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ORIGINAL RESEARCH
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Experiences of psychedelic drug use among people with psychotic symptoms and disorders: Personal growth and mystical experiences

JOSEPH T. LA TORRE^{1,2*} , JADE GALLO³,
MEHDI MAHAMMADLI⁴, DANIEL ZALEWA⁵ and
MONNICA T. WILLIAMS^{2,6}

¹ Department of Psychiatry and Behavioral Sciences, Center for Novel Therapeutics in Addiction Psychiatry, University of Washington, School of Medicine, Seattle, WA, USA

² School of Psychology, University of Ottawa, Ottawa, ON, Canada

³ Teacher's College, Columbia University, New York, NY, USA

⁴ Laboratory for Psychedelic Clinical Research, School of Psychology, University of Ottawa, Ottawa, ON, Canada

⁵ University of New Haven, New Haven, CT, USA

⁶ Department of Cellular and Molecular Medicine, University of Ottawa, Ottawa, ON, Canada

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ABSTRACT

Individuals with a history of psychotic experiences and disorders such as schizophrenia, and mood disorders with psychotic features tend to be excluded from psychedelic-assisted therapy research and treatment programs, despite minimal research demonstrating heightened risk of adverse effects for this group. Participants ($n = 100$) were asked to complete an online, retrospective survey that asked about psychotic experiences and/or diagnoses and one memorable psychedelic experience, along with mental health histories, dose used, set and setting, and other relevant variables including whether they mixed their psychedelic with other substances. Respondents also completed pertinent psychometric questionnaires and answered questions regarding the impact of their psychedelic experience on their well-being, mental health, relationships, spiritual beliefs, and aspects of their life. Thematic inductive analysis was used to identify recurring themes. Most respondents ($n = 88$) stated that their psychedelic experience resulted in some degree of personal growth. Many also described mystical-type experiences, increased levels of contemplation and spirituality, improved insight, symptomatic improvements, and feelings of love and appreciation following the experience. Most described overall positive experiences, however, 11% ($n = 11$) described overall negative experiences, which included symptom exacerbation, dysphoria, and terror, and a slightly larger portion described mixed-type experiences.

KEYWORDS

psychosis, schizophrenia, psychedelic-assisted therapy, psychotic disorder, bipolar, first episode psychosis, trauma, psychedelics, MDMA, psilocybin, LSD, qualitative research, phenomenology

*Corresponding author. Department of Psychiatry and Behavioral Sciences, Center for Novel Therapeutics in Addiction Psychiatry, University of Washington, School of Medicine, Seattle, WA, USA.
Tel.: +1 343 463 0116.
E-mail: jlato009@uottawa.ca

EXCLUDING THOSE WITH PSYCHOSIS FROM PSYCHEDELIC RESEARCH

Today, individuals with histories of psychotic experiences and conditions are regularly excluded from clinical research with psychedelic compounds, despite a lack in modern findings demonstrating an increased safety risk for this population (La Torre, Mahammadli, Faber, Greenway, & Williams, 2023). To understand why, it is crucial to revisit the first wave of psychedelic research—a time characterized by a fervent pursuit of researching how psychedelics could assist in psychotherapeutic processes during the early to mid-twentieth century until the War on Drugs called such research to a close (Dyck, 2008; Swanson et al., 2018).

Throughout these years, a great deal of research was conducted, including trials examining LSD and mescaline therapy for individuals with schizophrenia, however, findings were highly varied, possibly due to lack of scientific rigor (Rucker, Iliff, & Nutt, 2018).

Indeed, scholars agree that research carried out during the first wave of psychedelic research often lacked standard methodological elements such as being double-blind, incorporating psychometric testing and control groups, and usually leaving out key information in publications such as dose used, and descriptions of protocols (Rucker et al., 2018). During this era, psychiatric diagnoses were also conceptualized differently, and people diagnosed as ‘schizophrenic’ during this period, may not have been diagnosed as such today, making it difficult to draw conclusions from this older body of research. Furthermore, many of the studies from this time were unethical, frequently following no proper structure regarding dosage, frequency of administration, nor providing follow-up care (e.g., Strauss, de la Salle, Sloschower, & Williams, 2022).

Early psychedelic experiments were also conducted on unwilling participants at times, namely BIPOC who were incarcerated, and people who were hospitalized for mental health reasons, with some researchers irresponsibly administering extremely high doses of LSD to participants in inappropriate set and settings (Dore et al., 2019; La Torre et al., 2023; Strauss et al., 2022). Additionally, it was during this time that psychedelics were modeled as ‘psychotomimetic’, or drugs that mimicked psychotic symptoms in users, which in turn led to the idea that individuals with histories of psychosis may experience symptomatic exacerbation as a result of psychedelic drug administration (Swanson, 2018). Campaigns and propaganda from the War on Drugs however may have held the most significance in preventing the scientific pursuit of exploring psychedelic therapy for individuals with psychotic disorders by promoting the notion that drugs such as LSD are dangerous and cause people to go “insane” (Carhart-Harris & Goodwin, 2017; Dyck, 2008; Friesen, 2022).

