



SUBSTANCE AND ALCOHOL USE DISORDERS - SUBSTANCES, STATISTICS, AND CURRENT TREATMENT APPROACHES

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Abstract

Substance use disorders affect a significant proportion of the population and impose major economic burdens on governments. They have multiple dimensions, ranging from economic costs to significant disruptions in the personal lives of consumers. Issues such as the motivation behind consumption, the nature of substances consumed, and the importance given to their physiological effects are raised. The holistic approach to substance use is the focus of most current theoretical models: observing the individual and all their characteristics in their environment, utilizing their resources to identify the causal chain of consumption propagation or addiction development. The success of addiction treatment relies not only on its nature but also on its integration into the individual's existence.

Keywords: *substance use, substance abuse, addiction, treatment*

1. INTRODUCTION

Substance use disorders currently exhibit a diversity unprecedented throughout the history of their proliferation. This diversity is evident both in terms of the substances consumed (with increasingly numerous options) and the severity of the disorder (recreational use, occasional use, emotionally motivated use, constant use, daily use).

Substance consumption has repercussions on numerous aspects of life and is driven by a wide range of motivations and attitudes. With the increasing accessibility of substances in most geographic areas and across various social categories, the phenomenon has been approached from various bio-psycho-socio-cultural perspectives to gain a comprehensive understanding of it.

Why is substance use increasingly prevalent? What is the reason it easily integrates into the behavior of diverse age groups and cultural models? Which substance is the most addictive? What is the distinction between consumption and addiction? How does the consumption of legal substances become problematic? What are the limits? These are just a few of the questions that explanatory systems of substance abuse consider. In the clinical assessment of substance use, the form

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that produces the most pronounced impairment is addiction since it affects most functional domains and exceeds the voluntary control, even sustained, of the consumer.

Addiction

A recurring issue regarding dependencies is the balance between the substance consumed and the personal characteristics of the consumer. While it can be empirically argued that there are more alcohol dependents than green tea dependents, it can also be observed that certain individuals who consume a particular substance develop an addiction, while others do not.

From this objective state of affairs, two directions emerge:

I. Certain substances have a higher addictive potential due to their neuro-physio-psychological actions on the body: stimulation of opioid receptors in the brain, neuroplasticity of seeking gratification, etc. (Leshner, 1997; 2001). However, this fact alone cannot fully explain the development of substance dependence, considering that the physiological structure of the brain is similar in most individuals and utilizes the same range of neurotransmitters. If the theory of substance action on the brain were irrefutable, then all individuals who frequently drink would develop alcohol dependence, all individuals who use morphine for medicinal purposes would become dependent, and so on. However, this is not the case, even though these substances conventionally have an increased addictive potential (Levy, 2013).

II. Each person's individual structure predisposes them to the development of certain dependencies - addiction has a degree of genetic heritability, so offsprings of dependent individuals have a higher vulnerability to developing a dependence (Tsuang et al., 1998). Other predisposing factors that vary from person to person include temperament, socio-cultural conditions, and educational history (Mate, 2008).

Motivational Aspects

When addressing the issues of addiction and substance abuse, it is necessary to consider the motivations behind the actions and the benefits that consumption entails for the consumer. Studies from the early twenty-first century, a period in which substance use intensified, demonstrate the diversity of reasons why consumers initiate and perpetuate this behavior. These motives extend beyond the sensory dimension commonly invoked in discussions about substance use (the fact that a particular drug induces a certain state). Beyond the state induced by a substance, there is a need that drives the person consuming it- a need that often contains a significant psychological dimension.

A recent perspective introduces the issue of attachment among the factors of interest in the study of substance abuse. This approach has gained prominence in the present century, arising from the need to explore the implications of addictions that transcend the sensory realm and thus go beyond the substance-stimulus-response relationship of the stimulated organism. The relationship between substance use and attachment is a promising perspective, particularly in cases where it involves the use of substances to restore or maintain a state of emotional attenuation, detachment, recovery from trauma, response to stress, and other profound dimensions of an individual's intra-psychic life.

