

DRUG USE AND ALCOHOL ABUSE AMONG INMATES – CAUSES, CONSEQUENCES, PREVENTION

DOI:

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Abstract

Objectives. Drug use and alcohol abuse are initially a physical and mental health problem at the individual level, later with direct effects on public safety and security. In order to understand what are the appropriate measures in preventing and reducing these phenomena, this paper aimed to analyze the causes and consequences of substance use among inmates.

Material and Methods. This literature review was developed from a survey of relevant articles published online between 2000 and 2023, identified in the Oxford Journals, Research Gate, PsychInfo, Web of Science and Google Scholar databases. A total of 91 articles were analyzed, with qualitative and/or quantitative study samples totaling 31,253 inmates.

Results. In terms of identifying variables that are predictive for substance use, the individual's risk profile captured elements such as impulsivity (8 studies), sensation seeking (7 studies), hopelessness (4 studies), low agreeableness (3 studies), introversion (3 studies), extraversion (3 studies) and high neuroticism (2 studies). The risk environment factors identified were criminal history, low social support, insufficient financial resources, presence of domestic violence and availability of drugs, alcohol in the family or entourage.

Conclusions. This literature review highlighted that the drug and alcohol use among inmates is associated with increased crime rates and medical problems, including HIV and hepatitis C infections. Research has underlined the importance of specialized interventions in prisons and in the post-release period to prevent relapse to drug use. Prevention should focus on screening, specialized treatment and post-release support, involving collaboration between institutions and families.

Keywords: drugs, alcohol abuse, inmates, penitentiary, addiction.

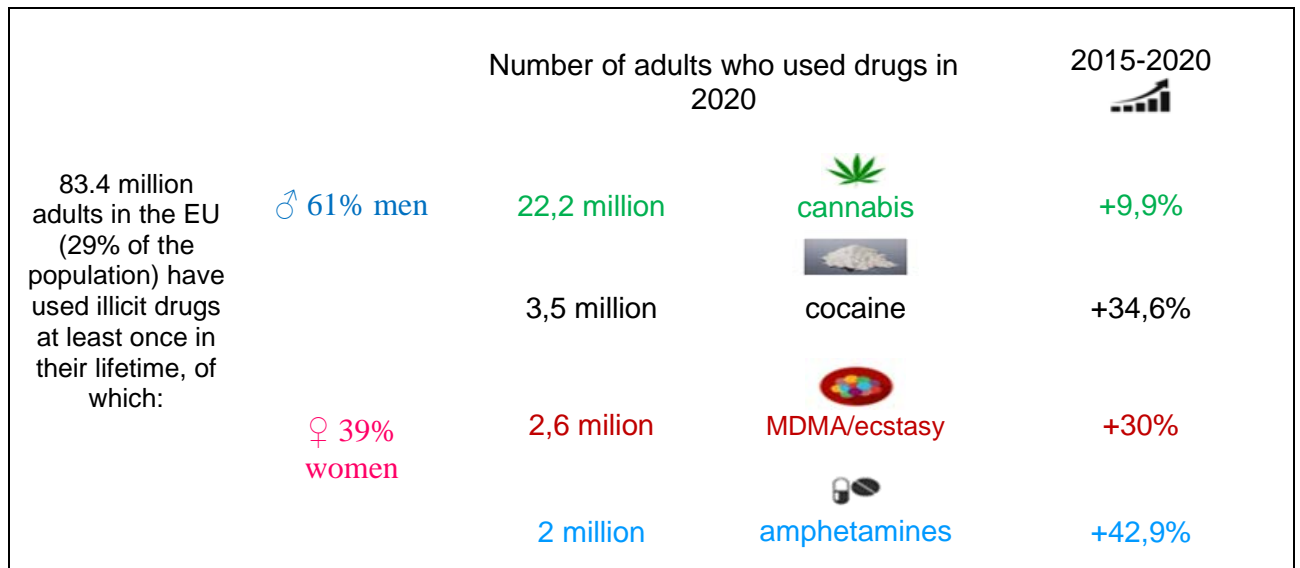
Introduction

Drug use and alcohol abuse affect the person who uses them and their functioning in the family, the workplace and society in general. According to the World Health Organization (WHO), "substance abuse" refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. The involvement of key actors in each country's society (institutions with a legislative role, public institutions with responsibilities in the field, non-governmental organizations) is imperative, given that, on average, each person in the world drinks 6.2 litres of pure alcohol per year and at least 15.3 million people have substance use disorders (WHO, 2018). This involvement implicates the development, organization, monitoring and evaluation of treatment services for the inmates concerned.

Figure 1 captures the drug use phenomenon in the European Union, according to the European Drug Report 2022 prepared by the specialists of the European Monitoring Center for Drugs and Drug Addiction (EMCDDA). According to the same document, 72.6% of drug users in Romania are men and 10.7% of those aged 15-64 have used at least one type of illicit drug in their lifetime, with the age of 20 being the most common.

