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Shame, Guilt and Psychedelic Experience: Results from a Prospective, Longitudinal Survey of Real-World Psilocybin Use

David S. Mathai MD ^{a,b,c}, Daniel E. Roberts MD, MSW^d, Sandeep M. Nayak MD^e, Nathan D. Sepeda BS^{e,f}, Amy Lehrner PhD^g, Matthew W. Johnson PhD^{h,i}, Matthew X. Lowe PhD^j, Heather Jackson AAⁱ, and Albert Garcia-Romeu PhD^e

^aEthical Legal Implications of Psychedelics in Society Program, Center for Medical Ethics and Health Policy, Baylor College of Medicine, Houston, TX, USA; ^bDepartment of Psychiatry and Behavioral Sciences, Baylor College of Medicine, Houston, TX, USA; ^cSattva Medicine, Psychiatry, Psychotherapy, and Consulting Practice, Miami, FL, USA; ^dCenter for Psychedelic Medicine, Department of Psychiatry, New York University Grossman School of Medicine, New York, NY, USA; ^eCenter for Psychedelic and Consciousness Research, Department of Psychiatry and Behavioral Sciences, The Johns Hopkins University School of Medicine, Baltimore, MD, USA; ^fCenter for Psychedelic Drug Research and Education, College of Social Work, The Ohio State University, Columbus, OH, USA; ^gCenter for Psychedelic Psychotherapy and Trauma Research, Department of Psychiatry, Icahn School of Medicine at Mount Sinai, New York, NY, USA; ^hDepartment of Psychiatry and Behavioral Sciences, The Johns Hopkins University School of Medicine, Baltimore, MD, USA; ⁱCenter of Excellence in Psilocybin Research and Treatment, Sheppard Pratt, Towson, MD, USA; ^jUnlimited Sciences, Colorado Springs, CO, USA

ABSTRACT

The classic psychedelic psilocybin has attracted special interest across clinical and non-clinical settings as a potential tool for mental health. Despite increasing attention to challenging psychedelic experiences, few studies have explored the relevance of shame-related processes with psychedelic use. This prospective, longitudinal study involved sequential, automated, web-based surveys that collected data from 679 adults planning to use psilocybin in naturalistic settings at timepoints before and after psilocybin use. State and trait shame and feelings of guilt were collected using validated measures and assessed alongside other measurements of psychological health. Acute feelings of shame or guilt during psilocybin experiences were commonly reported (68.2% of users) and difficult to predict. Ratings of participant ability to constructively work through these feelings predicted wellbeing 2–4 weeks after psilocybin use. Psilocybin on average produced a small but significant decrease in trait shame that was maintained 2–3 months after use (Cohen's $d_z = 0.37$). Trait shame increased in a notable minority of participants (29.8%). The activation of self-conscious emotions with psychedelics deserves further attention as a challenging experience subcategory that may be relevant to psychological outcomes. Such experiences could pose a unique and context-dependent learning condition for both therapeutic and detrimental forms of shame-related memory reconsolidation.

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Introduction

Classic psychedelics induce profound changes in affect, perception, and other subjective processes that individuals frequently interpret as meaningful experiences. It has been observed since the early era of psychedelic research in the 1950–1960s, and well before then in the ritualized contexts of indigenous cultures, that the subjective quality of these drug journeys can range from extremely positive (e.g., “peak”) to psychologically challenging experiences marked by various forms of emotional distress (Johnstad 2021; Labate and Cavnar 2014). The trajectory of a single psychedelic experience may also be narratively intricate, during which periods of ease and struggle can both occur (Belser et al. 2017). However, modern cultural biases have focused largely on the

positive aspects of these journeys (Bremner et al. 2023), thereby limiting public understanding of psychedelic drug effects in their entirety.

A historical review of challenging psychedelic experiences, sometimes referred to colloquially as “bad trips,” suggests that “good” and “bad” drug reactions became increasingly dichotomized in the mid-1960s, shaped by the American War on Drugs, its depiction of psychedelics as inherently destructive, and the regulatory agenda of prohibition (Dyck and Elcock 2020). Contributing to this divide, certain advocates for psychedelic use proposed that negative drug experiences might be best understood as a failure of “set and setting” – the largely modifiable context (e.g., motivations, physical/social environment) within which drug use occurred – rather than something inherent to the drug itself (Lee and

Shlain 1992). Others focused on characterological vulnerability, some even implying a hierarchy of those who could or could not handle the psychedelic experience, as posed by Ken Kesey's famous question, "Can you pass the acid test?" (Lucas 2005).

