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Characterizing Psychedelic-Evoked Familiarity: A Comparative Study with Autobiographical and Déjà Vu Experiences

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ABSTRACT

Psychedelic experiences often evoke a sense of familiarity, an experiential quality that has received little empirical attention despite its potential therapeutic and cognitive significance. This study examined psychedelic-evoked familiarity in comparison to non-drug-induced forms of familiarity, including autobiographical and déjà vu experiences. An anonymous online survey was administered to 1050 participants, who completed the Sense of Familiarity Questionnaire (SOFQ) and psycho-emotional ratings for at least one of three experiences: Psychedelic, Autobiographical, or Déjà Vu. Across all SOFQ items, Psychedelic experiences were rated significantly higher in familiarity, particularly within the “Familiarity with Transcendent Features” category. Psychedelic experiences were also associated with greater emotional intensity, novelty, and comfort, with no increased anxiety, relative to the other experience types. Classic psychedelics generally elicited strong familiarity, while psycho-emotional responses varied across psychedelic types. Most participants described the familiarity as authentic and positively impactful, and approximately half reported enduring effects such as emotional transformation, interconnectedness, and reduced fear of death. These findings suggest that psychedelic-evoked familiarity is phenomenologically different from autobiographical and déjà vu familiarity. Psychedelic-evoked familiarity warrants further investigation to determine whether it serves as a phenomenological driver of the enduring psychological and existential benefits associated with psychedelic experiences.

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Introduction

Significant advances have been made in identifying the therapeutic potential of psychedelics (Carhart-Harris et al. 2016, 2021; Yao et al. 2024) and in documenting their neurophysiological effects (Alamia et al. 2020; Carhart-Harris et al. 2016; Pallavicini et al. 2021; Riba et al. 2002; Timmermann et al. 2023; Valle et al. 2016). Concurrently, efforts to expand our understanding of the phenomenology of these substances may offer insights into factors that mediate their therapeutic potential and mitigate potential harms (Griffiths et al. 2019; Timmermann et al. 2018). Classic psychedelics are serotonin 2A (5-HT_{2A}) receptor agonists that evoke a range of phenomenological features (Griffiths et al. 2018, 2019; Lawrence et al. 2022; Luke 2011; Michael, Luke, and Robinson 2021; Timmermann et al. 2018; Watts et al. 2022), including positive mood, visualizations, mysticism, connectedness, loss of one's sense of self (i.e., “ego dissolution”), and “entity encounters”

(Davis et al. 2020; Griffiths et al. 2018, 2019; Lawrence et al. 2022; Luke 2011; Michael, Luke, and Robinson 2021; Timmermann et al. 2018; Watts et al. 2022).

One intriguing feature of the psychedelic experience is the sense of familiarity reported by many individuals (Doss et al. 2024b; Lawrence, DiBattista, and Timmermann 2023). Familiarity, a cortically mediated process of episodic memory, refers to the feeling that a stimulus has been encountered previously, independent of retrieving specific details from this event (Evans and Wilding 2012; O'Connor and Moulin 2010; Yonelinas 2002). This process is in contrast to recollection, the hippocampal-dependent retrieval of specific details such as where or when an event took place (Yonelinas 2002). Within the psychedelic state, this heightened sense of familiarity is paradoxical as it emerges in an experiential context where novelty is also a defining feature (Carhart-Harris and Friston 2019). It is estimated that up to 12% of experiences

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with the classic psychedelic *N,N*-dimethyltryptamine (DMT) are accompanied by a profound sense of familiarity (Lawrence et al. 2022; Lawrence, DiBattista, and Timmermann 2023), and this effect can occur in first-time users, reinforcing that this phenomenon can occur independently of prior psychedelic experience (Lawrence, DiBattista, and Timmermann 2023).

Memory processes, including familiarity, are susceptible to distortion under conditions that alter encoding (i.e., the formation of memories) and retrieval (i.e., the access of memories) dynamics, such as heightened emotional states or the influence of psychoactive agents (Doss et al. 2024b, 2025; Doss, de Wit, and Gallo 2023; Doss, Picart, and Gallo 2020). When administered during encoding only, psilocybin, 4-bromo-2,5-dimethoxyphenethylamine (2C-B), and 3,4-methylenedioxymethamphetamine (MDMA; a drug with some psychedelic effects and 5-HT_{2A} activity) were found to impair recollection while enhancing familiarity (Doss et al. 2024b, 2024c). In contrast, ayahuasca (an orally active DMT-containing brew) administered prior to encoding with retrieval taking place shortly afterward, during acute drug effects, enhanced accurate recollection without impacting familiarity (Doss et al. 2025).

Beyond pharmacological influences, spontaneously occurring experiential phenomena also illuminate the malleability of cognitive processes associated with memory. Experiences such as *déjà vu* (the feeling of familiarity for a situation one knows should not feel so familiar) (O'Connor and Moulin 2010; Renoult and Debruille 2023), *jamais vu* (the feeling of novelty for a situation one knows should not feel so novel) (Renoult and Debruille 2023), and memory distortions in temporal lobe epilepsy (Eichenbaum, Yonelinas, and Ranganath 2007; O'Connor and Moulin 2008) underscore the propensity for memory-related cognitive aberrations. The distinctive experiential characteristics of these phenomena provide points of comparison in studies investigating familiarity within pharmacologically induced states.

Although objective memory tests have documented psychedelics' capacity to both impair and enhance memory processes (Doss et al. 2024a, 2024c), the subjective experience of familiarity remains poorly understood. Comparing the subjective experience of psychedelic-induced familiarity with non-drug-induced forms, such as autobiographical memory and *déjà vu*, could offer a broader contextual understanding of these experiences. This study seeks to systematically explore key unresolved aspects of familiarity induced by classic psychedelics and related compounds (e.g., the NMDA receptor antagonist ketamine and the

κ -opioid agonist salvinorin A found in *Salvia divinorum*), with the aim of deepening our understanding of its subjective dimensions and enhancing preparatory counseling in psychedelic research and clinical settings (Doss et al. 2024c; McCulloch et al. 2022; Roseman, Nutt, and Carhart-Harris 2017; Yaden and Griffiths 2021).

Methods

An anonymous, online survey-based study was conducted to examine self-reported experiences of the sense of familiarity across at least one of the following three experiences: (1) during a psychedelic or psychedelic-like drug experience ("Psychedelic"), (2) during a personally identified, non-drug induced autobiographical experience that evoked a strong sense of familiarity ("Autobiographical"), and (3) during a non-drug induced *déjà vu* episode ("*Déjà Vu*"). Respondents were permitted to select experiences from any time point in the past, without restriction. Participants were recruited online, including e-mail, X (formerly Twitter), Reddit, Discord, Instagram, and Facebook. All participants first reviewed and completed an informed consent form. Eligibility criteria included age ≥ 18 years and fluency in English. The study received ethics approval from the University of Toronto Research Ethics Board.

Survey

The survey was developed in REDCap (Harris et al. 2009, 2019) and remained open from November 2024 to February 2025. All responses were reviewed for completeness and data quality. After providing demographic information (Table 1), participants completed surveys pertaining to a Psychedelic, Autobiographical, and/or *Déjà Vu* experience (see below). Responses were included in the final dataset if participants provided complete demographic information and data for the Sense of Familiarity Questionnaire (SOFQ) and psycho-emotional responses for *at least one* of the three experiences. Items with incomplete responses were reported with corresponding sample sizes.