Figure 1

Drug situation in the period 2015-2020



(Source: European Drug Report 2022 – Trends and Developments, developed by the European Monitoring Centre for Drugs and Drug Addiction, <https://www.emcdda.europa.eu>)

The impact of drugs on society was captured by the 2023 European Report, which noted that the phenomenon has exacerbated other problems, such as the lack of specialists, institutions, shelters,

high rates of crime and corruption. Injecting drug users are also at considerable risk of contracting hepatitis B and C viruses or the human immunodeficiency virus (HIV).

At the European level, cannabis remains the most abused substance, with over 22 million European adults reporting use in 2022 (EMCDDA, 2023). People with persistent cannabis use has experienced a socio-economic decline (Siddiqui et al., 2022), exhibiting antisocial behavior, absenteeism from work and spending a long time thinking at ways of obtaining and using the substance (Frone, 2003; Apel et al., 2007; Essien et al., 2016).

Cannabis Use Disorder is a pattern of problematic use that causes distress or dysfunction and over the course of a year, diagnostic elements emerge, such as: long-term or heavy use; a desire to stop the behavior and unsuccessful efforts to limit or stop; the majority of time is spent procuring, consuming, or recovering from the effects of cannabis; uncontrollable craving; limited or total inability to meet professional or social obligations; curtailment of recreational activities; involvement in situations with risk of physical harm, such as driving a motor vehicle while under the influence of the substance; the onset of tolerance or withdrawal (American Psychiatric Association, 2022, p. 509).

Considered a true "toxic pandemic" (Dura, 2012), alcohol misuse has caused 3 million deaths globally each year, accounting for 5.3% of all deaths (WHO, 2018). Europe is the region with the highest level of alcohol consumption, followed by the America, China and Africa (WHO, 2018). In 2019, Romania ranks 10th place in the European Union (Eurostat, 2022).

Because the process of addressing and curing alcohol dependence is a difficult one, often being a generational transmission of problematic consumption, prevention is important (Rada & Ispas, 2016). The actions in this regard are aimed at informing about the effects of excessive alcohol consumption such as: disturbed interpersonal relationships, reduced feelings of responsibility, neglect of family members, loss of job (Vilcova, 2011). Taking into account the association of alcohol consumption with antisocial actions as a coping mechanism and with a high score of aggressiveness, there is a need for actions to educate young people to manage emotions and adopt functional, prosocial mechanisms (Rada et al., 2024).

Alcohol use disorder consists of a pattern of consumption that causes clinically significant distress or dysfunction and that over the course of a year is manifested by: consumption in significant quantity or over a long period of time, efforts to stop consumption without results, allocating a good part of the time for procurement, consumption or recovery, uncontrollable urge to consume alcohol, failure to fulfill obligations at work or at home, ignoring social or professional problems that have arisen, the appearance of tolerance or withdrawal (American Psychiatric Association, 2022, p. 490).

Also, in addition to the chronic illnesses that can afflict drinkers after a long period of abuse, alcohol use has been associated with tragic consequences, such as suicide (Carpenter & Dobkin, 2009; Orpana et al., 2021; Amiri & Behnezhad, 2020) or killing others, with violence (Landberg & Norstrom, 2011; Duke et al., 2018; Gadd et al., 2019), causing traffic accidents (Mokdad et al., 2004; Carpenter & Dobkin, 2009). Alcohol has been estimated to cause about 20-30% of cases of esophageal cancer, liver cancer, liver cirrhosis (Pompili et al., 2010; Rehm et al., 2020), and is therefore a risk factor for these diseases.

Convicted offenders reported a significantly more frequent and higher history of drug use than the general population (Norman, 2023). At the European level, EMCDDA surveys conducted between 2001 and 2006 showed that the proportion of inmates who had a history of using an illegal drug at least once varied widely between countries, from a third or less (Bulgaria, Hungary, Romania) to over 50% to 84% in a women's prison in England and Wales. Of the substances used, cannabis remained the most commonly reported illegal drug by inmates (approximately 70% prevalence level), and a third of those surveyed in 2008 had injected drugs at least once in their lifetime. In 2020,

EMCDDA specialists identified that between 30% and 75% of people with problematic drug use had been in prison at some point in their lifetime.

Maruschak et al. (2021) found that one-quarter of U.S. inmates reported alcohol use at the time of offense. The National Council on Alcoholism and Drug Dependence (NCADD, 2020) provided data that approximately 40% of incarcerated persons convicted of violent offenses in U.S. states were under the influence of alcohol during the commission of their offenses, with many having an estimated blood alcohol level more than three times the legal limit at the time of their arrest.

The high proportion of incarcerated persons with a history of excessive alcohol and/or drug use justifies the choice of this literature review which aims to analyze the causes and consequences of these two phenomena in order to highlight what needs to be considered when creating strategies to prevent alcohol abuse and drug use.

Material and methods

General objectives

This literature review has 2 objectives:

- O1. To identify in the literature the causes and consequences of drug use in people who have committed illegal acts and are deprived of their liberty.
- O2. To develop a consistent review of existing information in the literature on alcohol consumption in inmates in the pre-incarceration period.