Such views can stigmatize individuals who have challenging experiences with psychedelics, inhibit communication about difficult processes, and lead to isolation. Also lost in these views are more nuanced possibilities: for example, that the course of a drug experience may be unpredictable, that difficult affective states might be typical features of psychedelic use, and that even seemingly hellish journeys could be seen as constructive by users (Gashi, Sandberg, and Pedersen 2021; Lake and Lucas 2023).

Individuals may feel ashamed about difficult psychedelic experiences because of societal pressures, but it is also possible that psychedelics elicit feelings of shame more directly. One common experience with psychedelics involves challenging forms of self-realization and the occurrence of painful emotions that accompany this awareness (Johnstad 2021). Feelings like fear, grief, and isolation have been well characterized in these and other psychedelic narratives (Barrett et al. 2016; Johnstad 2021), but limited research has examined the shame associated with psychedelic use.

In one mixed-methods analysis of 608 individuals reporting extended difficulties attributed to psychedelic use, Evans et al. (2023) found that 58% of participants reported struggling with their perception of themselves as a result of their drug experiences. In open-ended narratives, feelings of shame and guilt (e.g., one participant described shame about their identity and guilt about past decisions after prior trauma resurfaced during psychedelic use) appeared unprompted in 7% of this sample population. These numbers are possibly conservative estimates, given that shame-related feelings are often underreported (Turner 2014). It also remains unclear whether specific demographic or psychological factors predict shame as a feature of psychedelic use, and if these experiences reliably influence long-term outcomes.

Shame is conceptualized as a self-focused emotion and has been described as one of the most agonizing, universal, and simultaneously ignored human emotions (Dorahy et al. 2017). Furthermore, while the experience of shame can promote healthy development, it has also been linked to numerous psychological problems and harmful behaviors, especially when shame is chronic and internalized (Lear et al. 2022; Rüsche et al. 2007). Feelings of shame can interfere with mental health treatment (Viña 2024) and make it difficult for individuals to

request support during psychedelic use, even when it is available (Modlin et al. 2024).

Though the terms are often used interchangeably, guilt is sometimes distinguished from shame as a unique self-conscious emotion based upon different psychological appraisals that can lead to different behaviors (Câdea and Szentagotai-Tătar 2018; Tangney, Stuewig, and Mashek 2007). Despite this conceptual difference, these two states can occur together, and as such, many scholars have focused on studying both in terms of their roles in psychological health. A distinction is also made in the psychological research literature between state-shame, which refers to acute, context-specific experiences of shame, and trait-shame, which can be thought of as a more stable construct, related to one's global sense of self and predisposition toward feeling shame. For an in-depth examination of these ideas, including theoretical models and synthesis of the research literature, please see Câdea and Szentagotai-Tătar (2018).

Of primary interest to the present study is the quantitative examination of state-shame and guilt as challenging features of the psychedelic experience that might negatively predict well-being. However, there is also evidence to suggest that psychedelics could have a therapeutic effect on shame (Healy, Lee, and D'Andrea 2021; Lowe et al. 2024; Mehtani et al. 2024). Shame that is chronic and internalized may be especially representative of the entrenched "canalizations" of thought and behavior that can occur in response to adversity or distress (Carhart-Harris et al. 2023). Such phenotypes are often resistant to revision, even in the face of new evidence, but may be sensitive to the plasticity-related and belief-updating effects of psychedelic interventions (Carhart-Harris et al. 2023; Mathai, Mora, and Garcia-Romeu 2022). As such, we also planned to assess the overall sensitivity of trait-shame to psilocybin.

This investigation was part of a larger longitudinal online survey study that was conducted to gather prospective data on naturalistic psilocybin use (Nayak et al. 2023). Our specific aims were to 1) characterize acute shame and guilt elicited during psilocybin use and explore general predictors of these experiences, 2) assess acute shame and guilt during psilocybin use as potential predictors of long-term wellbeing, and 3) examine whether psilocybin use impacts trait shame over time.

Methods

Participants

This study was approved by a Johns Hopkins Medicine Institutional Review Board and enrolled English-

speaking adults (≥ 18 years old) who were planning to take psilocybin outside of a clinical research setting. The general survey population and retention across time-points have been detailed elsewhere (Nayak et al. 2023).

Procedures

Six sequential web-based surveys were hosted through the Qualtrics XM secure online platform with automated reminders that were sent out periodically by e-mail. Recruitment advertisements were shared via online advertisements (e.g., websites such as www.drugs-forum.com, www.facebook.com, www.reddit.com, www.maps.org, www.erowid.org) and word of mouth. Following an initial informed consent and demographics survey, participants completed five surveys with timing relative to the reference psilocybin experience: 2 weeks before, 1 day before, 1–3 days after, 2–4 weeks after, and 2–3 months after. Responses were collected from July 2020 to July 2022. Items specifically related to shame and guilt were approved and added when data collection was already underway, with collection for these items starting in December 2020 and resulting in a smaller sample size than that reported for the primary analysis.

