoria. Medically, narcotics signify opium and opium derivatives with high addictive potential. Moving to another category, stimulants temporarily stimulate the mind and body, exciting or speeding up the central nervous system. Commonly used stimulants include nicotine and caffeine, while more potent ones like cocaine and amphetamines can lead to intoxication and ecstasy.

Depressants, also known as "downers," slow down mental functions, especially the central nervous system, heart rate, and respiration. People may use depressants for relaxation, calmness, and improved sleep. Additionally, cannabis, derived from the marijuana plant, contains various cannabinoids. Products like hashish, marijuana, and bhang fall under this category, impacting psychoactive properties.

Transitioning to commonly abused substances, ranging from legal medications to illicit drugs, they have profound effects on mental health, influencing emotional, psychological, and cognitive

aspects of well-being (National Institute on Drug Abuse, 2020; Substance Abuse and Mental Health Services Administration, 2018).

Alcohol, one of the most widely consumed psychoactive substances globally, may not necessarily lead to adverse mental health effects with moderate consumption. However, excessive and chronic alcohol abuse is associated with an increased risk of depression, anxiety disorders, and cognitive impairments (National Institute on Alcohol Abuse and Alcoholism, 2021). Opioids, including prescription painkillers and illicit drugs like heroin, can have profound effects on the central nervous system. Prolonged use may lead to symptoms of depression, anxiety, and a heightened risk of developing opioid use disorder (Volkow et al., 2018).

Abuse of stimulants, like Cocaine and Methamphetamine, can result in heightened arousal, increased energy, and euphoria. However, the misuse of stimulants is linked to mental health issues such as paranoia, anxiety, and even psychosis (Substance Abuse and Mental Health Services Administration, 2018). Cannabis, commonly used for its psychoactive effects, is under ongoing research for its impact on mental health. Chronic use has been associated with an increased risk of anxiety disorders and may exacerbate symptoms in individuals with pre-existing mental health conditions (National Institute on Drug Abuse, 2020). Additionally, nicotine, primarily consumed through tobacco products, is addictive and has psychoactive effects. Smoking is often linked to mood disorders, and individuals with mental health conditions are more likely to smoke (National Institute on Drug Abuse, 2019).

6.0 Treatment of Mental Health Disorders induced by Drug Abuse

The treatment of individuals with mental health disorders interconnected with drug abuse requires a comprehensive and integrated approach, essential for promoting lasting recovery and

improving overall well-being. Various treatment approaches aim to address the complex relationship between mental health and substance use disorders. Integrated Dual Diagnosis Treatment (IDDT) is a widely recognized approach that simultaneously addresses mental health and substance use disorders within a unified framework, emphasizing coordination between mental health and substance abuse treatment professionals to provide holistic care (Drake et al., 1998).

Medication-Assisted Treatment (MAT) involves the use of medications, often in combination with counseling and behavioral therapies, to address substance use disorders. For individuals with co-occurring mental health issues, MAT can be tailored to target both aspects, improving overall treatment outcomes (Substance Abuse and Mental Health Services Administration, 2018). Cognitive-Behavioral Therapy (CBT), an evidence-based therapeutic approach, targets the cognitive and behavioral patterns associated with both mental health and substance use disorders. It helps individuals identify and change negative thought patterns and behaviors, promoting healthier coping mechanisms (McGovern et al., 2009). Motivational Interviewing (MI), a client-centered approach, focuses on enhancing intrinsic motivation for change, addressing ambivalence toward treatment and fostering a commitment to behavioral modifications, making it valuable for individuals with dual diagnoses (Miller and Rollnick, 2013).

Dialectical Behavior Therapy (DBT) combines cognitive-behavioral techniques with mindfulness strategies, beneficial for individuals with co-occurring disorders, addressing emotional dysregulation, self-destructive behaviors, and interpersonal difficulties common in this population (Linehan, 1993). Peer Support and 12-Step Programs, such as Alcoholics Anonymous (AA) or Narcotics Anonymous (NA), provide a supportive community for individuals struggling

with both mental health and substance use disorders. Shared experiences and mutual support contribute to recovery (Humphreys, 1999).

Additionally, Recovery-Oriented Systems of Care (ROSC) emphasize a person-centered and recovery-focused approach, involving collaboration between various service providers to offer a continuum of care. ROSC addresses both mental health and substance use needs across the individual's recovery journey (Substance Abuse and Mental Health Services Administration, 2012). This comprehensive and interconnected approach ensures that individuals receive tailored and effective treatment, considering the intertwined nature of mental health and substance use disorders.

7.0 Future prospective and Recommendation

The review identifies a research gap in terms of the limited exploration of specific interventions addressing the association between mental health and drug abuse disorders. While various treatment approaches are discussed, there is a need for more in-depth research evaluating the effectiveness and outcomes of the integrated interventions like IDDT), MAT, CB, MI, DBT, and others. Further studies should focus on the comparative efficacy of these approaches, considering diverse populations and factors, to provide a more comprehensive understanding of their impact on mental health and substance abuse outcomes. Additionally, research investigating innovative strategies to address the persistent challenges of stigma, limited treatment accessibility, and the cyclical nature of addiction would contribute valuable insights to enhance the effectiveness of interventions in this complex domain.

Conclusion

In summary, the interconnection between mental health and drug abuse is profound and bidirectional, shaping the well-being of individuals on emotional, psychological, and social levels. Mental health, vital for coping with stress and decision-making, faces a global challenge marked by conditions like depression and anxiety. Simultaneously, drug abuse, a pervasive global issue involving legal and illegal substances, adversely impacts physical, psychological, and social aspects. The bidirectional relationship intensifies challenges for individuals and healthcare providers, contributing to the development or worsening of mental health disorders. The impact extends beyond individuals, affecting societal burdens such as healthcare costs and criminal justice involvement. Treatment approaches, including IDDT, MAT, CBT, MI, DBT, Peer Support, 12-Step Programs, and ROSC, offer a holistic framework for addressing the complex relationship.

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