Sense of Familiarity Questionnaire (SOFQ)

The SOFQ is a 19-item questionnaire that assesses the sense of familiarity evoked by an experience (Lawrence, DiBattista, and Timmermann 2023). The SOFQ was developed using a grounded theory, inductive qualitative approach, in which meaningful units related to familiarity from psychedelic experiences were identified, iteratively coded, and organized into thematic

Table 1. Demographics of participants stratified by Psychedelic, Autobiographical, and *Déjà Vu* Experiences.

Variable	Total (n = 1050)	Psychedelic experiences (n = 868)		Autobiographical Experiences (n = 679)	Déjà Vu (n = 605)	
		History of psychedelic use			History of Déjà Vu	
		Yes (n = 800)	No (n = 68)		Yes (n = 575)	No (n = 30)
Age (Years)						
	18–20	154 (14.7)	107 (13.4)	9 (13.2)	75 (11.0)	60 (10.4)
	21–30	337 (32.1)	270 (33.8)	16 (23.5)	211 (31.1)	176 (30.6)
	31–40	300 (28.6)	230 (28.8)	26 (38.2)	204 (30.0)	174 (30.3)
	41–50	175 (16.7)	135 (16.9)	5 (7.4)	123 (18.1)	108 (18.8)
	51–60	63 (6.0)	47 (5.9)	6 (8.8)	50 (7.4)	43 (7.5)
	>60	11 (1.0)	9 (1.1)	2 (2.9)	8 (1.2)	8 (1.4)
	Prefer not to answer	10 (1.0)	2 (0.3)	4 (5.9)	8 (1.2)	6 (1.0)
Sex						
	Male	802 (76.4)	625 (78.1)	35 (51.5)	503 (74.1)	423 (73.6)
	Female	203 (19.3)	144 (18)	30 (44.1)	148 (21.8)	129 (22.4)
	Other	19 (1.8)	14 (1.8)	1 (1.5)	13 (1.9)	10 (1.7)
	Prefer not to answer	26 (2.5)	17 (2.1)	2 (2.9)	15 (2.2)	13 (2.3)
Country						
	United States of America	458 (43.6)	371 (46.4)	24 (35.3)	291 (42.9)	248 (43.1)
	Canada	237 (22.6)	161 (20.1)	14 (20.6)	156 (23.0)	126 (21.9)
	United Kingdom	38 (3.6)	35 (4.4)	1 (1.5)	29 (4.3)	26 (4.5)
	Germany	19 (1.8)	16 (2)	2 (2.9)	11 (1.6)	10 (1.7)
	Australia	14 (1.3)	13 (1.6)	1 (1.5)	11 (1.6)	11 (1.9)
	Netherlands	10 (1.0)	9 (1.1)	1 (1.5)	5 (0.7)	5 (0.9)
	Norway	9 (0.9)	9 (1.1)	0 (0)	5 (0.7)	4 (0.7)
	Brazil	9 (0.9)	8 (1.0)	1 (1.5)	7 (1)	6 (1.0)
	Poland	8 (0.8)	6 (0.8)	1 (1.5)	4 (0.6)	3 (0.5)
	Spain	7 (0.7)	7 (0.9)	0 (0)	4 (0.6)	4 (0.7)
	Czech Republic	7 (0.7)	5 (0.6)	2 (2.9)	5 (0.7)	5 (0.9)
	Sweden	6 (0.6)	6 (0.8)	0 (0)	5 (0.7)	5 (0.9)
	India	6 (0.6)	3 (0.4)	2 (2.9)	4 (0.6)	3 (0.5)
	Other	71 (6.8)	60 (7.5)	9 (13.2)	43 (6.3)	41 (7.1)
	Prefer not to answer	151 (14.4)	91 (11.4)	10 (14.7)	99 (14.6)	78 (13.6)
Population Group						
	Caucasian/White	808 (77.0)	627 (78.4)	45 (66.2)	521 (76.7)	449 (78.1)
	Latin American	55 (5.2)	47 (5.9)	3 (4.4)	32 (4.7)	26 (4.5)
	Southeast Asian/Chinese/Korean/Japanese	33 (3.1)	21 (2.6)	4 (5.9)	31 (4.6)	25 (4.3)
	African American/ Black	19 (1.8)	13 (1.6)	0 (0)	10 (1.5)	7 (1.2)
	South Asian/Indian/Pakistani	18 (1.7)	10 (1.2)	5 (7.4)	13 (1.9)	9 (1.6)
	Arab	14 (1.3)	8 (1.0)	3 (4.4)	10 (1.5)	9 (1.6)
	Indigenous to North America	12 (1.1)	11 (1.4)	0 (0)	8 (1.2)	7 (1.2)
	Native Hawaiian or Pacific Islander	1 (0.1)	0 (0)	1 (1.5)	1 (0.1)	1 (0.2)
	Other	52 (5.0)	38 (4.8)	6 (8.8)	33 (4.9)	27 (4.7)
	Prefer not to answer	38 (3.6)	25 (3.1)	1 (1.5)	20 (2.9)	15 (2.6)
Relationship Status						
	Single	466 (44.4)	351 (43.9)	35 (51.5)	282 (41.5)	240 (41.7)
	Married	246 (23.4)	179 (22.4)	20 (29.4)	177 (26.1)	147 (25.6)
	Living with partner	239 (22.8)	194 (24.2)	8 (11.8)	156 (23)	137 (23.8)
	Divorced or separated	41 (3.9)	33 (4.1)	2 (2.9)	29 (4.3)	23 (4)
	Widowed	2 (0.2)	1 (0.1)	1 (1.5)	2 (0.3)	2 (0.3)
	Prefer not to answer	56 (5.3)	42 (5.3)	2 (2.9)	33 (4.9)	26 (4.5)

(Continued)

Table 1. (Continued).

