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Substance Use Disorder: Prevalence, Diagnosis, Harms, Protective and Risk Factors

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Abstract

Substance use disorder (SUD, alcohol or illicit drug dependence or abuse) and substance misuse are associated with numerous health and social problems and increase the risk of hospitalization, nursing home placement and death among older adults. Moreover, 90% of older adults use prescription and over-the-counter medications, and many medications interact adversely with alcohol or illicit drugs. At least 25% of older adults use psychoactive medications with abuse potential. In addition, older adults experiencing emotional and social problems (e.g. bereavement, loneliness, social isolation) and medical problems (e.g. chronic pain, insomnia, dementia, depression or anxiety) are at greater risk for substance use. The same problems may also be aggravated by SUD.

Keywords: Substance use disorder, SUD, Alcohol, Drug Dependence.

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1. Introduction

Substance use disorder (SUD)—commonly referred to as drug addiction—is defined as a chronic, relapsing disease that results from the prolonged effects of drugs on the brain. Similarly to other neuropsychiatric diseases, drug addiction is intermingled with behavioural, cognitive, physical and social aspects that are equally important parts of the disease, complicating the overall therapeutic approach [1]. Substance use problems are prevalent and widespread throughout the world and are associated with multiple short- and long-term health risks as well as with substantial personal, societal, and economic costs [2]. Regardless of the differences among the addictive substances, SUDs share common neurobehavioral characteristics, including the progression of the three addiction stages (intoxication → withdrawal → craving) and dysregulation of the neurobiological systems associated with reward, stress, emotion, and executive functions [3].

2. Prevalence:

Despite the efforts of public authorities to reduce drug use rates among the population, global statistics on alcohol, tobacco, and illicit drug use revealed the highest prevalence, particularly in United States and Europe. Drug use is likely to begin in adolescence, mainly alcohol and tobacco, even though in adulthood, especially among young adults, the rates seem to remain equal or even higher than in adolescents. Individual differences identified in drug use, personal functioning, and psychosocial deviance are related to multiple protective or risk factors. Even though family is one of the most important, due to their influence, it can be beneficial and protective, but also harmful and risky [4]. Drug abuse is a global problem; 5.6% of the global population aged 15–64 years used drugs at least once during 2016. The usage of drugs among younger people has been shown to be higher than that among older people for most drugs [5]. Adolescents are the group of people most prone to addiction. The critical age of initiation of drug use begins during the adolescent period, and the maximum usage of drugs occurs among young people aged 18–25 years old. During this period, adolescents have a strong inclination toward experimentation, curiosity, susceptibility to peer pressure, rebellion against authority, and poor self-worth, which makes such individuals vulnerable to drug abuse [6]. During adolescence, the basic development process generally involves changing relations between the individual and the multiple levels of the context within which the young person is accustomed. Variation in the substance and timing of these relations promotes diversity in adolescence and represents sources of risk or protective factors across this life period [7]. All these factors are crucial to helping young people develop their full potential and attain the best health in the transition to adulthood. Abusing drugs impairs the successful transition to adulthood by impairing the development of critical thinking and the learning of crucial cognitive skills. Adolescents who abuse drugs are also reported to have higher rates of physical and mental illness and reduced overall health and well-being. The absence of protective factors and the presence of risk factors predispose adolescents to drug abuse

[8]. Previous research has shown that the prevalence of substance use among university students was approximately 26% in males and 19.2% in females [8]. In Egypt, substance abuse is a serious public health threat. The prevalence of substance use among adolescents in Egypt was 8.8% while regular use (1.5%) and dependence (0.9%) were much less. The lifetime prevalence of substance use among Egyptian university students was 22.5 % [9].

3. Diagnosis:

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, text revision, often called the DSM-V-TR or DSM-5-TR, is the latest version of the American Psychiatric Association's gold-standard text on the names, symptoms, and diagnostic features of every recognized mental illness—including addictions. The DSM-5-TR criteria for substance use disorders are based on decades of research and clinical knowledge. The DSM-5-TR was published in 2013, and in 2022, a text revision was published that included updated criteria for more than 70 disorders, including the requirements for stimulant-induced mild neurocognitive disorder [10].

There are two groups of substance-related disorders: substance-use disorders and substance-induced disorders.

- Substance-use disorders are patterns of symptoms resulting from the use of a substance that you continue to take, despite experiencing problems as a result.
- Substance-induced disorders, including intoxication, withdrawal, and other substance/medication-induced mental disorders, are caused by the effects of substances.

