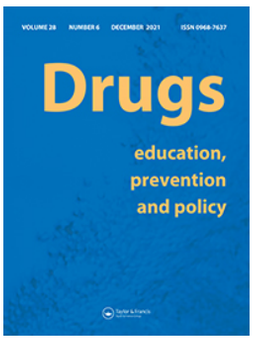

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Toward a positive psychology of psychoactive drug use

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ABSTRACT

This article advances the proposition that contemporary perspectives on psychoactive drug use are epistemologically limited and that a broadened conceptualization of substance use would aid the development of more effective drug policy and education. It contends that psychoactive substance use cannot be accounted for from an exclusively pathological frame of reference and that by neglecting positive drug instrumentalization, opportunities to advance public health, safety, and well-being are being overlooked. Using the field of positive psychology as a point of comparison, this article thus argues for greater acknowledgment of, and research on, beneficial recreational substance use. The adaptive function of psychoactive drug use and the limitations of conceptual discourse which fails to distinguish between deleterious and salubrious use are first discussed. This is followed by an overview of the cartography of psychoactive drug use and consideration of biopsychosocial parameters germane to positive drug instrumentalization. The classic psychedelics are highlighted due to their psychopharmacological properties and tendency to evoke self-transcendent states. Limitations of regulatory and educational approaches grounded exclusively in the pathological paradigm are broached, with a discussion of how incorporating perspectives on positive drug use would complement extant models of prevention and harm reduction. Areas for future research are considered.

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Over the last few decades, there have been great advances in our understanding of the dangers associated with psychoactive drugs, including substance use disorders, substance-induced disorders, and their harmful physical, psychological, and social sequela (American Psychiatric Association, 2013). However, there has been very little recognition of the importance of positive drug utilization (Askew, 2016; Hart, 2020, 2021; Müller & Schumann, 2011). Although the fields of anthropology and sociology have historically been more open to studying pleasurable drug use (e.g. Becker, 1953; Valentine & Fraser, 2008), perspectives on psychoactive substances remain heavily skewed towards the negative in medicine, law, and clinical psychology (Ross et al., 2020). At the core of what Engel et al. (2020) describe as the dominant *medico-legal* discourse surrounding drugs is the central notion that illicit substance use is fundamentally negative – drugs are physically dangerous, morally reprehensible, and inherently criminal. Similarly, Moore (2008) contends that the disproportionate emphasis on deleterious drug use throughout much academic discourse reflects an entrenched *pathological paradigm* (see also Mugford, 1988). As a function of this emphasis, political and societal perspectives on drug use are often heavily distorted, which has served to propagate dubious policies of drug prohibition, impede the development of judicious drug education, and facilitate the ongoing stigmatization of those who use drugs (see Osborne & Fogel, 2017). Ivsins and Yake (2020) argue that reimagining the conceptual landscape of drug use is required to address the root of these issues.

With the aim of contributing to such a reimagining, this article utilizes the field of positive psychology as a theoretical point of comparison to argue that both deleterious and beneficial patterns of substance use need *equally* be studied to yield a thorough understanding of this human behavior. Given the overarching scholarly emphasis on pathological drug use, the focus herein concerns the positive end of the spectrum. Accoringdly, the aim of this paper is not to dismiss or deny the destructive potential of abuse and addiction, but to augment our understanding of these phenomena by considering 'when recreational drug use goes right.' Parallels between the study of beneficial drug use and the field of positive psychology, including potential sources of resistance to this scholarship, are first considered. The adaptive function of psychoactive substance use and the limitations of conceptual discourse which fails to consider it are then discussed. This is followed by an overview of the spectrum of drug use and biopsychosocial facets relevant to understanding use outcomes. The classic psychedelics are highlighted as lending themselves to positive use due to their unique psychopharmacological attributes and tendency to foster self-transcendent states. Finally, the limitations of regulatory and educational approaches which fail to include positive drug use are discussed, followed by consideration for future research.

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Positive psychology and psychoactive drug use

The field of positive psychology – which studies the states, traits, and institutions that foster health and wellness – grew from an imbalance in clinical psychology, which had historically focused on maladaptation and psychopathology (Seligman, 1999). Psychological science had concentrated on, and thus become generally limited to, a truncated view of human functioning that emphasized psychopathology (Gable & Haidt, 2005; Seligman, 2002). As a result, clinical psychologists and other treatment professionals were equipped to treat mental disorder, but largely deficient in the knowledge needed to conceptualize and promote optimal mental health and wellness. The field of positive psychology was developed to redress this knowledge deficit. In such a way, positive psychology does not seek to deny or minimize the harmful reality of psychopathology. Instead, it simply addresses the other side of the equation – our potential for wellness, creativity, and flourishing (Sheldon & King, 2001).

Analogously, it is increasingly clear that a comprehensive understanding of psychoactive drug use cannot be accounted for from a solely pathological perspective (e.g. Hart, 2020; Peele & Brodsky, 2000). Just as the near-exclusive focus on psychopathology led to the neglect of wellness within mainstream psychological science, the predominance of the pathological paradigm in much drug scholarship has led to the neglect of positive and pro-social drug use. This does not, of course, discount the risks associated with drugs. However, it is clear that current drug policies have not effectively addressed drug abuse and addiction and are in fact contributing to them (Csete et al., 2016; Osborne & Fogel, 2017). At the core of many of these policies has been the mistaken notion that drug use is inherently problematic (Engel et al., 2020). Nicholson et al. (2002) point out that because this assertion is demonstrably untrue, regulatory, public health, and educational policy grounded upon it will ultimately be ineffective. Thus, in the same way that positive psychology has helped move psychological discourse away from a singular preoccupation with ameliorating the worst things in life to *also* building the best in life, in order to optimally foster public health and wellness we should aim to shift the discourse around drugs from a singular fixation on abuse and addiction toward the inclusion of positive drug use.