Variable	Total (n = 1050)	Psychedelic experiences (n = 868)		Autobiographical Experiences (n = 679)	Déjà Vu (n = 605)	
		History of psychedelic use			History of Déjà Vu	
		Yes (n = 800)	No (n = 68)		Yes (n = 575)	No (n = 30)
Education	High school or equivalent	358 (34.1)	12 (17.6)	197 (29)	166 (28.9)	10 (33.3)
	Associate or technical Degree	119 (11.3)	5 (7.4)	76 (11.2)	65 (11.3)	1 (3.3)
	College Diploma	79 (7.5)	4 (5.9)	56 (8.2)	46 (8.0)	4 (13.3)
	Bachelor's Degree	260 (24.8)	20 (29.4)	188 (27.7)	161 (28)	11 (36.7)
	Master's Degree	106 (10.1)	12 (17.6)	76 (11.2)	61 (10.6)	4 (13.3)
	Doctorate (PhD)	25 (2.4)	5 (7.4)	20 (2.9)	18 (3.1)	0 (0)
	Professional Degree	41 (3.9)	7 (10.3)	34 (5)	30 (5.2)	0 (0)
	Prefer not to answer	62 (5.9)	3 (4.4)	32 (4.7)	28 (4.9)	0 (0)
Employment Status	Employed	673 (64.1)	41 (60.3)	451 (66.4)	375 (65.2)	19 (63.3)
	Student	175 (16.7)	19 (27.9)	104 (15.3)	90 (15.7)	6 (20.0)
	Unemployed	108 (10.3)	4 (5.9)	62 (9.1)	50 (8.7)	5 (16.7)
	Retired	33 (3.1)	2 (2.9)	26 (3.8)	24 (4.2)	0 (0)
Income	Prefer not to answer	61 (5.8)	2 (2.9)	36 (5.3)	36 (6.3)	0 (0)
	< \$25,000	198 (18.9)	14 (20.6)	112 (16.5)	94 (16.3)	4 (13.3)
	\$25,000–\$49,999	203 (19.3)	8 (11.8)	135 (19.9)	112 (19.5)	6 (20.0)
	\$50,000–\$74,999	154 (14.7)	7 (10.3)	104 (15.3)	86 (15.0)	7 (23.3)
	\$75,000–\$99,999	105 (10.0)	8 (11.8)	62 (9.1)	51 (8.9)	2 (6.7)
	\$100,000–\$150,000	111 (10.6)	10 (14.7)	79 (11.6)	67 (11.7)	4 (13.3)
	> \$150,000	152 (14.5)	16 (23.5)	118 (17.4)	104 (18.1)	3 (10)
	Prefer not to answer	127 (12.1)	5 (7.4)	69 (10.2)	61 (10.6)	4 (13.3)
History of Seizure	No	1028 (97.9)	65 (95.6)	665 (97.9)	563 (97.9)	28 (93.3)
	Yes	22 (2.1)	3 (4.4)	14 (2.1)	12 (2.1)	2 (6.7)
Déjà vu Frequency (n = 562)	Less than once per year	155 (27.6)	14 (29.8)	155 (27.6)	155 (27.6)	–
	One to four times per year	214 (38.1)	20 (42.6)	214 (38.1)	214 (38.1)	–
	More than four times per year	193 (34.3)	13 (27.7)	193 (34.3)	193 (34.3)	–

categories through coauthor consensus (Lawrence, DiBattista, and Timmermann 2023). The SOFQ was designed to capture multiple dimensions of familiarity reported in qualitative analyses of DMT experiences: (1) Familiarity with the feeling, emotion, or knowledge gained; (2) Familiarity with the place, space, state, or environment; (3) Familiarity with the act of undergoing the experience; (4) Familiarity with transcendent features; and (5) Familiarity imparted by an entity encounter.

The SOFQ comprises 19 items capturing distinct aspects of familiarity associated with the psychedelic experience. Full item wording is available in the original publication (Lawrence, DiBattista, and Timmermann 2023); brief summaries are provided here for clarity. The items are as follows: SOFQ01, sense of familiarity; SOFQ02, feels like home; SOFQ03, sense of comfort; SOFQ04, sense of remembering; SOFQ05, sense of welcoming; SOFQ06, sense of belonging; SOFQ07, sense of nostalgia; SOFQ08, sense of returning to a place; SOFQ09, sense that one will return again; SOFQ10, *déjà vu*; SOFQ11, feeling of having been through this before; SOFQ12, feeling of having done this many times before; SOFQ13, sense that the experience will occur again; SOFQ14, experience of a place that transcends life (e.g., preconception or after death); SOFQ15, experience of an eternal or infinite environment; SOFQ16, sense of a “home” for consciousness; SOFQ17, encounter with an entity or presence that knew you; SOFQ18, encounter with an entity or presence that you knew or felt familiar with; and SOFQ19, encounter with an entity or presence that felt like family. The 19 items are rated on a Likert scale from 0 (none; not at all) to 5 (extreme, more than any other time in my life and stronger than 4).

Psycho-emotional items

Participants rated the intensity of several psycho-emotional dimensions associated with their experience, including emotion, anxiety, strangeness, novelty, and comfort, using single-item measures. Each item was rated on a 7-point Likert scale from 1 (none) to 7 (overwhelming). These single-item measures were developed through consensus among the authors to capture key psycho-emotional features relevant to the phenomenology of the experience. Given the targeted and descriptive nature of these constructs, single-item measures were considered appropriate to provide complementary contextual information alongside the SOFQ.

Psychedelic experience

Participants who reported prior use of a psychedelic or psychedelic-like substance completed a psychedelic-use history detailing the type and frequency of use. Survey prompts included psilocybin-containing mushrooms (“psilocybin”), DMT, ayahuasca, 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT), lysergic acid diethylamide (LSD), mescaline, *Salvia divinorum* or salvinorin A (“salvinorin A”), ketamine, and MDMA. Participants could also list any additional substances they personally considered psychedelic. All psychedelics and psychedelic-like substances were grouped under the Psychedelic experience.

Participants who experienced a sense of familiarity during a psychedelic experience reported all substances that elicited this sensation. They then described the experience that evoked the *strongest* familiarity, including the specific psychedelic used, time since use, approximate dose, context, and when the familiarity emerged (onset, peak, or comedown). Participants identified which aspects felt familiar, including their conscious state, emotions, places, entities, situations, or objects, and subsequently completed the SOFQ and psycho-emotional measures.

Participants classified the psychedelic-evoked familiarity as authentic (“reliving or reconnecting with something from the past”) or inauthentic (“not linked to any previous experience and felt like a byproduct of the psychedelic”). They rated its overall impact as positive, negative, or neutral. Participants also described any enduring effects or associated realizations or insights using the following prompts: “How has the sense of familiarity influenced your thoughts or feelings since the psychedelic experience?” and “Did the sense of familiarity during the psychedelic experience lead to any specific realizations or insights?” Qualitative responses were coded for meaningful units and organized thematically by a single experienced coder consistent with previous coding practices for psychedelic experiences (Lawrence et al. 2022).

Autobiographical and *déjà vu* experiences

Participants were also prompted to complete the SOFQ and psycho-emotional items for Autobiographical and *Déjà Vu* experiences. For the autobiographical experience, participants were instructed to identify a personally meaningful and familiar experience from their everyday life using the following prompt: “Please think of a special place, experience, or event in your everyday life (past or present) that feels familiar to you (e.g., your current home, a childhood home, a favourite

Table 2. Psychedelic use history ($n = 800$).

	Response, n (%) ^a
Psilocybin ($n = 724$, 90.5%)	
1 time	40 (5.0)
2–10 times	315 (39.4)
>10 times	369 (46.1)
LSD ($n = 583$, 72.9%)	
1 time	39 (4.9)
2–10 times	261 (32.6)
>10 times	283 (35.4)
DMT ($n = 458$, 57.2%)	
1 time	44 (5.5)
2–10 times	210 (26.2)
>10 times	204 (25.5)
MDMA ($n = 458$, 57.2%)	
1 time	46 (5.8)
2–10 times	203 (25.4)
>10 times	209 (26.1)
Ketamine ($n = 299$, 37.4%)	
1 time	34 (4.2)
2–10 times	127 (15.9)
>10 times	138 (17.3)
Salvinorin A ($n = 207$, 25.9%)	
1 time	56 (7.0)
2–10 times	113 (14.1)
>10 times	38 (4.8)
Mescaline ($n = 111$, 13.9%)	
1 time	47 (5.9)
2–10 times	58 (7.3)
>10 times	6 (0.8)
5-MeO-DMT ($n = 97$, 12.1%)	
1 time	18 (2.2)
2–10 times	56 (7.0)
>10 times	23 (2.9)
Ayahuasca ($n = 92$, 11.5%)	
1 time	25 (3.1)
2–10 times	56 (7.0)
>10 times	11 (1.4)

^aFrequency counts sum to the number of participants reporting use of each substance; percentages are calculated relative to the full psychedelic-user sample ($n = 800$)

5-MeO-DMT, 5-Methoxy-N,N-dimethyltryptamine; DMT, N,N-Dimethyltryptamine; LSD, lysergic acid diethylamide; MDMA, 3,4-methylenedioxymethamphetamine; No., number.

vacation, a special holiday, or time spent with close family or friends).” Participants then rated their current subjective response to the selected experience using the SOFQ and psycho-emotional items.

