



THE BODY AND THE LAW: A GENERAL VIEW OF A PLACE FOR HEALTH IN THE CURRENT PROHIBITIONIST APPROACH TO DRUG DEPENDENCE IN BRAZIL

EL CUERPO Y LA LEY: UNA VISIÓN GENERAL DE UN LUGAR PARA LA SALUD EN EL ENFOQUE PROHIBICIONISTA ACTUAL DE LA DROGODEPENDENCIA EN BRASIL

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Abstract

This article evaluates the Brazilian prohibitionist public policy for dealing with drug addiction and drug-related problems, with a focus on whether this approach is adequate for addressing the issues surrounding drug misuse. We attempt to shed light on this topic by highlighting several aspects of drug effects on drug-addicted body systems, behavior, and personality, as well as reviewing current neuroscientific research centered on the study of drug addiction disorders, with a particular emphasis on the motivational mechanisms underlying drug use, abuse, and withdrawal. We conclude that promoting and enforcing regulatory measures, laws, and other public health strategies aimed at combating drug addiction can only be accomplished with an understanding and acceptance that the drug severely interferes in the physical, emotional, and cognitive domains, imprisoning the subject in the uncontrolled motivation that drives him toward the drug. The goal of this report is to explore this ambiguity in light of the harm reduction proposal for dealing with the drug addiction phenomenon. When evaluating existing public policies in the field of drug addiction, the harm reduction strategy appears to be more appropriate in the context of health promotion, especially when considering drug addicts' idiosyncrasies.

Resumen

Este artículo evalúa la política pública prohibicionista de Brasil para tratar la adicción a las drogas y los problemas relacionados a éstas, investigando si el enfoque actual es adecuado para abordar las complicaciones que rodean el uso indebido de drogas. Intentamos arrojar luz sobre este tema enfatizando varios aspectos de los efectos de las drogas en los sistemas corporales, el comportamiento y la personalidad de usuarios de drogas. Asimismo, revisamos la investigación neurocientífica actual centrada en el estudio de los trastornos derivados de la drogodependencia, con un énfasis particular en la motivación, mecanismos subyacentes al uso, abuso y abstinencia. Concluimos que promover y hacer cumplir medidas regulatorias, leyes y otras estrategias de salud pública dirigidas a combatir la adicción a las drogas solo se puede lograr con el entendimiento y la aceptación de que la droga interfiere severamente en los dominios físico, emocional y cognitivo, aprisionando al sujeto a la motivación incontrolada que lo impulsa hacia la droga. El objetivo del presente informe es explorar esta ambigüedad a la luz de la propuesta de reducción de daños para enfrentar el fenómeno de la adicción a las drogas. Al evaluar las políticas públicas existentes en el campo de la drogadicción, la estrategia de reducción de daños parece ser más apropiada en el contexto de la promoción de la salud, especialmente cuando se consideran las idiosincrasias de los drogodependientes.

Keywords

Addiction, Brain, Behaviour, Prohibitionism, Harm reduction, Health

Palabras clave

adicción, cerebro, comportamiento, prohibicionismo, reducción de daños, salud

Introduction

In general, the use of drugs with a history of misuse in Brazilian society is not dissimilar to what is commonly observed in other nations. According to the results of the 3rd National Survey on Drug Use by the Brazilian Population (Bastos et al., 2017), 9.9% of those polled admitted to using an illicit substance at least once in their lives. In addition, over 1.2 million people between the ages of 12 and 65 were found to be dependent on any substance other than alcohol or cigarettes in the twelve months before the survey. In the general population, 0.8 percent of people are addicted to drugs, whereas 13.6 percent of people who have used any psychoactive substance are addicted. Nonetheless, even though this information places the Brazilian reality on par with that of other large urban centers around the world, epidemiological studies aimed at building a national database are still scarce in Brazil, not only due to the challenges imposed by the vastness of the Brazilian territory, but also due to the chronic and intense disparities in many social spheres (including sanitation) and the severe economic imbalance. This makes it difficult to grasp the drug addiction problem in both its individual and social dimensions and hinders government agencies' ability to propose sustainable public policies.

In a nutshell, public policies are broad statements or directions that encompass the technical and political processes required to attain objectives and means (Howlett & Cashore, 2014). Hence, it is expected that drug policies centered on these principles will aim to establish a variety of tactics on topics such as education, drug treatment, laws, policing, and border surveillance, but always with individual well-being as the major priority. However, changing the perennial, distorting, and stigmatizing moral view that has been deeply embedded in Brazilian culture over five centuries of prejudice and social and financial inequalities, which has greatly influenced, among other things, how civil society currently perceives drug use and misuse, has proven difficult. Nonetheless, efforts to reform the healthcare and criminal justice systems have resulted in significant changes in how drug-related problems are dealt with more effectively in public health settings. To handle the rapid and expanding spread of drug use, this kind of approach was recently abandoned in favor of reintroducing the well-known (and unsuccessful) policies of forced withdrawal and drug usage prosecution. This picture is likely to worsen as drug policies are geared toward dealing with an increasing number of people with substance use disorders for whom social marginalization and criminalization appear to be the norm. Historically, society's perception of drug use has been overwhelmingly negative. Those attitudes are strongly intertwined with the societal repercussions of drug use and abuse, which are in turn intrinsically tied up to the derogatory adjectives commonly employed to describe users. Besides, the financial damage imposed by drugs guides the formation of public (and even specialized) opinion on the issue, with drug addiction acquiring the characteristics of a social problem frequently associated with moral failing, requiring criminalization and law enforcement, as opposed to a health problem requiring prevention and treatment (Harding, 1986; McLellan et al., 2000).

