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Psychedelic Science, Contemplative Practices, and Indigenous and Other Traditional Knowledge Systems: Towards Integrative Community-Based Approaches in Global Health

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Psychedelic Science, Contemplative Practices, and Indigenous and Other Traditional Knowledge Systems: Towards Integrative Community-Based Approaches in Global Health

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ABSTRACT

As individuals and communities around the world confront mounting physical, psychological, and social threats, three complimentary mind-body-spirit pathways toward health, wellbeing, and human flourishing remain underappreciated within conventional practice among the biomedical, public health, and policy communities. This paper reviews literature on psychedelic science, contemplative practices, and Indigenous and other traditional knowledge systems to make the case that combining them in integrative models of care delivered through community-based approaches backed by strong and accountable health systems could prove transformative for global health. Both contemplative practices and certain psychedelic substances reliably induce self-transcendent experiences that can generate positive effects on health, well-being, and prosocial behavior, and combining them appears to have synergistic effects. Traditional knowledge systems can be rich sources of ethnobotanical expertise and repertoires of time-tested practices. A decolonized agenda for psychedelic research and practice involves engaging with the stewards of such traditional knowledges in collaborative ways to codevelop evidence-based models of integrative care accessible to the members of these very same communities. Going forward, health systems could consider Indigenous and other traditional healers or spiritual guides as stakeholders in the design, implementation, and evaluation of community-based approaches for safely scaling up access to effective psychedelic treatments.

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Psychedelic science; contemplative practices; traditional knowledge systems; Indigenous; self-transcendent experiences; community-based; global public health; health systems

Introduction

Mental health conditions are the second leading cause of non-fatal disease, accounting for 18% of global burden of disease (GBD 2019 Mental Disorders Collaborators 2022). Coverage gaps for conditions like mood disorders often exceed 50% in high-income countries (HICs) and 90% in low- and middle-income countries (LMIC), and enormous inequities in healthcare access and outcomes between the general population and rural, Indigenous, minority, or socioeconomically disadvantaged

communities (Patel and Saxena 2019). Existing models of care have not adequately addressed these complex challenges. Recognizing mental health as a human right means recognizing the need to invest in research, innovation, and scaling up of novel approaches from diverse disciplines and stakeholders (Patel et al. 2018).

We propose the development of community-based models of integrative care that draw from three complimentary approaches to physical, psychological, social, and spiritual care, which are largely underappreciated within conventional thinking and practice among the biomedical

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and public health communities: psychedelic science, contemplative practices, and Indigenous and other traditional knowledge systems. We make the case that combining them in integrative models of care delivered through community-based approaches backed by strong and accountable health systems could prove transformative for global health. We review literature on these three mind-body-spirit pathways and propose that combining them may produce powerful synergies. We then discuss challenges and opportunities facing health systems for scaling up access to community-based treatments that involve spiritual or psychedelic interventions. The final section charts a roadmap toward largescale implementation of the proposed models by offering recommendations for a decolonized research and practice agenda that emphasizes drawing from the traditional knowledge and lived expertise of those closest to the problems and solutions, with respect and humility (Abimbola and Pai 2020; Khan et al. 2021). (See Table 1 for a glossary of key terms.)

Three mind-body-spirit pathways toward community-based models of integrative care

Psychedelic science

In this review, the term *psychedelic* denotes a broad class of compounds that alter perception, mood, and various cognitive processes in a characteristic fashion, including serotonergic psychedelics (e.g. LSD, psilocybin, mescaline) as well as substances such as 3,4-Methylenedioxymethamphetamine

(MDMA) and ketamine. (Table 2.) Most recent research on these substances for potential therapeutic applications involve treatment models that are often referred to as psychedelic-assisted therapy because the drug is given a few times as part of a brief course of a behavioral intervention, such as psychotherapy.

Between the 1940's and 1971, clinical studies investigated the properties, safety, and therapeutic usefulness of LSD, psilocybin, and other psychedelics (Bonson 2018; Multidisciplinary Association for Psychedelic Studies 2007). Although this initial wave of scientific interest produced encouraging findings, research was restricted by the introduction of the US Controlled Substances Act in 1970 and the UNODC Convention on Psychotropic Substances of 1971, and the drastic reduction in funding by governmental organizations and pharmaceutical companies (Henningfield et al. 2022; Lamkin 2022; Marks 2017). Research into these therapies began to reemerge in the 1990s with philanthropic support (Belouin and Henningfield 2018).

The careful use of psychedelics can promote health, well-being, and human flourishing. The only one of these substances that has been approved by regulatory authorities for therapeutic use is the anesthetic ketamine, now considered an essential medicine by the World Health Organization (WHO 2023a). Its enantiomer, esketamine, has been approved for the treatment of treatment-resistant depression (TRD) by the United States' Food and Drug Administration (FDA) and by its Canadian and European counterparts (Rosenblat

Table 1. Glossary of key terms.