Emotional factors are responsible for a wide range of psychobehavioral responses in individuals, from attitudes and interests to actions and somatizations.

The way human beings interact with others and their living environment carries an emotional charge, the magnitude of which varies depending on the nature and valence of the relationship. In any relationship, attachment can be discussed as a structure that develops in accordance with the exchange of information and emotional reactions between individuals (Bowlby, 1979). Authors Koob & Le Moal, 2007; Volkow & Li, 2004) have observed patterns of attachment between addicts and the drugs they prefer. Thus, although the object of addiction is actively desired and sought after by the consumer, the latter gradually gains perception of the major cost that consumption has on their life, leading to cognitive dissonance and affective ambivalence. Paradoxically, the dependent person realizes how much harm the substance causes them, yet continues to seek it. The moment when the person realizes this contradiction coincides with gaining insight into the illness.

Fletcher et al. (2015, p. 111) present the drug users' need to seek secure attachment in their relationship with the substance. They describe the experience of attachment in interpersonal relationships as overwhelmingly demanding, while the substance "offers comfort and understanding without asking for anything in return." Paradoxically, the person feels safe and accepted while engaging in risky behaviors.

2. ADDICTIVE SUBSTANCES

I. Opioids

A popular and widespread category of drugs is opioids. These substances have a high degree of addictiveness and are preferred by certain categories of consumers based on their tranquilizing effects, as well as for financial reasons, as there are multiple affordable options available on the black market.

The human brain has specific opioid receptors that are naturally stimulated by organic opioid peptides (endogenous), such as endorphins (the most well-known), enkephalins, endomorphins, dynorphins, and others. These receptors belong to a category called G protein-coupled receptors (GPCRs) and react to both endogenous agonists mentioned earlier and exogenous stimulations such as opioid substances (heroin, morphine, fentanyl) (Dhaliwal & Gupta, M., 2019). The reaction caused in the body by both organic and synthetic substances is one of analgesia and tension relief, but the magnitude of the effects is clearly greater in the case of exogenous substances, which, over time, destabilizes the activity of opioid receptors, leading to the development of tolerance. Tolerance requires an increase in the quantity of the substance to achieve the same psychophysiological effect, while the pain threshold decreases as the functioning of brain receptors is altered. As a result, seeking the substance is no longer associated with accessing a positive, euphoric state but with tempering the amplified painful experiences that come with chronic consumption, between doses. (DuPen, Shen & Ersek, 2007).

The psychobehavioral changes experienced by chronic users are significant: increased behavioral impulsivity and emotional lability have a major prevalence among addicts. From a physiological standpoint, many of these changes can be attributed to the dynamics of brain dopamine, and from a psychological one, they are related to the focus of affective-volitional-motivational dynamics on the substance: projection, procurement, possession, consumption.

Opioid substance addiction poses a high health risk because the consumption behavior or the physiological pathologies resulting from opioid substance use (HIV,

AIDS, hepatitis, emaciation, malnutrition, etc.) can become life-threatening (Seth et al., 2018). Thereupon, opioid users fall into a category of patients with increased vulnerability and require targeted, multidisciplinary therapeutic intervention and long-term maintenance treatment.

II. Stimulants

Stimulant drugs, also known as psychostimulants, are sympathomimetic psychoactive substances that increase the activity of the central nervous system, enhancing energy levels, activity, and exertion capacity. Their action differs significantly from opioids, with the latter having a tranquilizing effect, while stimulant substances increase sensitivity, raise the pace of activity, movement frequency and physical resistance.

The action of psychostimulants on the central nervous system is related to dopaminergic circuits (Volkow et al., 1999), the dynamics of excitatory and inhibitory neuronal impulses. The sympathomimetic action of stimulants is connected to the reflexes of the sympathetic autonomic nervous system; its activation puts the body in a "fight or flight" state: salivary and enzymatic secretion decrease, vigilance and muscular tone increase, and in the case of high doses, hyper-vigilance, hyperactivity, and hyperventilation may occur.

