

# Working with Weirdness: A Response to “Moving Past Mysticism in Psychedelic Science”

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**ABSTRACT:** In response to a recent call to rid psychedelic science of the concept of mystical experience, we argue that acknowledging the varieties and weirdness of psychedelic experiences should be at the heart of any research program on this topic. We highlight the rich tradition and scientific tools for studying mystical-type experiences, their relevance for understanding the therapeutic effects of psychedelics, as well as the need for more diversity in the experiences and participants included in this research.



In their recent Viewpoint, Sanders and Zijlmans propose to rid psychedelic research of “mysticism”.<sup>1</sup> In their view, mysticism is unscientific: mystical experiences are a fuzzy concept, are impossible to accurately measure, and are fraught with supernatural assumptions. They propose alternative theoretical frameworks such as predictive processing to account for the effects of psychedelics. We posit that (1) Sanders and Zijlmans’ commentary is based on an incomplete understanding of mystical experiences (MEs) as a scientifically validated and rigorously studied domain of human experience, (2) MEs are clinically and scientifically highly relevant, (3) good methodological tools are available for studying MEs, and (4) psychedelic research should fully embrace the study of mystical and other weird experiences.

## 1. CONFUSION BETWEEN MYSTICISM AND THE SCIENTIFIC STUDY OF ME

The authors’ arguments for getting rid of mysticism in psychedelic science seem to rest upon their confusion of mysticism as an esoteric, woozy notion (they suffuse their article with supposed synonyms of mystical experiences: the arcane, supernatural, fantastical, divine, and “the encroachment of supernatural and nonempirical beliefs”), rather than an extensively described phenomenon and object of serious scientific study. Dismissing mystical experiences as scientifically irrelevant or even wholly unempirical is a straw man argument that does not do justice to the depth and complexity of this topic. In doing so, they ignore the frequency with which people report psychedelic-induced mystical-type experiences and the personal and spiritual value attributed to them, and

seemingly deny that characteristics of mystical experiences have been, can be, and are studied empirically.<sup>2</sup> Sanders and Zijlmans argue that, by using the concept of MEs within psychedelic research, researchers “smuggle in” a supernatural interpretation of the experiences that people have under the influence of psychedelics. This is inconsistent with the concept of MEs used in scientific research, which remains agnostic regarding the metaphysical claims about the truth or falsehood of these experiences. An informative parallel may be drawn from research on religious experiences. Some people claim to have heard the voice of God and therefore believe in his existence. However, this does not preclude the person from having warranted true beliefs or mean that research on this phenomenon would be unscientific. In fact, studies in the psychology of religion and spirituality have provided many intriguing insights into the proximate mechanisms associated with revelatory events and religious experiences. For a similar argument regarding the distinction between the objective study of exceptional experiences and the truth-claims related to these insights, see the commentary by Jyllka.<sup>3</sup> Thus, both the experiences themselves and the effects they have can be studied scientifically. Likewise, there is a rich history of scientific research into mystical experiences.

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## 2. THE SCIENTIFIC AND CLINICAL RELEVANCE OF MYSTICISM

The seminal psychologist and philosopher William James was the first to systematically assess and categorize different types of religious experiences, including those he labeled “mystical”.<sup>4</sup> According to James, mystical experiences are noetic (imparting important knowledge or insight), are transient (they are experienced directly and subjectively), and are characterized by ineffability (James compared it to describing the experience of love or music to someone who has experienced neither). In the 1950s and 1960s, researchers discussed whether MEs shared a common core or whether they are ultimately shaped by one’s cultural and religious background (for a review of this debate, see ref 5). Proponents of the common core theory, or perennialism, built on James’s key elements of MEs and identified additional characteristics: transcendence of space and time; feelings of unity and connectedness; a sense of awe; and positive emotions of love and peace. In turn, this view has had a strong impact on theory and scale development in the scientific study of mysticism.