For the *Déjà Vu* condition, participants were first provided with a standardized definition to orient their responses: “A widely accepted definition of *déjà vu* is that it is a feeling of familiarity coupled with the knowledge that this familiarity is incorrect.” Participants were then asked to confirm whether they had previously experienced *déjà vu*. Those reporting prior *déjà vu* completed the SOFQ and psycho-emotional items based on their “typical” episode.

Data analysis

Differences in SOFQ (19 items) and psycho-emotional ratings (five items) across Psychedelic, Autobiographical, and *Déjà Vu* experiences were analyzed using Kruskal–

Wallis Tests, appropriate for the ordinal structure and non-parametric nature of the Likert-scale data. Kruskal–Wallis tests assessed overall group differences, followed by Dunn’s post-hoc comparisons with Bonferroni correction. Analyses were conducted in R (R Core Team 2021) using RStudio (RStudio Team 2021), the FSA package (Ogle et al. 2025), and ggplot2 for visualization (Wickham 2016).

Cumulative link mixed models (CLMMs) assessed differences across Psychedelic, Autobiographical, and *Déjà Vu* experiences on SOFQ and psycho-emotional items, with random effects accounting for repeated measures. Each model estimated the effect of experience type on ordinal outcomes and generated predicted response probabilities normalized to sum to one per experience. Models were fitted using the Ordinal package (Christensen 2023).

To examine differences by psychedelic type, substances were grouped as (1) classic psychedelics (psilocybin, DMT, ayahuasca, LSD, mescaline), (2) 5-MeO-DMT, (3) salvinorin A, (4) ketamine, and (5) MDMA. Kruskal–Wallis tests, followed by Dunn’s post-hoc comparisons with Bonferroni correction, assessed median differences in SOFQ and psycho-emotional ratings across groups. The data that support the findings of this study are available on request from the corresponding author.

Results

Participant demographics

A total of 1420 respondents accessed the survey, resulting in 1050 participants with complete data: 868 completed the Psychedelic survey [including 800 (92.2%) with a history of psychedelic use], 679 completed the Autobiographical survey, and 605 completed the *Déjà Vu* survey [including 575 (95.0%) with a history of *déjà vu*]. The distribution of demographic variables was similar across familiarity experiences (Table 1).

Psychedelic history

Psilocybin was the most frequently used psychedelic ($n = 724$, 90.5%), followed by LSD ($n = 583$, 72.9%), DMT ($n = 458$, 57.2%), MDMA ($n = 458$, 57.2%), ketamine ($n = 299$, 37.4%), salvinorin A ($n = 207$, 25.9%), mescaline ($n = 111$, 13.9%), 5-MeO-DMT ($n = 97$, 12.1%), and ayahuasca ($n = 92$, 11.5%; Table 2).

Sense of familiarity evoked by psychedelics

Among all psychedelic users ($n = 800$), 732 participants (91.5%) reported experiencing familiarity during

Table 3. Psychedelic experience that evoked the strongest sense of familiarity ($n = 732$).

Variable	Response, n (%)
Psychedelic that evoked the strongest sense of familiarity ($n = 732$)	
DMT	254 (34.7)
Psilocybin	229 (31.3)
LSD	108 (14.8)
Ketamine	32 (4.4)
Salvinorin A	26 (3.6)
5-MeO-DMT	17 (2.3)
MDMA	16 (2.2)
Ayahuasca	13 (1.8)
Mescaline	3 (0.4)
Other	34 (4.6)
Time since experience ($n = 712$)	
Less than 1 week	68 (9.6)
1 week to 1 month	93 (13.1)
2 months to 6 months	145 (20.4)
7 months to 12 months	103 (14.5)
Greater than 12 months	303 (42.6)
Self-Reported Dose ($n = 714$)	
Microdose	5 (0.7)
Small	63 (8.8)
Medium	357 (50.0)
Large	289 (40.5)
Alone ($n = 713$), Yes	367 (51.5)
Setting ($n = 732$)	
Residential or home environment	553 (75.5)
Outdoors or in nature	101 (13.8)
Ceremonial, retreat, or ritualistic setting	14 (1.9)
Clinic or clinical setting	14 (1.9)
Research setting	2 (0.3)
Concert, festival, or entertainment setting	24 (3.3)
Other	24 (3.3)
Emergence ($n = 665$)	
During the experience	635 (95.5)
After the experience, upon reflection	30 (4.5)
Familiarity Stage ($n = 634$)	
Onset	109 (17.2)
Peak	481 (75.9)
Comedown	44 (6.9)
Familiar Features ($n = 731$)	
Conscious state	506 (69.2)
Emotions	426 (58.3)
Places	314 (43.0)
Entity	251 (34.3)
Situation	249 (34.1)
Objects	113 (15.5)
Other	94 (12.9)
Source of Familiarity ($n = 592$)	
Perceived as authentic	491 (82.9)
Perceived as inauthentic	48 (8.1)
Other	53 (9.0)
Impact of the Familiarity on the Psychedelic Experience ($n = 565$)	
Positive	484 (85.7)
Neutral	66 (11.7)
Negative	15 (2.7)
Psychedelic versus Autobiographical experience (more profound) ($n = 444$)	
Psychedelic	377 (84.9)
Autobiographical	32 (7.2)
Equivalent	35 (7.9)
Psychedelic versus everyday Déjà vu (more profound) ($n = 424$)	
Psychedelic	350 (82.5)
Déjà vu	34 (8.0)
Equivalent	40 (9.4)
Lasting change ($n = 445$), Yes	235 (52.8)

Denominators vary due to item-level missing responses; percentages are calculated using available data for each variable.

5-MeO-DMT, 5-Methoxy-N,N-dimethyltryptamine; DMT, N,N-dimethyltryptamine; LSD, lysergic acid diethylamide; MDMA, 3,4-methylenedioxymethamphetamine.

a psychedelic experience, including 41 (5.6% of those reporting familiarity) first-time psychedelic users. The prevalence of evoked familiarity was examined for each psychedelic. Among psilocybin users, familiarity attributed to psilocybin was reported in 456/724 (63.0%). Corresponding proportions were observed among users of DMT ($n = 347/458$, 75.8%), LSD ($n = 302/583$, 51.8%), MDMA ($n = 99/458$, 21.6%), ketamine ($n = 90/299$, 30.1%), salvinorin A ($n = 51/207$, 24.6%), ayahuasca ($n = 47/92$, 51.1%), 5-MeO-DMT ($n = 47/97$, 48.5%), mescaline ($n = 26/111$, 23.4%), and other psychedelics ($n = 47/154$, 30.5%).