Resistance to the positive psychology of drug use

Hart (2020) points out that despite considerable evidence that drug abuse and addiction constitute a minority of drug use outcomes, medical, psychological, and public health research continues to emphasize these dangers while ignoring the potential benefits. In fact, Ross et al. (2020) note that although non-problematic drug use is the norm, the dominant discourses surrounding drug use effectively silence this reality. Part of this resistance may derive from what Klerman (1972, p. 3) described half a century ago as *pharmacological Calvinism* – the distrust of non-medical drug use and the conviction that if a drug 'makes you feel good, it must be morally bad.' Fifty years later and drug-facilitated pleasure continues to be widely regarded as 'problematic' and inherently linked to deviance, criminality, and psychopathology (Bright et al., 2008; Souleymanov & Allman, 2016). Mugford (1988) and Moore (2008) describe this as a resistance amongst many drug researchers to step outside the bounds of the *pathological paradigm*. As a result, considerations of pleasure or benefit deriving from drug use continue to remain largely marginalized. In a similar way, Gable and Haidt (2005) have documented various sources of resistance to the emergent field of positive psychology. It is worth considering how these criticisms, and their responses, may hold relevance for the study of psychoactive drug use.

The first potential form of resistance to the positive psychology of drug use involves concerns that this line of thinking fails to recognize abuse and addiction, instead preferring a 'pollyanna' or 'childish' view of reality (cf. Gable & Haidt, 2005). Moore (2008) contends that there is a stigma in the field of drug research against considering drug use as a rational behavior with potential benefits. He further argues that there is an implicit professional risk in studying pleasurable drug use, being identified as 'pro-drug,' or being accused of not taking drug abuse and addiction seriously. And yet, like positive psychology, acknowledging and studying the determinants of positive drug use does not imply the denial or refutation of the risks and harms of drug use. The aim is not to ignore scholarly work on problematic drug use – substance use disorders and substance-induced disorders are very serious and, of course, should be mitigated. The aim is, rather, to broaden our understanding of positive drug use to complement existing discourse in these areas. Although drug misuse is demonstrably problematic in certain contexts and for certain individuals, the reality that drug use is pleasurable, meaningful, and life-enhancing for the majority of users must be reflected in a comprehensive understanding of drug use behavior.

A second potential source of resistance is the contention that those suffering from drug abuse and dependence should be helped before considering methods to advance the well-being of those already faring well (cf. Gable & Haidt, 2005). Although there is some merit to this argument given the finite nature of health resources, understanding the determinants of positive drug use may actually help to lessen or even prevent some of the harms of drug abuse and substance use disorders. As Hammersley and Reid (2002) argue, a central objective of addiction researchers should be to better understand the factors contributing to positive use given that without such an understanding we are less able to predict and intervene before use becomes problematic. By focusing resources solely on drug abuse and addiction we end up failing to fully understand these issues and are thus less able to prevent them from emerging or escalating.

The third source of resistance may stem from epistemological bias in medical and social science (cf. Gable & Haidt, 2005), particularly when it comes to positive self-report testimony of drug users (Tutenges et al., 2015). Engel et al. (2020) argue that the dominant discourses concerning drug use are heavily controlled by the medical and legal professions. As a result, those who use drugs are rendered 'subjects' of these authorities, and their perspectives are thus both repressed

and marginalized. Moore (2008), too, has proposed that first-person accounts of drug users are rendered *subjugated knowledge* in that these perspectives are not given equal legitimacy by the dominant medico-legal discourses. As a result, the positive or beneficial side of drug use as reported by drug users is accorded less weight and regarded with suspicion (Tutenges et al., 2015). This is further exacerbated by the fact that epistemological traditions in medicine and psychology often treat positivity in general with skepticism (see Sheldon & King, 2001). Although this is critical to scientific rigor, when taken too far it constitutes a distortion impeding an accurate appraisal of reality. As Gable and Haidt (2005) have noted, the well-established cognitive bias to more readily perceive and process negative information should not be reflected in the subject matter of our science.

With these potential sources of resistance to the study of positive drug use in mind, the following sections aim towards reimagining the conceptual landscape of substance use to include beneficial use. Although this outline is by no means an exhaustive account of all the variables that influence outcomes, it highlights key parameters that may help to inform a broadened view of positive drug utilization.

Conceptualizing psychoactive drug use

In order to establish such a reimagining, it is important to first note the hypothesized genesis of psychoactive substance use. These origins, in fact, have been shown to predate our species (see Siegel, 1989). For example, *zoopharmacognosy* is the science of animal species ingesting psychoactive plants to enhance the functioning or performance of a desired behavior (Rosenthal et al., 1978). Deliberate drug-taking has been observed in fruit flies, rodents, dogs, and monkeys amongst others (see Müller & Schumann, 2011 for references). These findings indicate that psychoactive substance use is not unique to humans and likely has evolutionary significance. Indeed, Müller and Schumann's (2011) comprehensive functional analysis of psychoactive drug use strongly suggests that pharmacologically induced altered physiological states are likely to have conferred improved selective fitness.

Because the use of psychoactive plants is believed to have held adaptive value for many species, this may help to explain the ubiquitous adoption of drug use across human cultures. For example, it is well established that psychoactive substances have been positively used for therapeutic, social, and religious purposes for hundreds if not thousands of years by numerous cultures (El-Seedi et al., 2005; Merlin, 2003; McGovern, 2009; Samorini, 2001). Given this pervasive history, it has been argued that drug use should be conceptualized as a normative – rather than aberrant – behavior (Nicholson et al., 2002).

Despite the long-standing human propensity to use psychoactive substances toward salutary ends, most modern societies now opt to prohibit the great majority of psychoactive drugs, with alcohol and tobacco being two notable exceptions. Courtwright (2005) points out that 'in both Western medicine and in Western popular culture, alcohol, and tobacco effectively split off from other drugs to the point that the ordinary understanding of the word 'drugs' came to exclude, rather than include, these substances' (p. 110). This has served to perpetuate what Taylor et al. (2016) refer to as *drug apartheid* – the spurious division of substances into acceptable and unacceptable within the dominant discourses surrounding drug use. In such a way, illicit drug use is often framed in mainstream discourses as a physically dangerous, morally corruptive, threat to conventional society that must be prohibited (Bright et al., 2008).