While data and information on psychedelics and psychosis from this time tended to be problematic, some recent research has come to light that documents the occurrence of psychedelic-induced psychosis as a rare but possible risk of psychedelic use. A study published by Evans et al. (2023) describes a range of challenging experiences individuals can have following naturalistic psychedelic dosing experiences, such as diverse physiological reactions and adverse effects, as well as psychological, emotional, and spiritual issues like existential crisis, psychotic episodes, and depressive episodes. In the sample of 608 individuals, only 5% (29 individuals) reported a sense of going through a psychotic episode following psychedelic drug use, making it the rarest adverse event out of all those reported. At the same time, an epidemiological study of naturalistic psychedelic use in Norway found that among individuals with mental health diagnoses, those with psychosis reported a worsening of their condition the most from their use (7.7%), further highlighting potential issues for this population, particularly when psychedelics are used recreationally (Kvam et al., 2023).

Taken as a whole, it is possible that some individuals with psychotic conditions and experiences could benefit from psychedelic-assisted therapy (PAT), particularly when the protocol is highly supportive (La Torre et al., 2023). This would not be unfounded considering that in some Indigenous societies, people with psychotic tendencies, such as having belief in supernatural phenomena or experiences of novel perception such as voice-hearing, often partake in psychedelic plant ceremonies (Bathje, Majeski, & Kudowor, 2022). Some may also even hold roles as shamans and ceremony leaders due to the belief that such individuals hold unique spiritual abilities, rather than being seen as pathologically ill like in Western society (Winkelman, 2021).

Furthermore, it is important to acknowledge the impact of excluding people with psychotic conditions from psychedelic research negatively affects several highly vulnerable communities including individuals who have psychotic disorders comorbid with difficult-to-treat anxiety, depression, PTSD, and other problems. While PAT may be able to resolve many other symptoms these individuals have, the possibility of having a concurrent psychotic disorder makes it unlikely for them to be enrolled in psychedelic clinical research or future psychedelic treatment programs. Although not a classic psychedelic, some research reports individuals with these conditions responding well to ketamine, suggesting that it may be worthwhile to carry out more psychedelic research for this group. In particular, Ekstrand et al. (2022) found that administering ketamine to a sample of individuals with depression, which included participants with psychotic features and/or psychotic symptoms, resulted in statistically significant decreases on the Montgomery Åsberg Depression Rating Scale (MADRS) with no occurrences of psychotic symptom exacerbation being reported. Another study by Ye and colleagues (2005) found similar findings with administering ketamine to individuals with chronic schizophrenia, significantly reducing scores on both the Calgary Depression Scale for Schizophrenia (CDSS) and the Positive and Negative Syndrome Scale (PANSS).

Aside from these studies and instances of clinicians exploring PAT for psychosis in clinical non-research settings, investigating psychedelic treatment is nearly nonexistent for this population (Ekstrand et al., 2022; Ye et al., 2005). The widespread exclusion of this group also has a direct impact on Black and Latinx Americans, who are overdiagnosed with psychotic disorders at a rate twice that of White Americans and therefore are being systematically excluded from the psychedelic movement (Akinhanmi et al., 2018; Faber, Khanna Roy, Michaels, & Williams, 2023; Muroff, Edelson, Joe, & Ford, 2008). Indeed, it is highly likely that this overdiagnosis is one of the many contributing factors that plays a significant role in the demographic imbalance being observed in psychedelic research today alongside racial bias, and barriers created by systemic racism (De la Salle, Davis, Gran-Ruaz, Davis, & Williams, 2022; Fogg, Michaels, de la Salle, Jahn, & Williams, 2021; George, Michaels, Sevelius, & Williams, 2020).

With all of this considered, more research must be conducted to determine the overall benefit-to-risk ratio of PAT for individuals with psychotic symptoms and disorders.



METHOD

Study design

The study employed a mixed method, cross-sectional, retrospective survey design, which was phenomenological and epidemiological in nature. Recruitment included posting recruitment ads specifying the study's purpose, inclusion, and exclusion criteria and occurred over approximately nine months. Following collection, data was cleaned and analyzed using thematic inductive content analysis to produce themes and exemplary quotes. Statistical observations that captured relevant data regarding changes or lack of changes after psychedelic use regarding drug use, growth, cognition, spirituality, and behavior were also reported.

Procedure

Participants in the study were recruited from various social media platforms such as Instagram, Facebook, and TikTok, with the primary source being Reddit, and more specifically, Reddit sub-communities (also known as 'subreddits') focused on distinctive themes related to psychotic disorders or symptoms, psilocybin, LSD, and other relevant topics. Recruitment ads with a characterization of the study goals, inclusion and exclusion requirements, such as having a disorder that features psychotic symptoms such as bipolar disorder, psychotic depression, psychotic personality disorders, or experiences that resemble symptoms such as perceptual distortions, and psychotic experiences and a link to a Qualtrics™ (Provo, USA) survey, were posted regularly and frequently. Upon clicking the link, participants were asked to provide informed consent that had to be affirmed before proceeding.