Measures assessed for this study

Baseline measurements (2 weeks prior to psilocybin use)

Participants completed demographic information, the 8-item External and Internal Shame Scale assessing self-reported trait (general) shame (global EISS; scored 0–32, with higher scores indicating greater trait shame) (Ferreira et al. 2022), the 20-item Short State-Trait Anxiety Inventory assessing state (current) and trait anxiety (STAI-State/STAI-Trait; each subscale scored 10–40, with higher scores indicating greater anxiety) (Bergua et al. 2016; Spielberger, Gorsuch, and Lushene 1970), a modified version of the 20-item Beck Depression Inventory excluding an item on current suicidality due to lack of ability to respond adequately to imminent risk (BDI-II) (Beck, Steer, and Brown 1996), the revised 14-item Adverse Childhood Experience (ACE) scale (Finkelhor et al. 2015), and the 12-item Cognitive Flexibility Scale assessing self-reported ability to think and behave adaptively (CFS) (Martin and Rubin 1995).

Measurements 1 day before psilocybin use

Participants were asked whether a sitter/guide would be present during psilocybin use and were also administered the 10-item State of Surrender (SOS) scale to

assess the level of psychological surrender or preoccupation before the session (Russ et al. 2019).

Measurements 1–3 days after psilocybin use

Participants completed the following Likert item about the experience: 1) Do you believe the experience was ultimately negative or positive? (scored as 1–7 Likert scale with 1 = Extremely positive, 4 = Neither positive nor negative, and 7 = Extremely negative). Participants also completed the 30-item Mystical Experience Questionnaire (MEQ; total scores scaled 0–5, with higher scores indicating greater degree of mystical-type experience) (Barrett, Johnson, and Griffiths 2015), the 26-item Challenging Experience Questionnaire (CEQ; total scores scaled 0–1, with higher scores indicating greater degree of challenging experience) (Barrett et al. 2016), and the 10-item State Shame and Guilt Scale measuring state shame and guilt (SSGS-Shame/SSGS-Guilt; each subscale scored 5–25, with higher scores indicating greater experiences of shame and guilt, respectively) (Held, Owens, and Anderson 2015; Marschall 1997). The SSGS prompt was adapted to ask individuals about these feelings specifically during psilocybin use. Individuals who reported any experiences of shame or guilt during psilocybin use (i.e., SSGS-Shame or SSGS-Guilt > 5) were prompted to respond to three additional items: 1) Approximately how long did these feelings of shame or guilt last? (categorical choices), 2) How personally difficult or challenging were these feelings? (scored as 1–5 Likert scale), and 3) Did you find that you were able to work through these feelings during the session in a constructive way? (scored as 1–5 Likert scale). To facilitate the present analysis, the final two-item variables were classified as “shame/guilt difficulty” and “shame/guilt processing.”

Measurements 2–4 weeks after psilocybin use (primary endpoint)

Participants completed the EISS, and the following Likert item assessing long-term changes to well-being: 1) Do you believe that psilocybin experience and your contemplation of that experience have led to long-term and persisting changes in your current sense of personal well-being or life satisfaction? (scored as 1–7 Likert scale). To facilitate the analysis, this Likert variable was classified as “wellbeing.”

Measurements 2–3 months after psilocybin use

Participants completed the EISS again.

Analytic plan

For Aim 1, characterizing the acute shame and guilt elicited by psilocybin use (Aim 1a) and general predictors of these experiences (Aim 1b), descriptive statistics were used along with two applied multivariable regression models for all individuals with SSGS data ($n = 679$). Purposeful assessment of bivariate relationships with SSGS-Shame or SSGS-Guilt score, respectively, was conducted using least-squares regression and the following predictors separately: age, gender; race; education; marital status; religious belief system; baseline EISS; STAI-State; STAI-Trait; BDI-II; ACE; CFS; SOS before; and the presence of a sitter during psilocybin use (yes/no). These demographic variables were selected to assess for potential confounders, along with measurements of psychological vulnerability and support during dosing thought to overlap with trait shame and be relevant to state shame or guilt with psilocybin. P-values for categorical variables were calculated using reference values based on the most frequent levels for each variable. P-values for categorical variables with more than two levels were calculated using the default GraphPad Prism ANOVA function, an omnibus test performed on the regression that allows for a single p-value despite multiple levels. Per Hosmer, Lemeshow, and Sturdivant (2013), the final regression models for SSGS-Shame and SSGS-Guilt included covariates with p-value $<.2$. Model results for individual regression parameters were reported as beta regression coefficients (β) and p-values. Cronbach's alpha (Cronbach 1951; Revelle and Zinbarg 2009) was used to test for internal consistency reliability of the SSGS shame and guilt subscales. Pearson's correlation coefficients were conducted post-hoc to illustrate the relationships between trait shame and other psychometric covariates (i.e., STAI-State, STAI-Trait, BDI-II, ACE, and CFS), using the Šidák correction for five comparisons.