Contrary to popular belief (Hammer et al., 2013; Harding, 1986; Heather, 2017), addiction has been identified as a brain disorder (Heilig et al., 2021; Leshner, 1997; Volkow et al., 2016). New imaging technologies have revealed compelling evidence that the addictive nature of drug use is associated with significant brain changes (Loganathan et al., 2021; Volkow et al., 2007). In our report, we discuss whether current Brazilian drug policies are effective in dealing with drug addiction, given that changes in brain anatomy and physiology that occur over time during chronic drug use disrupt normal body homeostasis and reinforce drug-seeking and intake behavior, primarily by enhancing learned responses resulting from the association between drug effects and the environmental cues present during reinforcement. Furthermore, we sought to assess whether the existing Brazilian prohibitionist public policy is suitable for addressing the challenges surrounding drug misuse. As previously stated, we attempt to shed light on this topic by highlighting several aspects of drug effects on drug-addicted body systems, behavior, and personality, as well as reviewing current neuroscientific research centered on the study of drug addiction disorders, with a specific emphasis on the motivational mechanisms underlying drug use, abuse, and withdrawal.

Therefore, we drive our narrative by describing the major biobehavioral changes induced by continued use of psychoactive substances and questioning whether current Brazilian public policies aimed at the approach and treatment of drug addiction fall within the context of health promotion, especially given this key aspect of users' behaviors and the stigmatizing view of this group held by civil society and health professionals. Furthermore, the purpose of this study is not to provide definitive answers to our research questions. In reality, it attempts to debate the usefulness of present Brazilian legislation in dealing with drug addiction, taking into consideration the psychobiological

imbalances that largely prolong chronic addicts' inability to adaptively cope with withdrawal consequences.

Methodology

Problem: Current neuroscientific research addressing the study of substance misuse disorders focuses on the motivational mechanisms behind drug use in particular. This is significant because most psychobiological models of drug addiction involve such motivational features as the engine process (Skinner & Aubin, 2010), in which long-term drug use results in a change from controlled goal-motivated behavior to more automatic and habitual behavior (Everitt & Robbins, 2016; Koob et al., 2004; Rahman et al., 2001; Robinson & Kolb, 2004). From this standpoint, drug policies, whatever they are, must take into account this key feature of substance users' physiology and behavior in order to be healthier and more effective.

Purpose: The goal of this study is to look at the ambiguity of existing Brazilian public policy for dealing with the drug addiction problem in light of the proposed harm reduction strategy.

Significance: Given that criminalizing drug use has been shown to fail worldwide, our study attempts to debate how useful current Brazilian legislation can be in dealing with addiction phenomena, considering the addicts' inability to adaptively cope with withdrawal consequences.

Literature Review: The study was carried out through a narrative review of the literature to obtain a synthesis that supports our point of view on the challenges of dealing with addiction considering the current breakthroughs in the neuroscientific context. A theoretical method was used in data search to locate a suitable and adequate range of research based on a conceptual framework based on an existing body of literature. The articles listed in the present report were obtained from Google Academic, Scientific Electronic Library Online (SciELO), EBSCO Host and Virtual Health Library (VHL), PUBMED, and Medline platforms.

Conceptual Framework: The present study is guided by the notion that addiction is a brain disorder. As such, we argue that a healthier strategy to deal with should walk away from the scope of abstinence and criminalization, to be centered on the humanistic principles of the harm-reduction proposal for drug-addiction treatment. Although our research is exploratory in nature, it allows us to generate new ideas and insights rather than collect statistically measurable and accurate data by conducting an analysis that links an event (drug use) to an outcome (drug addiction), with this event observed through specific conceptual views (moral failing, criminalization, and health promotion).

Results

Several publications were gathered to support our position that enforcing drug criminalization is not a viable solution to deal with the global addiction problem. Overall, despite disagreements, these investigations support the diagnosis of addiction also as a brain condition. Thus, it is vital that public policies aiming at coping with the addiction phenomenon take into account the physiological imbalance resulting from the long-term drug intake, as well as the consequent emotional, cognitive, and behavioral shortcomings. Furthermore, contrary to the ordinary moral view applied to drug addicts by civil society, we also provide several studies pointing out that the reinforcing effects of abused drugs on brain circuits, motivational processes, and sensations evoked by drug withdrawal-induced relapse are at the heart of addictive behaviors. As a result, a healthier proposition for addiction treatment and addicts' health promotion requires a different perspective than prohibition and penalization. We emphasize—and the studies provided here give support—that a healthy approach, considering the addict's well-being, must be based on the harm reduction strategy which recognizes addiction as a disorder that requires care and rehabilitation rather than criminalization and punishment. In fact, criminalization appears as a barrier to properly facing addiction, mainly through insulting addicts' autonomy, which leads to suffering through violations of constitutional and human rights. All these issues are adequately addressed in the following topics.

