



Toward a contextual psychedelic-assisted therapy: Perspectives from Acceptance and Commitment Therapy and contextual behavioral science[☆]



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ABSTRACT

After two decades of quiescence, clinical psychedelic research re-started in the 1990s and is rapidly accelerating. Early evidence for effectiveness is promising, but understanding of the psychological processes of change underlying observed benefits is limited. This paper outlines contextual behavioral science (CBS) as an ideal framework for understanding psychedelic experiences and the psychological processes of change involved in psychedelic assisted therapy. This paper argues that CBS-based therapies, such as Acceptance and Commitment Therapy (ACT), can contribute to deepening and maintaining the often profound acute effects of psychedelics. The paper begins by briefly outlining the current state of clinical psychedelic research. It then progresses to outlining why CBS may be uniquely positioned to potentially increase the efficacy of psychedelic-assisted therapy, how this scientific model fits with existing data on psychedelic-assisted therapy, as well as with leading neuroscientific theories such as the entropic brain theory. Finally, it concludes by suggesting avenues for future research on how CBS could contribute to psychedelic science, and vice versa.

Scientific research into psychedelics is undergoing a renaissance. While psychedelics have been used in ceremonial rites across cultures and ages (George, Michaels, Sevelius, & Williams, 2019; Schultes, Hofmann, & Rättsch, 2001), clinical research into their effects only began to be published in the 1950s (Rucker, Iliff, & Nutt, 2018). Despite initial promising findings, psychedelics were legally outlawed in most of the world in the early 1970s and scientific research was essentially halted. However, since the early 1990s, there has been a resurgence of clinical research demonstrating preliminary efficacy and safety of classical psychedelics across a range of clinical presentations. At present, phase 3 trials of some psychedelic agents are being planned in the United States, which could conceivably lead to regulatory changes and increased availability for clinical use in many other countries as well (Rucker et al., 2018). This paper argues that contextual behavioral science (CBS) provides an ideal framework for understanding psychedelic experiences. In addition, we argue that CBS-based therapies, such as Acceptance and Commitment Therapy (ACT), may offer unique avenues to potentially deepen and maintain the often profound therapeutic effects that may result from the acute influence of psychedelics

and, indeed, at least two ongoing trials are currently using methods based on CBS as part of their trials. Thus, a more in-depth exploration of these topics is timely. We begin by briefly outlining the current state of clinical psychedelic research, as well as the literature regarding psychedelic-assisted therapy. However, the main focus of the paper is on why CBS may be uniquely positioned to understand and increase the efficacy of psychedelic-assisted therapy, and how this scientific model fits with existing data as well as with theories such as the entropic brain theory (Carhart-Harris et al., 2014). We conclude by suggesting avenues for future research on how CBS could contribute to psychedelic science, and vice versa.

1. Psychedelics and psychedelic-assisted therapy

Classic psychedelics belong to a class of psychopharmacological agents, all of which are serotonin-receptor agonists, that include lysergic acid diethylamide (LSD), psilocybin, mescaline, and dimethyltryptamine (DMT; Johnson, Hendricks, Barrett, & Griffiths, 2019). These substances are derived from plants (as in the case of ayahuasca brew or

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peyote) or fungi (such as ergot or psilocybin mushrooms) long known to create perceptual disturbances. While many of these substances have been prized for their ceremonial, religious, and healing value for millennia (George et al., 2019; Schultes et al., 2001), and still are in some cultures (Calabrese, 2013; Kopenawa & Albert, 2013), they are illegal in most countries. In this article, we do not discuss other substances that have been researched for therapeutic purposes that are usually classified as non-classical psychedelics (Johnson et al., 2019), such as 3,4-Methylenedioxyamphetamine (MDMA; a psychedelic and a stimulant), ketamine and ibogaine (psychedelics and dissociatives), or cannabis (which has only weakly psychedelic effects). The mechanisms of action and psychotherapeutic effects are quite different for these agents compared to the more classical psychedelics, and therefore warrant separate consideration.

In most modern clinical trials, psychedelic-assisted therapy incorporates supportive psychotherapy that typically consists of a period of preparation, followed by a moderate to high dose of psychedelics in the presence of one or more therapists, followed by one or more integration sessions (Phelps, 2017). Dosing and integration may repeat multiple times depending upon the study. Historically, psychedelic-assisted therapy was largely informed by and guided by psychodynamic, humanistic and transpersonal theories. Most of the psychotherapy involved in recent and published trials have relied on these principles, although newer and ongoing studies are also incorporating contemporary evidence-based psychotherapies, such as motivational interviewing (Nielson, May, Forchimes, & Bogenschutz, 2018) and Acceptance and Commitment Therapy. Existing protocols, nevertheless, have not been specifically studied enough (e.g. through randomizing patients to different psychotherapy conditions) to claim empirical support. CBS, as will be argued throughout this paper, may offer a way to guide psychedelic-assisted therapy that is grounded in a rigorous, tested and cohesive theory of human behavior that is consistent with existing theories on the neuro-psychological processes of the psychedelic state.

2. History of clinical research into psychedelics

Research on psychedelics has been divided into the first wave of psychedelic research (1890–1940), marked by the discovery of mescaline by Western science, and the second wave (1940–1970), marked by the synthesis of lysergic acid diethylamide (LSD) and psilocybin (Swanson, 2018). Clinical research during this second wave was substantial, involving more than 1000 papers and 40,000 patients (Grinspoon & Bakalar, 1997), but these early clinical studies shared the methodological weaknesses that were common at the time, such as the absence of validated clinical scales, lack of randomization, and limited controls (Carhart-Harris & Goodwin, 2017). Nevertheless, they suggested an impressive, if uncertain, efficacy. In 1967, mainly due to concern among North American authorities and the public, the UN declared LSD a potential health and security risk and called for strict regulation of LSD and similar substances (Rucker et al., 2018). Despite the existing evidence that psychedelics offered the potential for significant therapeutic benefit and that they were largely non-addictive, the United States Drug Enforcement Agency classified them as Schedule I substances (having no accepted medical use and a high potential for dependence) in 1970 (Johnson, Griffiths, Hendricks, & Henningfield, 2018). Clinicians and researchers were increasingly banned from prescribing them and psychedelic research was eventually halted.