In moderate amounts, stimulants produce euphoria, increased self-confidence and subjective well-being, elevated blood pressure, heightened alertness, decreased appetite, and excessive talking. In large quantities or cases of overdose, stimulants can cause anxiety, panic, tension, hyperthermia, tonic-clonic seizures, coma or death (Gonçalves, Baptista & Silva, 2014).

This category includes amphetamines, caffeine, nicotine, ephedrine, cocaine, methylphenidate, and others.

Some stimulants are encountered in everyday life, such as caffeine and nicotine, while others serve medical purposes as pharmacological treatments for disorders like ADHD or narcolepsy (methylphenidate, amphetamines, or nootropic substances like modafinil).

Cocaine is a synthetic central nervous system stimulant and a high-risk drug with increased addictiveness.

III. Alcohol

Alcohol is a psychotropic substance, which means it depresses the central nervous system. Its action in the brain is significantly linked to the limbic system, particularly to the function of the amygdala in triggering the fear response following the evaluation of a stimulus as dangerous. Other brain areas affected by alcohol include the hippocampus (involved in memory encoding and storage) and the cerebellum (responsible for orthostatic balance and movement), as well as areas in the frontal lobe (social censorship, impulse control). Special receptors for ethanol have not been identified in the central nervous system, but its action on opioid receptors and dopaminergic and noradrenergic circuits is well-known. For this reason, in the treatment of alcoholism, partial agonists or antagonists of certain opioid receptors are often used.

Due to its extensive action in cortical and subcortical areas, psychosomatic reactions to alcohol consumption vary from one consumer to another, and the preference for alcohol encompasses multiple temperamental and motivational patterns.

For this reason, alcohol consumption poses a social problem that is slow to decrease in magnitude, and furthermore, it is present in all social categories and in the majority of cultures. Alcohol is much more accessible than other psychoactive substances, as its sale and acquisition are only regulated by state monopolies and the prohibition of sales to minors. Thus, the largest category of the population has access to alcohol, and it is easy to procure.

The prevalence of alcohol contributes, on the one hand, to the chronicization of consumption for certain consumers, and on the other hand, to the decrease in the magnitude of consumption. A socially acceptable behavior such as alcohol consumption can become a psychosocial problem when a) its frequency exceeds the population average, b) it slows down, hinders, or disrupts daily activities, c) it cannot be easily stopped despite the consumer's attempts, and d) it deteriorates physical or mental health.

The line between normal alcohol consumption and abusive alcohol consumption is difficult to evaluate, both from the perspective of social perception (society is more tolerant of alcohol consumption due to its legality dating back centuries and apparent regulation) and from the perspective of the consumer themselves, who naturally tends to be lenient towards their consumption behavior, rationalize or diminish its importance, even though it is heading towards maladaptive behavior. It can be observed that the perception of one's own consumption behavior is organized based on the macro-social understanding of consumption, as will be shown in the following section.

3. STATISTICS

Globally, alcohol, tobacco, and drug abuse represent a significant risk factor to the health and lives of populations, according to the World Health Organization. Romania falls into the category of countries where there is currently a stagnation in the rate of drug proliferation and a slight decrease in alcohol consumption per capita.

I. ILLEGAL SUBSTANCES

The report from the National Anti-Drug Agency for the years 2021-2022 confirms that the most vulnerable period for the onset of substance use is adolescence, and the largest population of consumers falls between the ages of 15 and 34. The conclusions drawn by Marshall (2014) regarding drug use in adolescence indicate a global disruptive phenomenon facilitated by drug use, through comorbidity with other risky behaviors such as disorganized sexual life, alcohol consumption, and delinquency.

In the present decade, global drug use among individuals aged 15 to 64 has ranged between 270 and 290 million consumers. In 2020, there was a 26% increase in the prevalence of annual drug use compared to the previous period of 2010.

In 2022, approximately 5.5% of the population aged 15 to 64 consumed psychoactive substances, and around 14% of them struggled with a substance use disorder (harmful use or dependence) (WHO, 2022).