Research questions

1. What are the causes and consequences of alcohol and drug use among inmates in the pre-incarceration period?
2. How can these phenomena among inmates be prevented?

The strategy for the selection of specialized studies

This literature review was developed by searching articles identified in the following databases: Oxford Journals, Research Gate, PsychInfo, Web of Science and Google Scholar. The keywords used to obtain relevant articles were: drugs, alcohol abuse, inmate, prison, addiction.

According to Fig. 2, 551 articles written in English and published online between 2000 and 2023 were selected. First, a number of 20 duplicate articles were removed, the abstracts of the 531 materials were then reviewed. Subsequently, in analyzing the articles, it was found that, although the title referred to the prison/prisoner environment, 33 articles contained theoretical information irrelevant to the objectives of this review. A further 83 were removed because there was no access to relevant information without payment of a fee. A total of 415 materials were reviewed, of which 324 were excluded because: they focused only on clinical assessment of subjects (n=43), the subjects in the studies were drug and alcohol users but not offenders/inmates (n=72), the causes/consequences of drug/alcohol abuse among inmates were not analyzed (n=209). Consequently, 91 papers were identified as eligible for the present literature review.

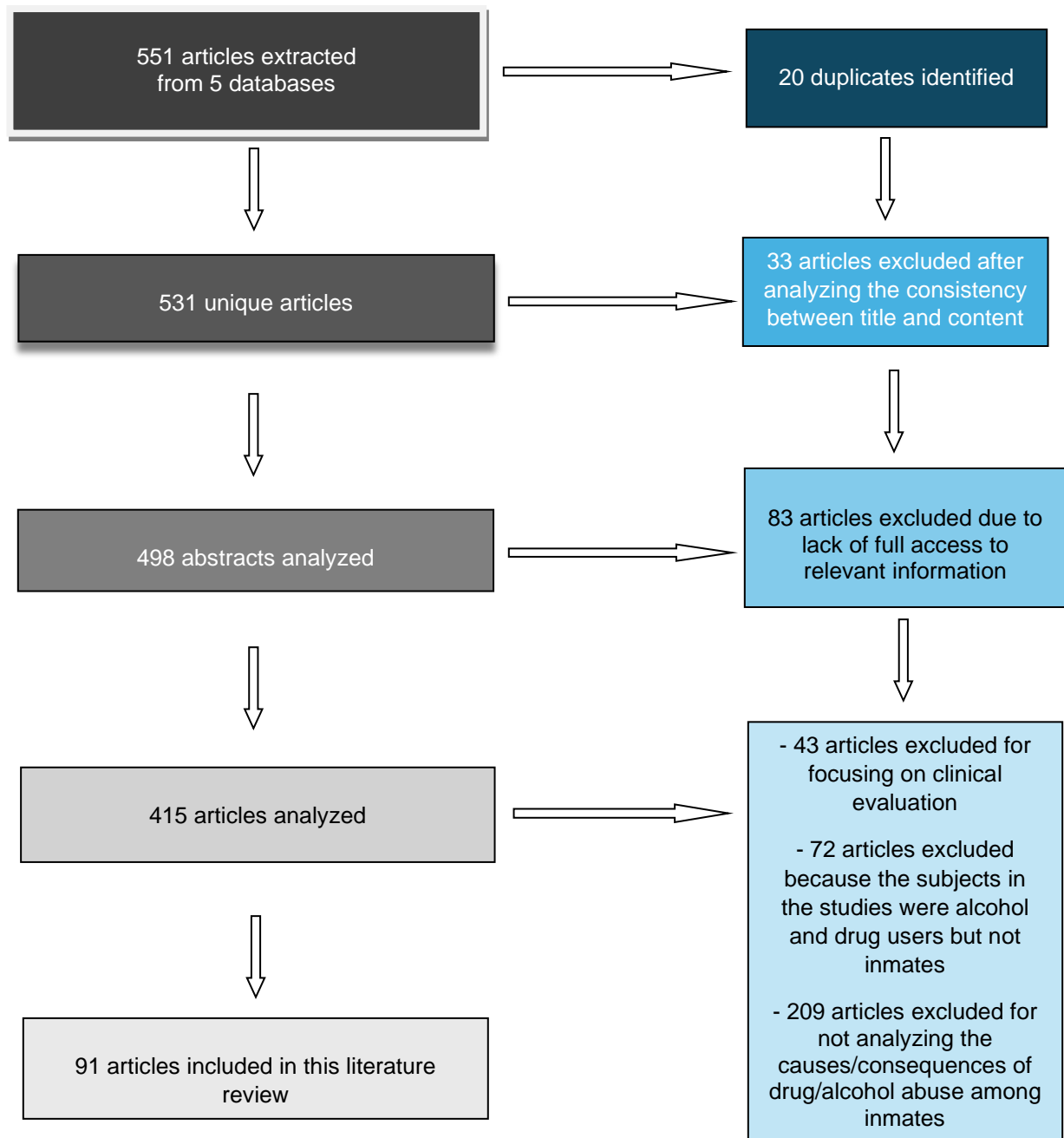
The studies in the articles are of quantitative and/or qualitative type, with a total number of 31,253 persons in prison and 3 inclusion criteria were considered: 1) the analyzed group must be

persons deprived of liberty, incarcerated in penitentiary (the following criteria were eliminated articles in which the research sample was made up of persons admitted to psychiatric centers or hospitals, communities outside the penitentiary); 2) the age of the persons in the research to be at least 18 years old and 3) persons with a history of alcohol and/or drug abuse prior to incarceration.