The contemporary revival of psychedelic research, dubbed by some as a third wave (Swanson, 2018), arose by the end of the twentieth century with three studies of healthy volunteers conducted in Germany (Hermle, Gouzoulis-Mayfrank, & Spitzer, 1998), Switzerland (Vollenweider, 1997), and the United States (Strassman & Qualls, 1994). Once psychedelics' safety for healthy volunteers had been established, more extensive clinical trials began, and an increasing number of studies have now demonstrated preliminary efficacy and

safety of psychedelic-assisted therapy in treating a wide range of mental health difficulties (for a review see Carhart-Harris & Goodwin, 2017). Currently, at least nine rigorous clinical trials have been published on psychedelic-assisted therapy, including ones on major depression, obsessive-compulsive disorder, addiction, and end-of-life psychological distress. Furthermore, some observational (Bousso et al., 2012) and population (Hendricks, Thorne, Clark, Coombs, & Johnson, 2015) studies have shown correlations between psychedelic use and lower psychological suffering in the general population.

Contemporary clinical trials of psychedelics began with an uncontrolled proof-of-concept study of nine patients with treatment-resistant obsessive-compulsive disorder (Moreno, Wiegand, Taitano, & Delgado, 2006). In this small sample, acute reductions in obsessive-compulsive symptoms as a result of psilocybin administration were reported and no significant adverse effects were observed. A pilot study on psilocybin-assisted psychotherapy for smoking cessation obtained an 80% abstinence rate among 15 participants at a 6-month follow-up and 67% at 12-month follow-up (Johnson, Garcia-Romeu, & Griffiths, 2017). In a trial of psilocybin-assisted therapy for patients with alcohol use disorder, self-reported drinking in 10 patients was reduced significantly at 9-month follow-up (Bogenschutz et al., 2015).

Four clinical trials have reported results using psychedelic-assisted therapy for depression and anxiety related to life-threatening medical diagnoses. A randomized-controlled trial (RCT) of psilocybin-assisted therapy with 51 participants with anxiety and depression related to life-threatening cancer (Griffiths et al., 2016) demonstrated significant symptom reduction in 80% of participants at 6-month follow-up. A RCT utilizing a similar design found significant decreases in anxiety and depression among 29 patients with life-threatening cancer (Ross et al., 2016). A trial of psilocybin-assisted therapy with 12 patients with advanced-stage cancer who were suffering from anxiety-related disorders reported reduced trait anxiety at 3-month follow-up and reduced depression at 6-month follow-up (Grob et al., 2011). LSD-assisted psychotherapy for 12 patients with anxiety associated with life-threatening diseases showed significant reductions in anxiety maintained at a one-year follow-up (Gasser et al., 2014).

The first published study on the use of psychedelics to reduce depression was conducted in Brazil, piloting the use of ayahuasca (in an individual, non-ceremonial context) for six patients with recurrent depression. Significant reductions in depressive symptoms were reported at a 3-week follow-up after a single dosing session (Osorio et al., 2015; Sanchez et al., 2016). An open trial with 20 patients with treatment-resistant depression treated with psilocybin-assisted therapy demonstrated marked decreases in depression symptoms that peaked 5 weeks post-treatment with some improvements maintained through a 6-month follow-up (Carhart-Harris et al., 2016, 2018).

One interesting finding related to the potential psychological mechanisms of action of psychedelic-assisted therapy relates to findings showing that the extent to which psychedelics occasion a mystical-type experience predicts therapeutic outcomes. Studies show that the intensity of mystical experiences elicited by psychedelics predict changes in depression (Palhano-Fontes et al., 2019), alcohol consumption (Bogenschutz et al., 2015), trait openness (MacLean, Johnson, & Griffiths, 2011), smoking cessation outcomes (Garcia-Romeu, R Griffiths, & W Johnson, 2014), negative affect (Griffiths, Richards, Johnson, McCann, & Jesse, 2008), and end of life depression and anxiety (Griffiths et al., 2016). While preliminary, these results suggest that some of the efficacy of psychedelic substances may occur through their ability to occasion mystical-type experiences characterized by a feeling of unity and interconnectedness with all things; a sense of sacredness; feelings of peace, joy, bliss, awe or amazement; ineffability; a transcendence of time and space; and a sense that this experience is an objective truth about reality (MacLean et al., 2011; MacLean, Leoutsakos, Johnson, & Griffiths, 2012). While other psychological mechanisms for psychedelic-assisted therapy have been proposed, the paragraph above focuses on mystical experience because it has received

the most study and empirical support to date.

While a main goal of this paper is to behaviorally analyze experiences that have been frequently ascribed to solely theological or spiritual realms, we also wish to emphasize that science is only one way of knowing and we do not wish to and are not attempting to diminish the value or validity of religious or other perspectives on the human condition. In fact, the growing body of scientific literature on psychedelic-assisted therapy owes a great debt to indigenous peoples and perspectives on plant-based medicines from which much of the knowledge on psychedelic properties originally derives (Schultes et al., 2001; George et al., 2019). Psychedelic use has been central to Native American religion and spirituality for millennia, with archeological evidence dating back to 5700 years (Bruhn, De Smet, El-Seedi, & Beck, 2002), and psychedelics in their natural form (psilocybin fungi, peyote, and the ayahuasca brew) have been ritualistically used for healing purposes from the Aztec empire, in the past, to Amazonian shamanism (Kopenawa & Albert, 2013) and the Native American Church (Calabrese, 2013) in the present, among many examples.¹ Observational studies on religious communities who consume ayahuasca sacramentally in Brazil have shown ayahuasca users to have lower rates of psychopathology and higher performance in neuropsychological tasks versus non-users (Bouso et al., 2012; Fábregas et al., 2010; Halpern, Sherwood, Passie, Blackwell, & Ruttenberg, 2008).

3. The need for a scientific model to guide psychedelic-assisted therapy

One of the primary challenges within this emerging field of psychedelic-assisted therapy is how best to integrate the growing research on psychedelics with the current scientific understanding of psychological dysfunction and treatment. While preliminary evidence seems to indicate that psychedelics can result in mental health benefits across several different psychiatric diagnoses when administered by a professional, the use with a broader range of psychological conditions and the psychological processes mediating this type of intervention is in need of further investigation. A theoretical model for understanding the mechanisms of action of psychedelic-assisted therapy, ideally one that is sensitive to important contextual factors that are involved in psychedelic-assisted therapy outcomes (Carhart-Harris, Roseman et al., 2018), is necessary for understanding the relationship between psychedelics and psychopathology.