If respondents indicated that they were not at least 18 years old, never diagnosed with a psychotic disorder or reported a history of psychotic experiences, or never had at least one psychedelic experience, they were not permitted to participate in the survey and were redirected to a page thanking them for their time and explaining their ineligibility to participate. When participants met criteria, they were asked to report demographic information, mental health history, information regarding their psychedelic use, phenomenological information such as mystical elements of their experience, and other variables of interest such as dose, features of their set and setting, etc. Using a survey from Williams et al. (2021) as a template, participants were asked to keep in mind one memorable psychedelic experience and complete the survey with this experience in mind. Upon data collection, the research team met regularly to clean the dataset, and perform analyses (approved university ethics file number: H-03-22-7959).

Analysis

The methodology of this paper is a qualitative one with statistical observations providing supplemental information. Qualitative analyses utilized an inductive content approach centered on inductive thematic analysis (Elo & Kyngäs,

2008; Hsieh & Shannon, 2005). With this approach, respondent data were examined, and common themes were produced to understand patterns in reports. The analytical procedure ensured that at least two researchers coded respondent statements for accuracy; exemplar quotes, thematic titles, and descriptions that best represented the overall sample were selected collectively and subsequently placed into table format.

Throughout the process of analysis and coding, research assistants met regularly with the Principal Investigator to discuss agreement and disagreement regarding overarching themes, and exemplar quotes. Reaching consensus regarding analyses was a dialectical endeavor that involved careful examination of the dataset and in-depth discussions of participant responses. To ensure validity, coding guidelines were established following a preliminary review of the data, during which potential themes were identified. Independent cross-checking was also built into the process with at least one research member independently reviewing results. Data saturation was informed by two models: theoretical saturation and inductive thematic saturation (Saunders et al., 2018). No novel themes appeared after the second phase of data collection and so recruitment ended.

Reported statistical observations were selected based on relevance to the research questions, namely what proportion of individuals reported personal growth due to their psychedelic experience, distributions and averages of pertinent measures, percentage of individuals who were comfortable vs. uncomfortable in their environment during their experience, diagnostic data, and reported substance use. Other relevant scores and quantitative data indicative of changes in cognition, spirituality, and behavior are also reported. Frequency of adverse events were reported based on open-ended qualitative responses throughout the survey.

Measures

The survey comprised items from multiple validated tools, including a survey developed for investigating psychedelic experiences among individuals with racial trauma by Williams et al. (2021), select items from the Mystical Experiences Questionnaire-30 question (MEQ-30; Pahnke, 1969), and the Community Assessment of Psychic Experiences (CAPE-42; Stefanis et al., 2002).

Psychedelic use survey. This survey was developed by Williams et al. (2021) to understand how BIPOC use psychedelics to treat racial stress and trauma. The survey begins by asking the respondent to hold in their mind a single memorable psychedelic experience, and then to answer questions related to the type of psychedelic taken, dosage, and method of consumption, followed by questions about other substances that individuals may have been under the influence of at the same time either prescribed or recreationally. The measure was adapted for this study to inquire specifically about psychedelic use among individuals with histories of psychotic experiences and disorders.



Community Assessment of Psychic Experiences (CAPE-42).

The Community Assessment of Psychic Experiences (CAPE-42; Stefanis et al., 2002) is a validated psychometric tool that explores psychotic-like experiences in a self-report fashion. The survey consists of 20 questions regarding positive symptoms of psychosis, and 22 questions related to negative and depressive symptoms for a total of 42 questions. The CAPE-42 was not completed by the entire sample as its use was discontinued upon recognizing that it was highly time-consuming and too broad. As such, analyses included only individuals who completed items on the CAPE-42 that captured experiences that are explicitly psychotic in nature (see Appendix A), and a short 7-item psychotic experience checklist took its place approximately half-way through data collection (see Appendix B).

Mystical Experiences Questionnaire-30 (MEQ-30). The study implemented a condensed 11-item version of the Mystical Experience Questionnaire (MEQ-30; Pahnke, 1969) (see Appendix C), a measure that has been validated to evaluate the phenomenology of feelings, thoughts, and observations related to mystical-type psychedelic experiences in research (Griffiths, Richards, McCann, & Jesse, 2006). To enhance participant comprehension and reduce survey duration, slight modifications were made to the wording of the MEQ-30 items. For instance, “Loss of your usual sense of time” was adapted to “I lost my sense of time.” Furthermore, only a subset of items was used from each of the four factors. Additionally, the Likert scale was modified to a ten-point scale for greater sensitivity to variations in participant responses. We refer to our condensed version of the MEQ-30 as the MEQ-mini.

Survey variations

As alluded to above, the present study utilized two slightly different surveys to collect data from participants. Specifically, the CAPE-42 psychotic experience questionnaire was discontinued in the second version of the survey due to being highly time-consuming and contained several items that were not clearly indicative of psychotic experiences such as having spiritual beliefs and feeling low mood. Approximately half-way through data collection, use of the CAPE-42 was discontinued, and a short 7-item checklist of typical psychotic experiences was provided for respondents to select from instead.