Discussion

Addiction as a brain disorder

Ordinary people, also referred to as “normal”, live their lives divided between the different options open to them. This includes their personal and professional affiliations, as well as their extra-family affective bonds and their innermost desires, among others. As a result, the actions of an addicted person affect not just themselves, but also those closest to them. In this way, throughout the course of addiction, this range of options is reduced as the relationship with the drug takes up all the individual’s time. This is one of the hallmarks of substance use disorders, in which a person withdraws from family and friends and loses interest in activities and people who once piqued their attention. At this stage, addiction has taken control of the drug user’s life to the point where the individual’s entire behavior is oriented toward the search for and consumption of the drug, the experimentation and recovery of its effects, and the need to cope with the bodily and mental suffering associated with drug withdrawal, which frequently leads to relapse. In the present report, when we talk about drug addicts, we are talking about people who fit this behavioral profile. Therefore, here, the terms “drug addiction,” “drug misuse,” or “substance use disorders” will be used interchangeably to refer to a chronic disorder resulting from severe alterations caused by chronic drug use, which is heavily impacted by genetic, psychological, and environmental factors (Mennis et al., 2016; Milaniak et al., 2015; Sinha, 2008). This disorder is distinguished by the presence of many physiological, behavioral, and emotional characteristics that result in a strong urge for drug seeking and use, despite the adverse repercussions on all parts of the person’s life (individual, family, social, and work). When the drug is discontinued, it is common for a withdrawal syndrome to occur (Bayard et al., 2004; Cosci & Chouinard, 2020; Feil et al., 2010; Lerner & Klein, 2019).

Addiction has its diagnosis described in several nosological treatises, among which the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013). There, we can see that not only does addiction have unusual characteristics, but that some of its symptoms also trend toward other disorders, specifically anxiety disorders, depressive disorders, and personality disorders. In general, symptoms differ from person to person and are loosely classed as physical and psychological. Each of these categories is further subdivided into a slew of other secondary symptoms resulting from changes in brain structure and behavior, among other things. Aside from having a negative impact on mental processes, an effect also due to disruptions in brain anatomy and physiology, chronic drug use is responsible for a total loss in their overall health, which includes features related to nutrient absorption (Ruiz Martínez et al., 1990), and immune response (Kohno et al., 2019). However, the emergence of cravings and withdrawal symptoms is by far the most significant phenomenon (Auriacombe & Tignol, 1995; Childress et al., 1986); in this phase, drug usage is sustained to the greatest extent possible due to its negative reinforcing qualities (Ahmed & Koob, 2005; Koob, 2000). Among these symptoms (also known as compensatory) stands out panic attacks (Leyro & Zvolensky, 2013), insomnia (Wilkerson et al., 2019), increases in cardiovascular output (Vandrey et al., 2011), muscle cramps (Coskun & Kaya, 2016), headache (De Marinis et al., 1991), tactile and sensory hyperreactivity (Busto et al., 1988; Hallstrom & Lader, 1981; Mainerova et al., 2015), anxiety (Brady et al., 2013) and depressive symptoms (Quello et al., 2005), derealization and depersonalization (Sirvent & Fernández, 2015), and hallucinations (Stephane et al., 2018). Changes in perception, cognitive distortion, disruptions in emotional and humoral balance, and loss of motivational control are the factors that most negatively influence a good prognosis.

Drug-induced motives connected to an immediate experience of pleasure or pain avoidance are modulated by primitive brain areas situated in the brainstem and diencephalon. If not appropriately controlled, the hedonic value of such behaviors frequently provides the basis for the first behavioral action (bottom-up drives). This modulation is regulated rostrally by recent brain structures in phylogeny, such as neocortex subdivisions, which provide cognitive voluntary control (top-down) over those numerous brainstem-elicited unconditioned drives (Hammond et al., 2014; Potenza et al., 2011). Thus, strong tensions generated in the ancestral structures of the vertebrate nervous system, such as the expression of panic, anger, aggression, intense fear, and pleasure, are controlled by more rostral brain structures, which appear to counteract the non-adaptive expression of these emotional processes throughout evolution. We now know that in drug-addicted individuals, this control is compromised if it occurs at all (Dalley et al., 2011; Grant & Chamberlain, 2014).

Even though addiction is commonly recognized as a brain disease, some authors believe that the neural impairment

alone is not enough to diagnose addiction as a disease arguing that “... something is a brain disease only when neural dysfunction is sufficient for impairment” (Levy, 2103). This author correctly claims that the neural dysfunction underlying addiction does not fit the concept of disease because the expression of addictive-related behaviors is contingent on particular elements of the users’ environment. In other words, “Addiction is a disorder of a person, embedded in a social context.” (Levy, 2103). Thus, to better align with those statements, the term “disorder” rather than “disease” seems more appropriate, given that a disorder may indicate the presence of a specific disease but there is insufficient clinical evidence to make a diagnosis. However, even though the development of addictive behaviors is dependent on environmental settings, behaviors by themselves are inextricably attached to a body that acts in a world where learning occurs every moment. Therefore, in our opinion, it is not realistic to investigate drug addiction without also considering the structural and physiological changes that drugs induce in the bodily functions. Furthermore, considering that addiction is a brain disorder does not imply less attention to imperative social factors, such as affective care and parental income, neighborhood, or family structure, since, also from a psychobiological perspective, it is well recognized that it derives from a particular relationship between a person and their environment. Indeed, from our perspective, social and biological factors are not mutually exclusive but dynamically interactive. As an example, vulnerability experienced in losing control over drug consumption involves feelings of shame, an emotional state likely to make the individual with addiction even more vulnerable to drug effects, compounding the problem (Wiechelt, 2007). However, feelings of shame, as well as any other mental stressor, can either trigger or aggravate many diseases and pathological conditions through their actions on learning and cognition and on the immune, cardiovascular, gastrointestinal, and endocrine systems (Yaribeygi et al., 2017), and these effects influence the response of an individual to drugs.