Psychedelic substances evoking the strongest sense of familiarity

DMT was most frequently identified as the psychedelic that evoked the *strongest* familiarity ($n = 254$, 34.7% of participants reporting psychedelic-evoked familiarity or 55.5% of DMT users), followed by psilocybin ($n = 229$, 31.3% of users with familiarity or 31.6% of psilocybin users), and LSD ($n = 108$, 14.8% of users with familiarity or 18.5% of LSD users; [Table 3](#)). Less frequent reports involved ketamine (4.4%), salvinorin A (3.6%), 5-MeO-DMT (2.3%), MDMA (2.2%), ayahuasca (1.8%), mescaline (0.4%), and other psychedelics (4.6%).

Contextual details of the experience associated with the strongest familiarity are summarized in [Table 3](#). Among respondents, 42.6% reported the experience occurred over 12 months prior ($n = 303/712$). Reported doses were most often medium ($n = 357/714$, 50.0%) or large ($n = 289/714$, 40.5%). Over half ($n = 367/713$, 51.5%) had the experience alone, and most occurred in a residential or home setting ($n = 553/732$, 75.5%).

Features of psychedelic-evoked familiarity

Most participants reported that the familiarity arose during the psychedelic experience ($n = 635/665$, 95.5%) and at the peak ($n = 481$, 75.9%; [Table 3](#)). Familiarity was most often attributed to changes in conscious state ($n = 506/731$, 69.2%), followed by emotions ($n = 426$, 58.3%), places ($n = 314$, 43.0%), entities ($n = 251$, 34.3%), situations ($n = 249$, 34.1%), and objects ($n = 113$, 15.5%; [Table 3](#)). Regarding the source of familiarity ($n = 592$), 491 participants (82.9%) described it as authentic, whereas 48 (8.1%) perceived it as inauthentic, and 53 (9.0%) attributed it to other sources.

Most participants ($n = 484/565$, 85.7%) identified that the sense of familiarity had a positive impact on their psychedelic experience, while 52.8% ($n = 235/445$

completed responses) reported lasting or enduring effects from the familiarity ([Table 3](#)). Thematic analyses of 227 expanded responses on enduring effects of the sense of familiarity identified five key themes ([Supplemental Table 1](#)): emotional and psychological transformation ($n = 73$, 32.2%); interconnectedness and unity ($n = 68$, 30.0%); altered perception of reality ($n = 64$, 28.2%); spiritual awakening and transcendence ($n = 54$, 23.8%); and comfort with mortality ($n = 27$, 11.9%).

Most participants rated psychedelic-evoked familiarity as more profound than their Autobiographical familiarity ($n = 377/444$, 84.9%) and *Déjà Vu* familiarity ($n = 350/424$, 82.5%; [Table 3](#)).

Autobiographical experiences

A total of 679 participants provided complete Autobiographical data. Familiarity was most often linked to childhood memories or a family home (47.7%), followed by current homes or special places (27.7%), nature or outdoor settings (7.5%), and relationships or loved ones (6.2%).

Déjà Vu experience

A total of 605 participants completed the *Déjà Vu* experience, of whom 575 (95.0%) had previously experienced *déjà vu* ([Table 1](#)). Among participants who provided *déjà vu* frequency data ($n = 562$), 38.1% experienced it 1–4 times per year, 34.3% more than 4 times per year, and 27.6% less than once per year.

Sense of Familiarity Questionnaire (SOFQ) by experience type

Psychedelic experiences ($n = 732$) demonstrated significantly ($p < .001$) higher familiarity ratings compared to Autobiographical and *Déjà Vu* experiences across all 19 SOFQ items ([Figure 1](#)). The greatest differences were observed within the “Familiarity with Transcendent Features” category, which includes SOFQ14 [“Place transcends life”; Psychedelic median score = 4, interquartile range (IQR)=3; Autobiographical median score = 0, IQR = 2; *Déjà Vu* median score = 0, IQR = 1; $p < .001$]; SOFQ15 [“Eternal or infinite”; Psychedelic median score = 5, IQR = 2; Autobiographical median score = 0, IQR = 2; *Déjà Vu* median score = 0, IQR = 1; $p < .001$]; SOFQ16 [“Home for consciousness”; Psychedelic median score = 4, IQR = 2; Autobiographical median score = 0, IQR = 3; *Déjà Vu* median score = 0, IQR = 3; $p < .001$].