The situation in Romania aligns with the global trends, according to the annual report of the National Anti-Drug Agency, covering the same age range (15-64). In 2022, 6% of the population reported illicit substance use. A representative phenomenon for Romanian society, however, is the slowing down of the spread of

psychoactive substance consumption compared to previous years (the population of consumers is growing, but at a slower pace), with the exception of the increased use of new psychoactive substances.

The substances with the highest consumption rates in Romania are cannabinoids and new psychoactive substances, and the most affected region in terms of drug use is the Bucharest/Ilfov area. In 2022, a total of 5,037 people sought assistance and treatment for substance-related disorders, primarily for cannabis, opioids, and new psychoactive substances.

The earliest age of onset for psychoactive substance use is 13 years old.

II. ALCOHOL

Ethanol, which is far more readily available than other psychoactive substances, has a distinct impact on the central nervous system. This is why harmful alcohol consumption is more widespread and often more socially tolerated.

In Europe, alcohol consumption varies in terms of frequency and quantity. In Southern and Western Europe, consumption frequency is higher (daily or nearly daily), but the quantity consumed is lower. Additionally, public displays of drunkenness are rare, and social tolerance towards intoxicated individuals is low. In Northern and Western Europe, the consumption pattern is characterized by episodes of excessive drinking (intoxication, drunkenness) interspersed with periods of abstinence. In these areas, social tolerance towards individuals in a state of drunkenness is higher.

Alcohol consumption affected 58 million Europeans in 2019 (abuse, harmful or excessive consumption), out of which 28 million were alcohol-dependent (with a preference towards the male population), many of whom were not under treatment.

In Romania, a decrease of approximately 35% in per capita alcohol consumption was observed in 2020 compared to 2010. However, this does not imply a decrease in the number of heavy alcohol consumers in our country. Among the Romanian population of alcohol consumers, 67% of men and 31% of women have abusive consumption. Currently, 2% of the male population and 0.6% of the female population suffer from alcohol dependence. A small proportion of them seek help, and an even smaller percentage succeeds.

4. CURRENT DIRECTIONS - FIRST-LINE TREATMENT

In the treatment of individuals dealing with alcohol-related disorders, the objectives can be categorized into three groups: cessation of consumption, maintenance of abstinence, and reduction of consumption.

Facilitating the cessation of consumption, or the detoxification stage, occurs immediately after an episode of abuse. One of the most important aspects of this stage is managing withdrawal symptoms. The first-line treatment for detoxification is benzodiazepine medication (recommended for 1 to 4 weeks, depending on the severity of withdrawal symptoms). The treatment regimen is supplemented with thiamine (vitamin B1) administration.

For maintaining abstinence, naltrexone and acamprosate are used. These substances reduce the psychophysiological craving for alcohol. In certain cases, they serve as adjuncts during the transitional phase from medication control of alcohol cravings.

Reducing consumption is a more desirable option for some consumers, and nalmefene is administered as a first-line treatment. Baclofen is also recommended for reducing cravings, especially for patients with low motivation to quit alcohol.

Aversive therapy is another option in the treatment of alcoholic patients, with the active substance being disulfiram. It causes physical discomfort upon the ingestion of ethanol, including nausea, vomiting, dizziness, and headaches. Aversive therapy should be used with caution.

In the treatment of drug use, deep brain stimulation has been identified as a viable option (Wang et al., 2018). This treatment targets substance-seeking behavior, particularly the need for consumption, by stimulating the nucleus accumbens in the mesolimbic circuit. The neurocircuits in these areas activate visceral cravings and are much more stable and robust than the pleasure circuits based on the nucleus accumbens. Therefore, addictive behaviors are driven not so much by the pleasure offered by the substance but by the visceral craving, which transforms into a powerful and elaborate motivational structure with implications for both consumption behavior (Koob, 1998; XU, Nan, Lan, 2020) and negative emotional states such as depression (Schall, Wright & Dong, 2021).