Although legal drugs may also be conceptualized in a similarly derogatory manner, licit substances are nonetheless granted considerable latitude in retaining social acceptability. Citizens are thus permitted to participate in what the dominant discourses deems 'acceptable drug taking' (e.g. alcohol consumption) without risk of social, moral, or legal sanctions, while users of unacceptable and thus illegally demarcated substances are not afforded the same luxury. This conceptual, discursive, and judicial separation of legal and illegal substances is highly problematic in that it obfuscates drug education, distorts societal perceptions about the harms and benefits of substances, and foments stigmatization (Institute of Medicine, 1996).

The spectrum of psychoactive drug use

It is important to acknowledge that if an individual is thoughtful, well-prepared, and aware of the means to minimize the risks, then drug use in and of itself need not be harmful (Dalgarno & Shewan, 2005, see also Pennay, 2015). With the necessary knowledge, experience, and context to safely use a psychoactive drug, the positive effects can be maximized while the negative effects can be minimized. In other words, drug use outcomes exist on a spectrum (Askew, 2016). The most basic of these is a binary, which distinguishes between *drug use*, involving minimal hazard, and *drug abuse*, involving danger or impairment in one's ability to function (Nicholson et al., 2002). However, although this distinction is typically made for legal substances (i.e. when comparing alcohol use and abuse), such nuance is often not extended to illicit substances. In such a way, the mere use of an illicit substance is frequently regarded as inherently problematic or abusive without investigating use outcomes (Tupper, 2008). This bias persists despite mainstream psychiatry's stance that to be diagnosed with a substance use disorder one's drug use must cause *clinically significant* impairment or distress (American Psychiatric Association, 2013).

However, what is often ignored in the dominant medico-legal discourses is the fact that only a minority of illicit drug users constitute a pattern of problematic abuse, let alone a substance use disorder (Engel et al., 2020; Hart, 2020; Nicholson et al., 2002). Instead, most drug users do so in a way that does not harm or lead to the impairment of the individual or society (see Alexander, 2010). Epidemiological data indicate that the vast majority of illicit drug users meet the criteria for controlled or non-problematic use (see Müller & Schumann, 2011; United Nations Office on Drugs and Crime, 2015). In fact, studies report that 70–90% of

individuals who use even the most potentially hazardous drugs, such as heroin, do not become addicted or dependent (Hart, 2020; Heyman, 2010). Most individuals who use psychoactive substances lead productive, healthy lives (Askew, 2016; Reneau et al., 2000).

The Institute of Medicine (1996) acknowledges this range of outcomes and thus characterizes drug use on a spectrum from *dependence* (compulsive drug use resulting in impairment, tolerance, and/or withdrawal symptoms upon discontinuation), to *drug abuse* (use leading to physical, social, legal, or interpersonal problems), to *controlled use* (non-harmful utilization of a licit or illicit drug). Although this delineation does help to clarify drug use outcomes, the reality is that for some, drug use may not only be neutral or 'controlled,' but demonstrably positive (e.g. Krebs & Johansen, 2013; Hendricks et al., 2014, 2015; Müller & Schumann, 2011; Walsh et al., 2016). In light of this, the Government of British Columbia (2010) has proposed a tentative expansion of the drug use continuum, which ranges from: *chronic dependence* (habitual/compulsive use despite negative health/social effects), *problematic use* (use with negative health impacts on individuals, family/friends, or society), *non-problematic use* (recreational, casual, or other use with negligible health/social effects), and *beneficial use* (use with positive health, spiritual, or social impacts). Nonetheless, further research will be needed to establish the validity of this classification system.

Positive drug instrumentalization

Müller and Schumann (2011) argue that most individuals who utilize psychoactive drugs in beneficial ways use them as tools, or instruments, to help achieve desired goals. They define *drug instrumentalization* as the consumption of a psychoactive drug to change one's mental state in order to better obtain a non-drug-related outcome, and suggest eight goals served by use: improved social interaction, facilitated sexual behavior, improved cognitive performance, coping with stress, alleviating psychiatric symptoms, novel perceptual and sensory experiences, hedonia, and improved physical and sexual appearance (see Müller & Schumann, 2011, for references). Móró and Noreika (2011) have argued for the need to include sacramental and spiritual use as an additional category. Similarly, Askew and Williams (2020) identified three patterns of instrumental, or what they refer to as *enhancement,* substance use in their study of drug users. *Transformation* was described in participant narratives of using psychedelic substances, such as psilocybin, LSD, and ayahuasca, to facilitate self-discovery and spirituality; *healing* was described in narratives of using cannabis to relieve pain and psychedelics to alleviate mental health issues; and *productivity* was described in narratives of using stimulants (e.g. Adderall, modafinil, dexamphetamine, and cocaine) to improve performance and productivity.

Askew and Williams (2020) thus contend that a wide range of substances, including psychedelics, MDMA, ketamine, cocaine, alcohol, opiates, and amphetamines can be beneficially used to enhance self-insight, well-being, creativity, and spirituality. Indeed, evidence for positive drug instrumentalization has been documented for various substances. For example, Nicholson et al. (1999) conducted a survey of controlled adult drug users and found several motivations and outcomes from use. They report that alcohol was typically used to relax and enhance socialization, cocaine and stimulants were primarily used to enhance pleasure, productivity, and socialization, psychedelics were used for spiritual or psychological exploration and social connection, cannabis was used to relax and enhance pleasure, and depressants were used to enhance relaxation.

In a meta-analysis of the literature, Peele and Brodsky (2000) reviewed the range of beneficial health, psychological, and social outcomes associated with judicious alcohol consumption. To a greater degree than either complete abstainers or heavy/frequent users, their analysis found that low to moderate alcohol use was associated with psychological, physical, and social well-being, lower rates of stress and mental illness, enhanced social participation, and less work absence or disability (see Peele & Brodsky, 2000). Similarly, cannabis instrumentalization has also been associated with a variety of psychological and social benefits, including enhanced self-insight, the induction of flow states, enhanced sensory perception, greater concentration, and appreciation of aesthetics, and enhanced creativity and socialization (e.g. Chatwin & Porteous, 2013; Green et al., 2003; Hathaway, 1997; Hathaway & Sharpley, 2010). It is worth noting that the benefits ascribed to drug use in the aforementioned studies are congruent with the experiences and virtues of interest to positive psychologists – well-being, life-satisfaction, flow, happiness, sensual pleasures, aesthetic appreciation, work-ethic, and spirituality (Seligman, 2002).