The improved survey also asked participants about their reason(s) for taking the psychedelic, whether they were experiencing an actively psychotic episode at the time of dosing, the state of their symptoms during the psychedelic experience, whether they got better or worse, how they felt immediately after the experience, and relevant details. The survey also included a range of minor revisions, such as allowing participants to skip any item they wished and changing some wording for clarity and specificity. These changes significantly reduced the time required to complete the survey from 45–60 min to 15–20 min. The revised survey was completed by participants #1-59 in the dataset, and the first iteration was completed by participants #60-100 (see Supplementary materials D and E).

Data cleaning

Any survey that took less than 90 s was immediately removed from the dataset as we expected that any participant completing the survey within this time may not have responded accurately. Next, we removed any participant who did not complete a significant portion of the survey, which was approximately less than 70% of the most important questions in the survey. No remaining participant took less than 8 min to complete the survey. Participants who did not report psychotic experience as operationalized in the study or psychotic condition were removed from the dataset.

We chose to include two groups in our study: (1) individuals with psychotic-type symptoms and experiences as defined by DSM-5 criteria and the four major psychotic symptom domains (i: delusions; ii: hallucinations; iii: negative symptoms; iv: thought/language disorder); and (2) individuals who have received a diagnosis of a psychotic disorder. Participants who reported diagnoses, as seen in Table 2, were coded in one of the following ways: PSD (Psychotic Spectrum Disorder), PMD (Psychotic Mood Disorder), PPD (Psychotic Personality Disorder), OPD (Other Psychotic-like Disorder), and UPD (Unspecified Psychotic Disorder). ‘PSD’ was operationalized as including typical psychotic spectrum disorders such as schizophrenia, first episode psychosis, brief psychosis, and drug-induced psychosis. ‘PMD’ was operationalized as mood disorders that may feature psychotic psychopathology such as major depressive disorder with psychotic features, and bipolar disorder. ‘PPD’ was operationalized as a personality disorder that features psychotic-type symptoms such as schizotypal personality disorder. ‘OPD’ included diagnoses that were not previously mentioned but featured psychotic-like experiences such as hallucinations, derealization, and other similar experiences such as borderline personality disorder, dissociative disorder, and psychosis not otherwise specified. ‘UPD’ included any response that said they were diagnosed with a psychotic disorder but did not select which one or provide a specified diagnosis.

Few participants completed the survey with blatant inconsistencies and/or nonsensical entries; these and similar entries were also deleted during the cleaning process. In addition, responses to the survey question asking about dose were adjusted based on the guidelines: For LSD, this was 100ug or below as ‘low’; 200ug as ‘medium’; and 300ug + as ‘high.’ For psilocybin mushrooms this was 1–2g as ‘low’; 2.1–3.5g as ‘medium’; and 3.5g + as ‘high’. 8% of the sample did not clearly specify their dose and 3% did not provide an answer regarding their dose.

RESULTS

Participants

The study consisted of 100 respondents (see Supplementary material D and E for more details). Details pertaining to



participant demographics and mental health histories were reported as follows (Table 1).

Table 2 illustrates participant reports of psychotic diagnoses or disorders that feature psychotic symptoms according to the categories outlined above. It is important to note that not all respondents were diagnosed with a psychotic disorder, and at the same time, some participants endorsed having more than one psychotic disorder. The table also illustrates psychotic experiences reported by participants in the survey. Many reported having two or more.

In terms of religious/spiritual affiliation, 49% ($n = 49$) of participants reported being religious and/or spiritual, 35% ($n = 35$) reported not being religious/spiritual, and 16%

($n = 16$) reported “other,” usually identifying their specific tradition in the open response section. The age of participants ranged from 18 to 62, with the average age being 28.5 (SD = 9.76).

Descriptive statistics. Out of the 100 respondents, respondents reported using a variety of psychedelics (see [Supplementary material D](#)). Specifically, 43% ($n = 43$) reported using psilocybin, 38% ($n = 38$) reported using LSD, 6% ($n = 6$) reported using ketamine, 8% ($n = 8$) reported mixing a psychedelic with another psychedelic or MDMA, 2% ($n = 2$) reported using DMT, 1% ($n = 1$) reported using ayahuasca and 1% ($n = 1$) reported using 2-BOH-CB, a phenethylamine in the 2-CB family, which generates experiences like psilocybin and LSD (Shulgin & Shulgin, 1990).

Personal growth and setting. 60% ($n = 60$) of individuals reported that their experience resulted in personal growth, 28% ($n = 28$) of individuals reported that it somewhat resulted in personal growth, 9% ($n = 9$) of individuals reported that it did not result in personal growth, and 3% ($n = 3$) did not answer (see [Supplementary material E](#)). 86% ($n = 32$) of those who used LSD reported some degree of personal growth, and 92% ($n = 38$) of those who used psilocybin reported some degree of personal growth.

Out of the eight respondents who reported not experiencing personal growth, 37.5% ($n = 3$) had used psilocybin, 50% ($n = 4$) had used LSD, and 12.5% ($n = 1$) had used MDMA. 100% ($n = 4$) of those who reported no personal growth and using LSD reported not being fully comfortable in their setting (with three indicating ‘somewhat comfortable’ and one responding ‘no’) in addition to mixing their psychedelic or MDMA with other substances. The individual who used MDMA and reported no personal growth was uncomfortable in their setting. The three who used psilocybin and reported no growth reported being fully comfortable in their setting.