There were no inclusion or exclusion criteria based on the gender of the sample persons. Studies were excluded if they did not explicitly examine factors related to the topic of this literature review, but only aspects such as aggression, impulsivity, without a direct correlation with substance abuse.

Figure 2

Diagram of the systematic review process



Results

Drug and alcohol use among inmates – causes

The prevalence of drug use in the prison population is alarming (Moradi et al., 2020), approximately 63% of incarcerated convicted felons in U.S. states between 2007-2009 met DSM-IV criteria for drug dependence according to the National Survey on Drug Use by the Center on Substance Abuse and Mental Health Services (NSDUH, 2010 apud Morandi et al, 2020). The interplay between individual and environmental factors results in 3 types of levels of analysis of drug use and alcohol misuse - individual, micro, and macro-environmental (Binswanger et al., 2012).

Individual characteristics

In terms of identifying variables that are predictive of substance use, the individual risk profile (Fig. no. 3) in this literature review was based on a search of 22 articles, and the majority of articles (12) assessed the specific characteristics of the inmate - psychoactive substance user. Most studies were conducted in the USA - 11, and in Iran and the UK - 3 each. Data from Italy, Egypt, Portugal, Germany and Sweden were included in one study each.

Among the individual characteristics identified in the research are elements such as hopelessness, impulsivity, sensation seeking (Hopley & Brunelle, 2016), high neuroticism, high openness to experience and low agreeableness (Dash et al., 2023).

Hopelessness was found in the study by Jalilian et al. (2014) as a risk factor for alcohol abuse, but not for drug abuse. Along with problem-solving ability, hopelessness has been analyzed as a predictor of suicidal thoughts among people diagnosed with substance abuse (Iliceto et al., 2010; Rezaeisharif et al., 2021), and more than one-third of the study sample had high levels of hopelessness (Atia & Ahmed, 2020).

Substance abuse increases the overall risk of delinquency and, in particular, violent crime (Nigel et al., 2018). The conclusion of Hopley and Brunelle's (2016) study of a sample of 118 offenders in New Brunswick, Canada was that high levels of sensation seeking indicate an increased risk of substance abuse in this population. Investigating the predictive value of personality characteristics in alcohol use in inmates has led to the examination of anxiety disorders (Conrod et al., 2011; Værøy, 2011), with users utilizing the substance as a way to manage their felt state.

The hypothesis that the relationship between sex hormone-binding globulin (SHBG) and sensation-seeking in inmates might be mediated by elements such as alcohol and drugs has been analyzed (Aluja & García, 2005) and confirmed. This SHBG is a specific sex hormone binding protein, and its concentration influences steroid bioavailability and estro-androgenic balance (Selby, 1990). It was analyzed in a sample of 89 inmates (Aluja & García, 2007): the group with a high probability of antisocial personality disorder and the group with high aggression scores had higher SHBG levels. Recidivists and already sentenced subjects showed higher SHBG concentrations. The conclusion of the study was that subjects with a disinhibited lifestyle tend to abuse toxic substances that affect SHBG production in the liver.

Both impulsivity and sensation-seeking have been implicated in the development of substance use disorders (Ersche et al., 2010). In a study of four groups of substance users (cannabis, alcohol, heroin and multiple drugs), it was shown that they scored significantly higher on sensation, adventure and experience seeking scales than the control group (Dubey & Arora, 2008).

A positive relationship has been found between drug use, respectively alcohol abuse and impulsivity among inmates (Mooney et al., 2008; Bernstein et al., 2015). For example, among inmates in Sweden (N=130), the most commonly diagnosed mental disorders were alcohol and drug abuse/dependence, present in 55% of subjects (Longato-Stadler et al., 2002). High scores were found on scales related to impulsivity, sensation seeking, hostility, and aggression, and low scores on the socialization scale, reflecting a high degree of personality traits related to psychopathy. Hopley & Brunelle (2012) found that high impulsivity is an indirect mediator between psychopathy and alcohol, defined as an inability to self-regulate, resulting in a lack of inhibition in the face of negative consequences (Conrod et al., 2000).

Regarding female inmates, Brunelle et al. (2009) compared a group of 32 female inmates with a history of drug use with a control group on the following personality dimensions: hopelessness/introversion, anxiety sensitivity, impulsivity and sensation seeking. Stimulant abuse/dependence, impulsivity and sensation-seeking were significant independent predictors of incarceration, and a substance use disorder was identified as a partial mediator of the relationship between sensation-seeking and incarceration.