❖ DSM-5-TR Substance Use Disorder Criteria

Substance use disorders span a wide variety of problems arising from substance use, and cover 11 different criteria: [11].

1. Taking the substance in larger amounts or for longer than you're meant to
2. Wanting to cut down or stop using the substance but not managing to
3. Spending a lot of time getting, using, or recovering from use of the substance
4. Cravings and urges to use the substance
5. Not managing to do what you should at work, home, or school because of substance use
6. Continuing to use, even when it causes problems in relationships
7. Giving up important social, occupational, or recreational activities because of substance use
8. Using substances again and again, even when it puts you in danger
9. Continuing to use, even when you know you have a physical or psychological problem that could have been caused or made worse by the substance
10. Needing more of the substance to get the effect you want (tolerance)
11. Development of withdrawal symptoms, which can be relieved by taking more of the substance

❖ Severity of Substance Use Disorders [11].

The DSM-5-TR allows clinicians to specify how severe or how much of a problem the substance use disorder is, depending on how many symptoms are identified.

- Mild: Two or three symptoms indicate a mild substance use disorder.
- Moderate: Four or five symptoms indicate a moderate substance use disorder.
- Severe: Six or more symptoms indicate a severe substance use disorder.

❖ The DSM-5-TR recognizes substance-related disorders resulting from the use of 10 separate classes of drugs [12].

- Alcohol
- Caffeine
- Cannabis
- Hallucinogens
- Inhalants
- Opioids
- Sedatives
- Hypnotics, or anxiolytics
- Stimulants (including amphetamine-type substances, cocaine, and other stimulants)
- Tobacco

4. Harms & costs:

Drug use is a major global risk factor for disability and premature loss of life. Drug use seriously harms correct functioning and is related to problems and difficulties [12]. For example, drug use has been associated with low well-being, poor family relationships and emotional regulation, low confidence in one's abilities, weak performance at school or work, poor interpersonal relationships, and increased likelihood of deviant activities and even delinquency [13]. The increased burden due to drug abuse among adolescents and young adults was shown by the Global Burden of Disease (GBD) study in 2013. About 14% of the total health burden in young men is caused by alcohol and drug abuse. Younger people are also more likely to die from substance use disorders, and cannabis is the drug of choice among such users [14]. Drug addiction including smoking, alcohol and illicit drug use is indirectly or directly responsible for 11.8 million deaths each year in the world. According to the Global Burden of Disease study, this number is higher than deaths from cancer and accounts for a fifth of all deaths around the world. SUDs cause millions of years of life lost because of premature death and is also among the leading causes of life with disability worldwide, including both developing and developed countries. Tobacco and alcohol are among the four leading risk factors for deaths globally [15].
In the United States, it is estimated that each year, over 88,000 people die from alcohol related causes, and more than 480,000 deaths are linked to cigarette smoking. Other drug-overdose deaths have increased by more than threefold in the United States since 1999, resulting in more than 70,000 deaths in 2017 [16]. Based on the 2018 study by the Substance Abuse and Mental Health Services Administration (SAMHSA), in the United States alone, there are more than 16 million heavy alcohol drinkers, 27 million daily smokers, and more than 50 million illicit drug users, including more than 10 million people who misuse opioids. However, only about 10% of those who needed treatment for SUDs received treatments in 2018 [17].

According to the 2016 United States Surgeon General's Report [18], more than 60% of those who received addiction treatments in the United States relapsed within a year, which highlights the challenges in sustaining recovery (i.e., maintaining long-term drug abstinence and well-being). Despite decades of scientific research and the high economic cost (estimated at $740 billion a year in the United States alone), treatment outcomes and recovery from SUDs continue to be very limited. The Centers for Disease Control and Prevention (CDC) estimate binge drinking costs the United States approximately $249 billion each year in lost workplace productivity, health care expenses for medical problems associated with binge drinking, law enforcement costs, and costs of motor vehicle crashes [19]. Similarly, the National Drug Intelligence Center found that misuse of illegal drugs and non-prescribed medications cost the United States more than $193 billion per year. Again, these costs were due primarily to lost productivity by working substance misusers (62%) and criminal justice costs for drug-related crimes (32%) [20]. Medical costs associated with undiagnosed, untreated substance misuse and substance use disorders have been estimated at more than $120 billion annually. The general population prevalence of substance use disorders is 8% to 10% (6% to 7% for women, 9% to 11% for men), but the prevalence is far higher in all areas of medical care — from approximately 20% in typical primary care clinics, to 40% in general medical patients treated in hospital, to more than 70% of patients in emergency or urgent care clinics. A recent study showed that the presence of an early substance use disorder often doubles the odds for the subsequent development of chronic and expensive medical illnesses such as arthritis, chronic pain, heart disease, stroke, hypertension, diabetes, and asthma. In general medical practice, failure to detect and address substance use has been associated with misdiagnoses, poor adherence to prescribed care, high use of hospital and emergency services, and even deaths. Despite the extraordinary costs, morbidity, and mortality associated with substance misuse it has been broadly overlooked throughout all of healthcare. This has been a costly mistake, with often deadly consequences [21].