Walter Pahnke’s 1962 “Good Friday experiment” was the first controlled scientific study to determine that a psychedelic (psilocybin) could reliably occasion MEs indistinguishable from those described by James. A long-term follow-up found that, 25 years later, the profound impact of a single ME had had enduring and positive effects on participants’ lives, careers, and life choices.<sup>6</sup> In subsequent clinical studies, researchers saw clear correlations between the occurrence of a ME during the session and enduring, positive therapeutic outcomes afterward. More recent research confirms that psilocybin-occasioned MEs indeed (partially) mediate treatment outcomes for people suffering from end-of-life anxiety, depression, and substance use disorders (for a review, see ref 2). While evidence is strongest for classical psychedelics, there are some indications that even atypical psychedelics like MDMA and ketamine can induce MEs that correlate with treatment outcomes.<sup>7</sup>

In addition to their clinical relevance, MEs do not just predict treatment outcomes but also have explanatory power. Existential, religious, and spiritual issues are important determinants of quality of life, particularly in patients nearing the end of their lives, with meaningfulness and transcendence considered to be key aspects of spiritual well-being.<sup>8</sup> The experience of transcendence, a deeply felt positive mood, and feeling connected to something greater can provide great ontological comfort to patients and provide people with a greater sense of purpose or meaning in life. Other therapeutic effects related to MEs include the ability to reframe one’s existence and predicament (cognitively or emotionally), to see and accept one’s situation from a different vantage point, and to experience increased connectedness with nature, loved ones, and family.<sup>9</sup> Ultimately, we echo James and recommend that these experiences be judged not by their roots but by their fruits: that is, the potential transformative and positive impact they have on people’s lives, behavior, and values.

## 3. SCIENTIFIC TOOLS TO STUDY MYSTICISM

There are excellent tools available to empirically study MEs, and a good review on the available scales, including the different pros and cons, can be found in Taves.<sup>10</sup> The most researched and cross-culturally validated psychological instrument to measure mystical-like experiences, the Hood Mysticism Scale (HMS), was developed by psychologist

Ralph Hood, in line with the common core theory.<sup>11</sup> Since then, many additional instruments and scales have been developed and validated to empirically measure the phenomenology of nonordinary subjective experiences induced by psychedelics, including the Mystical Experience Questionnaire (MEQ), the Ego Dissolution Inventory (EDI), and the 5-Dimensions of Altered States of Consciousness (SD-ASC) scale. These scales have proven to be valuable in mapping out the phenomenology induced by different psychedelic substances. Of special interest is the development of the Inventory of Non-Ordinary Experiences (INOE) that helps researchers distinguish between the extraordinary experiences that people report (e.g., “I have had an experience of unity”) and the interpretation or attribution that people make about this experience (“I think this experience was caused by some supernatural power” vs “I think this experience was caused by some brain chemical alterations”; cf. ref 12). Next to these standardized scales, qualitative research methods are particularly helpful to study, understand, and analyze these experiences, using a wealth of research techniques such as in-depth interviews, participant observation, and innovative methodologies such as microphenomenology, which all help explore participants’ lived experience in fine detail.<sup>13</sup> In our view, taking subjective experiences seriously is preferable to the alternative of solely resorting to brain-based explanations as proposed by Sanders and Zijlmans. While this might appear to be more objective, in the end, this provides us with just another form of neuro-enchantment.

## 4. A MANIFESTO FOR EMBRACING THE WEIRDNESS OF PSYCHEDELICS

This reliance on neurobiological explanations is exemplary of a clash between these psychedelic-induced nonordinary states of consciousness and the positivistic attitude that struggles to make sense of these experiences using materialist and reductionist approaches. An increasing number of researchers interested in psychedelics’ therapeutic potential are happy to place those pesky psychedelic “side effects” between brackets. Take, for example, the increased interest in *microdosing* (using psychedelic substances without their psychedelic effects), the focus on purely neuromechanical aspects of psychedelics (rebranded as “psychoplastogens”), construing ketamine’s subjective effects as undesired psychotomimetic or dissociative side effects, or the money pouring into efforts by the U.S. Military to develop nonhallucinogenic “psychedelic” drugs. While there is undoubtedly merit to these scientific studies, this does not take away from the fact that the subjective experience is at the heart of what psychedelics do; indeed, their very name implies as much.