Evidence from population studies examining lifetime exposure to stressors and the impact of cumulative adversity on addiction vulnerability in children and adults, after accounting for a number of control factors such as race/ethnicity, gender, socioeconomic status, prior drug abuse, prevalence of psychiatric disorders, family history of substance use, and behavioral and conduct problems, showed that the cumulative number of stressful events is significantly predictive of alcohol and drug dependence in a dose-dependent manner, even after accounting for control factors (Chaplin et al., 2018; Costa et al., 1999; Newcomb & Harlow, 1986; Rutherford & Mayes, 2019), (Lloyd & Turner, 2008; Teixeira et al., 2017; Turner & Lloyd, 2003). Indeed, scientific evidence reveals that structural and transitional factors known to affect population health (e.g., socioeconomic and political issues, as well as material conditions, biobehavioral and psychosocial aspects, respectively) are methodically, unequally, and suspiciously distributed across social strata (CSDH, 2008; Tarlov, 1996) (Adler et al., 2016; Martins et al., 2008). Furthermore, vulnerability to drugs is exacerbated by the repercussions of poverty faced by socially excluded families, which frequently result in violations, law-breaking, and other forms of violence (Martins et al., 2008). In this population, the potential of drugs to negatively reinforce their own use—an effect mainly resulting from their euphoric, analgesic, and/or anxiolytic properties on alleviating mental and bodily tensions—is huge.

Drug as a reward, brain circuits, motivational processes, and relapse

In general, “reinforcement” refers to any stimulus that shares the ability to increase the likelihood of occurrence of a response. This assertion applies to both positive and negative reinforcement (Chase, 2006). Although the distinction between positive and negative reinforcement has been questioned (Baron & Galizio, 2006), it has been widely accepted that drugs can act as reinforcers in two ways: by increasing the frequency of drug intake through inducing physical and mental pleasure (a positive reinforcer) or by alleviating the displeasure evoked during drug withdrawal (a negative reinforcer).

Drugs affect four types of brain circuits: those involved in learning and reinforcement, those involved in motricity, those involved in emotional processes, and, most crucially, those involved in memory management, executive function, and motivation (Goldstein & Volkow, 2002; Koob & Volkow, 2010; Volkow et al., 2010, 2012, 2013). To be motivated to do something implies that, under particular conditions, there is a strong inclination to perform a behavioral activity in order to decrease the motivational drive that initiated it. This type of mental process is strongly connected with other aspects of the individual’s psychic life, including attentional focus and the ability to deliberately relax mental activity to be able to deal with the cognitive demands accessible in the subject’s field, even in the presence of distractors (Duncan, 2013; Posner & Dehaene, 1994). Thus, the overall modulation of these cognitive processes

involves the association of many other skills (working memory, representation of rules and context, conflict and error detection, and so on) that are under the control of recent phylogenetic brain structures, particularly the prefrontal cortex. Indeed, drugs reduce the individual's ability to respond adequately to environmental stimuli, such as social rules or legal determinations, by increasing the individual's emotional response to a previously drug-associated stimulus, which elicits cravings. That is why drug addicts regularly faces legal issues, as their impaired judgment puts them at risk of causing public disorder or violence and frequently drives them to violate the law in order to get drugs.

Despite the conceptual distance, it is difficult, if not impossible, to separate emotion from motivation. Emotions are inextricably attached to physiological reactions that emerge during the interplay of an organism and its environment. Motivations, on the other hand, are persistent states that drives an individual to engage in an organized activity (Koob, 2015). Therefore, drugs produce sensations (or alter emotions), and sensations generate motivations for drug seeking and consumption. This increases the frequency of drug use (Aguirre et al., 2015; Chartoff & Carlezon, 2014; Koob, 2015; Piper, 2015). Thus, drug use reinforces a process of associative learning that is facilitated by the substance's persistent usage, and it is precisely this form of learning that will follow the individual throughout life. It is important to emphasize in this context that drug-related memories are extremely resistant to extinction (Fitzpatrick et al., 2019). This is the central argument that covers the notion that drug addiction is a disease (Volkow et al., 2016) and organizes the concept of drug addiction as a disorder (Heather, 2017), in contrast to the moral model, which defines addiction as a moral failing (Harding, 1986). Despite criticism (Hammer et al., 2013; Levy, 2013), these formulations have a significant impact on the social and political perception of drug addiction because they minimize the criminalization and punishment of drug addicts (Pickard, 2017).