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- **Awe:** Engages five processes: shifts in neurophysiology, a diminished focus on the self, increased prosocial relationality, greater social integration, and a heightened sense of meaning (Monroy and Keltner 2022).
 - **Bio-Psycho-Social-Spiritual Therapy Model:** Model that takes into account *Biological* - the extent of an illness or injury and whether the person has other illnesses, is under stress, or has specific genetic or predisposing factors *Psychological* - anxiety, fear, guilt, anger, depression, and catastrophizing. *Social* - the response of significant others to condition - whether in the form of support, criticism, enabling behavior, or isolation. *Spiritual* - the concepts of transcendence, relationships, values, beliefs, meaning, purpose, and the finding of hope (Zia et al. 2023).
 - **Contemplative Practices:** Practical methods to bring about a state of enduring well-being or inner flourishing. Examples include mindfulness, meditation, compassion/gratitude practices, yoga (Davidson and Dahl 2017).
 - **Disease Prevention:** Measures not only to prevent the occurrence of disease (i.e. primary prevention), such as risk factor reduction, but also to arrest its progress and reduce its consequences once established (i.e. secondary prevention). Harm reduction is a form of secondary prevention (WHO 1998).
 - **Health Promotion:** Process of enabling people to increase control over and to improve their health (WHO 1998).
 - **Meditation:** A practice where an individual uses techniques to train attention and awareness and achieve a mentally clear and emotionally calm and stable state (Goleman 1996).
 - **Mindfulness:** An approach to experiencing everyday life by turning attention and awareness to the present moment without judgment (Ludwig and Kabat-Zinn 2008).
 - **Mystical-Type Experiences:** Temporary mental states that include profound feelings of unity, positive emotions, a noetic quality, and most notably for the present study, alleged ineffability.
 - **Peak Experiences:** Rare, exciting, oceanic, deeply moving, exhilarating, elevating experiences that generate an advanced form of perceiving reality, and are even mystic and magical in their effect (Maslow 1994).
 - **Self-Transcendent Experiences:** Transient mental states marked by decreased self-salience and increased feelings of connectedness (Yaden et al. 2017).
 - **Task Sharing:** Process whereby specific tasks are moved to health workers with shorter training and fewer qualifications to make more efficient use of existing human resources. May also involve delegating certain tasks to new cadres of health workers who receive specific training (WHO 2007).
 - **Traditional Knowledge Systems:** Complex bodies and systems of knowledge, skills, practices, and representations developed and maintained through generations within communities or by Indigenous peoples around the world. They are based on values, beliefs, rituals, religions, customs, norms, systems of classification, and methods for ecosystem management. Often collectively owned and can be expressed in stories, songs, folklore, proverbs, cultural values, etc (United Nations 2019).
 - **Traditional Medicine:** The sum total of knowledge, skills, and practices based on the theories, beliefs and experiences Indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in prevention, diagnosis, or treatment of disease (WHO 2019).
-

Table 2. Selected psychedelic compounds currently under clinical investigation: description, uses, effects, risks, and indications for which there is promising preliminary evidence.

Compound	Description	Historical, Traditional and Present-day Uses	Main Effects and Acute/Long-Term Risks	Indications with Promising Evidence
Psilocybin	<ul style="list-style-type: none"> Naturally occurring in hundreds of species of mushrooms. Synthetic psilocybin exists and is used in clinical trials. 	<p>Ceremonial use in Central and South America dates to pre-Columbian times. Currently used religiously and as a medicine by numerous indigenous peoples in Mexico. FDA awarded it breakthrough status as treatment for TRD and MDD</p>	<ul style="list-style-type: none"> Cognition: increased flexibility/creativity, disorganization, disorientation, distractibility, impaired memory, attention, confusion. Perception: auditory/visual hallucinations, derealization, depersonalization, time/space distortion 	<ul style="list-style-type: none"> MDD/TRD C-RDA SUD PTSD OCD
Lysergic acid diethylamide (LSD)	<ul style="list-style-type: none"> Many plants and fungi produce lysergic acid alkaloids LSD was first synthesized in 1938 in Switzerland 	<p>Ceremonial use in Central America dates to pre-Columbian times</p> <p>Clinical studies involving thousands of patients were conducted between 1943 and 1971, when LSD was illegalized</p>	<ul style="list-style-type: none"> Negative emotion: anxiety, irritability, paranoia, agitation Positive emotion: euphoria, general well-being, tranquility Mystical/spiritual: transcendence, awe, ineffability, unity, oneness, deity encounters. Social: enhanced connectedness, empathy, blurring of boundaries between self and other. 	<ul style="list-style-type: none"> C-RDA SUD
Ayahuasca	<ul style="list-style-type: none"> Plant-based brew with two main active components, DMT and an MAO inhibitor. Synthetic DMT and MAO inhibitors also exist 	<p>Ceremonial use throughout the Amazonian basin dates to Pre-Columbian times. Currently used religiously and as a medicine by numerous indigenous peoples throughout South America, as well as by more recent syncretic religions worldwide.</p>	<ul style="list-style-type: none"> Acute risks: nausea, vomiting (especially with ayahuasca), headache. Rare but serious: seizures, harm self or others.* Long-term risks: Psychedelic use disorder; HPPD; development of psychotic illness, but this risk appears to be limited to individuals with significant personal or family history of psychosis or bipolar disorder.** 	<ul style="list-style-type: none"> SUD PTSD MDD
Mescaline	<ul style="list-style-type: none"> Naturally occurring in several species of cacti, such as Peyote and Sand Pedro. 	<p>Oldest known psychedelic; ceremonial use of Peyote in Mesoamerica and of San Pedro in South America is several thousand years old.</p> <p>Currently used religiously by numerous indigenous peoples in Mexico and South America.</p> <p>Since the 1900's, its religious use has also been adopted by over forty American Indian tribes in the US and Canada as a means of resisting cultural disintegration.</p>	<ul style="list-style-type: none"> Causes significant cardiotoxicity and possibly neurotoxicity. Fatal events attributable to the direct effects of ibogaine been reported. 	<ul style="list-style-type: none"> SUD SUD GAD
Ibogaine	<ul style="list-style-type: none"> Naturally occurring in several species of plants. Synthetic ibogaine exists and is used in clinical trials. 	<p>Has been widely used since pre-colonial times by numerous peoples in West Africa both religiously and as a stimulant to combat fatigue and hunger.</p> <p>The Bwiti cult, which is still thriving, see ibogaine as a tool to resist the loss of cultural identity</p>	<ul style="list-style-type: none"> Causes significant cardiotoxicity and possibly neurotoxicity. Fatal events attributable to the direct effects of ibogaine been reported. 	<ul style="list-style-type: none"> SUD SUD GAD