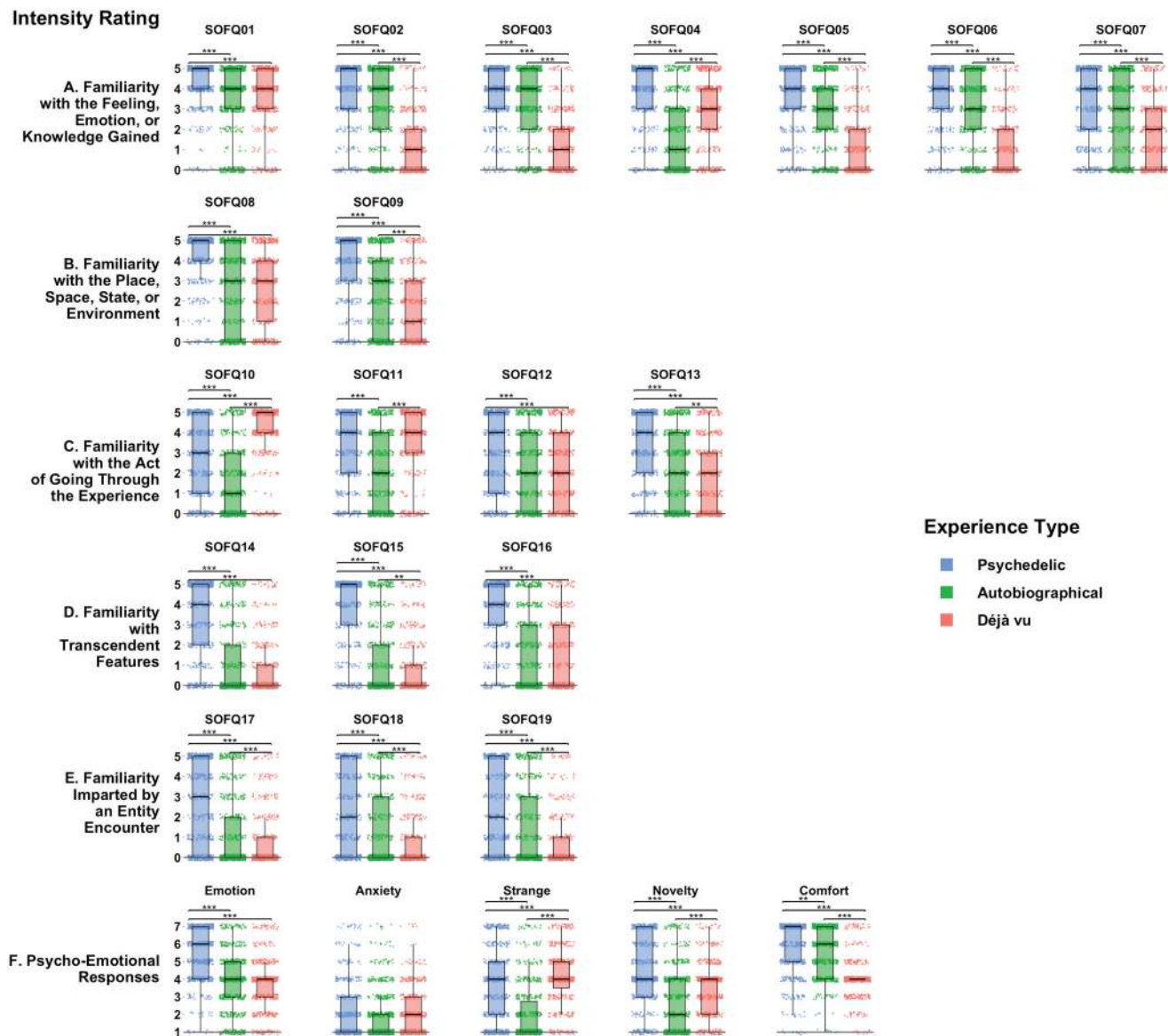


Figure 1. Sense of Familiarity Questionnaire (SOFQ) and psycho-emotional items across Psychedelic, Autobiographical, and *Déjà Vu* Experiences. Boxplots display median Likert scale ratings with interquartile ranges for 19 SOFQ items across three conditions: psychedelic (Psych; $n = 732$), Autobiographical (Auto; $n = 679$), and *Déjà Vu* ($n = 575$). SOFQ items are rated from 0 (none at all) to 5 (extreme; stronger than any other time in one's lifetime), and psycho-emotional responses from 1 (none at all) to 7 (overwhelming). Significance levels: *** $p < .001$, ** $p < .01$, * $p < .05$.

Autobiographical and *Déjà Vu* experiences also differed on several items. *Déjà Vu* was associated with higher ratings on SOFQ04 ("Remembering"), whereas Autobiographical experiences scored higher on items reflecting comfort and attachment, such as "Feels like home" (SOFQ02), "Welcoming" (SOFQ05), and "Belonging" (SOFQ06; all $p < .001$).

Psycho-emotional items by experience type

Psychedelic experiences received significantly higher ratings than Autobiographical and *Déjà Vu* experiences on emotional intensity, novelty, strangeness, and comfort

(all $p < .05$; Figure 1). Emotional intensity showed the greatest difference (Psychedelic median = 6, IQR = 3; Autobiographical = 4, IQR = 3; *Déjà Vu* = 4, IQR = 1, $p < .001$). Psychedelic experiences were also rated higher in strangeness (median = 4, IQR = 3) and novelty (median = 4, IQR = 4) compared with Autobiographical experiences (strangeness median = 1, IQR = 1; novelty median = 2, IQR = 3, $p < .001$ for both). Comfort was rated highest in Psychedelic experiences (median = 7, IQR = 2), greater than both *Déjà Vu* (median = 4, IQR = 0; $p < .001$) and Autobiographical experiences (median = 6, IQR = 3; $p = .003$). Anxiety did not differ significantly across experience types.

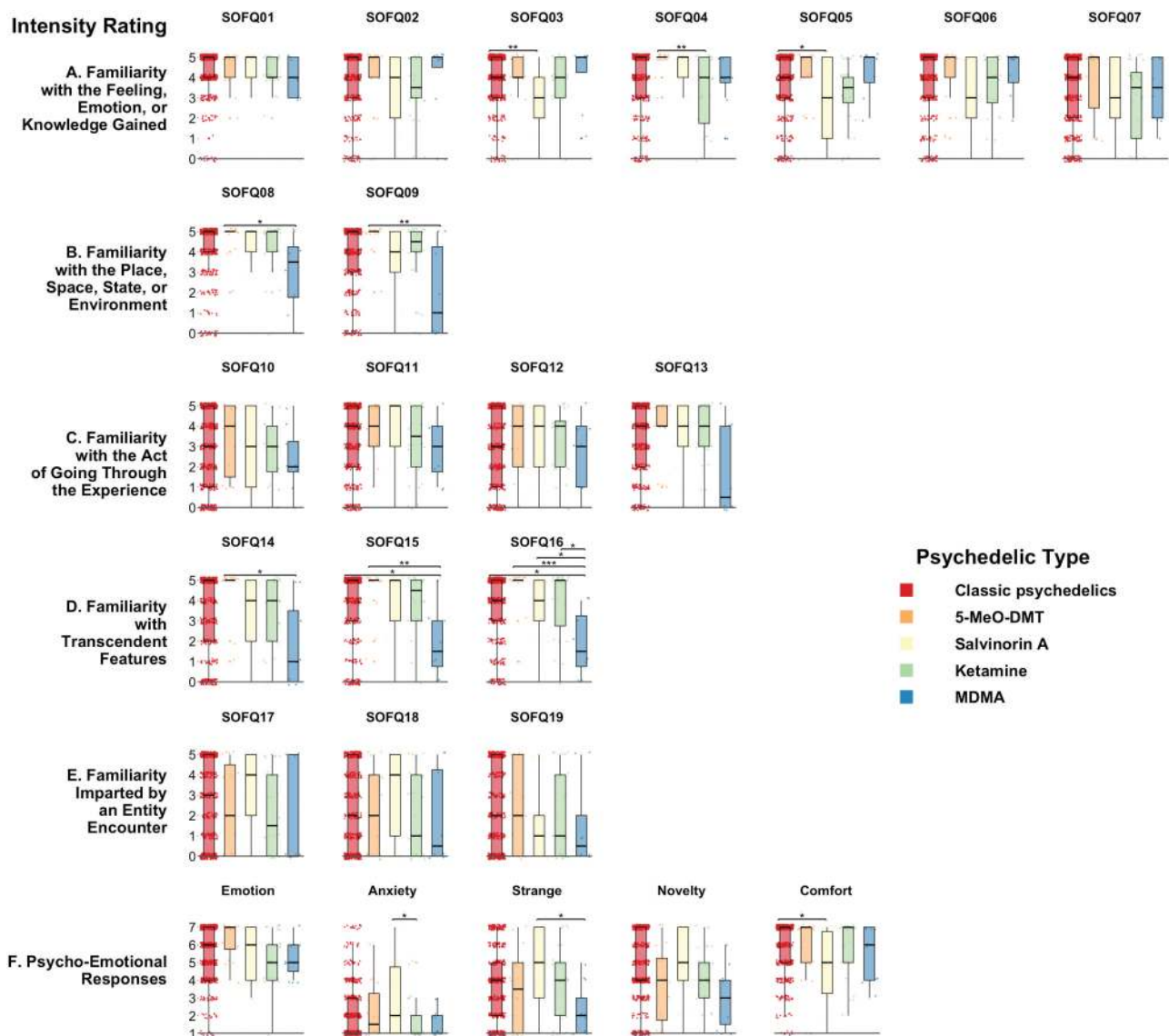


Figure 2. Sense of Familiarity Questionnaire (SOFQ) and psycho-emotional responses across psychedelic types. Boxplots display median Likert scale ratings with interquartile ranges. SOFQ items are rated on a 0–5 scale (19 items) and psycho-emotional items are rated on a 1–7 scale. Psychedelic types: (1) classic psychedelics ($n = 607$), (2) 5-MeO-DMT ($n = 17$), (3) salvinorin A ($n = 26$), (4) ketamine ($n = 32$), and (5) MDMA ($n = 16$).