However, Peele (1999) emphasizes that despite the potential benefits associated with small and relatively infrequent alcohol use, heavy and frequent drinking patterns are associated with worsened physical and mental health. Simons et al. (1998) have shown that heavy and frequent cannabis use is predictive of problematic outcomes. Comparably, Peele and Brodsky (2000) and Clifford et al. (1991) found negative curvilinear (inverted-U) relationships between drug use frequency and dosage and positive outcomes, which emphasize that although limited drug instrumentalization may hold benefits, frequent and heavy use can lead to harmful patterns of abuse or addiction. Herein lies the major risk of drug instrumentalization; those who use a drug are, by default, at a greater risk of developing an abusive relationship with the substance than those who abstain (American Psychiatric Association, 2013). This reality has in part contributed to the scientific community's hesitance to acknowledge positive drug use.

Although the line may at times be nebulous, Müller and Schumann (2011) contend that positive drug instrumentalization is controlled and limited, while drug addiction is uncontrolled, compulsive, and associated with frequent consumption of large doses. In such cases, they contend, adverse drug effects outweigh the potential benefits of instrumentalization. Non-drug-related goals become increasingly devalued and the use of the drug itself becomes reinforcing with the development of addiction (Redish et al.,

2008). As Alexander (2010) has argued, however, addictive drug use is often an attempt to cope with psychosocial 'dislocation.' In other words, despite its potentially deleterious impact on the user, addictive drug use could be regarded as an adaptive and perhaps fruitful instrumental attempt to cope with stress or alleviate psychiatric symptoms. Until the underlying psychological or socioeconomic problems are addressed and alternative means of achieving these needs are established, those with addictions may have little incentive to 'control' their use given these benefits (Pickard, 2011).

The line demarcating positive instrumentalization from addiction is thus muddied in that abuse/problematic use and pleasure/beneficial use may co-exist (Dennis, 2017). Pennay (2015) argues that although the potential benefits and harms of drug use tend to be considered separately, this can be unhelpful as the two outcomes are not strictly opposed. Askew and Williams (2020) contend that on account of the porous boundaries between benefit and harm, we need to develop a better understanding of enhancement substance use. Greater awareness of various parameters that inform drug use may help us to maximize positive outcomes, minimize harms, and predict those cases in which controlled instrumentalization is likely to escalate towards, or overlap with, more problematic outcomes.

Biopsychosocial parameters of positive drug use

Contemporary public health knowledge is rooted in an understanding of the multifactorial complexity of the determinants of health and wellness, including biological, psychological, social, and existential facets. In the same way, a reimagined psychology of drug use that yields the greatest benefits and minimizes harms may be informed by considering the type of drug used, intentions for use, one's degree of skill and experience, the dosage used, and the context/setting of use (cf. Müller & Schumann, 2011). Similarly, Móró and Noreika (2011) suggest that a bio-psycho-socio-spiritual framework could clarify the various purposes and outcomes of drug use.

Biological parameters of positive drug use

The reality is that not all drugs are comparably safe or likely to be salubrious. Psychoactive substances vary tremendously in terms of their pharmacological properties, toxicity, tendency to induce dependence, and effects on perception and cognition (see Gable, 2004; Nutt et al., 2007). In addition to drug pharmacology, individuals also differ in terms of physiology (e.g. genetic expression of metabolic enzymes). Given such differences in drug metabolism, the effects and outcomes of a given drug can vary considerably between individuals (e.g. De la Torre et al., 2004). Thus, if society aims to be evidence-based in such a manner as to maximize health and safety, regulatory parameters would ideally be set for each class of drug, and users would be educated on the relative impact of biological factors on drug use outcomes.

Although various drugs undoubtedly have positive potential, this article will focus on the 'classic' or serotonergic psychedelics. Again, this is not to imply that the classic psychedelics are the only class of substance lending themselves to positive use, nor is it to imply that the classic psychedelics are inherently without risk. However, the psychopharmacological profile of the classic psychedelics likely renders them amongst one of the most promising classes for a positive psychology of drug use (i.e. use having positive health, spiritual, or social effects).

The classic psychedelics

Although many drugs hold psychedelic properties, the *classic* psychedelics such as psilocybin, lysergic acid diethylamide (LSD), and mescaline, amongst many others, share a chemical structure similar to serotonin and are distinguished by their action as potent serotonin (5-HT) agonists, particularly at the 2A receptor (Halberstadt, 2015; Nichols, 2016). Thus, classic psychedelics are also sometimes referred to as *serotonergic psychedelics*. Experimental, clinical, and epidemiological research has established that they are non-toxic and non-addictive (see Canal & Murnane, 2017; Gable, 2004; Passie et al., 2002, 2008; Tylš et al., 2014). In fact, public health, addictions, and pharmacological experts contend that they are amongst the safest known psychoactive substances (Gable, 2004; Nutt et al., 2007, 2010; van Amsterdam et al., 2010). This is not to say that classic psychedelics are innocuous. They can elicit pronounced feelings of anxiety, distress, paranoia, confusion, and even 'psychotic-like' symptoms which may persist for a number of weeks after use. However, these symptoms are typically transient and have not been shown to be causative of enduring psychiatric conditions (see Johnson et al., 2008; Strassman, 1984).

Krebs and Johansen (2013), using data from a nationally representative sample of the adult population in the United States ($n = 130{,}152$), found no relationship between the use of classic psychedelics and psychological distress or symptoms of mental illness. Instead, they found *lower* rates of mental health problems amongst users. Similarly, Hendricks et al. (2015) utilized data from a nationally representative sample of the adult population in the United States ($n = 190{,}000$) and found that classic psychedelic use was correlated with a significantly reduced likelihood of psychological distress, suicidal thinking, and suicide attempts, whereas the use of various other illicit substances was correlated with an increased likelihood of these outcomes. Although classic psychedelics do not appear to evoke spontaneous mental disturbances, it has been suggested that in some instances they may precipitate these problems in those predisposed to psychotic illness (Cohen, 1985; Nichols, 2016; Vardy & Kay, 1983). Thus, it is advised that individuals with a personal or familial history of psychotic disorders avoid the use of these substances.