Most modern trials involving psychedelics for the treatment of mental health conditions have had a psychotherapy component. Because of this, therapeutic work to date on psychedelics could rightly be termed psychedelic-assisted therapy. However, maximizing real world outcomes likely depends upon systematically manipulating and researching the psychotherapy portion of psychedelic-assisted therapy. Relatedly, our current understanding of the psychological processes of change involved in psychedelic-assisted therapy is considerably limited and existing theories seem disconnected with current evidence-based models of therapeutic change. In addition, in many reports, the psychotherapy portion is often not well-described, measured, or controlled for. A cohesive and testable model of change, more closely aligned with contemporary research, could be used to guide the psychotherapeutic component of the intervention to maximize its effectiveness. We believe that CBS has much to contribute to this vital enterprise. Ultimately, we

believe it will be necessary to move from psychedelic-assisted therapy to psychedelic-assisted psychotherapy wherein the centrality of the psychotherapeutic context is more fully acknowledged. Greater clarity about the interaction between the psychedelic experience and psychological and environmental variables, including the psychotherapy delivered and its effects on mental health, could indicate variables to study in future research in order to maximize outcomes.

3.1. Why contextual behavior science is an ideal fit for psychedelic-assisted therapy

Contextual behavioral science (CBS) is an approach to science grounded in the pragmatism of James, Dewey, and Peirce. William James (1902) was among the first to attempt a scientific understanding of mystical experiences, including pharmacologically-induced ones, in his *Varieties of Religious Experience*, which is still widely cited in the field of psychedelic research (Yaden et al., 2017). CBS seeks to develop basic and applied principles to predict and influence the contextually embedded actions of whole organisms with precision, scope, and depth (Hayes, Barnes-Holmes, & Wilson, 2012). As such, it is a thoroughly contextual model that seeks to identify contextual variables, defined situationally and historically, that allow influence over any and all actions of an organism (which includes internal activities such as thinking and feeling). A central tenant of CBS that is particularly relevant to psychedelic-assisted therapy is that the function of all language, cognition, and behavior is impacted by the context in which it occurs (Hayes et al., 2012).

The importance of context in the effectiveness of psychedelic-assisted therapy, especially regarding the person's socio-cultural environment, is difficult to overstate. Psychedelics are different from most other psychopharmacological agents in that their benefits appear to be highly dependent upon the context in which they are ingested. In more typical pharmacological agents (e.g., antidepressants or anxiolytics), the persistent presence of the drug perturbs, in an ongoing way, the functioning of biological systems, which then presumably results in psychological and behavioral effects independent of the contexts in which the drug is taken. In contrast, classical psychedelics are only used in one, or at most, a few administrations with their pharmacological effects typically lasting for only a few hours. In addition, the nature of the person's experience during these hours and the subsequent downstream effects appear to be greatly influenced by the context in which psychedelics are ingested. The importance of the context in which psychedelics are administered is well established and has a scientific history that dates back to the first wave of interest in the therapeutic use of psychedelics (Carhart-Harris et al., 2018). While the popular concept of “set and setting” is often credited to American psychologist Timothy Leary, consideration for internal and external contextual variables in influencing the value of the psychedelic experience has its roots in shamanic use (Hartogsohn, 2017). “Context” does not only refer to the preparation and integration phases preceding and following ingestion but also to the socio-cultural framework around what constitutes pathology and treatment, from an anthropological perspective. Cultural processes can influence the person's expectation before the session and meaning-making after the experience, but also the way that values and self are conceptualized (Sabucedo, 2017). Below we specify how context can influence psychedelic experience and subsequent outcomes.

While we are not aware of any modern studies that have attempted to systematically vary variables related to set and setting, data from early clinical studies suggest that when set and setting are either neglected or even unsupportive or negative, outcomes may be overwhelmingly negative (Hartogsohn, 2017). Since then, psychological preparation, support, and integration have been considered essential to ensure safety and efficacy in psychedelic research (Oram, 2014). As an example of the importance of contextual variables, data suggests that patient response to music during psychedelic administration is

¹ The focus of the paper prevents us from analyzing the role of culture in further depth. We must highlight, nevertheless, that whilst psychedelic-assisted therapy takes place within the dyadic or triadic relationship between patient and therapist, shamanistic rites can be a community intervention in which person, tribe, and nature are deeply intertwined. The etiology of the illness, furthermore, is frequently spiritual rather than physical or psychological. The reader interested in an anthropological or ethnomedical analysis is referred to Calabrese (2013), Kopenawa and Albert (2013) and George et al. (2019).

associated with outcome and the occurrence of mystical experiences (Kaelen et al., 2018). Given that mystical experiences occurring during psychedelics strongly predict outcomes (e.g., Griffiths et al., 2008, 2016), identifying contextual variables that affect the likelihood of a mystical experience might be particularly important (Carhart-Harris, Roseman et al., 2018).

Indeed, as CBS is one of the few scientific models of psychotherapeutic change that has an explicit theory about and research on spiritual and mystical experience (Hayes, 1984), it may be particularly well situated to suggest how to study and influence the likelihood of spiritual experience emerging during psychedelic sessions.

Another way in which context may impact the efficacy of psychedelic-assisted therapy is through the conceptual frameworks patients use to understand their psychedelic experiences. Because CBS is a model of human behavior that explicitly acknowledges the limitations of language and cognition, it is particularly well-suited to handle the ineffable quality of psychedelic experiences. Moreover, the experience of moderate-to-high dose psychedelics is often described as overwhelmingly intense and is characterized frequently in the literature as “one of the most important experiences of my life” (Griffiths et al., 2008, 2011, 2016; Ross et al., 2016). Trial participants may ascribe profound meaning to their experience and often describe new insights about their life and the world that they find highly beneficial. It appears that psychedelics have their effects largely through creating an *experience*, often a profound one, that then influences the person's future psychological functioning and behavior. In other words, it seems apparent that any lasting benefits of psychedelic experiences are due, at least in part, not only to the lingering direct effects of the drug itself but also to how the experience is understood and responded to over time. As such, a conceptual framework for understanding and describing the psychedelic experience may influence how that experience is expressed through the course of subsequent daily living, or what is commonly referred to as integration.