Déjà Vu experiences were rated significantly higher in strangeness (median = 4, IQR = 2) and novelty (median = 4, IQR = 2) than Autobiographical experiences (strangeness median = 1, IQR = 1; novelty median = 2, IQR = 3; both $p < .001$; Figure 1). In contrast, Autobiographical experiences were rated higher in comfort (median = 6, IQR = 3) than *Déjà Vu* experiences (median = 4, IQR = 0; $p < .001$).

Ordinal regression analyses by experience type

Predicted probabilities for SOFQ outcomes estimated from CLMM analyses identified the greatest between-experience differences for the following items

(Supplemental Figure S1): SOFQ02 (“Feels like home”), the Psychedelic experience was associated with a higher predicted probability of receiving a top rating (51.8% at rating 5) compared to the Autobiographical experience (27.9% at rating 5; OR = 0.36, 95% CI [0.29, 0.45], $p < .001$) which in turn was higher than *Déjà Vu* (4.1% at rating 5; OR = 0.04, 95% CI [0.03, 0.05], $p < .001$). This pattern was also observed for the following items SOFQ03 (“Comfort”; Autobiographical: OR = 0.46 [95% CI, 0.37–0.56]; *Déjà Vu*: OR = 0.05, 95% CI [0.04, 0.07]), SOFQ04 (“Remembering”; Autobiographical: OR = 0.08, 95% CI [0.06, 0.10]; *Déjà Vu*: OR = 0.26, 95% CI [0.21, 0.33]), SOFQ05 (“Welcoming”; Autobiographical: OR = 0.39,

95% CI [0.31, 0.48]; Déjà Vu: OR = 0.05, 95% CI [0.04, 0.06]), SOFQ06 (“Belonging”; Autobiographical: OR = 0.36, 95% CI [0.29, 0.44]; Déjà Vu: OR = 0.04, 95% CI [0.03, 0.05]), SOFQ07 (“Nostalgia”; Autobiographical: OR = 0.57, 95% CI [0.46, 0.70]; Déjà Vu: OR = 0.21, 95% CI [0.17, 0.27]), and SOFQ09 (“Will return again”; Autobiographical: OR = 0.22, 95% CI [0.18, 0.28]; Déjà Vu: OR = 0.09, 95% CI [0.07, 0.11]; $p < .001$, each).

The Psychedelic experience most strongly diverged from both Autobiographical and Déjà Vu experiences within SOFQ14 (“Place transcends life”; Autobiographical: OR = 0.05, 95% CI [0.04, 0.07], $p < .001$ and Déjà Vu: OR = 0.04, 95% CI [0.03, 0.05], $p < .001$), SOFQ15 (“Eternal or infinite”; Autobiographical: OR = 0.05, 95% CI [0.03, 0.06], $p < .001$ and Déjà Vu: OR = 0.03, 95% CI [0.02, 0.04], $p < .001$), and SOFQ16 (“Home for consciousness”; Autobiographical: OR = 0.08, 95% CI [0.06, 0.10], $p < .001$ and Déjà Vu: OR = 0.05, 95% CI [0.04, 0.07], $p < .001$). Across these items, the Psychedelic experience was associated with a higher predicted probability of receiving the top rating (49.3%, 58.2%, and 50.8% at rating 5, respectively) compared to Autobiographical (0.1%, 0.1%, and 0.1% at rating 5, respectively) and Déjà Vu experiences (0%, 0%, and 0.1% at rating 5, respectively).

For psycho-emotional items (Supplemental Figure S1), the Psychedelic experience most strongly diverged from both Autobiographical and Déjà Vu Experiences for emotion (Autobiographical: OR = 0.10, 95% CI [0.08, 0.13], $p < .001$ and Déjà Vu: OR = 0.10, 95% CI [0.08, 0.13], $p < .001$), novelty (Autobiographical: OR = 0.12, 95% CI [0.10, 0.15], $p < .001$ and Déjà Vu: OR = 0.33, 95% CI [0.27, 0.41], $p < .001$), and comfort (Autobiographical: OR = 0.57, 95% CI [0.46, 0.71], $p < .001$ and Déjà Vu: OR = 0.08, 95% CI [0.06, 0.10], $p < .001$). Across these items, the Psychedelic experience was associated with a higher predicted probability of receiving the top rating (Emotion = 33.2%, Novelty = 18.6%, and Comfort = 52.4% at rating 7) compared to Autobiographical (Emotion = 4.7%, Novelty = 2.7%, and Comfort = 3.8% at rating 7) and Déjà Vu experiences (Emotion = 4.6%, Novelty = 7.0%, and Comfort = 7.8% at rating 7). Anxiety did not differ significantly across experience types, with all three showing higher predicted probabilities of lower ratings.

Sense of Familiarity Questionnaire (SOFQ) by psychedelic type

Intensity of familiarity differed significantly across psychedelic types for several SOFQ items (Figure 2). For SOFQ03 (“Comfort”), classic psychedelics ($n = 607$, median = 4, IQR = 2) scored higher than salvinorin

A ($n = 26$, median = 3, IQR = 2; $p = .003$). For SOFQ04 (“Remembering something you may have forgotten or will forget”), classic psychedelics (median = 5, IQR = 2, $p = .020$), 5-MeO-DMT ($n = 17$, median = 5, IQR = 0, $p = .001$), and salvinorin A (median = 5, IQR = 1, $p = .024$) were rated higher compared to ketamine ($n = 32$, median = 3, IQR = 2.5). For SOFQ05 (“Welcoming”), classic psychedelics (median = 4, IQR = 2) were rated higher than salvinorin A (median = 3, IQR = 4; $p = .038$).

For several items, 5-MeO-DMT showed significantly higher ratings compared to MDMA, including: SOFQ08 (“Returning to a place”; 5-MeO-DMT median = 3, IQR = 2.5 vs. MDMA median = 1, IQR = 1.25; $p = .015$), SOFQ09 (“Will return again”; 5-MeO-DMT median = 3, IQR = 3.0 vs. MDMA median = 1, IQR = 1.0; $p = .021$), SOFQ14 (“Place transcends life”; 5-MeO-DMT median = 4, IQR = 3.0 vs. MDMA median = 1, IQR = 1.0; $p = .005$), SOFQ15 (“Eternal or infinite”; 5-MeO-DMT median = 5, IQR = 2.0 vs. MDMA median = 1, IQR = 2.0; $p < .001$), and SOFQ16 (“Home for consciousness”; 5-MeO-DMT median = 4, IQR = 2.0 vs. MDMA median = 1, IQR = 2.0; $p < .001$).