Patients in drug addiction therapy stand out for a variety of reasons, one of which is their increased propensity to relapse when exposed to environmental cues associated with drug effects (Hyman, 2005). This unusual behavior is caused by drug-related stimuli's ability to elicit physiological reactions and cravings as a result of drug and/or environment unconditioned associative learning (Heinz et al., 2019; Hyman, 2005). This phenomenon is characteristic of all psychoactive compounds that share the property of reinforcers (Bardo & Bevins, 2000). Therefore, the negative reinforcing-like profile of drug withdrawal can induce and potentiate Pavlovian-associative learning, which manifests as impairments in voluntary control (including damage to cognitive control over the ability to make choices), and powerful physiological effects. Thus, the probability that withdrawal symptoms will be elicited whenever the individual is exposed to drug-related contexts is very high.

Impaired self-control, often known as impulsivity or behavioral disinhibition, is a key factor in drug addiction and other types of non-specific dependency (gambling, sexual pleasure, etc.). In either case, it is clearly controlled by the environment's powerful influence on the endogenous pharmacological system (Cadet & Bisagno, 2013; Verdejo-García et al., 2008). The term "disinhibition" refers to the ability of drugs of abuse to impair the control of cortical top-down systems that suppress non-adaptive motivational responses, particularly those directed by the drug's reinforcing effects (Aron et al., 2007). It is worth mentioning that, despite the large number of people who use drugs, only a small percentage will develop a chronic use and abuse pattern, and even fewer will become de facto dependent (Anthony et al., 1994). This suggests that other aspects of the individual's personality may have an impact on the development of drug addiction. Among them, some previously existing, clinical, or subclinical dysfunctions may be essential for the reported aberrant picture, including alterations in personality features, for which even the perception of the negative consequences of drug use does not restrict motivation for drug consumption.

Drug users' health in the context of harm reduction and prohibitionist proposals

Chronic drug use alters the personality of subjects who were previously thought to be "normal," a phenomenon that is heavily impacted by quirks. Among these alterations are impairments in psychosocial development (Nardi et al., 2012), increases in high-risk sexual behavior practices (Morrison et al., 2014), and the onset of criminal and aggressive behavior (Claro et al., 2015) and suicidal ideation (Pompili et al., 2010; Schepis et al., 2019; Wu et al., 2004), in addition to the increased risk of mental illnesses in adulthood (Kessler et al., 2010). Aside from the challenges associated with the subject, drug abuse coping and treatment entail a significant social cost, including structured health care and the proper adjustment of the law enforcement and legal systems (Gallassi et al., 2008; Nutt et al., 2007;

Reuter, 2006). Hence, in the context of addiction prevention and treatment, a healthier proposal must encompass all these aspects of addict's personality since behavioral, emotional and physiological components are intimately related. For example, there is a significant level of comorbidity between drug use, abuse, and dependence and a variety of mental (Bakken et al., 2007; Grant et al., 2004; Lingford-Hughes et al., 2004) and physical problems (Sartorius, Holt & Maj, 2018).

One of the most aggravating aspects of drug users' behavior is their full awareness, even in the absence of withdrawal symptoms, that the drive for drug seeking and consumption outweighs the voluntary control to avoid them. This tension between wanting to and being unable to stop drug use, combined with the overwhelming proclivity to experience drug effects to alleviate the complete range of unpleasant withdrawal symptoms, is deeply founded in neurophysiological and mental processes changes accumulated in the addict's brain over time. However, the unfavorable belief that drug users' actions end in instability and criminality because they lack moral integrity and the willpower to give up taking drugs still exists. This point of view is intimately linked to the derogatory terms that are frequently used to describe them. Worryingly, health professionals' attitudes about people with substance use disorders may be worse than their attitudes toward those with other mental illnesses. In reality, when it comes to problems related to substance use and misuse, these specialists' behavior toward drug addicts is frankly unfavorable, to the point that stigmatizing views might have a negative impact on treatment, hampering health promotion for this population (Avery et al., 2013; Ronzani et al., 2009; Schulze, 2007).

The term "health promotion" is frequently used interchangeably with "prevention." Its significance, on the other hand, is larger and more complex (Czeresnia, 1999). Nonetheless, health promotion appears to be significantly overlapping with the first level of prevention (or primary prevention) and is described as "activities aimed at developing optimal health" conducted during the pre-onset stage (World Health Organization, 1986). Consequently, health promotion extends beyond prevention to include individuals, communities, governments, health and other social and economic sectors, voluntary and non-governmental organizations, local authorities, and industry and the media in order to share their knowledge, empower people to exercise greater control over their health, their rights, and the environment, and make choices that lead to better health and contribute to personal and global development, enabling a disruption paradigm in the field of health considering the objective reality of globalized society (Büchle et al., 2009). Health promotion strategies must entail behavioral changes and, invariably, seek to potentiate changing processes and connect the construct of individual autonomy through acts that facilitate the transition from passivity to activity (Mendes et al., 2016). Thus, activities that enable their empowerment in decision-making and health are required, given that the needs of addicted individuals must be recognized when developing effective public policies and considering that the individual should be an active participant in his treatment rather than only a bystander. In Brazil, after decades of criminalization of drug addiction, until recently, health promotion actions aimed at dealing with drug use and abuse were heavily centered on the well-known proposal of "harm reduction," which has now been undermined by the political changes and economic transitions guided by the 2016 Brazilian democratic overthrow, which have favored the resurgence of poverty and inequality due to their direct influence on income distribution.