The study by Nigel et al. (2018) sampled 164 men and women with substance use disorders who had committed homicide offenses. They examined the relationships between psychopathy, empathy, and general personality traits and their role in statistically predicting violent crime by drug offenders. The psychopathy factor Impulsive Antisociality (IA) emerged as a positive statistical predictor of violent offending, while Fearless Dominance (FD) served as a negative predictor. Therefore, substance-using violent offenders exhibit a distinct pattern of personality characteristics, with IA being associated with high neuroticism, low agreeableness, and low conscientiousness.

Regarding the extraversion - introversion dimension, the identified studies did not come to a common conclusion: while Hopley and Brunelle (2016) identified introversion as a predictor of drug use, authors Dash et al. (2023) found that high extraversion was associated with cocaine/crack and stimulant use. Cocaine users and opiate users were also found to be more introverted, whereas amphetamine and barbiturate users were more extraverted (Spotts & Shontz, 1984). Introverted people accumulate thoughts, worries, and focus on seeking solutions only relying on their own resources (Roy, 2003), unable to confront difficulties with the help of others, engaging in avoidance behaviors (Walker, 2020), drug dependence is seen as a false solution (DordiNejad & Shiran, 2011).

Figure 3

Individual characteristics - causes of drug and alcohol use



The risk environment

The concept of "risk environment" has been defined as a social or physical space in which a multitude of factors (Fig. 4) interact to increase the likelihood of dysfunction (Rhodes, 2009), with the relationships between the person and the environment influencing the occurrence or, where appropriate, reducing the effects of drug use (Rhodes et al., 2003).

Of the significant risk factors for drug use, a history of previous imprisonment was confirmed in a study in Iran which found that among 6200 inmates in 26 prisons, 74% had a history of drug use (Moradi et al, 2020). Once released, ex-inmates are at high risk of relapse to drug or alcohol use because they return to an environment marked by poor social support and insufficient financial resources (Binswanger et al., 2012).

Narrowed down in terms of risk environment, the likelihood of developing drug or alcohol dependence is increased in individuals who have experienced or witnessed physical or sexual violence (Devi & Singh, 2023). Family conflict is a risk for alcohol dependence (Turner et al., 2000; Marsiglia et al., 2009) and substance use (Ashby Wills & Yaeger, 2003; Mallett et al., 2005). Also, poverty (Neugebauer, 2009; Mendes et al., 2019), availability of drugs within a community (von Sydow et al., 2002; Petruzzi et al., 2018) and homelessness (Thompson, 2005; Lee et al., 2011) have been identified as risk factors.

Psychological violence committed by parents and siblings was considered a predictor variable and psychoactive substance use a dependent variable in Rodríguez Díaz et al. (2013) study, which examined the relationship between family environment and criminal behavior since childhood. The sample consisted of 157 Spanish inmates, and the research confirmed the hypothesis that family violence affects the emotional development and psychosocial adjustment of young people. Of the entire sample, the highest percentage of physical violence suffered by the convicted offender was perpetrated by the father (49.7%) and siblings (47.1%). The share increased when psychological violence was analyzed: the father was again the most violent family member (64.3%), followed by siblings (58.6%) and the mother (56.7%).

The study, conducted in France on a sample of 998 inmates in 23 prisons, found that people separated from one parent in early childhood were at higher risk of drug use. At the same time, low educational attainment was associated with risk for alcohol use (Lukasiewicz et al., 2007).

Family history of substance use was also identified as another determinant of the development of a substance use disorder among participants in the study conducted by Yitayih et al (2018) on a sample of 336 inmates in Ethiopia. The same variable - family substance use - was confirmed by Nevárez-Sida et al. (2012). The authors identified the characteristics that most strongly influenced the low risk of pre-incarceration drug use: high level of education, having a job and having children (a family to support).

After analyzing a case study (Baciu, 2017), which presented a 27-year-old patient, university graduate, unmarried, addicted to heroin, gambling and betting, who also associated alcohol and tobacco use, suffering from hepatitis C virus, it was possible to observe the influence that family and circle of friends had on the onset of drug use, as well as other acts such as breaking the law. The patient came from a disorganized family, dominated by strained relationships, drug use, heavy smoking and constant gambling. His circle of friends also included drug users, heavy smokers and constant gamblers, as well as people who broke the law. All these aspects were also reflected in the behavior of the presented patient who, although he had a job, felt marginalized, "like a kind of convict" (Baciu, 2017, p. 66-67).

Figure 4

Risk environment - causes of drug and alcohol use



Drug and alcohol use in inmates – consequences

Drug use and alcohol misuse is not only a challenge facing the public health system, but also public safety and security. Alcohol and drugs have been found to be the main causes of rising crime rates (Gresnigt et al., 2000; van Amsterdam et al., 2020). Decreased self-control and ignoring the consequences of one's actions have led to antisocial acts (Pescaru, 2009), such as sexual and physical assaults, and homicides.