For Aim 2, assessing acute shame and guilt during psilocybin use as potential predictors of long-term wellbeing, multiple linear regression was used to measure the relationship between wellbeing 2–4 weeks after psilocybin use and the following covariates among individuals with SSGS data ($n = 679$): age, acute shame during psilocybin (SSGS-Shame), acute guilt during psilocybin (SSGS-Guilt), shame/guilt difficulty, shame/guilt processing, CEQ, and MEQ. The inclusion of age in this model was informed by findings for Aim 1 and selected to account for confounding, along with measurements of the acute psilocybin experience that were hypothesized to be relevant to long-term wellbeing.

For Aim 3, examining whether psilocybin use impacts trait shame over time, a repeated-measures

one-way ANOVA as implemented in GraphPad Prism was used for individuals with EISS scores at baseline (T0), 2–4 weeks after psilocybin use (T1), and 2–3 months after psilocybin use (T2) ($n = 215$ for this complete sample). Geisser-Greenhouse corrections were used as sphericity was not assumed, and the Tukey method was used for post-hoc testing of significant comparisons.

Results

Characterizing experiences of shame/guilt with psilocybin (Aim 1a)

Participant demographics and psilocybin use characteristics relevant to this study are summarized in Table 1. Out of 679 participants with SSGS data, 463 individuals (68.2%) reported either shame or guilt during psilocybin use (i.e., SSGS-Shame or SSGS-Guilt >5), including 378 individuals reporting experiences of shame (55.7%) and 352 individuals reporting experiences of guilt (51.8%). For 80 participants (11.8%), a feeling related to shame or guilt was rated at its maximal value. The mean duration of these experiences fell between 10 and 60 minutes categorically (range: “ <10 min” to “entire session”). The SSGS had good internal consistency reliability of 0.73 and 0.90 for the shame and guilt scales, respectively. See Table 2 for SSGS individual item data.

Predicting experiences of shame/guilt with psilocybin (Aim 1b)

As a way of illustrating the relationships between trait shame and baseline psychometric covariates, Pearson's correlations indicated that trait shame was significantly correlated with STAI-State ($r = 0.56$, adjusted $p < .001$), STAI-Trait ($r = 0.77$, adjusted $p < .001$), BDI-II ($r = 0.70$, adjusted $p < .001$), ACE ($r = 0.31$, adjusted $p < .001$), and CFS ($r = -0.55$, adjusted $p < .001$).

The final regression for SSGS-Shame included the following covariates with p-value $<.2$: age, race, education, marital status, baseline EISS, STAI-State, STAI-Trait, BDI-II, ACE and CFS. In this model, only age ($\beta = -0.04$, $p < .001$) significantly predicted acute shame experiences with psilocybin, wherein younger age predicted higher shame scores. The final regression for SSGS-Guilt included the following covariates with p-value $<.2$: age, baseline EISS, STAI-State, STAI-Trait, BDI-II, ACE and CFS. As with shame, only age ($\beta = -0.05$, $p = .002$) significantly predicted acute guilt experiences with psilocybin, wherein younger age predicted higher guilt scores.

Table 1. Summary of participant demographics and psilocybin use characteristics ($n = 679$).

Participant demographics ^a	
Mean age (years, SD)	42.2 (12.6)
White race (%)	86.2
Male sex (%)	49.6
College educated (%)	66.7
Anxiety disorder, current (%)	35.3
Mood disorder, current (%)	32.4
Substance use disorder, current (%)	2.7
Prior lifetime uses of psilocybin (n, SD)	15.2 (21.7)
Motivation, setting, and type of psilocybin use	
Typical motivations for use (non-exclusive) ^a	
Self-exploration (%)	77.2
Mental health (%)	71.7
Therapy (%)	49.3
Typical locations for use ^b	
Home (%)	69.7
Outdoors in nature (%)	11.8
Typical accompaniment during use ^b	
Alone (%)	44.2
With friends who were also using (%)	24.6
With sitter, guide(s), or therapist (%)	21.9
Typical psilocybin mushroom dose initiated during study period ^b	
Mean dose (grams, SD)	3.4 (6.0)

^aAssessed ≥ 2 weeks before planned psilocybin use.

^bAssessed 1–3 days after psilocybin use.

Table 2. State shame and guilt scale (SSGS) individual item data regarding psilocybin experience ($n = 679$).

