

Consequences of Drug Addiction on Physical and Mental Health

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Abstract

Drug addiction constitutes a significant socio-psychological issue that the contemporary society is facing. Many people take drugs because of various social, psychological, familial and environmental factors. By adopting the narrative review approach, the study examines the global phenomenon of drug addiction and its impact on physical and mental health. The study is based on secondary data collected through major databases, including PubMed, ResearchGate, and Google Scholar as well as various international organisations. The findings indicated that overdose represents the most acute risk that has led to increase in overdose deaths. Globally, illicit drug overdoses excluding tobacco and alcohol claim over 100,000 lives per year. The findings show that various physical health complications such as cerebral damage, circulatory system issues, cardiovascular illness, pulmonary carcinoma, sterility in men and infertility in women have been linked to drug addiction. It also shows that drug addiction leads to psychological health problems including serious depression, schizophrenia, bipolar disorder, attention-deficit hyperactivity disorder, distrust and neurosis. In conclusion, drug addiction is a societal issue that impacts both individuals and the society at large. To get rid of this problem in society requires strong legislation, harm-reduction methods and initiatives to raise awareness.

Key words : Drug Addiction, Physical, Mental, Health, Impact, Disorder

A drug is defined as any substance that has the potential to alter function in the body through its synthetic activity⁹. Historically Substances have been utilised for leisure

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activities³⁴. Initially, it was not perceived as a societal issue or a danger to the community at large. Then, it became a major societal issue at the time of industrialisation and modernity, affecting a number of individuals. Even though knowing the serious consequences of drug addiction still it remains widespread problem across the world³¹. And it represents a significant sociopsychological issue that contemporary society is encountered with. The use of illicit substances not only impacts individuals, families, communities but impacts the society as whole³⁹. It represents an ongoing, persistent and degrading condition affecting individuals of all genders and age²⁵. Drug addiction characterizes an uncontrollable urge to ingest a drug, regardless of the potential adverse social, psychological and the physical consequences of it²⁸. Regular and constant usage of any illicit drug without a physician's prescription alters physical as well as psychological states⁴³. The immediate consequences of an illicit drugs are influenced by its psychotropic characteristics, however the development of addiction to drugs results in numerous problems that are prevalent and significantly affect every aspect of an individual's life, undermining relationships, financial stability and overall, the state of health⁴. Thus, individuals with a past of chronic drug use frequently exhibit a range of physical complications, such as brain damage and atrophy, circulatory system disorders and signs of premature ageing. From a socio-economic viewpoint, prevalent issues encompass homelessness, deviant behaviour, unemployment, social detachment and dependency⁷. Illicit use of drugs are substances whose use within the medical contexts has been restricted by global regulatory frameworks⁸. The development of

an addiction to these illicit drugs can occur in individuals who engage in frequent use over an extended timeframe. This condition is marked by a diminished ability to curb the usage and a heightened significance of the substance in the individual's life.

Background and Epidemiology :

A global inclination towards addiction to drugs has existed since ancient times; however, the frequency and extent of misuse can vary significantly between countries, influenced by sociocultural, psychological and familial factors³¹. The World Health Organization reports that there are 2 billion individuals who consume alcohol, 1.3 billion who are tobacco users, and 185 million who engage in the use of illicit substances worldwide²³. Cannabis is the most widely used drug in the world with 228 million abusers. Opioids with 60 million users, then amphetamines with 30 million, cocaine with 23 million and psychedelic substances with 20 million users. Areas characterised by elevated income levels and urban development often indicate increased illicit drug consumption; for example, North America and certain European regions exhibit some of the highest documented rates of opioid and stimulants usage, while various areas in Asia and Africa show lower usage rates but emerging upward trends³⁶.