More generally, there seems to be a bias in contemporary psychological and neuroscientific research to selectively focus on studying ordinary cognitive functions (e.g., memory, language, perception), while extraordinary states of consciousness are considered “fringe science” and remain beyond the scope of mainstream research. In addition to accepting that the realms of human consciousness cannot (yet) be fully understood, we would do well to acknowledge the fundamental weirdness of psychedelics. Psychedelics frequently induce experiences that cannot easily be understood within Western scientific epistemologies. Examples abound, such as the use of sorcery and magical darts among Amazonian ayahuasqueros, the strange visionary experiences described by 1970s writers (see, e.g., ref 14), meeting ancestors and forest spirits during

iboga rites and ayahuasca ceremonies, and encountering entities and other extraordinary phenomena reported by users of *Salvia divinorum*, 5-methoxy-dimethyltryptamine, or dimethyltryptamine to name but a few. These nonordinary states of consciousness can carry a profound sense of truth and meaning but can also induce an “ontological shock”. The validation of such insights introduces ethical and metaphysical challenges, especially in the context of psychedelic therapy, which only underscores the responsibilities of therapists in helping patients make sense and meaning of their “revelatory” experiences, without resorting to any ontological truth claims.<sup>15</sup>

The weird status of mystical and other extraordinary experiences is further complicated by the seemingly one-sided reliance on white, heterosexual, WEIRD (Western, Educated, Industrialized, Rich and Democratic) participants in many psychedelic studies.<sup>16</sup> The emerging commercialization and medicalization of psychedelic-assisted psychotherapy is likely to exacerbate this problem, limiting accessibility to affluent educated Westerners.

Rather than narrowing our focus, e.g., by discarding categories such as MEs, we should remain open to all varieties of psychedelic experience. In this regard, it remains important to recognize the influence of expectations, dominant discourses, and social, cultural, and other aspects of setting as determinants of psychedelic effects. In indigenous cultures, expectations may differ wildly (e.g., encountering a spirit-master) and participants may not even comprehend the concept of a mystical experience.<sup>17</sup> Cross-cultural comparisons can help safeguard us against such a compartmentalized, Western-centric view about psychedelics and their alleged effects. It is indeed possible that the emphasis on the therapeutic role of MEs is excessive. The antidote, however, is neither neuro-enchantment nor negating mysticism. Rather, it lies in embracing the weirdness of subjective experiences and broadening our scope beyond WEIRD subjects in future psychedelic studies.

In sum, over the past decades, a great number of explanatory mechanisms for psychedelics have been proposed, ranging from neurobiological, autobiographical, emotional, cognitive, chemical, psychological, and indeed mystical. Each of these domains contains a multitude of partially exclusive, partially overlapping explanations and hypotheses. Of course, it seems doubtful that, given the highly idiosyncratic and context-dependent effects of psychedelics, a single explanatory framework will ever suffice. However, rather than “actively superseding” the concept of MEs, a category of extraordinary human experience, we argue that this should spur psychedelic researchers to investigate all other possible relevant angles and pathways of studying MEs, using the full methodological toolkit available to science, of which neuroscience techniques are but one possible approach. Getting rid of MEs because they are difficult to research, lack plausible neurocognitive explanations or because of problematic colloquial associations would be throwing away the baby with the bathwater. And although science may not currently have all the tools to explain or study these weird experiences, they are still “real” and meaningful to many. The rich tradition of research on MEs provides us with a number of useful scientific tools for studying them. Where psychedelic research is concerned, its multifacetedness, complexities, contextuality, and plurality should remind us that “not everything that counts can be counted, and

not everything that can be counted counts.” And that in psychedelic science, we should learn to work with weirdness.