Governments can implement their plans through public policies. These acts are subject to follow-up and evaluation, allowing for a change in approach if they do not provide the desired result (Pereira, 2005; Santos & Oliveira, 2013; Souza, 2006). Public drug policies affect both the legal and public safety sectors, as well as the health and social care sectors. In Brazil's legal and public security sectors, two paradigms stand out: prohibitionism, or "war on drugs," which strives to combat trafficking and imprisons users and drug dealers, and the antiprohibitionism platform, which aims to decriminalize and legalize drugs. In the health and social care sectors, two standards emerge: compulsory reclusion, which keeps drug addicts isolated from their social life and family and uses hospitalization as a model, and the psychosocial view, which is centered on their autonomy and aims for inclusion and social reintegration while using harm reduction, risks, and damage as a model (Teixeira et al., 2017). Until the 1980s, Brazil's public drug policies were purely prohibitionist. They were heavily influenced by international legislation that strengthened international enforcement of drug use and trafficking criminality (Santos & Oliveira, 2013). After 1980, the Federal Council of Narcotics (COFEN) began to develop these policies. They advocated for the suppression of drug use, trafficking, and manufacture. However, some of its efforts were intended to raise awareness about drug addiction, such as assistance for reference centers, the establishment of therapeutic communities, and harm reduction initiatives aimed at HIV/AIDS prevention among people who inject drugs (Santos & Oliveira, 2013). This resulted in the

first Brazilian program of syringe swaps in the city of Santos-São Paulo in 1989, an initiative that was immediately abandoned by local legal authorities. This incident clearly demonstrated the Brazilian legal system's reluctance to support any solution other than drug criminalization, even if it meant jeopardizing individuals well-being. In the mid-1990s, a variety of projects aimed at bringing attention to the use of injectable drugs, including syringe exchanges, were started in Brazil utilizing UNDOC resources (Surratt & Telles, 2000). The program's success was demonstrated by the very proliferation of harm reduction programs — more than 200 were established between 1995 and 2003, many of which included syringe exchange — as well as the emergence of organized associations such as ABORDA (Brazilian Association of Harm Reducers) in 1998, and other state associations (Passos & Souza, 2011). The COFEN was succeeded in 1998 by the National Anti-Drug Council (CONAD), which was affiliated to the Office of Institutional Security of the Presidency of the Republic. This policy remained essentially prohibitionist, with the goal of creating a society devoid of illicit substances. Paradoxically, Law 10.409 created multi-professional treatment of drug addicts in 2002, marking the first mention of harm reduction in Brazilian legislation. In 2005, the CONAD approved the National Drug Policy, which had as parameters the implementation of a drug-free society and the acknowledgement of drug users' right to fair treatment. The law provides financial support for the promotion of harm reduction initiatives in Psychosocial Care Centers for Alcohol and Other Drugs (CAPSad) (https://bvsmms.saude.gov.br/bvs/saudelegis/gm/2005/prt1059_04_07_2005.html).

In 2006, law 11.343 was enacted, claiming the prevention of drug usage, treatment of chemical dependents, social reintegration, and utilization of support networks, as well as distinguishing the drug user from the drug dealer. Yet, criminalization and drug-use sanctions remained in place (Teixeira et al., 2017). Despite the disapproval of at least seventy entities, including the Ministries of Health, Justice, and the Secretariat of Human Rights (linked to the Ministry of Women, Family, and Human Rights), the harm reduction policy was abandoned in favor of abstinence and criminalization policies, as revealed by law no. 13.840 of June 5, 2019. In addition to proscribe the release of any illegal drug in the country and increasing the severity of punishment for small drug dealers, the law allowed for the compulsory hospitalization of chronic users, highlighting the chaos in Brazilian criminal policy in addition to undermining public health advances, including the anti-asylum plight. Thus, a schism is noted between what the law enforcement agencies impose and what those suffering from addiction-related disorders can do, given that, at this point on their lives, drug intake is not consciously limited by moral instances, willpower, or whatever, but rather mostly by the overwhelming motivation for its seeking and intake. This uncontrollable urge is the result of strong Pavlovian associations generated by successive pairings of drug effects with the environment, which increases the chance of the emergence of drug-oriented behaviors in environments containing previously drug-associated stimuli. Hence, given what has been described thus far in the text, and considering the impact of drugs over time on human societies (Ksir et al., 2006), any preventive approach based on drug eradication rather than healthier-oriented principles is doomed to failure. This will be covered further in the following paragraphs.

Aside from the moral and criminal approaches, the prohibitionist paradigm regards addiction as a biologically established disorder that necessitates the provision of care and rehabilitation, with the goal of abstinence achieved through jail or treatment (Alves, 2009). On the other hand, abstinence-focused regimens can prevent addicts from receiving the right care, making health services tacitly unwelcoming since drug withdrawal, like an unconditioned stressor, is a particularly anxiogenic stimulus. Furthermore, while force may be required in some addicts to commence treatment due to weakened autonomy (Sullivan et al., 2008), infringement of the individual's freedom to select and actively participate in their own treatment can impact treatment engagement due to uncontrollability. To illustrate, the 4th National Inspection of Human Rights documented in 2011 several rights violations in so-called therapeutic communities. Inpatients' rights were infringed in a variety of ways, according to the study (interception and disrespecting of personal communication, physical assault, punishments, torture, humiliations, intimidation, and disregard for sexual orientation, among others) (Lima & Tavares, 2012). As a result, rather than alleviating suffering and driving treatment in the direction of health promotion, this method of dealing with drug addiction promotes suffering by violating constitutional and human rights, including the right to actively engage in the conduct of your treatment.