5. Protective and risk factors: Keys to Vulnerability

As is the case with most other chronic illnesses, 40% to 70% of a person's risk for developing a substance use disorder is genetic, but many environmental factors interact with a person's genes to modify their risk, such as being raised in a home in which the parents or other relatives use alcohol or drugs or living in neighborhoods and going to schools with high prevalence of alcohol and drug misuse are also risk factors [22]. Neither substance misuse problems nor substance use disorders are inevitable. An individual's vulnerability can be predicted by assessing the nature and number of their personal and environmental risk and protective factors. Significant environmental risk factors for both substance misuse and disorders include easy access to inexpensive alcohol and other substances, heavy advertising of these products, particularly to youth, low parental monitoring, and high levels of family conflict. Environmental protective factors include availability of healthy recreational and social activities, and regular supportive monitoring by parents [23]. Some of the risk factors are the presence of early mental and behavioral health problems, peer pressure, poorly equipped schools, poverty, poor parental supervision and relationships, a family history of substance use or mental disorders, a current mental health problem, low involvement in school, a history of abuse and neglect, and family conflict and violence a poor family structure, a lack of opportunities, isolation, gender, and accessibility to drugs [23]. The protective factors include high self-esteem, religiosity, grit, peer factors, self-control, parental monitoring, academic competence, anti-drug use policies, involvement in school, involvement in healthy recreational/social activities, and development of good coping skills and strong neighborhood attachment [23]. Prevention science has concluded that there are three important points regarding vulnerability. First, no single personal or environmental factor determines whether an individual will have a substance misuse problem or disorder. Second, most risk and protective factors can be modified through preventive policies and programs to reduce vulnerability. Finally, although substance misuse problems and disorders may occur at any age, adolescence and young adulthood are particularly critical at-risk periods [8]. With regard to substance use disorders, research now indicates that more than 85% of those who meet criteria for a substance use disorder sometime in their lifetime do so during adolescence. Put differently, young adults who transition the adolescent years without meeting criteria for a substance use disorder are not likely to ever develop one [23]. Neurobiological research has identified one likely reason for elevated adolescent vulnerability. Alcohol and other substances have particularly potent effects on undeveloped brain circuits and recent scientific findings indicate that brain development is not complete until approximately 21 to 23 years of age in women and 23 to 25 years of age in men [24]. Among the last brain region to reach maturity is the prefrontal cortex, the brain region primarily responsible for "adult" abilities such as delay of reward, extended reasoning, and inhibition. These findings combine to suggest that adolescence is perhaps the most critical period for prevention and early interventions. Some individuals are more susceptible to developing an addiction problem than others due to several risk factors. Some of these risk factors are related to certain personality characteristics (e.g., impulsivity, behavioral disinhibition, sensation seeking), psychiatric disorders (e.g., attention-deficit/hyperactivity disorder, anxiety disorders), the vulnerability of adolescence, social contexts (e.g., peer influence, social acceptance or availability of the substance) or family environments (e.g., living with someone who abuses alcohol or drugs, having abusive or neglectful parents) [2]. Childhood-related factors have increasingly been analyzed with the aim of understanding how the trajectories of substance abuse and dependence begin. Specifically, there has been a growing interest in the role of adverse childhood experiences (ACEs), which have been described as potentially traumatic events that can have negative long-term effects on health and well-being [2]. Studies mainly with European-American families have identified the benefits of parental strictness (as opposed to indulgent and neglectfu homes) as a protective factor against drug use and deviant behaviors. Adolescents from authoritative families, characterized by strictness in combination with warmth, are the only ones who show the highest levels of well-being and health (children from authoritarian families have internal problems such as low self-concept and self-confidence due to low parental warmth). Many of the psychosocial programs and interventions are aimed at parents, especially when they

have very young children but also at adolescents. Mainly on the basis of this research with European-American families, psychosocial intervention policies and programs have been based on teaching and promoting strategies characterized by the use of parental strictness in combination with parental warmth to help educators, parents, and children [25].

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