How a person understands their psychedelic experience is almost certainly filtered both by the lens of one's prior experiences (intrapersonal and interpersonal) as well as by the reaction of their social environment when talking about it. A socio-cultural context that gives great meaning to psychedelic experiences, for example, is likely to lead to more action based on the insight gained during psychedelic use. On the other hand, a context that disregards the importance of these experiences as just “drug talk” or “being high” is likely to lead to less follow through and poor integration. Thus, it is important that researchers systematically study which preparation and integration contexts contribute to beneficial changes and potential contextual variables that may work against this aim. In addition, an interaction might arise in which a method of psychedelic-assisted therapy may interface more effectively with the person's cultural background, social context, or personal worldview, or in which a Westernized individual intervention such as psychotherapy would not be suited at all. However, a more coherent and comprehensive way of understanding and making use of their psychedelic experience, clearly linked to science, may prove beneficial in increasing and sustaining benefit for at least some people.

Psychedelic experiences can also serve as a new context from which to experience old behavior, thinking, and feeling, thereby altering how those repertoires function in the future. From a contextual perspective, old learning has not been eliminated, but the person may respond to their old learning in new ways based on new experiences. For example, one context for experience is almost always an “ordinary” state of consciousness, the mode of consensus experiencing that most would identify as “normal.” By drastically and fundamentally altering a person's experience of their conscious awareness, the context that holds the entirety of a person's perceptual and experiential content, the opportunity may be created for new and adaptive ways to relate to and organize one's own experience. Part of this ordinary state of consciousness is one's sense of self, which is often altered during psychedelic experiences (Lebedev et al., 2015). CBS, with its robust theory and research

into how perspective taking can lead to a sense of self as stable or changing across situations (McHugh, Stewart, & Almada, 2019) may contribute to an understanding of how psychedelics lead to changes in the sense of self and how this change might be leveraged therapeutically.

In summary, the effects of psychedelics are heavily dependent upon the current and historical context (socio-cultural, interpersonal and intrapersonal) in which they are administered, including the context of therapy itself. CBS has the potential to guide the selection of strategies to use in preparation for dosing sessions, the strategies therapists use during administration, and the techniques that may facilitate positive change post administration. CBS also offers a scientific approach to help determine which variables may be modified to optimize beneficial effects.

4. CBS and the psychological flexibility model

CBS is well-positioned to contribute to clinical psychedelic research. First, CBS offers a scientifically well-supported theory of human language and cognition to describe the psychological effects of psychedelics, such as alterations in the sense of self and the experience of ineffability (Ludwig & Madison, 1966). Second, the model of psychological health, distress, and therapy that CBS represents is phenomenologically congruent with the psychedelic experience, as will be analyzed further below. Third, CBS-informed therapies, such as Acceptance and Commitment Therapy (ACT), offer novel therapeutic techniques for psychedelic-assisted therapy as well as methodologies to study them. Fourth, CBS emphasizes the importance of convergence of scientific evidence between psychological and biological units of analysis and thus may help integrate research on possible processes of change at both the biological and psychological levels of analysis.

CBS encompasses a broad range of scientific research from basic to applied. CBS uses different levels of theory, ranging from the more technical language of behavior analysis and relational frame theory (Hayes, Barnes-Holmes, & Roche, 2001) to what has typically been termed a “middle level” of theory that lies somewhere between a technical and common sense way of speaking and understanding (Luoma, Hayes, & Walser, 2017). This middle level of theory is meant to bridge technical and clinical ways of speaking and is the level typically used in clinical work and clinical research. This middle level of theory is described in terms of the psychological flexibility model, which holds that rigidity and inflexibility are at the heart of most psychopathology (Chawla & Ostafin, 2007; Spinhoven, Drost, de Rooij, van Hemert, & Penninx, 2014). In this model, psychological flexibility is seen as an organismic capacity that is needed to respond effectively to the changing contextual demands of life in an effective way. More technically, psychological flexibility has been defined as “the ability to contact the present moment more fully as a conscious human being and, based on what the situation affords, to change or persist in behavior in order to serve valued ends” (Luoma et al., 2017, p. 16).

Psychological flexibility is typically broken down into six processes, each of which are briefly outlined below. **Acceptance or willingness** refers to the ability to allow and make space for all of one's internal experience, including thoughts, feelings, and sensations. **Cognitive defusion** refers to the ability to step back and observe one's cognitive activities with less attachment or entanglement, most notable entanglement with evaluative thinking, which results in more adaptive behavioral responses to the environment. **Present moment awareness** refers to the ability to flexibly and fluidly control one's attention, particularly in the here-and-now, so as to meet changing environmental demands. **Flexible perspective-taking** (also known as *self-as-context*) refers to the flexible and adaptive use of our psychological capacities emerging from a process called deictic framing. Central to this process is an observing sense of self that transcends experience and disrupts our ordinary sense of self. **Values clarity** refers to the ability to articulate and be in contact with sources of meaning and purpose that the

individual deems important in their life (i.e., one's values). Finally, **committed action** refers to the ability to put values into concrete action and to overcome barriers to enacting values. While these six processes are often packaged using the term Acceptance and Commitment Therapy (ACT), they are also part of a larger model of psychosocial intervention development borne out of CBS.

5. The psychological flexibility model as an organizational rubric for processes of change in psychedelic-assisted therapy

Below we describe how each of the six flexibility processes can be used to characterize the psychedelic experience, account for possible processes of change observed in psychedelic-assisted therapy, and potentially guide the preparation, guiding, and integration stages of psychedelic-assisted therapy. Our hope is to inform research into how flexibility processes may be used to understand, catalyze, and support change facilitated through psychedelic-assisted therapy experiences.

5.1. Self-as-context/flexible perspective taking

The importance of understanding mystical states, in ACT and the psychological flexibility model, goes back to one of the first papers written by Steven Hayes, the primary developer of ACT, in which he articulated a naturalistic, behavior analytic account of spiritual experience where the concept of self-as-context was first introduced (Hayes, 1984). Similar to William James (1902), this paper argued for the importance of a naturalistic (i.e., non-religious) understanding of mystical experience and discussed the potential importance of mystical experience in human functioning and well-being. As such, CBS perspectives on the nature of self and spiritual experience may offer a scientific and monistic framework for understanding the mystical experiences that are common under moderate-to-high doses of psychedelics.