Research beginning in the mid-20th century suggested that when used judiciously these drugs held remarkable promise for enhancing mental health and wellness (e.g. Grinspoon & Bakalar, 1979). After decades of moratorium, research on these substances is slowly resuming and recent studies are now confirming that these drugs hold clinical potential (e.g. Bogenschutz & Johnson, 2016; Griffiths et al.,

2016; Johnson & Griffiths, 2017). However, positive outcomes with these substances are frequently associated with their recreational use as well. Because of this, it has been argued that they have legitimate uses beyond the medical context. Recreational users often report improved mental health, greater well-being and life-satisfaction, and enhanced spirituality (e.g. Carhart-Harris & Nutt, 2010; Cummins & Lyke, 2013; Lerner & Lyvers, 2006; Lyvers & Meester, 2012; Móró et al., 2011; Nour et al., 2016; Prepeliczay, 2002; Stasko et al., 2012).

Positive psychologists contend that promoting *self-transcendent* or *hypo-egoic* states – which range on a continuum of intensity from mindfulness to flow to awe and finally 'peak' or mystical experiences – may be a method of fostering greater mental health given their well-established associations with well-being, prosociality, and spirituality (e.g. Brown & Ryan, 2003; Csikszentmihalyi, 1990; Exline, 2016; Leary & Guadagno, 2011; Rudd et al., 2012; van Cappellen & Saroglou, 2012; Yaden et al., 2017). Indeed, self-transcendent experiences are often associated with changes in beliefs about the meaning of life, greater selflessness, and a sense of the oneness of all things, features that reflect the development of greater hypo-egoicism and eudaimonic well-being (Leary & Guadagno, 2011).

Many studies suggest that the positive impact of the classic psychedelics may be in part related to their capacity to reliably promote these states in both experimental and recreational contexts (see Griffiths et al., 2006; Hendricks, 2018; Nour & Carhart-Harris, 2017). For example, Nour et al. (2016) found that the recreational use of classic psychedelics was associated with self-transcendent experiences, which correlated with well-being in a dose-related manner, while the use of cocaine and alcohol did not show these associations. Lyvers and Meester (2012) also found that the recreational use of classic psychedelics was associated with mystical experiences in a dose-related manner, whereas the use of MDMA, opiates, cannabis, cocaine, and alcohol was not. Similarly, Lerner and Lyvers (2006) found that recreational classic psychedelic users scored significantly higher on measures of mysticism, spirituality, and concern for others when compared to users of other illicit (e.g. cannabis) and licit (alcohol) substances.

That the classic psychedelics are seemingly able to foster self-transcendent states may be related to the known association between the serotonergic system and such experiences. For example, Goodman (2002) proposed that mystical experiences share common neural mechanisms related to serotonergic functioning, while Borg et al. (2003) found a positive correlation between serotonin receptor binding and self-transcendent experiences. Accordingly, understanding how the various classic (i.e. serotonergic) psychedelics may be used to foster these states may be an important goal for the next phase of positive psychology and positive psychology of psychoactive drug use.

Psychological parameters informing positive drug use

Despite the importance of biological factors, understanding a drug's pharmacology is insufficient to predict the outcomes of its use (Dalgarno & Shewan, 2005). It is well established that the quality and outcome of a given drug experience greatly depends on the *set* (e.g. intention, personality, and emotional state) and *setting* (e.g. physical, social, and cultural use parameters) of the user (see Hartogsohn, 2017). Of these various non-pharmacological factors, understanding the goals, intentions, or motivations one holds for using a substance provides substantial insight into the potential harms or benefits of drug use. In other words, to truly understand enhancement/positive drug use it is critical to understand one's motivation for use (Askew & Williams, 2020). In fact, it has been argued that use intentions are a final common pathway to either controlled use or abuse (Cox & Klinger, 1988).

For example, Cooper (1994) noted four primary intentions for alcohol use – enhancement, coping, conformity, and socialization – which largely predict the outcomes of use. In particular, those who use alcohol to cope with negative emotions report more harmful consequences than those who use alcohol with other intentions (e.g. Cooper et al., 1995; Neighbors et al., 2007). Likewise, the outcomes of those who use illicit drugs also show considerable variability based upon intentions for use, even amongst those with similar sociodemographic characteristics (Móró et al., 2011). Simons et al. (1998) found that using cannabis to enhance partying was predictive of problematic outcomes, while using cannabis to enhance perceptual and cognitive experiences was not. Similarly, Móró et al. (2011) found that 'autognostic' (increasing self-knowledge) intentions for using psychedelics were differentially predictive of intrinsic spirituality. In fact, research suggests that utilizing substances for spiritual or introspective purposes is associated with enhanced mental health, prosocial actions, and spirituality (Hallock et al., 2013; Neitzke-Spruill & Glasser, 2018; Prepeliczay, 2002). A greater understanding of why or for what reason someone is using a given substance is thus critical for guiding the assessment of positive drug use as well as informing interventions for those struggling with abusive patterns of use.

Learned drug skills and dosing

Beyond the use of a particular substance with a given intention, learning how to instrumentalize a drug as a tool is also of critical importance. Because instrumentalization involves the use of a psychoactive drug to change one's mental state to enhance goal achievement (Müller & Schumann, 2011), learning how to instrumentalize a substance entails acquiring the ability to detect subtle changes in sensation, cognition, and perception. When a novice individual is learning to use a drug, different doses are usually experimented with to explore the drug's effects on mental functioning (Simons et al., 2000; Zinberg, 1984). In general, achieving a mental state for a given context and purpose requires taking a drug in a specific dosage range. However, given the delayed onset and enduring nature of drug effects following the ingestion of most substances, learning to use a drug without guidance and proper instruction often involves some degree of 'mis-instrumentalization' and 'mis-dosing' (Kippin, 2011).