Lifetime substance abuse or addiction disorders have been detected in prisons in a majority proportion, for example a 97.1% of the total incarcerated population in Pakistan had a history of substance abuse at least once in their lifetime (Jamal et al., 2022).

Medical consequences - from poor health to suicide

Health problems related to substance use in a vulnerable group as a prison population that are analyzed in the literature (Freeman, 2012; Wrigley et al., 2016; Novisky et al., 2021) are both medical and psychological. Communicable diseases, such as hepatitis C virus, HIV and syphilis (Friestad & Kjelsberg, 2009), cardiovascular complications and infectious diseases (Narevic et al., 2006), and depression (Yi et al., 2017) have been frequently found among these inmates.

Hepatitis C virus infection among inmates has a prevalence ranging from 3.1% to 38% depending on the country and the rate of intravenous drug use, which is the greatest risk factor for this

disease (Zampino et al., 2015). Hepatitis C virus is the most common chronic blood-borne viral infection in U.S. prisons, being reported in 27% of 1331 subjects in the study by Peña-Orellana et al. (2011).

In prisons, the level of human immunodeficiency virus (HIV) infection is high due to the high number of substance users among inmates. For example, 28% of inmates in Vietnam were HIV positive in 2000, and in Estonia, up to 90% of inmates were HIV positive in 2004 (Tsereteli, 2004, apud Dolan et al., 2015). At the other extreme, in Australia even though about 50% of inmates were injecting drug users, HIV prevalence was almost zero (Butler, 2011 apud Dolan et al., 2015).

A direct association has been found between substance use disorder and other mental disorders: for example, alcohol use has been analyzed as a determinant of depression by Jane-Llopis & Matytsina (2006). They showed that offenders with depressive symptoms have more severe symptoms than non-depressed offenders, but may be more likely to treat their alcohol use (Holt et al., 2009). Also confirming the idea that depression is a consequence of alcohol use and, at the same time, a strong predictor of readiness to change, Nochajski et al. (2013) showed in their study of a sample of 443 inmates that the high-depression group was more likely to enter treatment than the low-depression group; in addition, the treated high-depression group had the largest positive gains in all behavior change outcomes.

High blood alcohol levels impair physical and mental capacity which often results in police intervention and restriction of liberties (Salvatore, 2013). In a Finnish study on a sample of 800 subjects, including violent alcoholic offenders, it was found that alcoholic offenders have a low brain turnover of serotonin (5-hydroxytryptamine; 5-HT), which is associated with impaired impulse control, a history of suicide attempts (Virkkunen et al., 2007). This confirms the results of psychological tests and biochemical measurements in Scandinavian early-onset alcoholic men with antisocial traits: low 5-HT concentration in alcoholic offenders has been associated with irritability and impaired impulse control, increased aggression, suspiciousness and reduced socialization (Virkkunen et al., 1994).

Alcoholism and depression are often comorbid, with depressed subjects with alcoholism having a high rate of suicidal behavior (Sher et al., 2005). Alcoholism has been associated with a high suicidal risk (Sher, 2006), as a result of factors present in this disorder: major depressive episodes (Hodgins, 2004; Wiesner et al., 2005), interpersonal difficulties (Pankow & Knight, 2012), high aggression/impulsivity (Tikkanen, 2009), serious medical illness (Chartrand & Forbes-Chilibek, 2003).

Legal consequences – recidivism

Drug use causes a person to be incarcerated either for offenses related to drug use or drug trafficking, or for other offenses such as theft, robbery, in order to obtain financial resources to purchase drugs, or for illegal acts committed under the influence of psychoactive substances, for which the person has no real, rational justification (such as driving under the influence of drugs, traffic accident, etc.); for example, more than half of inmates in American prisons had used at least one illicit substance in the month prior to their offense, and more than a quarter of inmates were under the influence of drugs when they committed the offense (Mumola & Karberg, 2006 apud Bernstein et al., 2015).

Studies show that in the majority of cases the perpetrators were under the influence of alcohol: in Finland, 491 people were murdered within 4 years, and about 82% of the murderers were under the influence of alcohol, where 39% of them were alcoholics (Liem et al., 2013), in Singapore,

of 253 people convicted of the offense of murder, 141 people (56%) had an alcohol use disorder and 121 offenders (48%) had consumed alcohol within 24 hours prior to the offense (Yeo et al., 2019).

In the systematic review by Fazel et al. (2006), they identified in 13 studies (total number of 7563 inmates) a prevalence of alcohol abuse among males between 18 and 30% and drug abuse between 10 and 48% among males and between 10 and 24% among females and between 10 and 24% among males and between 30 and 60% among females.

Also confirming that the representation of these phenomena is much higher among offenders, it is relevant the study conducted in 2006 in Finland on 610 incarcerated persons; alcohol abuse/dependence was diagnosed in 68% among male and 70% among female inmates, and in the case of drugs - 62% among male and 70% among female inmates (Lintonen et al., 2007).