No reports indicated that use was conducted under supervision in the context of a clinical trial or with the presence of a therapist or clinician. A large portion however directly described naturalistic or recreational use.

MEQ scores. 58 respondents completed all 11 items selected from the MEQ-30 that the research team chose to incorporate into the survey (see [Appendix C](#)). Individual total scores ranged from 1.45 to 10 (range: 0–10), with an average score of 7.1 (SD = 2.00). Out of the 58 respondents, 49 (84.48%) scored higher than an average total score of 5, 20 (34.48%) scored higher than 8, and 9 (15.52%) scored higher than 9. 22 respondents who used LSD completed the MEQ-mini that was given, and the average (mean) score produced was 7.11 (SD = 1.97). The average (mean) score was also 7.11 (SD = 2.01) for the 24 respondents who reported psilocybin use.

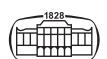
Reported changes. Psychological, spiritual, emotional, and behavioral changes were captured by a range of items throughout the survey. 67% of the respondents ($n = 67$) reported experiencing deeper levels of spirituality or

Table 1. Participant demographics

	Variable	Frequency	Percentage%
Race	White	76	76%
	Black	3	3%
	Asian	3	3%
	Middle Eastern	1	1%
	Indigenous	4	4%
	Hispanic/Latinx	6	6%
	Pacific Islander	1	1%
	Mixed Race	6	6%
Gender	Male	51	51%
	Female	36	36%
	Transgender	7	7%
	Two Spirit	2	2%
	Nonbinary	3	3%
	N/A	1	1%
Sexuality	Heterosexual	50	50%
	Bisexual	31	31%
	Pansexual	2	2%
	Gay/Lesbian	6	6%
	Queer	7	7%
	Other	3	3%
	Prefer Not to Say	1	1%
Age Range	18–29	69	69%
	30–39	19	19%
	40–49	9	9%
	50–59	2	2%
	60–69	1	1%

Table 2. Participant diagnostics

	Psychopathology	Frequency	Percentage%
Diagnosis	PSD	34	34%
	PMD	35	35%
	PPD	6	6%
	OPD	9	9%
	UPD	5	5%
	N/A	13	13%
Symptoms	Delusions	98	98%
	Hallucinations	73	73%
	Negative Symptoms	81	81%
	Other	4	4%



contemplation after their experience. 13% ($n = 13$) did not report an increase, 17% ($n = 17$) reported no change in their spirituality or contemplation levels, and 3% ($n = 3$) did not provide an answer to this question.

51% of respondents ($n = 51$) reported a better understanding of past events, memories, or traumatic experiences that played a significant role in their lives. In comparison, 29% ($n = 29$) answered that they did not, and 19% ($n = 19$) responded, “Somewhat.”

Out of the 77 participants who completed the small 2-item subscale on feelings of love and appreciation following their psychedelic experience, the mean average score was 6.25 (range: 0–10; $SD = 3.02$) with 65% scoring higher than a 5, 48% higher than a 7, and 21% a 10.

75 respondents answered the item asking them to rate how much their experience helped them feel more resilient towards life failures (0–10). 66 scored a five or higher, 53 scored a seven or higher, and 22 scored a 10. The mean average was 6.69 ($SD = 3.05$).

Themes

Participants were asked, “Did your psychedelic experience result in personal growth?” and were allowed to select “Yes,” “No,” “Somewhat,” or choose not to answer. They were subsequently prompted to elaborate on their answer in 100 words or less. 97 participants answered the multiple-choice part of the question, and 75 of the 100 provided additional details in the qualitative follow-up open response. Two or more researchers coded the responses and found common themes among the sample, including (1) increased insight and perspective shift, (2) mystical, spiritual, and religious experiences, (3) improved mental and emotional well-being, (4) increased appreciation, (5) empathy and relationships, (6) better version and growth, (7) acceptance and self-love, and (8) negative and mixed-type experiences. Saturation was determined to be reached based on theoretical reasoning and thematic induction analysis. This combinatorial approach found consistent reporting of positive, mixed, and negative experiences, and more specific themes recurring in a predictable and pattern-like fashion (Table 3).

Increased insight and perspective shift. One major theme respondents described was increased insight, gaining newfound knowledge, and a shift in perspective that often led to improved self-awareness. Many statements such as these were observed in participants and included experiencing personal growth due to changes in their outlook or within themselves and the world around them, seeing themselves for who they truly were, and becoming more introspective.

Mystical, spiritual, and religious experiences. Another significant theme was that respondents’ psychedelic experiences featured mystical, spiritual, and religious elements. These responses involved testimonies describing a range of experiences, such as interconnectedness, unity, an increase in one’s faith or religious beliefs, transcendence, enhanced sensory awareness, and ineffability. These and other similar

statements are representatives of a theme that encapsulates a deepening of spirituality and faith in a greater power, mystical experiences such as being interconnected with other beings and the universe, feeling as if their psychedelic experience was indescribable, and more.