The International Harm Reduction Association defines harm reduction as “a set of guidelines, norms, and practices aimed at reducing the related damage of psychoactive substance misuse in persons who, for a variety of reasons, have difficulties or are unable to discontinue drug use.” As the name implies, this approach is more concerned with preventing drug-related harm and issues than with preventing drug usage. After the threat of HIV/AIDS spread

among injecting drug users was recognized, this type of political, medical, and social approach took on a new dimension (Andrade, 2004). Harm reduction does not require withdrawal, but this does not imply that this approach is incompatible with the desired abstinence as a treatment outcome. It proposes strategies to reduce the harm caused by drug use by considering the drug addict's social needs, retaining respect, and making him an active partner in his treatment. Countries that have implemented harm reduction strategies to combat drugs have not seen an increase in illicit drug use or an increase in the escalation of "soft" to "heavy" drugs, as well as an increase in the number of drug dependents seeking treatment (Alves, 2009). Harm reduction benefits not just people who experience drug problems but also their family and community because their interventions are committed to public health and human rights. It provides comprehensive care, attempts to lessen the harm caused by drug use, and prevents those who have not yet settled, without necessarily interfering with drug use behaviors (Teixeira et al., 2017). This strategy is founded on the realization that, despite efforts to reduce or even eliminate their continuous use, many people in various regions of the world continue to use drugs. These issues show that, despite their deliberate conscious intention to avoid the drug, drug addicts have a difficult time doing so.

Conclusions

In this paper, we address some aspects of addiction while taking into account the neurobiological, behavioral, and motivational factors that substantially complicate the efficacy of a public policy that does not prioritize drug addicts' well-being. In Brazil, this approach contrasts with the current moral view, which is widely held in civil society, as well as ethical concerns about health professionals' stigmatizing attitudes toward drug addicts, which have heavily influenced the resurgence of abstinence and criminalization as the primary criteria for drug policy formulations. A healthier proposition entails considering the overall changes that long-term use of psychoactive substances can cause at the physiological, mental, and behavioral levels, such as withdrawal elicited by drug-related cues and impairment in control of learned-motivated behaviors that strongly drive addicts toward drug-seeking and intake. Given this, it's vital to return to harm reduction as the structural underpinning and way of thinking for a national campaign for the treatment of drug-addicted individuals. This is significant because people who are addicted to alcohol and other drugs also have rights, including the right to health care.

Harm reduction refers to policies, programs, and practices that aim to reduce the negative effects of drug addiction on physical and mental health as well as the social and legal consequences of drug use, drug policies, and drug laws, with a primary focus on social justice and human rights, and working in the absence of negative judgment, coercion, discrimination, criminalization, or drug use and abstinence without support (Bastos et al., 2017; Bastos, 2012). As a result, harm reduction looks to be a healthier option for clinical and political intervention in drug addiction. This one-of-a-kind strategy should be backed up by a therapeutic project that prioritizes not only the medical and biological components of drug misuse but also psychological and psychosocial services in outpatient therapy to ensure the user's social reintegration. Except in extreme cases, such as when there is a risk of self or hetero aggression, heavy intoxication, the presence of severe withdrawal symptoms, or mental problems, and in the absence of family support, hospitalization must be voluntary and in accordance with the World Health Organization and the International Human Rights Treaties (i.e., for short periods in case of outbreaks or detoxification) and, whenever possible, using motivation techniques (Novaes, 2014). Furthermore, measures to enhance opportunities for education and training of health professionals are urgently needed to oppose the idea of addiction as a moral problem, so that drug addicts' stigmatization does not continue to impact their conduct. Indeed, because of their critical role in the management of individuals suffering from addiction, healthcare professionals who are unable to effectively deal with such a group tend to instill feelings of disdain and rejection in these people, which may cause them to reject the care given by these providers. Such negative behaviors may result in missed opportunities for addicts to learn about important aspects of treatment and incorporate harm reduction strategies that yield the best opportunities for them to receive the care they require (Dutta et al., 2012). Concerning this point, harm reduction has barely been considered and operationalized in the context of specialized mental health services, owing to the arguments raised above, as well as the misguided belief that this is not a space for harm reduction practice, or to the technical inability of those willing to work with this approach.

Compared with forced abstinence, criminalization, and incarceration, harm reduction measures are thought to be less complex and less expensive (Carvalho & Dimenstein, 2017). However, even if the costs of harm reduction pro-

grams are large, it will still be a desirable action because the overall benefits will outweigh the costs of treatment (Wilson et al., 2015). Furthermore, increased drug law enforcement has little or no prophylactic effect on addicts' behavior since it contributes negatively to physical and mental health outcomes due to increasing drug risk, a phenomenon known as the "potency effect" (Cussen & Block, 2000). Moreover, drug prohibition usually leads to gun violence and high homicide rates due to its disrupting effect on drug markets (Werb et al., 2011). In this context, and because the prohibitionist approach has been shown to be ineffective in reducing drug offering and use, alternative regulatory models are required. The policy implication is that countries can save criminal justice resources and reduce violence by reducing drug prohibition enforcement efforts.