Drug and alcohol abuse correlates positively with recidivism (Chyliski, 1992 apud Nilsson, 2003) and negatively with desistance from crime (Laub & Sampson, 2003 apud Nilsson et al., 2014). Substance use predicts criminal recidivism, an aspect shown in the study by Håkansson & Berglund (2012), in which 4152 Swedish inmates with a history of substance use were monitored for 2.7 years. Of these, 69% had re-offended, recidivism was positively associated with amphetamine and heroin use and negatively associated with alcohol. Moreover, recently released inmates were at increased risk of overdose, of 2515 drug users, 33% reported at least one overdose (Kinner et al., 2012).

Having previously served a prison sentence and drug abuse have been confirmed by Nilsson (2003) as predictors of the risk of recidivism: two thirds of the sample studied had been involved in previous drug offenses or theft. Those who had been convicted of both theft and drug offenses had a very high frequency of recidivism (81%). The results of a meta-analysis of 45 studies confirmed the predictive relationship between substance abuse and criminal recidivism, with the combination of alcohol and drugs having the highest predictive score, followed by drug abuse and then alcohol (Dowden & Brown, 2002).

In a Swedish study (Karlsson & Håkansson, 2022) of approximately 5000 inmates, risk factors for criminal recidivism were assessed, with 68% of inmates returning to prison. Among the risk factors identified were post-release substance use, with heroin use increasing the risk of recidivism for property and drug offenses and alcohol increasing the risk of violent recidivism.

Offenders with problematic alcohol use not only recidivate violently, but also much earlier than non-alcoholics (Castillo & Fiftal Alarid, 2011): compared to first-time offenders, recidivists have a higher interest in alcohol and therefore find it difficult to abstain from alcohol for long periods of time (Cheng et al., 2021).

By interviewing rural and urban drug-involved inmates before parole and again one year later, Webster et al. (2015) studied the phenomenon of recidivism by collecting data on criminal history, substance use and mental health. The strongest predictors of recidivism were incarceration at a young age and substance use. Also using a 2-year post-release sample examination method, Shannon et al. (2019) examined recidivism by gender; for males, the variable associated with increased odds of recidivism was the number of positive drug tests, and for females, 2 variables were found - prior alcohol offense conviction and number of positive drug tests.

Drug and alcohol use among inmates – prevention

Based on evidence that inmates are more than five times more at risk than the general population of having a substance use disorder (Dolan et al., 2015), specialist intervention is a priority and aims to tackle substance use within prisons as well as prevent relapse post-release. Release from prison is associated with a significantly increased risk of drug overdose in the presence of risk factors

such as homelessness (Kinner et al., 2012) and insufficient financial resources (Binswanger et al., 2012).

Knowing that deprivation of liberty most often coincides with a period of imposed abstinence and not as a result of one's own choice, the need for screening upon admission to prison, specialized treatment during detention and follow-up upon release in order to prevent relapse into substance abuse is highlighted (Fazel et al., 2006).

The pre-release period is a critical time that can make the difference between a life with drugs and/or alcohol and a life of abstinence, some of the useful action directions in shaping a prosocial post-release life are: increasing communication and collaboration between institutions for a continuum of care for addiction problems, preparing the process of reintegration into society to start at least 6 months before release by capturing risk and protective factors individualized to each person - housing, job, support from family, specialized associations, e.g. Alcoholics/Narcotics Anonymous (Leukefeld et al., 2009).

The same period - 6 months post-release - was also confirmed as critical in the longitudinal study by Thomas et al. (2014), based on surveys of 1325 adult sentenced inmates in Queensland, Australia. Alcohol and amphetamine-type stimulant use were confirmed at 3 months post-release and 6 months post-release, respectively.