Improved mental and emotional well-being. Another theme among participants was related to improvement in overall emotional and psychological health. This theme emphasized newfound insights about the importance of caring for oneself and one’s emotional and mental health. Respondents frequently reported insight into their maladaptive coping mechanisms and how modifying such patterns can lead to a more satisfied life. Further, some participants reported decreased positive symptoms such as lessened hallucinations and feeling less paranoid. Several participants also reported feeling significantly less stress and anxiety after their experience, and several reported decreased suicidal ideation.

Increased appreciation. Increased appreciation was another theme that occurred across the responses. These reports centered around appreciating and valuing the various aspects of life, feeling a newfound appreciation of life and/or nature, and recognizing the beauty of life. Participants describing these experiences also reported feeling grateful for personal relationships, having an increased sense of purpose, appreciating more experiences and opportunities, and acknowledging the positive aspects of life.

Empathy and relationships. A less prominent but still widely reported theme was empathy and personal relationships. Several participants described realizing ways they were engaging in relationships, and how their psychedelic experience generated increased empathy, heightened emotional intelligence, and care for others. Some participants also described being to recognize faults in their relationships and ways to move forward.

Better version and growth. Another less common theme was the better version and growth of an individual, where testimonies from participants centered around personal development, self-improvement, and/or feeling like oneself again. This theme was established from expressions of self-reflection, goals, aspirations, and taking steps toward bettering oneself.

Acceptance and self love. The final positive theme discovered was that of acceptance and self-love where participants expressed acceptance of oneself, reality, the world, and things beyond control, as well as compassion for oneself and self-love. Themes related to acceptance varied with some participants reporting acceptance of death, self-acceptance, and accepting their fear and pain. Some also described increased self-compassion.

Negative and mixed-type experiences. While most participants reported overall positive psychedelic experiences that resulted in personal growth, mystical-type experiences, and increased insight, several individuals reported that their



Table 3. Qualitative responses describing growth or lack of growth from reported psychedelic experience

Theme	Description	Exemplar quotes
Increased Insight and Perspective Shift	Psychedelic use led to increased understanding, insight, self-awareness, more objective thinking and viewing of the world, increased introspection, spawned realizations, learning life lessons, and/or shift in perspective	P10: <i>I saw myself as I really was</i> P42: <i>I realized how I want to be happy and how to let go of things that bother me</i> P65: <i>I felt I was able to see perspective on certain situations clearer...</i> P90: <i>[it] made me a lot more introspective in the long run</i> P33: <i>There is control beyond our understanding</i> P22: <i>[I] became religious...</i>
Mystical, Spiritual, and Religious Experiences	The psychedelic experience resulted in becoming religious, seeing things as temporary, seeing everyone as one, a feeling of interconnectedness with the world, similar transcendent experiences, unable to explain in words and experiences of ineffability.	P87: <i>I have changed since then, feeling more of a “oneness” with all other living beings, more mindful of how my own thoughts affect me and how my actions affect others and myself</i> P55: <i>I’ve learned many valuable life lessons that I can’t put into words</i>
Increased Mental and Emotional Wellbeing	Reports of symptomatic relief in domains such as rumination, overthinking, catastrophizing, suicidality, and hallucinations, increased joy/peace/calmness, and decreased fear of death	P20: <i>I felt I understood things more and I also chose not to kill myself (during the trip) so I chose life</i> P12: <i>I feel like my mind has started expanding a little bit, taking me out of rumination and constant loops and catastrophizing</i> P64: <i>It helped me realize that it’s okay that fear and pain are a part of me. It let me connect with the traumatized part of myself and feel compassion for myself which I hadn’t done before. It was one of the only times that crying felt liberating instead of shameful</i>
Increased Appreciation	Increased feeling of life, appreciation for life, increased appreciation for nature, mentioning increased possibilities in the world	P47: <i>...it made me really appreciate the life I have and being sober</i> P63: <i>It turned me away from pessimism and nihilism and materialism. And find value and beauty in all things, especially nature</i> P90: <i>...made me much more appreciative of nature</i>
Empathy and Relationships	Becoming more caring, wanting to help people, more consideration for others, understanding, focus on external relationships	P23: <i>I realized I had a deep far reaching empathy that I did not realize I had and I realized how I have been neglecting personal relationships</i> P52: <i>I felt more open to forgiving my husband...</i> P32: <i>Eventually it lead to me realizing I was the problem in my own relationship and changing who i was for the better</i>
Better Version and Growth	Individuals describe becoming better versions of themselves, feeling more like themselves, mentioning specifically ‘growth’, and feeling compassion for myself	P6: <i>I think I was able to tap into and be a better version of myself. At least for the moment</i> P16: <i>I’m just a better person than I was 2 years ago</i> P19: <i>....I always grew a little bit from each [psychedelic] experience in some way</i>
Acceptance and Self-love	Acceptance of self, acceptance of one’s reality, acceptance of the world, acceptance of things beyond control, loving oneself, and self-love	P53: <i>More self-acceptance and acceptance of my experiences.</i> P95: <i>I realized I had a lot of love in me, including for myself (I never tapped into the latter previously)</i> P44: <i>I think it helped me be more in the moment and accept whatever comes in life which has been very useful so far</i>
Negative and Mixed-type Experiences	Reports of negative experiences, terror, fear, symptom exacerbation, beliefs that use led to permanent damage, drug misuse/abuse, and various other adverse effects that are either reported alone, or alongside statements of positive growth and change	P24: <i>It has made me realize the patterns and problems in my life. I wouldn’t be aware of them if I didn’t take drugs. However, it also made me really too self-aware in a crazy level, made some of my symptoms stronger such as intrusive unwanted thoughts and guilt</i> P68: <i>It has made me completely dependent on someone else. Unable to trust reality and my mind to grasp what’s true.</i> P78: <i>[I] gained [a] permanent trip, Lost suicidal ideation. Growth in some ways hinders others.</i>