According to Relational Frame Theory (RFT), a history of reinforcement relating to perspective-taking (i.e., deictic) relations leads to the emergence of a robust repertoire of perspective-taking (Hayes et al., 2001). Perspective-taking relations are a way of talking about how cues control the ability of humans to have a consistent perspective in time, place, and person, and to be aware of the perspectives of others as distinct from one's own. These perspective-taking relations (also known as deictic frames) are also thought to explain how a sense of self emerges, including phenomenon like the self-concept. In addition, the theory emphasizes the emergence of a transcendent sense of self called self-as-context that is thought to be largely adaptive in fostering disentanglement from self-focused evaluative thinking and reason-giving that unhelpfully constrain behavior. As such, the self and its transcendence are central to the psychological flexibility model. The role of self-experience, including distortions related to one's sense of self, is also central to the psychedelic experience and has been postulated as being an important aspect of how psychedelics can be beneficial. Neuroscience research on psychedelics has shown that brain regions thought to be involved in the construction of a sense of self, namely the default mode network, appear to be relatively less active during psychedelic states (Carhart-Harris et al., 2016), suggesting that our ordinary sense of self may drop away at times or become reduced. These brain networks have also been implicated in autobiographical recall, thinking about others, remembering the past, and planning for the future (Raichle, 2015), all of which are activities that centrally feature perspective taking frames. From a psychological flexibility model perspective, these shifts in brain activity may index decreases in deictic framing. Decreases in deictic framing could result in a more direct sensory experience of the world and one's psychological reactions that would not be mediated through the typical sense of self we inhabit during ordinary states of consciousness. This might help explain some of the reports of people undergoing psychedelic-assisted therapy wherein experience appears to be “fresh” or less mediated by one's

history (Watts & Luoma, 2019).

In addition, since both our sense of self as a consistent observer and our conceptualized self both arise from deictic framing, decreases in deictic framing could account for observed phenomenon such as “ego death” (Grof, 1980; Harrison, 2010), “ego dissolution” (Carhart-Harris et al., 2014; Klee, 1963; Studerus, Gamma, Kometer, & Vollenweider, 2012), or ego-disintegration (Harrison, 2010; Muthukumaraswamy et al., 2013) that have been described as part of intense psychedelic states. Future research could be designed to test these suppositions.

Reports of alteration in one's sense of space and time, interconnectedness as described through phrases such as “all is one,” and the sense of a dissolution of the self into a larger whole are all common in psychedelic-induced mystical states and appear to relate to alterations in perspective taking framing. Items from a recently developed ego dissolution inventory (Nour, Evans, Nutt, & Carhart-Harris, 2016) also demonstrate how the sense of self can be shifted or disrupted through the psychedelic experience, including “all notion of self and identity dissolved away,” “I felt at one with the universe,” “I experienced a decrease in my sense of self-importance,” or “I felt a sense of union with others.” There is also a striking similarity between reports from psychedelic therapy and descriptions of the self-as-context phenomenon within CBS. For example, content analysis of psilocybin-assisted therapy for smoking cessation included themes relating to a shifting sense of self including one participant stating “I'm me, and there are no defining characteristics!” (Noorani, Garcia-Romeu, Swift, Griffiths, & Johnson, 2018). This statement seems to parallel the idea that self-as-context does not have any qualities or content that can be observed, but is instead the place or perspective from which observation happens. For example, one ACT text reads, “One can be conscious of the limits of everything except the one's own consciousness. This sense of unity is not ‘thing-like’ at all, because it has no directly available edges or distinctions” (Hayes, Strosahl, & Wilson, 1999, p. 186). Another states that “consciousness itself contains the psychological quality that we are conscious – timelessly and everywhere,” (Hayes et al., 2012, p. 90). Additionally, qualitative analyses of people receiving psychedelic-assisted therapy for cancer-related distress suggest that psychedelics create a sense of transcendence (Swift et al., 2017), an experience that self-as-context interventions from ACT have also been thought to foster. Other indications of perspective-taking shifts include reports of contacting an “inner teacher,” encounters with loving beings or “guiding spirits,” and contact with a part of the self capable of great love and compassion (Swift et al., 2017; Watts & Luoma, 2019). All of these statements are the kinds of reports that might be expected if ordinary patterns of perspective-taking framing were to be disrupted or temporarily inhibited, indicating alterations in the distinction between self and others/the world, the subjective sense of time, or even the psychological sense that one exists.

Qualitative analyses of psychedelic experience have highlighted how people commonly experience a dissolution of a sense of separateness and often feel more interconnected with others, with the natural world, or with the world itself (Belser et al., 2017; Watts, Day, Krzanowski, Nutt, & Carhart-Harris, 2017). It's as if the conceptual boundaries that we use to describe ourselves as separate, confined beings are dissolved. The psychological flexibility model can help explain how these commonly experienced disruptions in a sense of “me-hood” (Belser et al., 2017) could be therapeutic. According to the psychological flexibility model, the conceptualized self includes the stories we tell about ourselves that describe our apparent qualities, in the same way that we might describe an object. The main function of the conceptualized self is to create a sense of consistency in thought, emotion and action, which can either be adaptive or maladaptive depending upon the circumstances and the individual. For those individuals where the conceptualized self is negative or impedes change, interventions that loosen a person's attachment to their conceptualized self can foster novel patterns of thinking and acting. While ACT fosters this through various experiential exercises and metaphors, it seems

possible that psychedelics may create a loosening of attachment to the conceptualized self through direct action on the regions of the brain that are central to the sense of self. One possible avenue for future exploration would be to examine whether therapeutic techniques from ACT aimed at fostering transcendence of one's ordinary sense of self could be used at preparation or integration phases to either continue to support a lessened attachment to one's conceptualized self or to reconnect people to experiences of interconnection, union, and oneness that are common during the psychedelic experience. Essentially, self-as-context metaphors and exercises might provide useful tools to both understand and integrate shifts in perspective into everyday life.

5.2. Acceptance

A number of authors have argued that acceptance may be one of the routes through which classical psychedelics have therapeutic effects (Soler et al., 2018; Watts et al., 2017). Approaches to psychedelic-assisted therapy, as well as some indigenous rites (Sabucedo, 2017), often include instructions to “let go” and “go with” whatever experience one is having. Often the view is that resisting or fighting the experience will make things more difficult. Indeed, psychedelic-assisted therapy preparation and guiding phases usually include encouragement for patients to accept and allow the full extent of their experience (Watts & Luoma, 2019) and to trust that their body will continue to function regardless of any aversive bodily sensations (Johnson, Richards, & Griffiths, 2008). Individuals undergoing high dose psychedelic administration often experience intense and aversive experiences including visual hallucinations, aversive bodily sensations (e.g. dizziness, weakness, tremors, nausea, drowsiness, paresthesia, and blurred vision), intense emotions, loss of the sense of self, and sometimes even a sense that one is dying. One possible therapeutic process of psychedelic-assisted therapy is that having and surviving direct experiences of more intense emotions leads to less avoidance of emotion and difficult personal experiences in the future, thus facilitating experiential acceptance. Relatedly, the lesson that avoidance or resistance leads to increased suffering, which may be experienced in a heightened or more obvious manner while taking psychedelics than in everyday life, may lead to the application of acceptance strategies in the future.