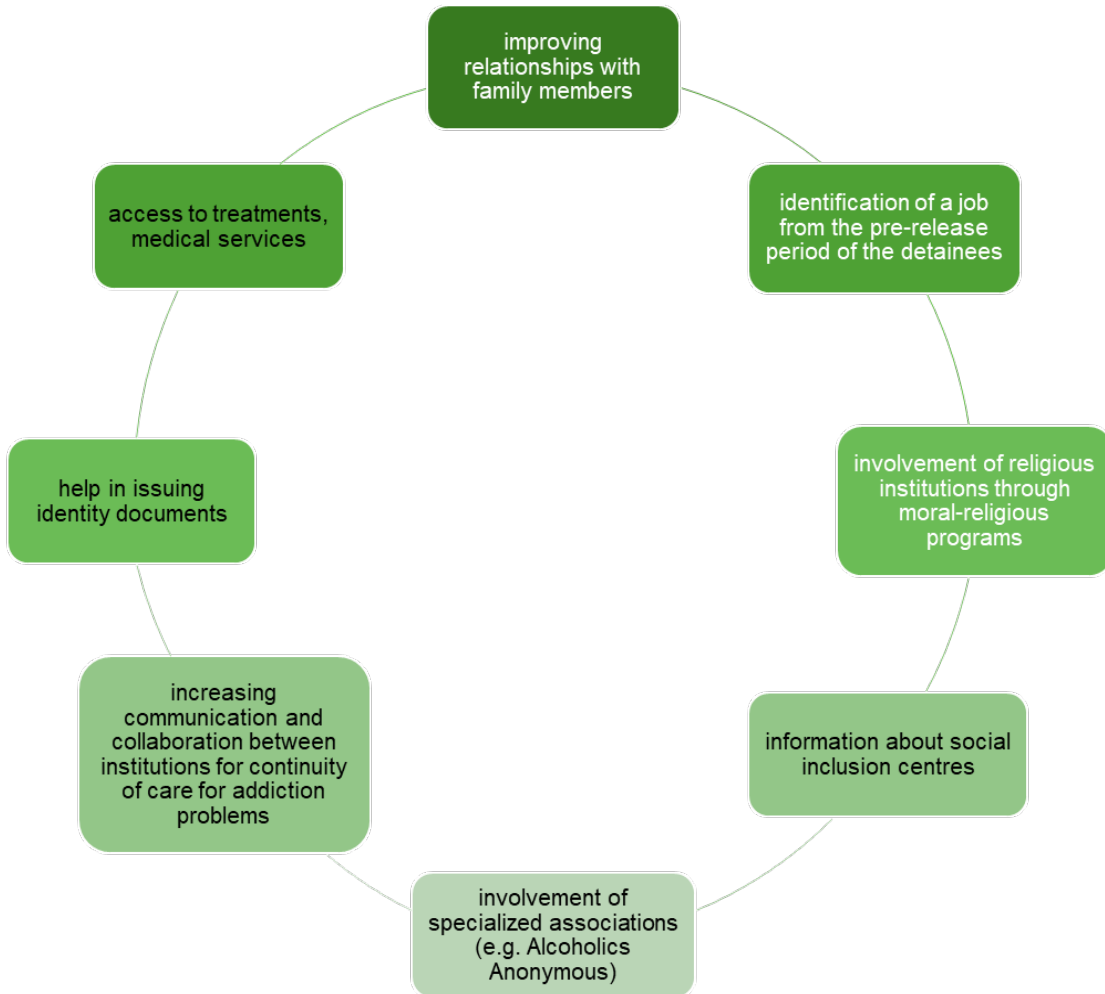
According to the descriptive and analytic cross-sectional descriptive and analytic cross-sectional study conducted in 2015 in a prison in Iran (Moradi et al., 2020), risk factors for substance use were identified in three domains: individual (positive attitude towards drugs), social (lack of access to counseling services) and interpersonal (quality of entourage). Based on this evidence, substance use prevention programs should be built around elements such as providing specialized support and counseling services, limiting access to friends with a history of substance use, and changing attitudes about substances (Khalooei et al., 2019).

Therefore, in order to prevent relapse to drug/alcohol use, a defining role is the involvement of authorities, friends and family by providing medical treatment, organizing small therapy groups (Park & Kim, 2010), including self-help groups or structured programs with a religious/spiritual focus (Binswanger et al., 2012).

An ethnographic study (Durnescu, 2018) involving 58 participants released from a Romanian penitentiary between January and July 2015 captures the stages of the process leading to relapse. In the first stage, referred to as anticipation, the prisoner knows that he or she will enter the parole proposal committee and begins to project more and more intensely the life from which he or she has taken a break: he or she has hopes, more or less outlined plans for the future. After the period of anticipation, there follows the phase of recovery and reunification with family members. After this period comes the activation stage - when the ex-offender wants to become self-sufficient, looks for a job, which makes the difference between successful reintegration into society or entering the final stage: reoffending. The researcher believes that the state, through existing institutions, needs to create mechanisms to respond to many of the needs of ex-inmates: identity papers, housing, drug user centers or different forms of social support or inclusion.

Figure 5

Prevention factors in the recidivism of drug and/or alcohol consumption among detainees in the post-release period



Conclusions

Identifying the causes of alcohol and drug use among inmates is essential for planning to combat the phenomenon in prisons and to prevent recidivism in the post-release period. A review of the literature shows that a majority of people with a history of alcohol and/or drug abuse are in prison for offenses directly related to addiction.

The consequences of substance misuse (alcohol, tobacco and/or drugs), whether medical (physical or psychological problems) or legal, make the social reintegration of inmates vulnerable and considerably increase the risk of recidivism after release. The encouragement of a culture of education and work by the State through its specialized institutions, first in prison and then after release for at

least six months, can provide a favourable context for vulnerable people in need of both social and psychological help to overcome addiction to one or more substances.

This article has several limitations. First of all, access to about a quarter of the articles was through abstracts, as full access required buying them for a fee. This may negatively influence the presentation of results in a comprehensive way of the researched studies. Second, the small amount of research on substance use and the extraversion/introversion psychological dimensions of substance use has considerably reduced our understanding of this relationship. In the future, a meta-analysis of studies in this area may bring to the forefront significant information needed to individualize specialized intervention for this type of users.

What is not sufficiently addressed and may be a future research direction is the hypothesis that alcohol and drug use precedes deviant behavior, and that personality traits such as impulsivity and sensation-seeking may be a cause of substance abuse as well as an effect.

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