(Continued)



Table 2. (Continued).

Compound	Description	Historical, Traditional and Present-day Uses	Main Effects and Acute/Long-Term Risks	Indications with Promising Evidence
3,4-methylenedioxymethamphetamine (MDMA)	<ul style="list-style-type: none"> Synthetic compound similar to amphetamine with both stimulant and psychedelic properties. Its most characteristic effects are related to its capacity to produce positive affect, as well as heightened self-awareness and prosocial emotions, hence the labels "empathogen" or "entactogen." 	<ul style="list-style-type: none"> First synthesized in 1912, its psychoactive properties were documented in 1972 By the mid-1980's its use for recreational purposes was widespread; it is currently estimated that approximately 7% of the US populations has used MDMA. FDA awarded it breakthrough status as treatment for PTSD, and regulatory approval is expected in the near given positive results from recent Phase III trials. 	<ul style="list-style-type: none"> Cognition: mostly unaffected at clinical doses. Perception: time/space distortion, heightened senses, auditory/visual hallucinations (uncommon). Negative emotion: anxiety, irritability, agitation. Positive emotion: euphoria, empathy, well-being, extraversion, feelings of authenticity, heightened insight to emotionally intense material. Social: empathy, gregariousness, connectedness, enhanced compassion for oneself and others. Acute risks: modest increases in heart rate and blood pressure, dehydration, jaw clenching, headache. Rare but serious: hyperthermia, hyponatremia, seizures, stimulant psychosis.*** Long-term risks: hallucinogen use disorder.* 	<ul style="list-style-type: none"> PTSD EoLA
Ketamine/esketamine	<ul style="list-style-type: none"> Synthetic psychoactive that has been approved for use as an anesthetic since 1970. Can be taken orally, as an intranasal spray, or parenterally 	<ul style="list-style-type: none"> Widely used anesthetic with favorable safety profile thanks to its minimal drug interactions and only modest effects on cardiorespiratory functioning. Also extensively used off-label and experimentally as a treatment for numerous mental and psychosomatic disorders. Considered an essential medicine by the World Health Organization. Its use for recreational purposes is popular, especially among young adults. FDA recently approved esketamine as an adjunctive treatment for MDD. 	<ul style="list-style-type: none"> Cognition: impairments in memory, attention, abstract reasoning; disorganization, confusion. Perception: dream-like feelings, time/space distortion, derealization/depersonalization, psychic fragmentation, decreased pain, auditory/visual hallucinations. Negative emotion: anxiety, agitation. Positive emotion: euphoria, well-being. Mystical/spiritual: transcendence, awe, ineffability, unity, oneness, deity encounters. Acute risks: increased heart rate and blood pressure, drowsiness, blurred vision, headache, restlessness, and nausea; these are typically mild and transient. Long-term risks: Risk of dependence similar to that of alcohol (expert opinion). Chronic abuse of high-dose ketamine is associated to cognitive dysfunction, and "ketamine bladder syndrome." 	<ul style="list-style-type: none"> MDD/TRD GAD SUD PTSD OCD Migraine Chronic Pain Suicidal Ideation Eating Disorders

*Although the use of psychedelics by unprepared individuals or in unsafe settings may lead to accidents or dangerous behavior, rigorous studies have consistently found psychedelics to be much less harmful to the user as well as to society compared to alcohol and almost all other controlled substances.¹¹

**Current expert opinion is that the risk of developing psychotic illness or HPPD is low among individuals without a significant personal or family history of psychosis or bipolar disorder; with appropriate screening, no psychotic episodes have been documented in contemporary clinical trials. Available evidence and expert opinion indicates that the risk of developing dependence or hallucinogen-use disorder is low when used as prescribed in contemporary clinical trials.¹¹

***For the most part, serious acute adverse events are not attributable to the direct effects of MDMA. For instance, though MDMA does not directly affect sodium metabolism, increased sweating along with excess consumption of free water may result in potentially life-threatening hyponatremia. Almost all cases of serious adverse events that have been reported were associated with unsupervised use of MDMA in recreational contexts. Additionally, MDMA purchased illicitly is often adulterated with other toxic substances associated greater risk of serious adverse events.³

#Ketamine bladder syndrome consists of cystitis (painful bladder, frequency, incontinence, and hematuria) with upper urinary tract obstruction and renal papillary necrosis.
 FDA = Food and Drug Administration; MDD = major depressive disorder; TRD = treatment resistant depression; C-RDA = cancer-related depression or anxiety; SUD = substance use disorder; PTSD = post-traumatic stress disorder; EoLA = end of life anxiety; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; NP = neuropathic pain.

et al. 2022). The other psychedelic compounds discussed are Schedule I drugs, a legal category meant to be reserved for drugs that have a high potential for abuse and no accepted medical use, and thus have more regulatory restrictions that impede research.