SHAME			GUILT		
SSGS-S Item	N endorsing (% of total)	Mean score if endorsed	SSGS-G Item	N endorsing (% of total)	Mean score if endorsed
I felt small	300 (44.2%)	2.87	I felt tension about something I have done	255 (37.6%)	2.98
I felt like I was a bad person	154 (22.7%)	2.72	I felt remorse, regret	215 (31.7%)	3.01
I felt worthless, powerless	116 (17.1%)	2.78	I felt like apologizing, confessing	201 (29.6%)	3.14
I wanted to sink into the floor and disappear	104 (15.3%)	2.89	I felt bad about something I have done	198 (29.2%)	2.8
I felt humiliated, disgraced	78 (11.5%)	2.8	I could not stop thinking about something bad I have done	116 (17.1%)	2.75

Individual item scale: 1 = Did not feel this way at all; 5 = Felt this way very strongly.

For individuals with shame or guilt during psilocybin:

SSGS-Shame subscale range = 6–25, mean = 8.6, SD = 3.1

SSGS-Guilt subscale range = 6–25, mean = 10.5, SD = 4.8

Relationship between experiences of shame/guilt during psilocybin and wellbeing after 2 to 4 weeks (Aim 2)

Higher MEQ ($\beta = 0.42$, $p < .001$) and shame/guilt processing ($\beta = 0.14$, $p = .02$) during psilocybin use – but not acute shame ($\beta = 0.04$, $p = .15$), acute guilt ($\beta = -0.02$, $p = .24$), shame/guilt difficulty ($\beta = 0.03$, $p = .65$), or CEQ ($\beta = -0.26$, $p = .59$) – significantly predicted wellbeing 2–4 weeks later. Mean scores for these and other psychometric data organized by shame/guilt during psilocybin use (\pm) and level of processing (1–5) are indicated in Table 3. Individuals who were able to work through experiences of shame or guilt very constructively (Level 5)

had the highest scores for MEQ and wellbeing, even compared to respondents without experiences of shame or guilt during psilocybin use for both MEQ ($t(415.9) = 10.0$, $p < .001$) and wellbeing ($t(443.6) = 4.9$, $p < .001$). See Table 3 for these values, which are also illustrated in Figure 1.

Effect of psilocybin use on trait shame over time (Aim 3)

For 215 participants with complete EISS data, the repeated measures one-way ANOVA demonstrated a significant effect of psilocybin on trait shame [$F(1.96, 418.4) = 18.18$, $p < .001$]. Post-hoc testing revealed a significant decrease in the EISS score

Table 3. Mean scores for shame/guilt sample ($n = 679$) organized by experience of shame or guilt during psilocybin use (\pm) and level of processing (1–5).

	Level (%)*	Timepoint of measurement relative to psilocybin use												
		≥ 2 weeks prior						1–3 days prior	1–3 days after				2–4 weeks after	
		Age	EISS	STAI-T	BDI	ACE	CFS	SOS	MEQ	CEQ	S-S	S-G	S/G-Difficulty	Wellbeing**
+shame/ guilt	1 (2.8%)	44.1	18.8	26.5	22.8	5.58	53.2	25.7	1.68	0.28	9.26	10.1	2.79	4.62
	2 (3.1%)	38.8	17.0	26.7	21.5	5.89	52.6	27.4	1.61	0.18	8.62	10.0	2.05	5.00
	3 (9.7%)	41.7	15.2	24.3	17.6	5.03	54.4	28.2	2.09	0.22	8.48	9.29	2.11	5.48
	4 (13.1%)	39.3	15.3	23.9	18.9	4.58	54.1	27.8	2.47	0.20	8.28	10.2	2.37	5.53
	5 (33.9%)	41.0	13.4	21.3	14.9	4.95	58.6	29.2	3.09	0.17	7.66	8.56	1.87	6.01
shame/guilt	N/A (31.8%)	45.8	12.5	21.1	14.5	4.78	58.3	28.9	1.99	0.05	5.00	5.00	N/A	5.51

*Level scale: 1 = Not able to work through constructively; 5 = Very able to work through constructively (note level data was missing for 38 individuals with + shame/guilt, or 5.6% of total sample); N/A = no processing as no shame or guilt experiences with psilocybin were reported.

**Wellbeing scale: 4 = No change; 5 = Slight positive that I consider desirable; 6 = Moderate positive change that I consider desirable; 7 = Strong positive change that I consider desirable.