A number of studies already support the idea that psychedelic-assisted therapy may increase acceptance. Two studies showed that intake of Ayahuasca in a supportive context appeared to increase self-reported acceptance among healthy volunteers (Soler et al., 2016, 2018). A study examining interventions for cancer-related distress showed increases in death acceptance following psilocybin administration (Griffiths et al., 2016). Psilocybin experiences have also been shown to lead to increases in openness to experience (MacLean et al., 2011), which appears to overlap with the openness to one's own experience that is part of acceptance. Qualitative studies suggest that it is common to report experiences of surrender and self-acceptance. For example, a qualitative study of cancer patients undergoing psychedelic-assisted therapy identified themes of increased acceptance of the cancer experience, their bodies, and others (Swift et al., 2017). Finally, Watts et al. (2017) conducted a thematic analysis of interviews with individuals who had undergone psychedelic-assisted therapy for depression and concluded that acceptance was one of the core change processes.

5.3. Flexible, fluid, and voluntary present moment awareness

Qualitative data from studies of psychedelic-assisted therapy suggest that it may increase present moment awareness, at least in the short term. For example, some qualitative analyses indicate that following psychedelic-assisted therapy, individuals often report being more in the present moment and less ruminative of the past (Swift et al., 2017; Watts et al., 2017; Watts & Luoma, 2019). Content analyses of psilocybin treatment of smoking cessation found related themes of curiosity and increased aesthetic appreciation (Noorani et al., 2018).

Others report experiences of “slowing down” and being “less hurried” as a result of psilocybin treatment for cancer-related distress (Swift et al., 2017).

Three studies of people attending Ayahuasca retreats have measured mindfulness before and after meetings. Two of these studies showed no increases on subscales of the Five Factor Mindfulness Questionnaire (Soler et al., 2016, 2018), namely the observe, describe, and act with awareness subscales. However, a third sample of twelve patients attending ayahuasca retreats for alcohol dependence did demonstrate increases on a different measure of mindfulness, the Philadelphia Mindfulness Scale (Thomas, Lucas, Capler, Tupper, & Martin, 2013). Thus, the quantitative data on the potential role of psychedelic-assisted therapy in improving present moment awareness is mixed and limited to ayahuasca administration, indicating a need for future investigation. To the extent that increased present moment awareness is associated with improved therapeutic outcomes, techniques from ACT or other mindfulness-based interventions might be used to enhance and integrate the beneficial effects of psychedelic experience.

5.4. Cognitive defusion

Cognitive fusion refers to the dominance of narrow cognitive and language-based ways of responding over more fluid and flexible ways of responding to stimuli (Hayes, Stosahl, & Wilson, 2012). Cognitive defusion interventions often involve decreases or alterations in the functions of thinking, such that verbal regulation is reduced or new and less dominant ways of interacting with verbal stimuli are elicited (Luoma & Hayes, 2009). It is clear that psychedelics disrupt ordinary language and cognitive processes. For example, a common hallmark of the mystical experiences frequently occasioned by high dose psychedelics is the ineffability of experience or the inability to put the experience into words (e.g., Pahnke & Richards, 1966; Swift et al., 2017). Ineffability appears to involve a breakdown in normal language processes such that the person becomes unable to adequately describe or label their experience in a manner in which they would ordinarily be able to do. To what extent these alterations in linguistic and semantic processing relate to cognitive defusion is, as of yet, unclear, but the idea that psychedelics alter normal language and verbal processes seems indisputable.

More direct empirical support for the effects of psychedelics on cognitive fusion comes from a study of 25 participants taking ayahuasca assessed immediately before and 24 h after the experience. Participants showed improvements on a measure of decentering, which is similar to defusion and reflects an ability to take a detached view of one's own thoughts and emotions (Soler et al., 2016). However, a second, smaller study with only 10 participants did not replicate this finding, perhaps due to reduced statistical power (Soler et al., 2018).

Consistent with the idea that defusion involves a reduction in more central or dominant functions of verbal stimuli, another set of studies indicates that LSD may lead individuals to respond in ways that are less in accordance with more typical or predictable ways of verbal responding, and instead increase more remote or non-obvious associations to verbal stimuli. For example, in some older studies, when participants were given LSD, compared to placebo, they were more easily able to fill in the blanks of deleted words of a speech passage (Amarel & Cheek, 1965) or give more non-common responses in a word association task (Weintraub, Silverstein, & Klee, 1959). More recent studies of participants under LSD demonstrated the increased spread of semantic activation in a picture-naming task (Family et al., 2016) and a lexical decision task (Spitzer et al., 1996), suggesting that activation spreads through lexical networks more broadly, activating less dominant ways of responding.

These potentially therapeutic alterations in linguistic processing often associated with the psychedelic experience could be conceptualized as facilitating cognitive defusion through a number of pathways. First, contact with unusual cognitive states or ineffability

could highlight the failure of words and language to adequately capture the experience, thus undermining participants' attachment to verbal language as their sole way of apprehending the world. Ineffability may also make more salient the opportunity to choose more helpful or functional "stories" or words to help integrate psychedelic experiences. In addition, as has already been described in a previous section, psychedelics often occasion an experience of being a witness or observer of experience, including the process of thinking itself. This new experience could translate into an increased ability to observe thinking in daily life and to be less rigidly controlled by historical patterns of thought. Finally, the tendency for psychedelics to occasion reduced predictability in thinking might result in people making new connections between stimuli, experiencing events in new ways, or seeing their lives in new ways. This increased cognitive flexibility could conceivably continue beyond the psychedelic state when individuals carry them into life situations while not in an altered state.