Most psychedelics are still in the investigational stages of drug development. Data from Phase III clinical research has shown MDMA-assisted therapy to be safe and considerably more effective than the current standard of care for severe PTSD, with two thirds of study participants no longer exhibiting clinical markers for PTSD after one year (Mitchell et al. 2021). Phase II trials with psilocybin have demonstrated both adequate safety and efficacy outcomes, particularly for major depressive disorder (MDD) and TRD (Goodwin et al. 2022; Raison et al. 2023; Rosenblat et al. 2022). In the cases of MDMA and psilocybin, sustained clinical improvement has been reported after just one or two doses administered in conjunction with a behavioral intervention, whereas currently available pharmacotherapies for psychiatric conditions must typically be taken daily for several weeks to show effect.

In addition to MDMA and psilocybin, research is also underway that investigates the therapeutic potential of other psychedelics to treat serious mental illnesses, such as various substance use disorders (SUD), obsessive-compulsive disorder (OCD), eating disorders, chronic pain, end-of-life or illness-related depression and anxiety, among other promising indications (Reiff et al. 2020; Andersen et al. 2021; Köck et al. 2021; Anderson et al. 2020; Ede, Bokor, and Winkelman 2016; dos Santos et al. 2016; Rodrigues et al. 2022; Palhano-Fontes et al. 2020; De Araújo et al. 2021; Muttoni, Ardissino, and John 2019; Siegel et al. 2021; Winkelman 2014; Danforth et al. 2018; G.; Agin-Liebes et al. 2021, 2020; Santos, Henrique, and Marques 2021; Zia et al. 2023; Schindler 2022). Moreover, mystical-type experiences occasioned by psilocybin and other psychedelics can increase well-being and life satisfaction in healthy individuals and appear to contribute to subsequent attributions of personal meaning and spiritual significance to the psychedelic experience (Griffiths et al. 2008).

Although all interventions carry risk of adverse effects and none are effective for all patients, evidence suggests that the substances reviewed here can have acceptable benefit to risk determinations, when administered at therapeutic doses in supervised environments, after appropriate screening (Belouin et al. 2022; Schlag et al. 2022). Long-term psychological risk, such as for developing dependence, psychosis, or other serious mental disorders, appears rare with therapeutic use in such models (Rosenblat et al. 2022).

Overall, these substances appear less harmful for individuals and society when compared to alcohol, benzodiazepines, opioids, or other psychoactive drugs, and risks can be minimized with precautions related to usage, dosing, preparation, context, and supervision (Belouin and Henningfield 2018; Belouin et al. 2022; Johnson, Richards, and Griffiths 2008; Nutt, King, and Phillips 2010; Schlag et al. 2022). In fact, lifetime use of MDMA, LSD, or psilocybin appears to be associated with lower, not higher, rates of certain proxies for mental illness (Jones and Nock 2022; Krebs and Johansen 2013; Sexton, Nichols, and Hendricks 2020).

Adverse effects can include challenging experiences formerly referred to as “bad trips,” characterized by feelings of fear, anxiety, loss of control, and other difficult experiences. Interestingly, many individuals who report challenging experiences nevertheless report subsequent improvements in well-being, and research suggests that most unpleasant reactions tend to be transient and do not diminish the therapeutic benefit (Carbonaro et al. 2016; Schlag et al. 2022). Finally, adverse effects attributed to psychedelics drugs purchased illicitly are often due to harmful adulterants, such as fentanyl, methamphetamines, and phenethylamine analogues including various N-methoxybenzyl compounds (Grob 2000; Nichols and Grob 2018).

Contemplative practices

Both contemplative practices and certain psychedelic substances reliably induce mental states referred to as self-transcendent experiences (also peak or mystical-type experiences) that can generate positive effects on health, well-being, and prosocial behavior (Griffiths et al. 2008; Qiu and Paul Minda 2023; Yaden et al. 2017). Contemplative practices, anchored in spiritual and wisdom-based traditions, include mindfulness, meditation, yoga, prayer, awe, and martial arts, among others (Yaden et al. 2020). Such practices emphasize mental training for self-awareness, self-regulation, and self-transcendence and have been shown to improve well-being and psychosocial outcomes (Bolier et al. 2013; Cramer et al. 2013; Dahl, Lutz, and Davidson 2015; Innes, Bourguignon, and Gill Taylor 2005; Lukasz et al. 2019; Vago and David 2012; Weng et al. 2013a). For instance, mindfulness practices help to improve depression, anxiety, PTSD, and SUDs (Brewer and Kabat-Zinn 2017; Segal et al. 2012; Wielgosz et al. 2019). Research on the concept of “awe,” often inspired by nature and art, has demonstrated positive effects on self-concept, humility, and prosociality (Shiota, Keltner, and Mossman 2007;

Stellar et al. 2018). Shared communal practices embodied in these self-transcendent modalities, in which relational experiences of perceived togetherness and shared humanity arise, can be effective at fostering beneficial outcomes (Joyce et al. 2018; Kettner et al. 2021; Piff et al. 2015). Research should evaluate whether embedding such practices in community-based group settings could enhance or extend their efficacy, a topic discussed later.