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### Notes

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## ■ REFERENCES

- (1) Sanders, J. W., and Zijlmans, J. (2021) Moving Past Mysticism in Psychedelic Science. *ACS Pharmacol. Transl. Sci.* 4, 1253–1255.
- (2) Johnson, M. W., Hendricks, P. S., Barrett, F. S., Griffiths, R. R., Grif, R. R., Griffiths, R. R., Grif, R. R., et al. (2019) Classic psychedelics: An integrative review of epidemiology, therapeutics, mystical experience, and brain network function. *Pharmacol. Ther.* 197, 83–102.
- (3) Jylkkä, J. (2021) Reconciling Mystical Experiences with Naturalistic Psychedelic Science: Reply to Sanders and Zijlmans. *ACS Pharmacol. Transl. Sci.*, 10–12.
- (4) James, W. (1902) The Varieties of Religious Experience. *A Study in Human Nature*, 1985th ed., Penguin Books, London.
- (5) Hood, R. W. J. (2019) The empirical study of mysticism, in *The Psychology of Religion* (Spilka, B., and McIntosh, D. N., Eds.), Routledge.
- (6) Doblin, R. (1991) Pahnke’s “Good Friday experiment”: A long-term follow-up and methodological critique. *J. Transpers. Psychol.* 23, 1–28.
- (7) Rothberg, R. L., Azhari, N., Haug, N. A., and Dakwar, E. (2021) Mystical-type experiences occasioned by ketamine mediate its impact on at-risk drinking: Results from a randomized, controlled trial. *J. Psychopharmacol.* 35, 150.
- (8) Puchalski, C. M. (2012) Spirituality in the cancer trajectory. *Ann. Oncol.* 23, iii49–iii55.
- (9) Grob, C. S., Bossis, A. P., and Griffiths, R. R. (2013) Use of the Classic Hallucinogen Psilocybin for Treatment of Existential Distress Associated with Cancer, in *Psychological Aspects of Cancer: A Guide to Emotional and Psychological Consequences of Cancer, Their Causes and Their Management* (Carr, B. I., and Steel, J., Eds.), pp 291–308, Springer, Boston, MA.
- (10) Taves, A. (2020) Mystical and Other Alterations in Sense of Self: An Expanded Framework for Studying Nonordinary Experiences. *Perspect. Psychol. Sci.* 15, 669–690.
- (11) Hood, R. W. (1975) The Construction and Preliminary Validation of a Measure of Reported Mystical Experience. *J. Sci. Study Religion* 14, 29.
- (12) Taves, A., and Ihm, B. E. (2019) What is Religious Experience? Validating the Inventory of Non-Ordinary Experiences (INOE). From: <https://www.templeton.org/grant/what-is-religious->

experience-validating-and-testing-the-inventory-of-non-ordinary-experiences

(13) Petitmengin, C., van Beek, M., Bitbol, M., Nissou, J. M., and Roepstorff, A. (2019) Studying the experience of meditation through Micro-phenomenology. *Curr. Opin. Psychol.* 28, 54–59.

(14) Davis, E. (2019) High Weirdness, in *Drugs, esoterica, and visionary experience in the seventies*, Strange Attractor Press & The MIT Press, Cambridge/London.

(15) Timmermann, C., Watts, R., and Dupuis, D. (2020) Towards psychedelic apprenticeship: Developing a gentle touch for the mediation and validation of psychedelic-induced insights and revelations. *PsyArxiv*, December 30, 2020. DOI: [10.31234/osf.io/j5768](https://doi.org/10.31234/osf.io/j5768).

(16) Michaels, T. I., Purdon, J., Collins, A., and Williams, M. T. (2018) Inclusion of people of color in psychedelic-assisted psychotherapy: A review of the literature. *BMC Psychiatry* 18, 1–14.

(17) Fortier, M. (2018) Sense of reality, metacognition and culture in schizophrenic and drug-induced hallucinations, in *Metacognitive Diversity: An Interdisciplinary Approach* (Proust, J., and Fortier, M., Eds.), Oxford University Press, Oxford/New York.