Similarly, incorporating cognitive defusion techniques common in ACT into the psychedelic-assisted therapy integration phase may also help deepen and sustain the benefits of the psychedelic experience. These strategies, that help people hold their thoughts more lightly and with less attachment, might also be helpful when people return to their ordinary lives and engage in the meaning-making process that ordinarily occurs. For example, defusion techniques might be able to help psychedelic-assisted therapy patients hold the explanations and stories that are generated during the meaning-making process following a psychedelic experience more lightly, such that they can act on what is helpful out of these experiences and let go of and simply notice or observe the stories and experiences that emerge that are less likely to lead to adaptive outcomes in their lives if acted on.

This might help prolong the extent to which people can hold onto the cognitive and behavioral flexibility that psychedelics appear to foster in the short run, rather than needing everything to immediately make sense in terms of their old self-narratives or previous life experience. This could potentially reduce the rate at which patients fall back into older, more dominant ways of thinking and responding linked to past experiences and current life stimuli that trigger this thinking.

5.5. Values

Clinical trials of classical psychedelics demonstrate that revised life priorities (Belser et al., 2017; Swift et al., 2017) and "reconnecting with core values" (Noorani et al., 2018) are common experiences during clinical trials. For example, it's common to for people to report a shift away from more materialist values to more personally meaningful, relational, prosocial, and spiritually oriented concerns following a psychedelic experience (Belser et al., 2017; Garcia-Romeu, Himelstein, & Kaminker, 2015; Noorani et al., 2018).

However, from a CBS and ACT perspective, values are not simply domains of life that one would choose to prioritize (e.g. "family" versus "work"), but rather, they are ways of living that result in a sense of meaning and purpose in one's life (LeJeune & Luoma, 2019). This increased contact with a sense of meaning and purpose seems to be central to the mystical quality reported in the most therapeutically beneficial psychedelic experiences. For example, people undergoing psychedelic-assisted therapy for cancer-related distress reported increased purpose in life on standardized scales (Griffiths et al., 2016). A survey of people who have had psychedelic induced mystical experiences reported that an increased sense of purpose was often a result (Yaden et al., 2017).

These values-related shifts resulting from psychedelic experiences may be part of how psychedelic-assisted therapy results in improved mental health. Research shows that higher purpose in life has been shown to predict better mental health (Goodman, Doorley, & Kashdan, 2018) and that lower materialist values are associated with better personal and physical well-being and better relationship functioning (Kasser, 2016). This shift may also be helpful at a societal level in that

lower materialistic values are associated with less ecologically destructive practices, less consumption, less debt, and more prosocial behavior (Kasser, 2016).

The ACT strategies and exercises that assist people in articulating their values could be helpful in a variety of ways in the context of psychedelic-assisted therapy. For those who emerge from the psychedelic experience with a desire to make significant changes in their life priorities, values conversations guided by ACT principles could be applicable in terms of helping the individual articulate specific and actionable ways to enact those desired changes in various life domains. Values work could also help psychedelic-assisted therapy clients work through conflicts that may occur between areas of life that were previously important and new areas of valuing that have risen in importance because of their psychedelic experience. ACT could provide concrete ways to revisit life goals and priorities and identify changes that individuals may want to make that link to them.

5.6. Committed action

Traditionally, psychedelic use was embedded in sacramental contexts that were supportive of their use, and cultural contexts and practices that supported taking action on wisdom or insights learned during the experience. However, in most Western countries there exists a cultural bias against psychedelic use, as well as mystical or non-ordinary perspectives in general (Barnett, Siu, & Pope, 2018; Garcia-Romeu et al., 2015). Thus, it is likely that when individuals return to "normal life," potentially profound experiences emerging from psychedelic use may be dismissed or explained away as "just being high." The lack of cultural support for integrating learning from psychedelic experience into everyday life, coupled with a lack of scientific research on the topic, makes it difficult for many people to know how to translate their experiences into meaningful change. Ultimately, if meaningful insights are not translated into behavior change, then lasting benefit is unlikely. Indeed, while some studies show that positive changes from psychedelic-assisted therapy in mood, attitudes, and behavior can be sustained up to 14 months later (Griffiths et al., 2011), other studies show increasing levels of relapse to prior mental health difficulties by three months post-administration (Carhart-Harris et al., 2018). Thus, while the effects of psychedelic-assisted therapy can be long-lasting, individuals are susceptible in reverting to older and less effective patterns of mood, thought, and behavior.

Committed action refers to the ability to act in values-based directions, even in the presence of barriers (Moran, 2013). The ability to translate insights gained during the psychedelic experience into real-life goals is likely an important mechanism of action as research has shown that earlier changes in committed action predict later reductions in suffering (Gloster et al., 2017). Translating insights gained during the psychedelic experience into concrete behavior change has traditionally been part of a relatively non-direct integration phase in psychedelic-assisted therapy. However, it seems likely that the integration phase of psychedelic-assisted therapy could benefit from the implementation of strategies from ACT that have been shown to help translate values into concrete action, leading to meaningful positive change over time.

5.7. Convergence between the entropic brain theory and CBS

Another point of convergence between CBS and psychedelics can be found in examining the relationship between evolutionary and biological science perspectives and the psychedelic experience. The psychological flexibility model describes a psychological model of mental health and dysfunction that may be consistent, at a neurological level, with what is perhaps the most accepted current neuroscientific theory of the effects of psychedelics: the entropic brain theory (EBT; Carhart-Harris et al., 2014). This theory proposes that the subjective quality of any given conscious state can be indexed by the magnitude of entropy (i.e., disorder) in a given parameter of brain activity (such as EEG

potentials). The theory posits that over-constrained cognition is the root of much (but not all) psychopathology and that most psychopathology arises from an over-abundance of order (low-entropy) in brain dynamics. In contrast, the psychedelic state is characterized by higher brain entropy states (Carhart-Harris, 2018), which is thought to explain the rather startling psychological effects that are seen during psychedelic experience. A shift to a high entropy state is thought to disrupt overly reinforced patterns of activity in the brain, allowing for the possibility of more adaptive re-networking and new learning. According to Carhart-Harris et al. (2014, p.1), “it is proposed that psychedelics work by dismantling reinforced patterns of negative thought and behavior by breaking down the stable spatiotemporal patterns of brain activity upon which they rest.” Essentially, new variability is induced in brain states, which is associated with concurrent changes in perception, cognition, affect, and observable behavior.

While high entropy states appear to be induced during active psychedelic administration, it is less clear what happens after acute effects wear off. It seems likely that brain dynamics will rapidly resolve to moderate or low entropy states. The variables determining whether these forms of organization will be new and more adaptive, or a reversion to old forms, is unspecified in the model. CBS can potentially augment the entropic brain theory by identifying contextual (environmental and historical) factors that maintain new, and more adaptive, low entropy brain states, through specific reinforced patterns of thought and behavior.