The benefits of contemplative practices for general health are also well documented, particularly in relation to improving cardiovascular health, diabetes control, and possibly chronic pain (Creswell 2017; Intarakamhang, Macaskill, and Prasittichok 2020; Zia et al. 2023). Regular meditation practices have also been shown to positively affect the immune system, reducing inflammation and regulating stress hormones (Black and Slavich 2016; Davidson et al. 2003). This is likely mediated by improved coping with stress, enhanced compassion and altruistic behaviors, and improved performance and attention (Creswell et al. 2014; Hoge et al. 2018; Tang et al. 2007; Weng et al. 2013b).

Both contemplative practices and psychedelics can produce mystical-type experiences, such as alterations of self-consciousness associated with feelings of bliss, unity, insightfulness, and self-transcendence. These experiences appear to contribute to their beneficial effects on psychosocial functioning (Griffiths et al. 2019; Vago and David 2012; Yaden et al. 2017). Proficiency with meditation appears to have powerful synergistic effects when combined with psychedelics such as psilocybin and ketamine, an effect observed both in individual settings and group retreats (Grabski et al. 2022; Griffiths et al. 2008; Lukasz et al. 2019). The positive effects on psychosocial functioning from psilocybin are associated with the intensity of psilocybin-

occasioned mystical-type experiences, and these effects are enhanced by engagement in contemplative practices such as meditation (Griffiths et al. 2018). Meditation practice appears not only to enhance psilocybin's positive effects but also to counteract negative dysphoric responses that it sometimes induces (Lukasz et al. 2019). Additionally, contemplative practice appears to enhance the persistence of a range of positive effects on psychosocial functioning from psilocybin long after the psychedelic experience (Griffiths et al. 2018). Perhaps most importantly, these synergies may foster experiences and behaviors not frequently cited as outcomes within biomedical models of health. Quality of life, well-being, and recovery from impaired emotional and physical functionality appear to be correlated with both short-term and enduring changes in consciousness and spirituality measured by instruments summarized in Table 3. Such instruments provide complementary information to traditional scales of depression, anxiety, pain, and other disorders, thus facilitating a better understanding of the healing process.

Indigenous and other traditional and knowledge systems

Traditional uses of psychedelic plants or fungi among Indigenous peoples and other communities, as well as the elaborate knowledge systems associated with these practices, are evolving social phenomena. This paper highlights features that are common to many traditional uses of psychedelics (Winkelman 2007). We also discuss considerations for a decolonized approach to addressing key points of convergence and divergence in the ways that communities stewarding traditional knowledge and the biomedical community tend to engage with psychedelics.

Table 3. Psychometric instruments that have been used in psychedelic clinical trials to assess acute drug experiences, and/or psychological state and quality of life, including dimensions related to emotional functionality and sense of spirituality.

Instrument Name	Original Publication	Recent Study
5-Dimension Altered States of Consciousness (5D-ASC)	(Dittrich 1998)	(Carbonaro, Johnson, and Griffiths 2020; Griffiths et al. 2006, 2016)
Death Anxiety Scale (DAS)	(Templer 1970)	(Ross et al. 2016)
Death Transcendence Scale (DTS)	(Vandecreek and Nye 1993)	(Ross et al. 2016)
Demoralization Scale (DS-II)	(Kissane et al. 2004)	(Anderson et al. 2020; Ross et al. 2016)
Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-SWB)	(Brady et al. 1999)	(Ross et al. 2016)
Hallucinogen Rating Scale (HRS)	(Strassman et al. 1994)	(Carbonaro, Johnson, and Griffiths 2020; Griffiths et al. 2006, 2016)
Hopelessness Assessment and Illness (HAI)	(Rosenfeld et al. 2011)	(Ross et al. 2016)
Mysticism Scale (Experience-specific 9-point scale)	(Hood et al. 2001)	(Griffiths et al. 2006, 2016)
Mystical Experience Questionnaire (MEQ-30)	(Griffiths et al. 2006; MacLean et al. 2012)	(Albert, Griffiths, and Johnson 2014; Carbonaro, Johnson, and Griffiths 2020; Davis et al. 2021; Griffiths et al. 2006, 2016, 2018; Ross et al. 2016)
NIH-HEALS Instrument	(Ameli et al. 2018)	(Shnayder et al. 2023)
World Health Organization Quality of Life Scale	(Orley and Kuyken 1994)	(Ross et al. 2016)

Many Indigenous peoples and other communities around the world engage in traditional practices that involve the consumption of psychedelics by some or all members of a community for religious, medicinal, or social purposes (Schultes, Hofmann, and Ratsch 2001). However, Indigenous and other traditional knowledge systems generally do not draw such sharp separations between body, mind, and spirit, and individuals are less commonly addressed without also considering their social context (Fotiou 2020; Labate and Cavnar 2014; Marcus 2022; Winkelman 2010). Many Indigenous and other traditional knowledge systems see ailments as stemming from imbalances in the way we relate to ourselves, to our communities, to the environment, and to spirits that inhabit unseen worlds. In turn, psychedelic plants and fungi are understood as agential beings whose benefits stem from their capacity to induce self-transcendent states of consciousness that allow us to acquire special knowledge or to engage with the spiritual world in ways that result in the restoration of proper harmony needed to heal, grow, or overcome adversity (Andritzky 1989; Calabrese 1994, 2013; Fotiou 2020; Labate 2020; Labate and Cavnar 2014; Labate et al. 2018; Luna 2011; Winkelman 2021).