Pondering about what has been discussing thus far and analyzing existing public policies on the field of drug addiction, the strategy of harm reduction appears to be more relevant in the framework of health promotion, especially when considering drug addicts idiosyncrasies. Moreover, it is worth of noting that harm reduction strategies can help to control collateral damages related to the original scope of drug addiction itself. This is true, for example, regarding the syringe exchange programs which helps to control the transmission of HIV, hepatitis C virus (HCV), and other viruses-related diseases (Takács & Demetrovics, 2009). Harm reduction proposals is also expected to benefit marginalized drug users' communities which face social and institutional inequities that have a negative impact on their health care and living conditions by limiting their educational and economic opportunities. As an example, low-income Blacks, Latinx, and ethnically diverse LGBTGNC communities who suffer from poverty, stigmatization, and social discrimination are more inclined toward violence, and to suffer from mental diseases and risk-taking behaviors (Billies, 2015). In this context, in Brazil, this panorama of stigma and violence targeted toward these groups are strongly influenced by the racially-discriminatory war on drugs. Harm reduction education and resources, through respecting the self-determination, autonomy and human dignity of every individual emphasizes public health rights and reinforces drug users' autonomy. Furthermore, in order to assist drug users in achieving the best possible level of health, the harm reduction proposal works hard to replace negative attitudes with evidence-based interventions by educating all care providers about the nature of and treatment for addiction (Bartlett et al., 2013). This is possible when treatments are based on outpatient care with the drug user being part of the process. Again, notwithstanding the fact that abstinence should be the goal, it is rarely attained due to the biological and psychological aspects of addiction. Thus, harm reduction strategies are mainly focused on techniques for reducing health risk behaviors when removing them may not be attainable. In this context, family support, while at times challenging, increases the odds of treatment success, helps prevent relapses, and aids to the reintegration of the individuals into the community.

It is common to say that drug use harms health and, to such extent, this is true. However, given that the world has become a place of suffering due to cultural, racial, and gender intolerance, financial inequality wherein capital is appropriated by a few while a great part of the population is starving due to extreme poverty, and the state's failure to provide its residents with their constitutional rights to health, education, and security, life has come to feel like a burden to be carried. Added to this is the civil society's stigmatization of drug usage that promotes exclusion, contempt, and suffering. In the face of such a sick social structure, drugs are offered to those in need as a quick way to provide immediate relief. Therefore, any addiction prevention strategy that relies on drug abstinence and criminalization as fundamental principles is condemned to fail. This implies that a more prophylactic, preventive, and humanistic proposition that breaks with the current prohibitionist approach must be implemented, and we believe the harm reduction approach is well suited for this purpose. Furthermore, as important as effective harm reduction-based public policies are, there is a need to train conscious, qualified, dedicated, and informed health professionals who understand how to deal with social groups that may be ignored by society in order to modify the health care environment to make it more democratic, fair, and less oppressive and excluding. This effort is also significant in light of the fact that the worldwide war on drugs is failing (América-Simms, 2011; Csete et al., 2016; Iacobucci, 2016). Repressive activities toward users hamper public health policies aimed at reducing drug consumption, overdose deaths, and other negative repercussions of drug use, such as HIV/AIDS transmission.

The topics covered in this paper are not unfamiliar to people who study the consequences of psychoactive substance use on body systems and human behavior. Consumption of psychoactive drugs is an ancient and persistent phenomenon in human history (and will continue to be) as, with few exceptions, there is not a single human society, at various times and places, that has not engaged in drug use. Furthermore, as evidenced by the series of studies cited throughout this report, data on the effects of drugs on bodily systems have been known for a long time, and the

currently hegemonic prohibitionist approach as a specific form of dealing with drug issues has consistently demonstrated its ineffectiveness all over the world over the course of the 20th century. One of the reasons for this, as we argue throughout the text, is that proposals that are translated into public policies do not contemplate the changes that the long-term use of drugs produces in bodily systems and human behavior. In other words, laws are enacted in absentia and with no knowledge of the object they are intended to serve. Several drawbacks can account for such disparity, and this is the main difficulty in summarizing a theory of addiction and its treatment within a single scope. In our study, we attempt to shed light on the subject by discussing why, to the best of our knowledge, criminalization and abstinence must be abandoned in favor of harm reduction proposals that we believe are a healthier and more humanistic way to deal with the addiction phenomenon. However, additional ways of responsibly thinking about drug addiction, addiction treatment, and drug policies are also available. In this context, we invite the readers to dive into the studies by Bechara et al., (2019), Cook (2019), Tatmatsu et al., (2020), Uusitalo & van der Eijk (2016), Wogen & Restrepo (2020), and Xavier et al., (2018), to cite a few. Actually, decriminalization methods based on research, health, security, and human rights have proven to be a better option (Mendes et al., 2019; Vicknasingam et al., 2018; Volkow, 2021).

Declaration of interests

The authors state that they have no conflicts of interest at any level, whether personal or financial.

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