While the entropic brain theory elucidates the neurological mechanisms by which variability is induced, it does little to specify the mechanisms by which some changes will be selected for retention over others. In part, this reflects a more general tendency for neurological models to focus on brain function to the neglect of environmental inputs, which are left to the psychological and behavioral level theories. Ultimately, theories that address how brain changes interact with a changing environment are needed to scientifically study how to maximize the presence and durability of adaptive benefits of psychedelics. Our argument is that the psychedelic effect in the brain cannot be divorced from the environmental context in which the substance is administered (e.g. the clinical, societal, cultural and preparatory context) and it seems likely that still unknown aspects of the environment are central to producing the beneficial effects of psychedelic-assisted therapy in the first place. CBS can provide a model that helps more fully integrate environmental inputs into a model of change for psychedelic-assisted therapy.

An example from evolutionary theory on fitness landscapes might help illustrate how CBS could supplement Entropic Brain Theory (Wilson, Hayes, Biglan, & Embry, 2015). Essentially, the extreme levels of variability induced by psychedelic states could push people out of “locally adaptive peaks” associated with rigidity and stagnation, thereby allowing potential shifts to new, more adaptive patterns of organization. This situation is analogous to a species that has adapted to living on a certain mountain top and is unable to get to survive at lower altitudes to reach other mountain tops. However, if the mountain is a volcano that erupts, the species may get thrown to other mountaintops, whereupon the species will adapt to the new environment (assuming the new environment is different). This idea highlights that variability alone is not sufficient for stable change, but that the criteria for retention of change also need to change. Preparation and integration work guided by CBS principles might alter those retention criteria and thereby affect which acute gains last over the longer term.

6. Recommendations and considerations for psychedelic-assisted therapy and research

Based on the above review, we have a number of recommendations for future research on psychedelic-assisted therapy:

- Begin to systematically vary the psychotherapy component of the

preparation, dosing, and integration phases in order to study the effects of the psychedelic experience. This must be done with extreme care, considering the ethical issues and harmful outcomes that could derive from a suboptimal or neglected manipulation of set and setting.

- Include novel measures of processes of action related to psychological flexibility at pre-treatment, during dosing sessions, and at follow up in order to study mediational models involving psychological flexibility. Relevant scales are the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011), the Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT; Ashley, Dawson, & Golijani-Moghaddam, 2016), and the Multidimensional Psychological Flexibility Inventory (MPFI; Rolffs, Rogge, & Wilson, 2016). These measures could be also integrated into neuroscientific studies to examine the relationships between psychological flexibility variables and brain-level variables.
- In addition to correlational and longitudinal studies of psychological flexibility processes, experimental studies could systematically manipulate these processes to see whether they influence outcomes. For example, studies could examine whether incorporating, into the preparation phase, some of the exercises, metaphors, and teaching stories in ACT that have been shown to foster acceptance (see for example Hayes, 2005 or; Stoddard & Afari, 2014) improves outcomes. Similarly, studies could examine whether acceptance-focused techniques included as part of integration sessions could reduce suppression or avoidance behaviors, especially as the afterglow of the psychedelic experience wears off. This could also be applied to the other psychological flexibility processes. In addition, studies could examine whether therapeutic alliance-promoting interventions from Functional Analytic Therapy (Tsai, Kohlenberg, & Kanter, 2010) could enhance the therapy relationship in a fashion that improves outcomes.
- Begin to study individual differences in participant personality, history, and context, especially regarding cross-cultural differences, in order to identify potential variables that moderate treatment effect. A priority should be to increase the participation of minorities in future research, as people of color and ethnic minorities have been underrepresented in studies of psychedelic-assisted therapy (Michaels, Purdon, Collins, & Williams, 2018) as well as in research on Acceptance and Commitment Therapy (ACT). As George et al. (2018) have highlighted, the disparities and inequalities at play must be counterbalanced with a wider inclusivity of diverse voices in both research participation and design.
- Utilize behavioral tasks informed by Relational Frame Theory, the theory of language and cognition most closely tied with CBS (Hayes et al., 2001), conducted before, during, and after dosing sessions to assess for potential changes in the function of language, such as shifts in deictic and hierarchical framing. If these results were linked to clinical improvements, this could inform the development of focused behavioral interventions based on RFT to improve the maintenance of gains. These tasks could also be integrated with brain imaging technologies to elucidate links between basic psychological research and brain functioning.
- Utilize methods shown in previous studies to modify specified processes of change (e.g. acceptance, mindfulness), so as to link research on psychedelic-assisted therapy to the broader body of research on behavioral change and psychotherapy interventions.
- Investigate whether the therapeutic relationship can predict outcomes, as is strongly the case in talking therapies (Flückiger, Del Re, Wampold, & Horvath, 2018), in order to build bridges to existing research on processes of change and the therapeutic alliance. Considering the emphasis on the importance of the therapeutic alliance in the supportive or guiding role of the psychotherapist (Phelps, 2017), research on the importance of the therapeutic relationship is particularly relevant to the future development of psychedelic-assisted therapy.

In addition to the above research ideas, we recommend further conceptual analyses of how CBS might inform the way that psychedelics alter one's sense of self, including conceptual analyses of how psychedelics might lead to mystical or spiritual experiences. This could also lead to novel experimental paradigms used to study the effect of psychedelics on the sense of self. In addition to examining how CBS could contribute to the study of psychedelic-assisted therapy, we also encourage CBS researchers to consider how psychedelics could be used as an experimental paradigm to study more basic CBS concepts that extend beyond the effects of psychedelics.

After years of dormancy, psychedelic-assisted therapy is undergoing a renaissance that is promising from both clinical and basic research perspectives. Learning from lessons in the past, modern psychedelic research includes more rigorous methodologies, increased cautiousness in interpreting data findings, and the integration of more evidence-based paradigms of psychological dysfunction and therapy. Based on assertions made in this paper, we believe that CBS offers a useful paradigm for understanding and studying the psychedelic experience, including more behaviorally precise language and terms that nicely map onto aspects of the psychedelic experience, and empirically-based psychotherapeutic interventions that address the important role in integrating wisdom and insights afforded by the psychedelic experience into long-term meaningful changes.

Declaration of competing interest

The authors have no conflicts of interest to report.

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