Traditional ceremonial uses of psychedelics tend to be complex practices that simultaneously attend to the psychoactive and somatic effects of the substances used; to physical, mental, and spiritual needs of the participants, and to social or political dynamics among the participants and the wider community (Andritzky 1989; Calabrese 2013; Labate and Cavnar 2014; Luna 2011; Schultes, Hofmann, and Ratsch 2001; Winkelman 2010). Many traditional knowledge systems have developed elaborate botanical and mycological taxonomies based on morphological, ecological, and functional considerations, reflecting sophisticated understandings of which, why, and how psychedelic substances should be used. The rituals in which these substances are embedded tend to be holistic practices addressing the preparation for, participation in, and integration of psychedelic experiences through diets, prayer, singing, dancing, and social congregation. They are typically guided by shamanic figures who occupy important roles as healers or community leaders who, through apprenticeship and personal experience, are knowledgeable about the use of psychedelics and their acute and enduring impact. Thus, the traditional uses of psychedelics generally address diverse needs of individuals and their communities, including those related to health, spiritual and self-development, and social cohesion, among others (Andritzky 1989; Bouso and Sánchez-Avilés 2020; Fotiou 2020; Labate and Cavnar 2014; Ona, Berrada, and Carlos Bouso 2022; Winkelman 2021).

A point of convergence between traditional and biomedical uses of psychedelics is their use for purposes related to healing. Interest among the biomedical community in the potential role of mystical-type or self-transcendent experience as key mediators of the beneficial effects of psychedelics is another point of convergence. Such points of convergence are opportunities for codeveloping evidence-based, complementary care models that may transform health systems' ability to improve health outcomes and equity at population levels. Such an agenda involves going beyond attempts to isolate elements of traditional practices that can be adapted to enhance treatment protocols based on biomedical logics (Fotiou 2020; Labate 2023; Labate et al. 2018). Traditional knowledge systems can be rich sources of ethnobotanical expertise and repertoires of time-tested practices with a record of safety and utility (Bouso and Sánchez-Avilés 2020). A decolonized agenda for psychedelic research and practice involves engaging with the stewards of such traditional knowledges in collaborative and equitable ways to codevelop evidence-based models of integrative care accessible to the members of these very same communities. Examples of such integrative care models exist in South America for the treatment of SUDs and other mental disorders through an amalgam of traditional Amazonian and biomedical practices; some such centers are collaborating with researchers to evaluate their models from the perspective of evidence-based medicine (Dupuis 2000; Marcus 2022; Rush et al. 2021).

Similarly, community engagement plays a crucial role in the realm of mental health. Traditional uses of psychedelics that foster community engagement and social cohesion can be leveraged to improve mental health at the population level (Ona, Berrada, and Carlos Bouso 2022). Contemporary examples include the Brazilian ayahuasca religions, Santo Daime and the União do Vegetal, and the Native American Church (Calabrese 2013; Jiwa, Kelly, and Pierre-Hansen 2008; Labate and Cavnar 2014; Ona, Berrada, and Carlos Bouso 2022). One area of inquiry in global public health is how to integrate plant medicines into both communities and health systems by developing national policies, regulatory frameworks, and strategic plans (WHO 2019, 2023b). Restrictive regulations that impede traditional uses of psychedelic plants and fungi, because they contain scheduled substances, are misaligned with global policy regarding traditional medicines (Bouso and Sánchez-Avilés 2020).

Traditional healers and spiritual leaders could also be regarded as key community partners by health systems, which should enhance their capacity to address population health needs through community-based care

models that rely on task sharing (see [Table 1](#)). Traditional healers and spiritual leaders could be trained to provide mental health services that are complementary to their repertoires of traditional practices (see below). Community settings in which psychedelics are traditionally used, and the networks of traditional healers and spiritual guides that support such practices. Could provide scaffolding for health systems to develop and scale up access to services and complimentary services.

Conversely, the extent to which Indigenous peoples and other communities traditionally use psychedelic plants and fungi to pursue spiritual, social, and political ends offer points of divergence between the ways these communities and the biomedical community engage with psychedelics. Such points of divergence are important because failure to show due regard for the uses of psychedelics that extend beyond strictly therapeutic ones could lead to mistaken application of ethical and legal standards that are relevant to the governance of medical and public health interventions but may not be relevant to the governance of spiritual and social practices. It is not appropriate for regulators to impose such normative standards on traditional practices whose justification is grounded in the pursuit of spiritual, social, or political ends (Marcus 2022). This is an argument against existing scheduling practices that prohibit the use of plants and fungi that are traditionally used for spiritual or social purposes (e.g., ayahuasca, iboga, peyote), on the grounds that those plants contain psychedelic compounds that have no accepted medical use.

Indigenous peoples have historically and contemporarily been excluded from deliberations and decision-making related to psychedelic research, praxis, and policy (Celidwen et al. 2023). Avoiding such patterns is necessary for a new shared agenda based on partnership and trust. Central to such an agenda will be Indigenous principles of community participation, capacity building, respect, responsibility, and reciprocity during decision making (Celidwen et al. 2023; Lin et al. 2020). Researchers and other stakeholders should engage in continuous self-reflection while respecting Indigenous peoples as leading stakeholders in the development of psychedelic treatments and as beneficiaries of the ensuing rewards. According to the UN declaration on Indigenous rights, Indigenous peoples have the right to maintain, control, protect, and develop their intellectual property over such heritage, traditional knowledge, and expressions (United Nations 2007). Recently, a group of Indigenous peoples and allies articulated ethical principles considered critical for ensuring appropriate inclusion and recognition of Indigenous rights and values within psychedelic research and praxis (Celidwen et al. 2023).