The World Drug Report of UNODC⁴¹ indicates that about approximately 50% of the 27 million individuals with drug use problems engage in injecting practices. Globally, about 14.8 million individuals injected drugs, including 15.2% infected with HIV and 38.8% with hepatitis C⁴⁴. In 2019, drug usage accounted

for around 36 million of years of healthy life lost. Globally, drinking alcohol was associated with 50% of liver cirrhosis fatalities, 30% of buccal and pharyngeal cancer deaths, 22% of suicides, 15% of traffic-related fatalities, 12% of tuberculosis deaths and 12% of liver cancer fatalities²⁶. More studies have shown poverty as a risk factor for opioid overdoses, jobless as a risk factor for fatal heroin overdoses and poor educational attainment as a risk factor for prescription overdoses and overdose mortality^{14,33}. Therefore, the existing body of literature mainly focusing on the specific regions and analyses the menace of drug addiction in a disjointed manner and fails to provide a holistic picture of prevalence of drug addiction and its multifaceted impacts on physiological and psychological health. So, the present study fills the gap by synthesising secondary data from various major electronic databases, international organisations such as WHO, UNODC, CDC and published publications to provide a comprehensive overview of drug addiction, mechanism of it and its impact on health and mental state.

The study adopted narrative review approach to understand the global phenomenon of drug addiction, mechanism of it and its impact on physical and mental health. A comprehensive literature search was conducted across major electronic databases such as PubMed, ResearchGate, google scholar, published research articles, books and in addition various reports were reviewed from international organisations such as WHO, UNODC, NIDA, CDC, thereby providing a holistic understanding of drug addiction as complex social problem. The studies were included which addressed the drug addiction and substance use disorder, examining the

health and psychological outcomes on global level and those studies were excluded which does not fulfil these criteria.

Ethical consideration :

As the study is based on the secondary data collected from the major electronic databases. So, it did not involve neither human nor animal participation. Therefore, no ethical approval was required but the research ethical principles were upheld to present original findings with appropriate citation of sources.

Mechanisms of Addiction :

Addiction is characterised by: incapacity to eliminate the use of certain addictive substances, lack of self-regulation over his actions, there exists intense and compelling desire, the addict loses the capacity to identify critical issues in his conduct and connections with others and disrupted emotional reactions³⁸. Addiction is essentially a neurological illness characterised by alterations in neuronal pathways that govern reward, motivation, stress and self-regulation. Modern models characterise addiction as a chronic relapsing condition resulting from recurrent drug exposure and marked by distinct neuroadaptations¹⁰. Traditional thinking posits that addictive substances activate a “common pathway” by increasing dopamine levels in the mesolimbic reward system, hence reinforcing drug-seeking behaviour. Prolonged usage of drugs induces neurological adaptations mediated by glutamatergic mechanisms in the dopamine striate thalamocortical pathways, mainly affecting prefrontal cortical regions such as

the orbitofrontal cortex and anterior cingulate cortex, as well as limbic structures like the amygdala and hippocampus. In prone individuals, these changes can lead to addiction. Simultaneously, alterations in the expanded amygdala led to adverse emotional states that sustain drug use as a means to momentarily relieve these feelings⁴².

Consequences on Physical Health :

The use of illicit drugs can lead to fatalities through various mechanisms. The first point is that the consumption of dangerous substances at any stage in an individual's life may serve as an indirect risk factor for early mortality due to disease or injury. Secondly, illicit drugs can lead to direct fatalities due to dependency and overdoses. The phenomenon of overdose constitutes the most pressing danger that has resulted in a surge of fatal overdoses. Worldwide, the number of lives lost to illicit drug overdoses apart from tobacco and alcohol, exceeds 100,000 annually, with synthetic opioids being increasingly responsible for a significant portion of these deaths.