Abbreviations: EISS = External and Internal Shame Scale; STAI-T = Short State-Trait Anxiety Inventory (trait); BDI = Beck Depression Inventory-II; ACE = Adverse Childhood Experience scale (expanded); CFS = Cognitive Flexibility Scale; SOS = State of Surrender; MEQ = Mystical Experience Questionnaire; CEQ = Challenging Experience Questionnaire; S-S = State Shame and Guilt Scale (shame subscale); S-G = State Shame and Guilt Scale (guilt subscale); S/G-Difficulty = shame or guilt difficulty.

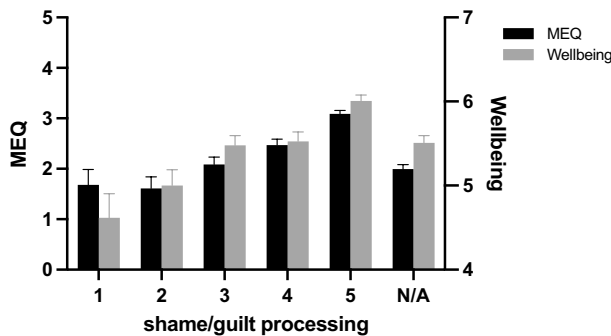


Figure 1. Mean mystical experience questionnaire (MEQ) and wellbeing scores by level of shame/guilt processing during psilocybin use. Error bars represent standard error of the mean (SEM). Shame/guilt processing scale: 1 = Not able to work through constructively; 5 = Very able to work through constructively; N/A = No processing as no shame or guilt experiences with psilocybin were reported. MEQ scale: Total scores scaled 0–5, with higher scores indicating greater degree of mystical-type experience. Wellbeing scale: 4 = No change; 5 = Slight positive that I consider desirable; 6 = Moderate positive change that I consider desirable; 7 = Strong positive change that I consider desirable. Pearson's correlation coefficients for: MEQ and wellbeing ($r = 0.53$, $p < .001$); shame/guilt processing and MEQ ($r = 0.41$, $p < .001$); shame/guilt processing and wellbeing ($r = 0.33$, $p < .001$).

after 2–4 weeks (Cohen's $d_z = 0.31$; adjusted $p < .001$) and 2–3 months (Cohen's $d_z = 0.37$; adjusted $p < .001$) compared with baseline. There was not a significant difference in EISS score between the two post-psilocybin follow-up points (adjusted $p = .36$). These data are presented in Figure 2. On a participant-level, most individuals (56.7%) demonstrated improvements in EISS score at 2–4 weeks after psilocybin use; however, trait shame remained the same in 29

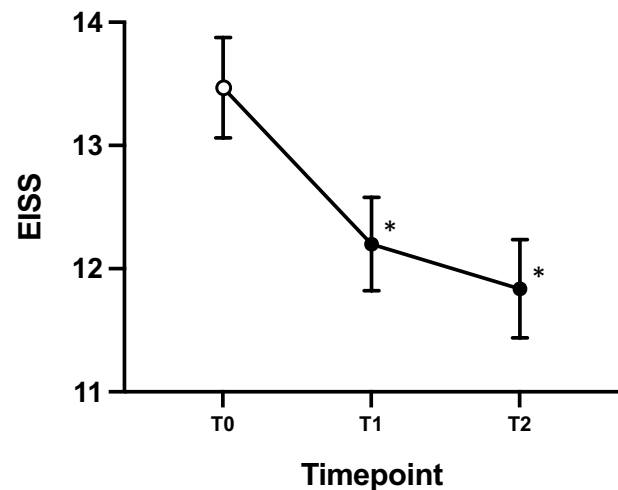


Figure 2. Mean global external and internal shame scale (EISS/trait shame) scores with psilocybin over time. Error bars represent standard error of the mean (SEM). T0 = baseline before psilocybin use (open circle); T1 = 2–4 weeks after psilocybin; T2 = 2–3 months after psilocybin (closed circles). *Indicates significant difference from baseline per ANOVA; T1 and T2 were not significantly different; Cohen's d_z effect sizes for T0-T1 = 0.31; for T0-T2 = 0.37.

participants (13.5%) and increased in 64 participants (29.8%).

Discussion

With swiftly growing, and often polarized, interest in outcomes related to psychedelic use, there is an urgent need for integrated perspectives that account for both the psychological risk and reward unique to drugs like

psilocybin. Though there has been increased recognition of challenging psychedelic experiences in the scientific community (Aday et al. 2020; Barrett et al. 2016; Belser et al. 2017; Bremler et al. 2023; Carbonaro et al. 2016; Evans et al. 2023; Gashi, Sandberg, and Pedersen 2021; Gasser, Kirchner, and Passie 2015; Haijen et al. 2018; Johnstad 2021; Lutkajtis and Evans 2023; Nielson et al. 2018; Palmer and Maynard 2022; Roseman et al. 2019; Roseman, Nutt, and Carhart-Harris 2017; Simonsson et al. 2023; Stauffer et al. 2021; Swift et al. 2017; Wolff et al. 2022), the study of shame and guilt with psychedelics has progressed minimally.