experience—in part of in whole—was challenging, negative, and harmful. Some described experiences of terror and dysphoria, with two stating that their psychedelic experience catalyzed or caused their psychosis. Some reported that during their psychedelic experience, they believed they were dying, while others stated they thought they would never become sober again. Reports also included the belief that their psychedelic experience caused irreversible damage.

DISCUSSION

Overall, psychedelic clinical trials continue to exclude individuals with personal or familial histories of psychopathological psychotic experiences and disorders, despite a lack of evidence demonstrating that psychedelic treatment may not be beneficial to this group. A cross-sectional survey was designed to ask individuals with psychosis and psychotic disorders about their psychedelic use to determine if there may be reason to implement or avoid psychedelic care and research in this group. Results indicate that individuals with psychotic experiences and conditions use various psychedelic drugs naturalistically with diverse outcomes and most of the sample reported that their psychedelic experience resulted in some personal growth. Many also report mystical-type experiences, increased insight, improved mood, appreciation for life, and symptomatic relief, although a small portion reported negative experiences. An initial analysis shows that negative experiences (operationalized as respondents that said their psychedelic experience did not result in personal growth) seems to be associated with concomitant drug use and/or use in unfamiliar or uncomfortable settings. In particular, of the 8 respondents that reported not experiencing personal growth from their psychedelic experience, 6 (75%) fell into one or both of these categories. However, further more robust statistical testing must be done to verify the possibility of a correlation between these variables and experiences.

Statistical observations

The study collected data from a total of 100 participants with psychotic experiences and/or disorders, demonstrating that psychedelic drugs are used by this population. Of the 100, 43% ($n = 43$) reported using psilocybin mushrooms, 38% ($n = 38$) reported using LSD, 8% ($n = 8$) reported mixing a psychedelic with another psychedelic or MDMA, 6% ($n = 6$) reported using ketamine, 2% ($n = 2$) reported using DMT, 1% ($n = 1$) reported using ayahuasca, and 1% ($n = 1$) reported using 2-BOH-CB (see [Supplementary material D](#)).

Regarding personal growth, minimal variation was observed across drug categories with 86% ($n = 32$) of those who used LSD reporting some degree of personal growth resulting from their experience compared to 92% ($n = 38$) of those who used psilocybin mushrooms. Of the 8 who reported no growth from their experience, 4 reported using LSD, 3 reported using psilocybin mushrooms, and one reported MDMA, suggesting that LSD could be associated with

more negative experiences in this population, however more research must be carried out to make this determination.

Average scores from the MEQ-mini demonstrated that moderately intense mystical-type experiences were relatively common, with an average total score of 7.1 ($SD = 2.00$) among the 58 who completed all items. Furthermore, 70% ($n = 70$) of participants reported that their psychedelic experience helped them to process traumatic events and memories while 67% ($n = 67$) reported a deepening of spirituality or contemplation following their experience. More than 60% also indicated that their experience resulted in increased feelings of love and appreciation, and improved resilience against life challenges.

Thematic analysis

Thematic analysis indicates that the sample primarily experienced positive experiences, which featured moments of insight, increased awareness, spiritual and mystical experiences, improved mood, heightened empathy, disruption of maladaptive behaviors, appreciation of life, personal growth, self-love and appreciation, and improved relationships. At the same time, several individuals reported experiencing euphoria and insight accompanied by distressing moments, which were described as adverse and mixed effects, replicating findings from ([Morton et al., 2023](#)). These trends suggest that psychedelic experiences reported by this sample may occur along a spectrum and continuum, and are suggestive of the non-binary nature of such experiences. More research must be done to determine whether this population experiences negative and mixed experiences at a greater rate or frequency compared to other diagnostic groups, as well as if negative effects and consequences are more severe.

Study limitations

The study has several limitations. For one, the study is somewhat limited in terms of diversity, given that ethno-racial diversity is limited and that significantly more individuals describe positive symptoms of psychosis than negative symptoms. In addition, it is worth noting that the sample may not represent the broader population, given that those who took the time to respond to the survey may feel more strongly that their psychedelic experience was transformative, in either a positive or negative way, potentially biasing the results. Additionally, some participants combined their psychedelics with other drugs ranging from alcohol and caffeine to benzodiazepines and cannabis, which may have also affected reported experiences in a range of ways.

Further, the authors recognized a typo in the survey that mislabeled ‘schizoaffective disorder’ as ‘schizoaffective personality disorder.’ During data cleaning, individuals selecting “schizoaffective personality disorder” were assumed to have meant “schizoaffective disorder” and were labeled accordingly (PSD rather than PPD). Overall, this error is postulated to not have had a significant impact on results and findings as the study looked at psychosis as a whole rather than individual psychotic diagnoses. Another similar



limitation is that individuals with BPD were included in our sample, which, although sometimes includes psychotic symptoms in presentation, is not traditionally understood as a psychotic condition.