Typically, unintended dosages in the low-to-medium range have untoward effects that are relatively nonharmful or life-threatening, whereas higher doses are both more likely to result in serious harms and may promulgate the neuropsychological cascades that contribute to addiction (see Kippin, 2011; Koob et al., 2004). By minimizing the dose required for instrumentalization, both tolerance and the patterns of use that may lead toward dependence can be minimized (Müller & Schumann, 2011). Once an individual learns to detect the subtle shifts in perception suited for a particular task, they may require less of a given substance to facilitate its occurrence (see Tart, 2000). This is because at first the sensory and perceptual effects of most drug-induced states are subtle, and a substantial dose is required to discern shifts in one's cognitive state. For naïve users and those without guidance from mentors, the use of large doses means that the transition into the drug-facilitated state is often more pronounced, which increases the potential risk of overdoses and 'bad trips' (Tart, 2000). Once the user knows what to expect, however, this shift often requires a smaller dose from the drug to evoke the desired state. The aim, then, is to learn how to shift into a mental state suited to a particular goal with the minimal amount of substance required, thus limiting potential toxicity or side effects (Müller & Schumann, 2011).

Social parameters informing positive drug use

Understanding the social parameters surrounding drug use is also required for a comprehensive understanding of both positive and negative drug use. For example, despite its great potential for harm, most alcohol users do so responsibly (Nutt et al., 2007). Socially integrated contexts for use grant alcohol users access to frameworks that maximize safe consumption while simultaneously limiting harmful use. As a legal drug, knowledge about safe and moderated use is freely available within the dominant culture, and deliberate spaces intended for monitored consumption are permitted (i.e. bars). Due to social normalization, problematic users are also more likely to seek assistance without fear of being criminalized and suffering legal reprimands (see Zinberg, 1984).

As with alcohol, the beneficial use of illicit drugs is partly informed by the social contexts and rituals established by a given drug's subculture. Kettner et al. (2021) found that *communitas*, or the sense of intersubjective connection amongst those who take psychedelics in a group context, partially mediated the beneficial effects of the drug experience on well-being. Moreover, Grund (1993) has noted that social rituals around drug use foster control and a concomitant reduction in problematic use. For example, many controlled drug users approach use as a planned, drug-centered, group activity (Zinberg, 1984). In a similar way, many cultures have developed structured contexts to safely utilize various substances that have been deemed harmful and illicit in most Western societies (Haden et al., 2016). Unfortunately, these contexts and the knowledge associated with them – instruction on proper use and moderation – are widely unavailable in mainstream culture. Because of their unsanctioned nature, individuals must rely on chance association with other controlled users in order to acquire this information (Zinberg, 1984). However, not only have most Western societies undermined the knowledge and the contexts which provide the structure for positive drug use, they typically discriminate against it.

Stigmatization and positive psychoactive drug use

Although drugs do indeed have objectively different properties, the understanding of a drug is nonetheless influenced by various sociocultural forces (Bright et al., 2014). Certain drugs, such as opiates, cocaine, and amphetamines, might suffer greater stigma and thus be unfairly attributed more pathological, and fewer salubrious, properties than others (Bright et al., 2014). In such a way, drugs, and their meanings, must also be viewed as socially constructed. It should therefore be emphasized that by arguing for the positive potential of some drugs there is the risk of implicitly arguing against, and thus perpetuating the stigmatization of, other drugs (Askew & Williams, 2020; Ross et al., 2020).

Additionally, in both medico-legal research and popular media, drug users are often portrayed as weak, immoral, and a danger to society (Ahern et al., 2007). The focus is skewed towards problems with the law, poor health, moral failing, mental disorder, and other attributes that set 'them' apart (Tutenges et al., 2015). As a result, those who are indeed struggling with problematic forms of drug use are particularly stigmatized (Ross et al., 2020). By virtue of this stigmatization and perceived deviance, problematic illicit drug users experience significant discrimination, chronic stress, and poorer mental and physical health (Young et al., 2005). This often contributes to self-stigmatization and feelings of shame, which are associated with reduced access to health and harm reduction services (Engel et al., 2020). Hart (2020) argues that the overemphasis on drug-related harms and neglect of positive use substantially contributes to the persistence of these dehumanizing stereotypes.

Ross et al. (2020) suggest that self-disclosure of personal drug use by researchers may promote de-stigmatization and help change drug policy by demonstrating that drug users can, indeed, be successful. By disclosing one's drug use, they argue, researchers may help raise awareness of non-problematic and positive drug use and thereby broaden the meaning of 'drug user' within policy discussions and mainstream drug discourse (Ross et al., 2020). In other words, promoting greater acknowledgment of the fact that drug use is a common human behavior with negative and positive potential may advance the goal of de-stigmatization (Parker et al., 2002). This process will also, however, require evidence-based regulatory policy and knowledge translation in the form of comprehensive education.

Reconsidering drug regulatory and educational policy

A difficult yet central question remains: how do we fit this broadened view – that substance use can be either

destructive or beneficial – into current models of drug regulation and education? Ivsins and Yake, (2020) note that it is here where attention is diverted from any positive framing of drug use toward accepted notions of risk and harm reduction, addiction, and abuse. In other words, dominant drug discourse, grounded as it is in the pathological paradigm, abets the conservation of spurious boundaries between acceptable and unacceptable drug use. As an example, most Western countries' legal frameworks for regulating psychoactive substances are not based upon empirical evidence of harms and benefits. Rather, as Nutt et al. (2007) have argued, these regulatory systems are largely grounded upon social, historical, and political foundations (see also Nutt et al., 2013).

In response, Nutt et al. (2007) evaluated the harms of various drugs based upon toxicity, tendency to induce dependence and effects on social functioning. Using these criteria, no distinction could be found between legal and illegal drugs. Given these findings, Nutt et al. proposed that whether a drug is deemed legal or illegal is, from an empirical perspective of harm or benefit, essentially arbitrary. For example, tobacco is thought to be the most hazardous commonly used drug while alcohol abuse is the third highest risk factor in the overall global disease burden (see Nutt et al., 2007 for references). However, it should be emphasized that despite these harms, it is ultimately *less* harmful to the individual and society to regulate, rather than prohibit, tobacco and alcohol (Public Health Agency of Canada, 2015). For example, when alcohol is illegal, there tends to be greater availability, greater use, and more alcohol-related problems. Conversely, when alcohol is legal, harms are minimized through regulations, pricing, product standardization, controlling sales and availability, and minimum age laws (Public Health Agency of Canada, 2015). Youth are protected while adults are granted the autonomy to consume alcohol for personal and social benefit.