In this prospective, longitudinal survey study of psilocybin use in naturalistic settings, we discovered that acute experiences of shame or guilt occurred commonly with psilocybin, were generally mild in nature but also ranged to more severe, and were predicted by younger age only. In this sample, approximately two-thirds reported some degree of guilt or shame during psilocybin use. These findings contrast with theories that psychedelics typically reduce self-focused attention acutely and that this is a mechanism by which psychedelics exert their lasting effects (Dourron, Strauss, and Hendricks 2022).

For reference, state-shame/guilt scores during psilocybin use in this sample were higher than mean scores observed for individuals in the absence of shame-activating paradigms (Dyer et al. 2017) and consistent with mean scores observed with shame-activating experimental paradigms not involving psilocybin (Meade, Semenchuk, and Strachan 2020), supporting the idea that state-shame/guilt can be activated with psilocybin. While the frequency and intensity of challenging experiences are expected to be higher in naturalistic than clinical research settings (Carbonaro et al. 2016), it is worth considering that for many people feelings of shame and guilt may be inevitable with psilocybin, given the varieties of stigma, personal expectation and self-evaluation that routinely accompany psychedelic use (Amada et al. 2020; Gorman et al. 2021; Lucas 2005). This may be especially true for certain minoritized groups, who face unique cultural stigma around mental illness and drug use that may interfere with appropriate mental health treatment (Viña 2024).

The inverse relationship between age and experience difficulty in psychedelic users has been documented across various studies (Aday et al. 2020), and data suggest that shame and guilt also tend to be experienced less in older adults, perhaps due to age-related decreases in arousal to aversive stimuli (Henry et al. 2018), or other maturational changes in perspective or self-relationship. There is also

increasing evidence that the intensity of all psychedelic effects, both positive and negative, decreases with age, perhaps reflecting age-related changes that can affect drug potencies (Aday et al. 2021). While this study was focused on adults, it is worth considering the potential for increased neurodevelopmental and psychological risk in adolescent psychedelic users, which has been identified as a critical area for further investigation (Bates and Trujillo 2021; Izmi, Carhart-Harris, and Kettner 2024). Besides age, no covariates predicted state-shame or state-guilt, including even trait shame.

The trait shame measure used here is an intentionally brief instrument, and though it demonstrated correlations with other psychometric measures that are expected to overlap with shame as a stable trait, it may not be a reliable indicator of shame-proneness (Lear et al. 2022). It could be that unmeasured constructs also contribute to drug-induced state experiences of shame and guilt, such as recent life events or past experiences of humiliation, moral conflict, or early family/relational attachment dynamics. Alternatively, it is possible that experiences of shame and guilt with psilocybin are uniquely difficult to predict.

Importantly, the extent to which participants were able to constructively work through experiences of shame or guilt, rather than the magnitude of these experiences, predicted wellbeing 2–4 weeks after psilocybin use. Furthermore, participants who were most able to work through these emotions showed higher mystical experience and wellbeing ratings than those who did not report experiences of shame.

These findings appear to be consistent with a growing literature on “emotional breakthrough” and “spiritual emergency” with psychedelics, whereby a sense of release and therapeutic growth are derived from the process of moving through difficult internal events (Lutkajtis and Evans 2023; Roseman et al. 2019). As has been described elsewhere, a certain degree of contact with psychologically challenging material may be a prerequisite for experiences of healing with effective psychedelic therapy, and with effective psychotherapy at large (Modlin et al. 2023; Wolff et al. 2022). From this perspective, the activation of shame-related experiences with psychedelics may pose unique learning conditions for self-acceptance and growth, or alternatively, ongoing avoidance or reinforcement of negative patterns of self-judgment that promotes or maintains psychopathology (Lepow, Morishita, and Yehuda 2021; Wolff et al. 2020). Therefore, it seems special attention should be paid to helping individuals work through these experiences of shame/guilt should they arise

during psychedelic-assisted therapies, as a means of optimizing clinical outcomes.

While these findings emphasize the potential value of facing difficult emotions that can accompany psychedelic use, they also show that for a minority of users these experiences provoke more distress without resolution. Clinically, this evidence raises questions about optimal preparation, methods of support during psychedelic use, and methods of post-dosing integration or psychotherapy. It may be that, for those who leave psychedelic journeys feeling unresolved, a therapeutic framework in which they can process their experiences and cultivate self-compassion is necessary to minimize harm. This framework of understanding psychedelic mechanisms of action is not compatible with viewing the user as a passive recipient of a pharmacological cure. It is, however, conceivable in any given instance that a psychedelic user may not be able to work through a challenging experience, with or without professional guidance (Wolff et al. 2020). The reasons for “stuckness” in psychotherapy are manifold, including treatment-, therapist- and patient-related factors (Oasi and Werbart 2020), and exploration of this is sometimes understood as a necessary endeavor for the therapeutic process (Kleiven et al. 2020).