However, rights and values of Indigenous peoples may be in tension with those of other legitimate stakeholders. To ensure that such tensions are resolved in ways that do not reinforce colonial patterns, decision-making must happen through deliberative processes that provide meaningful participation of all stakeholders and include enforcement mechanisms. Key elements of fair process are discussed below.

Integrative models of community-based approaches

We propose the development and evaluation of integrative models of care that draw from the three mind-body-spirit pathways reviewed to improve both health outcomes and pro-social behaviors in ways consistent with regulatory requirements. The evolution of these care models necessitates an incremental approach, beginning with the assessment and approval of any psychedelic medicines to be employed by the pertinent regulatory authorities in each respective country. This includes bodies like the FDA in the USA and the European Medicines Agency in Europe, where these treatments are slated for implementation. While examples of proposed interdisciplinary, evidence-based models of community-based, integrative care informed by psychedelic science, contemplative practices, and traditional and Indigenous knowledges and practices do not yet exist in the literature, promising research on psychedelic substances and group psychotherapy in vulnerable populations are beginning to emerge. An open-label pilot study of psilocybin-assisted group therapy for older, long-time AIDS-survivor men found clinically-meaningful reductions in demoralization from baseline to 3-month follow up (Anderson et al. 2020). Similarly, an open-label pilot study of cancer patients with major depressive disorders showed that a single dose of 25 mg of psilocybin administered as part of an 8-weeks-long mind-body-spirit approach, referred to as a bio-psycho-social-spiritual protocol, with group therapy demonstrated significant positive change with increases in connection, reflection and introspection, and trust and acceptance, as assessed by the NIH HEALS (Shnayder et al. 2023).

While more research is needed, these findings provide preliminary support for an approach that involves coordination between community organizations or faith-based institutions and healthcare systems to provide group-based care (Castillo et al. 2019). Combining approved psychedelic substances and group psychosocial support may prove beneficial

for enhancing both prosocial behaviors and mental health outcomes (Ponomarenko et al. 2023). Translational science is necessary as the research renaissance over the past two decades has been focused more on medication development rather than models for expanded access that include community models and integration with traditional medicine and contemplative practices.

A health system response for sustainable development

Promoting the health and well-being of both individuals and communities through resilient health systems and community-based approaches figures pertinently in the United Nation's Sustainable Development Goals (SDGs). Focused research in these areas can help accelerate goals targeting mental health to reduce inequalities (SDG10), increase good health and well-being (SDG3), and ensure peace and justice (SDG16) (United Nations 2015).

A robust health system response requires strengthening mental health programming so that needs are met through community-based networks of accessible, affordable, and quality services and support (Hoeft et al. 2018; Malik et al. 2021; WHO 2022). In certain contexts, community-based mental healthcare appears to be more effective than institution-based care for improving select health outcomes, such as quality of life (Castillo et al. 2019; WHO 2022)

A critical barrier is shortfalls in the mental health workforce. The current standards for psychedelic-assisted psychotherapy involve one to two mental-health professionals for each individual seeking care, a ratio that is unfeasible in most settings but especially in LMICs where the median number of psychiatrists per 100,000 population is 0.1 (compared to 9.2 in HICs) (WHO 2021). One strategy for addressing workforce shortages is applications of group therapy, which has the potential to reduce overall costs and ease the projected shortage of qualified providers (Marseille 2023).

Another strategy for addressing provider shortages is task sharing (or "task shifting"), which involves delegating specific tasks from highly trained healthcare providers to non-specialized workers (Patel and Saxena 2019; WHO 2007). Community members can be trained to provide certain mental health services, including prevention and promotion interventions and even certain kinds of therapy to treat specific psychiatric symptoms (Grant, Bender Simmons, and Davey 2018; WHO 2022). Training nonspecialist workers to deliver community-based interventions is a cost-effective strategy for increasing the provision and quality of mental health

services and improving patient outcomes (Caulfield et al. 2019).

A critical question is whether psychedelic therapies for serious mental and general medical conditions can be delivered safely and effectively through community-based approaches by non-specialized providers. In many countries, traditional healers and spiritual guides are more numerous than specialized healthcare workers, and often experts in contemplative practices or the use of psychedelic plants (Bouso and Sánchez-Avilés 2020). Health systems should regard such individuals as key stakeholders in the design, implementation, and evaluation of community-based approaches that rely on task sharing for safely scaling up access to effective psychedelic treatments.

Psychedelic drug policy

Most psychedelics are currently considered Schedule I drugs under the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol, as of 18 May 2016. Greater regulatory flexibility is needed, as Schedule I status and the regulatory approach to implementation in most member states severely restricts research. Restrictive drug scheduling and prohibitionist policies can result in unintended harms, including: unknown content and purity of substances bought on the illicit market; obstacles to accessing support services because of stigma or fear of negative consequences; lack of accountability or screening in guided psychedelic experiences with providers having to work clandestinely; and incarceration (UNHRC 2021). The Schedule I status of these substances may discourage governments from their mandate to reduce the negative consequences of drug use by implementing harm reduction strategies, including professional counseling, drug testing, peer-to-peer support, guidelines for safe and ethical use, community spaces for supervised consumption, and access to SUD treatment (National Governors Association 2022).