Neurostimulation of neural circuits in the mesolimbic pathway as a first-line treatment reduces consumption behavior by decreasing maladaptive cognitive orientation (dominant and obsessive ideas structured around obtaining the substance) and, consequently, behavior (volitional acts exclusively or nearly exclusively directed towards obtaining the substance). Other brain regions where deep neurostimulation has shown efficacy in animal models include the insula, hypothalamus, lateral habenula, and subthalamic nucleus (Wang et al., 2018).

The pharmacological treatment options chosen in clinical contexts include substances such as buprenorphine, methadone, particularly for opioid dependence. For patients who develop treatment resistance or experience relapses under buprenorphine or methadone treatment, levacetylmethadol (levomethadyl acetate) is also used. The pharmacological protocol for substance dependence consists of partial agonists of opioid receptors following the analgesic pattern (Lloyd et al., 2017; Yiannakopoulou, 2015) so that the withdrawal period and patient desensitization can occur under conditions of relative comfort and safety.

Predictors of success in substance abuse treatment include resilience and the remarkable ability of the body to recover after significant and repeated intrusions and alterations (Appendix II), as well as compliance with the recommended treatment.

5. DIRECTIONS IN ADDICTION TREATMENT (SECONDARY LINE)

Psychoeducation is a form of psychotherapeutic intervention that addresses addiction as a treatable pathology and recognizes the person in their full complexity, not as a drug addict, alcoholic, or depraved individual.

Psychoeducation involves describing the causal chains within addiction as a psychobehavioral structure: what substance use means, when it becomes problematic, under what conditions abuse can be discussed, and what addiction entails (Kaminer, Burleson, & Goldberger, 2002).

Motivational interviewing (Murphy, 2004) is a technique that has proven effective in the treatment of alcohol dependence in the past two decades. It involves

recalibrating the patient's sources of motivation, restructuring their value system, and raising awareness of their own resources and limitations.

Work therapy, or occupational therapy (Guttman, 2006), is used in psychotherapeutic practice to redirect the attention of dependent individuals and provide them with opportunities to regain functionality. Through this technique, patients struggling with addiction can engage in activities and projects that help them regain self-esteem and a sense of personal worth. Such actions can evolve into controlled, remunerated productivity, allowing the person to reintegrate into the workforce.

These techniques serve as adjunctive treatments and have variable success rates, heavily dependent on the environment in which the person spends most of their time, the goals they can set for themselves, and, not least, the people around them and their attitudes.

CONCLUSION

Substance use, whether within or outside legal limits, constitutes a significant social problem that grows annually at a speed influenced by various macrosocial and personal factors. The maladaptive phenomena arising from this behavior are abuse and addiction.

Individuals facing such problems significantly benefit from multidisciplinary treatments. When they choose to change their consumption behavior, they become active and conscious agents of their recovery and should be entrusted with confidence and supported throughout this process.

Through unconditional support and empathy, the recovery process is freed from guilt and can unfold its stages in a secure manner, allowing individuals to form alternative sources of fulfillment beyond the sensation produced by the object of their dependence. They can expand their interests and regain control over their own lives.

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APPENDIX I

Operational Terms

USE (of substances) - consumption of substances of various magnitudes

ABUSE - excessive consumption of substances

INTOXICATION - significantly altered state of consciousness following substance use

INEBRIATION - altered state of consciousness following alcohol consumption

ADDICTION/DEPENDENCE - inability to consciously exercise volitional control over a behavior (in this case, consumption behavior), with implications in most areas of life: educational-professional, social-family, psychological, and/or psychosomatic.

ALCOHOLISM/ALCOHOL USE DISORDER - chronic, maladaptive use of alcohol; alcohol dependence.

CRAVING - visceral desire, a strong urge that polarizes the person's affect, volitional power, and actions toward obtaining and consuming the substance/engaging in addictive behavior.

WITHDRAWAL - the elimination of the substance from the blood and tissues, resulting in somatic (physical discomfort) and/or psychological symptoms (perceptual, cognitive, behavioral disturbances).

TOLERANCE - develops when the same amount of substance no longer produces the same effect in the body, requiring an increased dosage.

OVERDOSE - the administration of a quantity of substance larger than the body can process, resulting in significantly disrupted or abolished vital functions (death).

APPENDIX II