Beyond the opioids, the stimulants like cocaine and amphetamines may lead to deadly cardiac arrest and excessive heat in the body³⁶. Similarly, intoxication, drug misuse and overdose present major threats to the physical health of an individual and may result in severe medical problems³⁹. A latest morbidity and mortality report directs that opioid analgesic poisoning accounted for more fatalities than heroin or cocaine, predominantly affecting individuals aged 35 to 54³². The usage of cannabis is associated with an elevated risk of lung cancer and various chronic lung

conditions, as well as head and neck cancer, male sterility and female infertility. Approximately 15.2% of individuals indulge in regular tobacco use, elevating their chance for twelve forms of cancer, non-malignant lung diseases, heart attacks and several other long-term health problems¹. Even substances not typically associated with smoking can adversely affect lung health: the inhalation of cocaine or opioids may lead to respiratory depression and lung damage. A 14-year longitudinal investigation involving young individuals who reported "good" or higher health at baseline found that first hard drug use was strongly correlated with a reduction in self-rated health associated to those who had never used such substances¹⁸. Various drugs, including tobacco, alcohol, heroin, pharmaceutical stimulants and methamphetamine are linked with an elevated risk of cardiovascular issues and heart attacks²⁹. Alcohol use is said to be the predominant cause for added high blood pressure¹⁹. Population-based cohort research on cardiovascular well-being in older persons revealed that nine-year follow-up data indicated a significantly reduced risk of attack among light drinkers; conversely, alcohol use above six drinks per week correlated with an elevated risk²⁷. Whereas, cocaine directly affects blood pressure, hence intensifying the risk of heart attack and cardiac arrest²².

Older persons with drug use are at heightened risk for impairment to organs and various types of cancers. Specifically, the ten-year chance of getting breast cancer in women aged 60 and older is over twice that of women aged 40; regular drinking liquor and tobacco usage are significant risk factors for it. Likewise, for males, the risk of developing

colorectal and prostate cancer rises rapidly with age and drug use exacerbates this risk³⁵. Throughout the globe 14.8 million people inject drugs. Of them, 15.2% have HIV and 38.8% have hepatitis C⁴⁵. Injection drug users (IDUs) are the most vulnerable demographic for Hepatitis C virus (HCV) transmission; around 70 to 80 percent of annual new HCV infections in the United States occur within this population^{20,21}. These infections are found particularly among crack cocaine users due to the sharing of pipes with open oral lesions and heightened engagement in hazardous sexual behaviours^{2,6}. And these types of infections cause chronic illnesses including AIDS, liver failure, carcinoma of the liver, and kill a great number of people every year. The CDC says that injections of opioids are linked to outbreaks of endocarditis, skin furuncles and fungal infections that are tolerant to several drugs⁵. Other effects on the body include a greater risk of being sick, such as immunosuppression, chronic inflammation and a higher chance of getting cancer. NIDA notes that people with addiction generally have one or more other medical problems at the same time such as lung or heart disease, stroke, cancer or mental disorder. In brief, addiction is really bad for the body because it hurts organs, causes infections and is quite toxic which makes the chances for people more likely to die or get sick.

Consequences on Mental Health :

Psychiatric disorders and addiction to substances are deeply interconnected with each other and each impacting one another. Psychological disorders such as depression, stress or bipolar disorder may precede a drug addiction; however, in other cases, substance

use exacerbates or triggers underlying illnesses. Numerous national population studies indicate that around fifty percent of those who encounter a mental illness in their lifetime will also develop a drug use disorder, and conversely¹⁷. Ill mental capability may adversely affect quality of life, elevate mortality rates, and deteriorate physical health (U.S. Department of Health and Human Services, 1999). Substance abuse precipitates mood instability, anxiety and psychotic manifestations: for instance, cocaine consumption may result in paranoia and psychosis; excessive alcohol intake can lead to profound depression; and even marijuana particularly in high potency has been associated with triggering schizophrenia in susceptible individuals²⁹. The dopamine system reinforces our innate tendencies when active at optimal levels. However, excessive activation of the dopamine system by drugs produces euphoric sensations that significantly reward drug use behaviour conditioning the user to replicate it. The human brain is designed to promote the repetition of life-sustaining actions by linking them to pleasure or reward³⁰. All psychoactive substances may induce mental health issues both during use and upon cessation. These issues may include anxiety, mood fluctuations, sadness, sleep disturbances and psychosis. Patients may have panic attacks characterised by episodes of intense anxiety, accompanied by increased heart rate, shaking, sweating, shortness of breath and a feeling of losing control¹³.