What is needed are guidelines developed through public-private partnerships that engage a broad spectrum of global experts and stakeholders from the science community, practitioners, Indigenous communities, faith-based communities, and advocacy groups representing numerous other communities (Belouin et al. 2022). Such a partnership may produce guidelines that would inform the appropriate use of rescheduled psychedelic medicines in conjunction with other evidence-based interventions. To be effective, accessible, and culturally sensitive, intervention guidelines should consider incorporating community-based protocols, faith-

based ceremonial approaches, and leverage culturally sensitive best practices from relevant health specialties.

Developing such guidelines and policy frameworks will involve addressing difficult normative questions, such as what constitutes appropriate uses of psychedelics, how to balance competing claims while pursuing equitable access, and how diverse stakeholders ought to be involved. Embedding guideline development in a fair process can establish the legitimacy of the resulting recommendations (Daniels et al. 2015; Daniels, Porteny, and Urrutia 2016; WHO 2014; Urrutia, Porteny, and Daniels 2016). Key elements of fair process involve transparency about the grounds for decisions, appeals to rationales that all stakeholders accept as relevant, and procedures for challenging, revising, and enforcing decisions (Norman and Sabin 2008).

Conclusions: a roadmap for a global public health research and practice agenda

In addition to clinical research, there is a need for translational research examining community-based practices. Moreover, biomedical and public health research must aim to improve exchange between researchers, traditional knowledge holders, community stakeholders, and policy-makers (WHO 2012). To support the potential benefits of prescribed procedures, whether they are recognized in evidence-informed protocol or faith-based ceremony, harm reduction methodologies should be included (Dan et al. 2023; David and Hellerstein 2022), especially given the risks that can accompany inappropriate psychedelic use. As such, global public health considerations regarding integrative care models aimed at improving health and human flourishing (vis-a-vis psychedelics, contemplative practices, and Indigenous and other traditional knowledge systems) should include rigorous debate and action that include an agreed upon public health research agenda, followed by learning and applied interventions through evidence-based policy making. It will require political commitment such as reallocating resources, developing new policies, building new skills, establishing new partnerships, and engaging new stakeholders.

Recommendations

In anticipation of rescheduling psychedelic medicines, health systems research on service delivery outputs, such as equitable access, availability, acceptability, quality, and efficiency to improve coverage, should aim to enhance health outcomes across all levels of the health-care system, but particularly at the community level. Inputs include affordable treatment modalities with

approved drugs, with task sharing in a trained health workforce that involves Indigenous and other traditional knowledge holders, community health workers, and faith-based practitioners, among others. Such research will better define the conditions of access and use that minimize risks to individuals and communities.

Integrative interventions using implementation science methods to improve not only mental health but also well-being and human flourishing, in part through disease prevention and promotion of positive lifestyle changes. A community-based care model coordinated with the healthcare system must be flexible enough to be adapted to country contexts and consistent with regulatory frameworks. In addition to individual-level health measures, community resilience metrics such as social cohesion, feelings of belongingness, and solidarity would demonstrate the prosocial effects of such interventions.

Comparing benefits from standardized, psychedelic-assisted treatment modalities in culturally sensitive community-based settings, including Indigenous and other traditional uses of psychedelics, could help guide applications among a variety of population groups and cultural contexts worldwide. Doing so will require research to support the development and evaluation of integrated community care models using quantitative, qualitative, participatory, and ethnographic methods.

Development and exploration of appropriate rescheduling regulatory models focused on local, regional, and international decriminalization or regulation of psychedelics using measures informed by public health and human rights, rather than statistics solely focused on crime, trafficking, corruption, and drug production. Until global policy reform is possible, change at the country-level, reflecting commitments in the SDGs, UN charter, and WHO constitution and resolutions may be an important first step, not unlike states and cities preceding and informing federal-level reform in the United States. We are not advocating for removal of these substances from the International 1971 Psychotropic Convention or laws by member states, such as the United States Controlled Substances Act. As discussed elsewhere (e.g. (Henningfield et al. 2022)), approved medications containing Schedule I substances must be appropriately rescheduled by those same laws. However, we encourage regulatory flexibility globally and nationally to expedite research on the substances as models for expanded safe and ethical access, because current regulatory approaches impede research and discourage investment in research by governmental agencies, nonprofits, and pharmaceutical developers.

Develop global guidelines through a potential public-private partnership, that invites a broad spectrum of

stakeholders from the science community, practitioners, Indigenous and faith-based communities, numerous advocacy groups representing the underserved, and other culturally diverse communities. Guidelines would inform the appropriate use of rescheduled psychedelic medicines whose evidence-based interventions respectfully adapt to culturally sensitive good practices that may involve varying community-based protocols, including those that may incorporate faith-based rituals or ceremonies.

Fostering self-transcendent experiences through mind-body-spirit pathways has the potential to improve long-term outcomes on individual traits, to promote prosocial behavior within larger social contexts, and to enhance health, wellbeing, and human flourishing. The societal implications from equitable exchanges between traditional knowledge systems and biomedical evidence-driven research may prove profound for governments, communities, and individuals, which would foster health, wellbeing and human flourishing in the face of the calamities humanity must navigate.

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