If the aim of society is to foster public health and safety, then the development of evidence-based approaches to regulate psychoactive substances should be viewed as a critical undertaking (Osborne & Fogel, 2017). For this to be most effective it will require an honest examination and study of positive drug use (Nicholson et al., 2002). Yet one of the largest barriers to better models of regulation is that legalization represents the explicit societal acknowledgment of a given drug's potential for non-problematic use (Reneau et al., 2000). Given that it is ultimately more harmful to prohibit drugs such as alcohol and tobacco than to regulate them, the question is whether this logic should extend to various illegal substances (Tupper, 2008). Admittedly, this will take further research given that drug use is a very complex phenomenon. However, modern societies have yet to develop frameworks for even those drugs already well established to be much safer than alcohol and tobacco (Gable, 2004, 2006).

Nonetheless, it is central to public health to determine the ramifications of shifting drug regulatory policy to reflect the admission of non-problematic and beneficial drug use. This is especially true for those most vulnerable to the detrimental effects of substance use, most notably children and adolescents (Spear, 2000). And yet, recent studies on recreational cannabis legalization in various jurisdictions have shown that regulation both grants access to consenting adults while limiting youth access and use. For example, an assessment of more than 1.4 million adolescents in the United States found that state-wide legalization was associated with an 8% decrease in use and a 9% decrease in frequent use amongst youth (Anderson et al., 2019). Similarly, Coley et al. (2020) analyzed data from more than 1 million youth in the United States and found no evidence that recreational cannabis legalization was associated with an increased likelihood or level of use among adolescents. Instead, the frequency of use declined by 16% amongst youth after state-wide legalization (Coley et al., 2020). Thus, the evidence indicates that adolescent cannabis use declines after legalizing use for adults, likely because it is more difficult to obtain cannabis when illicit markets are replaced by licensed vendors with minimum age laws (Anderson et al., 2019; Public Health Agency of Canada, 2015). Although regulation is an important first step, judicious educational policies are also necessary.

Drug education

The United Nations characterizes drug use as a 'youth phenomenon,' with rates of use increasing through adolescence and peaking in early adulthood (United Nations Office on Drugs & Crime, 2015). Unfortunately, research suggests that drug abuse during adolescence is particularly deleterious given that the abuse of various substances may impair neuropsychological development at this age (Spear, 2000). Because coping abilities are still poorly developed during this developmental period, adolescents are at a greater risk of 'over-instrumentalizing' drugs to manage stress (Banaschewski et al., 2011). Due to the various health risks associated with youth substance abuse, numerous educational programs have proliferated in the school setting. The nature of what to include in drug education is highly problematic, however, as what constitutes knowledge is not strictly objective (Tupper, 2008). This is especially true for knowledge about drugs given the highly polarizing nature of the subject. For example, while some contend that drug education in schools merely generates curiosity, in turn leading to use, others argue that drug education is essential given that many youths will inevitably experiment with psychoactive substances.

Historically, the moral edicts backing prohibition have often taken precedence over empiricism in drug education (Beck, 1998). As a result, many models of drug education have espoused strict abstinence. However, abstinence-oriented programs have been routinely critiqued for being unrealistic (Tupper, 2008). That is, although youth substance use should be limited, abstinence-oriented education ultimately fails to curb use, provides no advice to the many individuals considering experimenting with drugs, and leaves drug naïve youth on their own to cope with mistaken overdoses and other dangers (see McBride et al., 2004). Moreover, Bok and Morales (2000) found that youth view abstinence-only education as a form of adult denial. This approach fails

to acknowledge that youth experiment with substances for enjoyment, and instead simply frames substance use as a sign of distress, emergent conduct disorder, or lack of common sense (Jenkins et al., 2017).

Given that youth easily detect biased portrayals and hyperbolic claims, drug education will only succeed if it is honest. Due to the use of 'scare-tactics' and other distorted messaging presented to youth as factual, adolescents often report a lack of trust in formal sources of drug information (Jenkins et al., 2017). Although well-intentioned, biased messaging has the unintended consequence of discrediting truthful claims about the very real and legitimate risks associated with drug use. Rather than ignoring the reality that many youths are likely to experiment with substances, harm reduction education strives to provide youth with the skills needed to identify and mitigate the risks and dangers of drug use. For example, Jenkins et al. (2017) found that youth felt well equipped to engage in controlled use by applying learned harm reduction strategies, while Slemon et al. (2019) found that youth respond to harm reduction education but ignore abstinence-only messaging.

Ultimately, most researchers and clinicians agree that adolescent drug use should be discouraged if at all possible, given the noted potential for harms associated with use at this developmental stage (Banaschewski et al., 2011; Spear, 2000). And yet, a substantial barrier to this outcome is the refusal to acknowledge that youth view drug use as a pleasurable and meaningful activity (Jenkins et al., 2017; Nicholson et al., 1999; Reneau et al., 2000). In order for it to be taken seriously by youth, drug education must acknowledge both this reality and the reality that drug use can be harmful. Although harm reduction is laudable for its demonstrable capacity to prevent and limit the potential dangers associated with recreational drug use (e.g. Slemon et al., 2019), it remains somewhat bound by the pathological paradigm. In other words, the very notion of 'harm reduction' implicitly advances the idea of *problematic pleasure* in that drug use is rendered as inherently harmful and in need of mitigation (Souleymanov & Allman, 2016). In such a way, it becomes impossible to conceptualize beneficial use when harm and its reduction is the only option presented (Ivsins & Yake, 2020). Ultimately, our capacity to help drug naïve youth navigate the complexities of drug use is limited without an understanding of what, exactly, positive use might entail. Harm-reduction strategies would thus benefit from expanded discussions around how the harms and risks of drug use intertwine with safety, pleasure, and benefit (Souleymanov & Allman, 2016).