Psychoactive substances have the potential to induce delusions characterised by the conviction of false realities or hallucinations which involve perceiving sights or sounds that

do not exist. Individuals might experience periods characterised by feelings of depression, sadness, restlessness, irritability, fatigue, diminished pleasure or manic states including an elevated mood, paranoia, erratic behaviour and frantic thinking. Mood disorder can arise from the use of substances like cocaine, amphetamines, heroin and methadone¹³. Taking psychoactive drugs resulting in long-lasting mental health disorders among the drug users. The administration of a drug may have triggered an underlying psychiatric condition that was previously unrecognized and it might alter the effects of a particular chemical on nervous system functioning. When trying to treat both addiction and mental disorders at the same time, it can be hard to tell where one ends and the other begins^{11,24}. Psychological disorders associated with addiction include depression, schizophrenia, bipolar disorder, anxiety disorder and attention-deficit hyperactivity disorder (ADHD). People who are addicted to drugs might get health problems that can kill them directly or indirectly such as sudden heart disease and strokes that happen when blood clots and block the blood flow to the brain¹². Addiction to drugs may make people angrier and more violent which can make their sadness worse to the point where they think about hurting themselves and others. The inclination towards suicide and the danger of drug overdoses may ultimately lead to lethal consequences^{3,16}. Drugs including cannabis, opiates, cocaine and steroids can damage cognitive processes, memory and behaviour in the future. Substance misuse causes cognitive dysfunction in a number of ways such as by damaging the brain causing inflammation in the brain and changing the way brain circuits work¹⁵.

The findings of the research reveal that addiction to drugs is a widespread and growing problem worldwide. Many people use illicit drugs, and a large number of them come up with disorders related to substance abuse. The gap in treatment and the effects of addiction makes the long-term wellness of an individual worse. Substance addiction causes both short-term and long-term impairment to physical well-being as well as social being. Long-term use of drugs increases the risk of heart disease, stroke, respiratory problems, liver damage, cancer and infections like HIV and hepatitis C, especially among those who use drugs by injecting them. These health problems shorten the life and lower the quality of life of an individual. Addiction is closely associated with mental illnesses such as anxiety, depression, bipolar disorder, psychosis, and mental retardation. A lot of people who are addicted have mood swings, make bad choices and think about killing themselves. The link between addiction and mental illness makes it harder for a person to get better and recover from addiction. Because of this, drug dependency is an immense problem for both the individuals, its family members and communities. Individuals with addiction often face unemployment, financial difficulties, homelessness, familial strife and involvement in criminal activities. Moreover, the connection between poverty and inadequate education increases the risk of drug addiction, so sustaining a cycle of social and economic disadvantage. Thus, the study emphasises that drug abuse is shaped by social-economic and environmental determinants rather than just by individual decision.

Addiction to substances is widespread in almost every part of the world. People of

any age group, backgrounds and genders suffer from drug addiction. Every year, millions of people throughout the world die from the overdose of drugs. People commonly use drugs and alcohol to deal with problems at home, being out of work, feeling alone, failing in love, and to deal with their despair and disappointment. But it then hurts people in a big way leading to more diseases, mental health problems, physical decline, social instability and early death. People in the addiction cycle feel very hopeless, alone, anxious, angry and powerless. To solve this problem, we need to take a holistic strategy that includes preventive and treatment programs, psychological well-being and harm reduction methods all of which are necessary. Policies should put the most important things first: lowering poverty, generating more jobs and improving the health care system. Finally, to lessen the effects of addiction on people and society, we need to keep doing research on this issue, becoming involved in our communities to eradicate this menace from the society, and making policies that see addiction as a health condition that can be treated not as crime in society. Drugs are quite dangerous, and you can't ignore the hazards that come with them.

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