Psycho-emotional items by psychedelic type

Psycho-emotional ratings differed significantly across psychedelic types for comfort, anxiety, and strangeness (Figure 2). Comfort ratings were higher for classic psychedelics (median = 7, IQR = 2) than for salvinorin A (median = 5, IQR = 3.5; $p = .012$). Anxiety ratings were higher for salvinorin A (median = 2, IQR = 3.75) than for ketamine (median = 1, IQR = 1; $p = .025$). Strangeness ratings were highest for salvinorin A (median = 5, IQR = 4) and significantly higher than for MDMA (median = 2, IQR = 2; $p = .047$). No significant differences were observed between psychedelic types for emotion or novelty.

Discussion

This study characterizes the sense of familiarity evoked by psychedelic experiences, revealing self-reported features that differentiate it from autobiographical and *déjà vu* experiences. Across all 19 items of the Sense of Familiarity Questionnaire (SOFQ), psychedelic experiences were rated significantly higher, with the most pronounced differences observed in the “Familiarity with Transcendent Features” category. Psychedelic experiences also elicited greater emotional intensity, comfort, and novelty. The co-occurrence of heightened novelty and familiarity with psychedelics suggests a dissociation between mnemonic tagging and veridical

memory retrieval, potentially reflecting altered precision-weighting within predictive processing frameworks. Psycho-emotional responses also varied across psychedelic types, with differences observed in comfort, anxiety, and strangeness. Finally, most participants reported that this familiarity positively influenced their experience and was perceived as authentic, with approximately half of the participants experiencing enduring effects from the familiarity.

The robust sense of familiarity evoked by psychedelics, particularly its transcendent qualities, aligns with and expands upon existing phenomenological research (Lawrence et al. 2022; Lawrence, DiBattista, and Timmermann 2023; Shanon 2002; Strassman and Qualls 1994; Strassman et al. 1994). Familiarity was also reported during a first psychedelic experience, reinforcing the non-referential nature of this phenomenon (Lawrence, DiBattista, and Timmermann 2023). This finding is significant because it suggests that psychedelic-induced familiarity does not depend on learned associations from prior drug exposure. Nevertheless, one possibility is that the heightened formation of familiarity-based memories under acute drug effects could be misattributed later during the same experience, given the attributional nature of familiarity (Doss et al. 2024b; Whittlesea 2002). Moreover, this study broadens the existing literature on the range of substances capable of evoking this phenomenon. Notably, the data suggest that this effect remains most pronounced with DMT and other classic psychedelics, consistent with how 5-HT_{2A} drugs uniquely spare or enhance the encoding of familiarity despite impairing the encoding of recollections, whereas other drug classes impair the encoding of both forms of memory (Doss et al. 2024b, 2024c).

Subjective ratings of familiarity induced by psychedelics differed from both autobiographical and *déjà vu* experiences, highlighting a potentially unique phenomenological profile. Although psychedelic experiences differed significantly across all SOFQ items, transcendent features most strongly differentiated the psychedelic experience from autobiographical and *déjà vu* experiences. These features included a “sense of visiting a place existing before conception or after death,” “experiencing a place that is eternal or infinite,” and “encountering a state where your consciousness resides or has previously resided.” This aligns with prior research on the mystical qualities of psychedelic experiences and suggests that familiarity may be an integral component of such states (Griffiths et al. 2006, 2018; McCulloch et al. 2022). The phenomenological profile of psychedelic familiarity, marked by high emotional intensity, comfort, and transcendent qualities, also invites comparison to the concept of the noetic quality

(Vandekerckhove and Panksepp 2009), defined as a state of insight or knowledge that feels intrinsically true and revelatory. In parallel, the co-occurrence of heightened novelty and familiarity, together with the documented ineffability of psychedelic experiences (Cott and Rock 2008) and relative absence of recollection (Lawrence, DiBattista, and Timmermann 2023), supports comparison to “noetic consciousness,” defined as a state of knowing or recognizing without explicit awareness of one’s personal experiential context in relation to it (Tulving 2002; Vandekerckhove and Panksepp 2009).

Although the neurophysiological effects of psychedelics, and specifically classic psychedelics, have been studied under task-free/resting-state conditions (Alamia et al. 2020; Eckernas et al. 2023; Pallavicini et al. 2021; Timmermann et al. 2019, 2023; Valle et al. 2016; Vohryzek et al. 2024), the neural correlates of psychedelic-evoked familiarity remain unknown. The 5-HT_{2A} receptor exhibits a potentially relevant pattern of expression, predominantly on excitatory neurons in the cortex but on inhibitory neurons in the medial temporal lobe, including entorhinal cortex, the hippocampus, and the amygdala (Aghajanian and Marek 1997; Bombardi and Di Giovanni 2013; Jakab and Goldman-Rakic 1998). Consistent with this expression, several studies have found psychedelics to decouple brain activity between the hippocampus and cortex under resting-state conditions (Carhart-Harris et al. 2014; Domenico et al. 2021; Lebedev et al. 2015; Siegel et al. 2024; Tolle et al. 2024). Excitatory versus inhibitory mechanisms may also play a role in the effects of NMDA antagonists (Homayoun and Moghaddam 2007; Luscher, Feng, and Jefferson 2020; Olney, Newcomer, and Farber 1999).

Participants overwhelmingly reported that familiarity evoked by psychedelics had a positive impact on their experience, with most perceiving it as authentic. This aligns with a potential exposure effect, a phenomenon in which heightened familiarity through repeated exposure to a stimulus increases the attribution of positive affect (“familiarity breeds fondness”) (Montoya et al. 2017). The perceived authenticity and positive impact of familiarity during a psychedelic experience may enhance psychotherapeutic alliances and facilitate post-dosing integration. Furthermore, the enduring impact of this familiarity suggests a potential contribution to the transformative effects of psychedelics, such as sustained improvements in mood and reduced fear of death (Barr, Giese, and Moreton 2025; Griffiths et al. 2018; Letheby 2024; Sweeney et al. 2022).

Several limitations of this study warrant consideration. First, the study’s reliance on retrospective self-

reports and the predominance of experienced psychedelic users may limit generalizability to novice users or clinical populations. The online survey format may also introduce recall bias or selection effects, as participants were recruited from social media platforms, which may attract individuals with positive or intense psychedelic experiences. Recall bias may have also impacted our results because a substantial proportion of participants (42.6%) reported on experiences occurring more than 12 months prior to survey completion. Demand characteristics may have introduced bias, given the explicit comparisons between experience types and the disproportionate recruitment from psychedelic communities (Jersakova, Moulin, and O'Connor 2016). Future research should address these limitations by validating the SOFQ in controlled, prospective studies, ideally incorporating real-time phenomenological assessments during psychedelic administration. Another limitation is the lack of dose standardization as respondents' interpretations of microdose, small, medium, and high doses likely varied. Variation in the elicitation and appraisal of experiences across conditions may introduce heterogeneity that constrains direct comparability of the constructs. Finally, the qualitative thematic analysis of the open-ended survey responses was conducted by a single experienced coder. While this approach ensured a high degree of internal consistency and utilized expertise in psychedelic phenomenological research, we recognize the inherent limitation of a single-coder framework regarding inter-rater reliability.

In conclusion, this study further characterizes psychedelic-evoked familiarity and suggests that it has a distinctive phenomenological profile, characterized by transcendent qualities, increased emotional intensity, and comfort. Given the potentially distinctive qualities and self-reported positive outcomes associated with these experiences, further longitudinal studies should explore the therapeutic potential of psychedelic-evoked familiarity in clinical populations.

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