Müller and Schumann (2011) have proposed one framework intended to impart this form of comprehensive drug education. They contend that because education is unlikely to prevent adolescent experimentation, it is ultimately better to impart judicious attitudes and veridical knowledge about drugs to youth. Accordingly, in their model, adolescents and young adults would receive education on the adverse effects of drugs, such as addiction and overdose, as well as the difference between mis-instrumentalization and positive instrumentalization. This proposal advances the notion that a tool (in this case, a psychoactive substance) is ultimately rendered more dangerous when an individual has insufficient training in its uses, dangers, and the contexts required to maximize benefits and minimize risks. The central challenge, then, is that education must not encourage drug use, but simultaneously must contend with the fact that many youths are motivated to use drugs for various personal and social benefits.

Considerations for future research

This article has highlighted various pharmacological, contextual, regulatory, and educational factors relevant to promoting beneficial drug use outcomes. Although previous research indicates that knowledge of drug category, use intentions, learned drug use skill and dose, and social context are critical factors for predicting drug use outcomes, this academic literature is sparse and in need of both greater elaboration and verification. For example, given that positive drug use involves personal, social, or spiritual benefits (Government of British Columbia, 2010) research will be needed to establish a taxonomy of drug use purposes based on drug psychopharmacology, set and setting parameters, and the goals of instrumentalization. In a similar manner, further research will be needed to establish a framework of use intentions likely to foster positive instrumentalization as well as those conducive to problematic outcomes. While some research has been done (e.g. Cooper, 1994; Simons et al., 1998) further study is required.

However, in order to reimagine the field of drug scholarship to include an understanding of how and when drug use 'goes right,' we must simultaneously consider when drug use is likely to 'go wrong.' Even if most drug users do so without problems, we must not ignore or dismiss those for whom drug use is destructive. Kippin (2011) suggests that the concept of 'abuse liability' could be applied to the study of drug instrumentalization in the form of a cost/benefit analysis of any given substance. By exploring a particular drug's impact on neuropsychological processes it may be possible to establish which substances are most likely to be 'mis-instrumentalized,' thus resulting in an increased likelihood that an individual will encounter problems. Kippin (2011) suggests that drugs that produce high levels of euphoria are more likely to be abused, which may skew the cost/benefit of their utility as instruments.

Similarly, further research on biological, personality, life-span developmental, and socio-cultural variables germane to predicting positive and negative outcomes will be required. That is, future studies should examine whether particular genetic or psychological factors render an individual more likely to proceed from instrumentalization to addiction. For example, individuals with lower levels of self-control may be especially predisposed to develop substance use disorders, which suggests that the roots of problematic drug use for some individuals can be seen in behaviors long before the onset of substance use (American Psychiatric Association, 2013). Life-span developmental psychology may also contribute new areas of inquiry to the consideration of beneficial drug instrumentalization. For example, research should

examine the ritual use of psychedelic substances at times of life-stage transition throughout adulthood (cf., Lewis, 2008). It will also be important to explore social and environmental contexts (e.g. financial, societal, cultural) that promote beneficial use or may prevent the transition to abuse or addiction (e.g. Smyth & Kost, 1998).

Finally, Ross et al. (2020) note that although drug researchers are sometimes former, or current, drug users themselves, these experiences are rarely acknowledged or reflected upon in scholarly work. They suggest that disclosing personal drug use may enhance the quality of their research by highlighting biases, promoting transparency, and demonstrating the reality of positive drug use. Although they recognize that the threats of stigma and sanction provide a strong incentive against non-disclosure, they propose that failing to do so goes against the academic principles of openness and integrity, ignores the researcher's personal knowledge of the subject of study, aggravates the marginalization of drug users, and is a missed opportunity to improve our knowledge of drugs (Ross et al., 2020). While this may be true, the distinct threats of stigma and sanction are very difficult to surmount, particular for those scholars in precarious (e.g. non-tenured) positions. In order to foster the type of open and transparent culture around personal drug use that Ross et al. suggest, it may be incumbent upon those with privileged positionality – status, job security, and power – to be amongst the first to 'come out.'

Conclusion

Alexander (2010) argues that '[drugs] are simply one powerful technology among many that modern society must learn to use and regulate wisely' (p. 382). Following this line of reasoning, we must begin to reimagine our conceptual models of drug use, policy, and education in such a way as to minimize their harms and acknowledge their benefits. Just as the fields of both clinical and positive psychology are required to understand and optimize health, so too will a cartography of both drug abuse and positive use be needed to establish best practices, educate users, and enhance public health and safety. Although drug abuse and addiction are typically destructive and should be prevented, drug prohibition and abstinence-oriented education have been shown incapable of resolving these issues. While harm reduction policies are a step in the right direction, without a comprehensive framework for understanding positive drug use, policy makers remain limited in their ability to conceptualize and promote optimal public health strategies. Along with the continued study of drug abuse and addiction, research into beneficial forms of psychoactive substance use is needed to generate a thorough empirical basis upon which more effective regulatory and educational policies are to be founded.

Moore (2008) contends that making pleasurable and beneficial drug use more visible might be a first step towards creating new discourses about drugs that do not recreate the same deleterious consequences as the pathological paradigm. However, it is important to emphasize that arguing for greater awareness and acceptance of positive drug use may unintentionally foment further stigmatization against an already heavily marginalized group – those suffering from problematic forms of drug use (Ross et al., 2020). We must, then, accept that drug use is a normative human behavior with potential pitfalls and benefits. All users should be afforded compassion and understanding, regardless of whether their drug use is deemed problematic or positive. Thus, reimagining the conceptual landscape to include beneficial drug use may not only serve to enhance well-being, spirituality, and pro-sociality, but help to destigmatize the millions of individuals currently ostracized in conventional discourse, provide new ways of aiding problematic users, and facilitate public health and safety. If, as Peele (1999) argued, we fear exploring the beneficial side of drug use, we lose an opportunity to enhance wellness and increase the dangers of abuse. It is time, then, for a concerted look at the positive psychology of psychoactive drug use.

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