We found that psilocybin on average produces small but enduring decreases in trait shame within the context of largely purposeful and intentional use. This finding is consistent with clinical trial data on the effects of psilocybin-assisted therapy for HIV-related shame (Mehtani et al. 2024), prospective data on the benefits of ceremonial ayahuasca use (Lowe et al. 2024) and retrospective data on general psychedelic drug use with therapeutic intent (Healy, Lee, and D’Andrea 2021), though larger effects were observed in those studies. These data also align with overall evidence that psychedelic use can be associated with changes in presumptively stable, characterological domains (Aday et al. 2020; Bouso et al. 2018).

Critically, the plasticity-related and belief-updating effects of psychedelics are expected to be highly context-dependent, which may explain our mixed findings involving trait shame on a participant-level. Other data also support the potential for mixed effects with psilocybin and some individuals experiencing increased shame, even in clinical trial settings (Mehtani et al. 2024). Attention to appropriate therapeutic environments, support and integration are pivotal in this regard, but some challenging trips may be just “bad” and predictive of negative long-term outcomes (Bremner et al. 2023; Evans et al. 2023; Lutkajtis and Evans 2023). We should work toward minimizing such drug reactions but also work to destigmatize and reduce further

shaming of individuals who have these challenging journeys.

This study has several important limitations. Briefly, there was minimal standardization with regard to use of psilocybin and concurrent substances: a typical drawback for naturalistic research but perhaps more reflective of real-world psychedelic use and outcomes (Raison et al. 2022). Furthermore, while shame is often conceptualized as a cross-cultural construct (Sznycer et al. 2018), the limited representation of non-White and minoritized populations in this self-selected convenience sample is not generalizable to the larger population. This is a considerable shortcoming of this and other studies of psychedelic use, given emerging data that marginalized groups do not experience the same types of benefits as White and employed populations in non-clinical, naturalistic samples (Jones and Nock 2022; Jones et al. 2025; Viña and Stephens 2023). The focus here is on shame as a primarily internalized psychological process that inadequately captures external factors that can drive stigma, such as public discourse involving mental health treatment and social acceptance (Pescosolido et al. 2021). Experiences of shame or guilt with psilocybin may also be overestimated here based on the cutoffs used to group respondents with or without these experiences, which required only a single affirmative response for any scale item. Indeed, the difficulties of measuring shame are considerable (Lear et al. 2022), and made more difficult by the high rates of variability and dropout seen with this longitudinal survey.

Our assessment of successful emotional processing raises clinically relevant questions for further research, but more robust measurement is needed to unpack the black box of what it means to constructively “work through” shame or guilt. Wellbeing, as it relates to such processes, could also be assessed more thoroughly and for specific domains of benefit. Another direction of research would be to replicate these analyses in controlled research settings that foreshadow medical uses of psychedelics and to verify the specificity and relevance of these effects in clinical populations, especially those with increased minority representation. The use of qualitative or mixed-methods analyses could allow for improved delineation of shame-related experiences, changes and mechanisms of successful resolution seen with psilocybin that were not captured by the data here. Specific psychedelic drugs may elicit challenging experiences differently (Mathai 2024; Mathai et al. 2023; Zeifman et al. 2023), and this is also worth exploring for experiences of shame.

Ultimately, this study adds to an imperative but insufficient literature on psychedelics, psychedelic

challenges, and possibilities for healing by centering self-conscious emotions. These findings may be instructive for those who have struggled with shame and guilt during psychedelic use and imagined themselves to be alone. As the psychotherapist Joseph Burgo writes, “The road to authentic self-esteem inevitably passes through the land of shame and never entirely leaves it” (Burgo 2018). Psychedelic use, also, is aptly conveyed as a winding journey, and drugs like psilocybin may help shift encounters with challenging feelings and self-representations into opportunities for growth and self-fulfillment. As journeys go, there may be a real sense of uncertainty and risk no matter the circumstances; there may be an equal need for sustained contact with supporting characters who can be experienced as skilled and trustworthy. These passages may offer the chance for transformative work to unfold but are not to be taken lightly.

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ORCID

David S. Mathai MD  <http://orcid.org/0000-0001-9972-601X>

Data availability statement

Access to materials for research purposes may be granted through a data use agreement on a case-by-case basis by contacting the study sponsor, Unlimited Sciences, at heather@unlimitedsciences.org.

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