One noteworthy methodological limitation is that survey respondents recounted experiences that occurred one or more years ago, with some being as many as six years ago. However, while such extended periods of time elapsing may distort memories significantly, it is also worth considering that psychedelic experiences can be extremely important life events comparable to the birth of children (Griffiths et al., 2006; Healy, 2021). Given the magnitude and significance of these experiences, it is possible that participants may have been able to recall them more accurately compared to a mundane event from so long ago. Other limitations include a lack of consistent specification on part of the survey as to whether psychotic symptoms or disorders reported occurred prior to or after reported psychedelic use, and use of an unvalidated version of the MEQ.

CONCLUSION

Analyses suggest that the sample describes three types of experiences overall: positive, mixed, and negative, which replicates similar previous findings among a sample of individuals with bipolar disorder describing their experiences with psilocybin-containing mushrooms (Morton et al., 2023). Consequently, psychedelic experiences are best described as multidimensional or spectrum-like. Most of the sample reported some degree of personal growth, experiences of insight, and mystical-type experiences with varying ranges of intensity, while a small proportion of the sample reported negative experiences and adverse effects such as worsening symptoms. However, it is unclear precisely what may lead to such events as confounding variables such as comfortability in setting and concomitant use of substances obfuscate results. In addition, adverse effects commonly occur alongside positive effects, which may indicate a more extensive, generalizable trend for other groups, including healthy normals and those with anxiety, depression, and other conditions.

Overall, given the abundance of positive survey reports regarding naturalistic psychedelic use, it is possible that supervised clinical use of psychedelics in tandem with psychotherapy could be an effective modality for treating both psychotic symptoms and comorbid symptoms of other problems like anxiety, depression, and substance use disorder for this population (La Torre et al., 2023). This is especially true given that negative and adverse experiences occurred when individuals used psychedelics in environments that have been demonstrated to be problematic for psychedelic use such as outside of a supervised, familiar, and safe setting. Nevertheless, more research with larger samples must be carried out to conduct statistically significant analyses to make further determinations regarding the possible efficacy and safety of PAT for this group, as well as develop recommendations for tailored PAT protocols.

Disclosure: This study was conducted as part of the dissertation for Joseph La Torre's Ph.D. in Psychology at the University of Ottawa.

Conflicts of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Authors' contribution: JL and MW conceptualized the study and wrote parts of the manuscript; JG and MM helped develop the survey and draft the ethics review application; JL and JG distributed the survey across various social media platforms; JG, MM, and DZ helped to interpret results, create tables, and write the manuscript.

Data availability: Due to privacy concerns and agreements surrounding confidentiality, the raw dataset cannot be shared. As per agreement with the respondents, any data not included in the paper must remain private and is subject to deletion from any hardware or cloud-based storages upon the completion of the study.

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SUPPLEMENTARY MATERIALS

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Appendices

Appendix A. Questions from the CAPE-42 to identify possible psychotic experiences

Symptom category	Sub-category	Selected questions
Delusions	Perceptual Delusions	Do you ever feel as if things in magazines or on TV were written especially for you?
		Do you ever feel as if some people are not what they seem to be?
		Do you ever feel as if there is a conspiracy against you?
	Ideas of Reference	Do you ever feel that a double has taken the place of a family member, friend, or acquaintance?
		Do you ever feel as if people seem to drop hints about you or say things with a double meaning?
		Do you ever feel that you are being persecuted in some way?
	Grandiose Delusions	Do you ever think that people can communicate telepathically?
		Do you ever feel as if you are destined to be someone very important?
		Do you ever feel that you are a very special or unusual person?
Negative Symptoms	Do you ever feel as if the thoughts in your head are being taken away from you?	
	Do you ever feel as if the thoughts in your head are not your own?	
	Do you ever feel that you are not a very animated person?	
	Do you ever feel that your emotions are blunted?	
	Do you ever feel that you have no interest in being with other people?	
Hallucinations	Auditory Hallucinations	Do you ever feel that your mind is empty?
		Do you ever hear your own thoughts being echoed back to you?
	Visual Hallucinations	Do you ever hear voices when you are alone?
		Do you ever hear voices talking to each other when you are alone?
		Do you ever see objects, people, or animals that other people cannot see?

Appendix B. 7-Item symptoms checklist to identify psychotic symptoms

Symptom category	Selected questions (Yes or No response)
Hallucinations	1. Hear voices or see things other people do not 2. Smell or feel things other people do not
Delusions	1. Feel as if you are an extremely important or special person 2. Feel as if others are conspiring or plotting against you or that people are out to get you 3. Feel as if you can read other people's minds or that they can read yours 4. Feel as if ordinary things such as a song on the radio or a billboard are speaking to you
Negative Symptoms	1. Feel as if you are disconnected or detached from your body

Appendix C. 11 Items of the Mystical Experiences Questionnaire-mini (MEQ-mini)

Factor	Items
Mystical	During the psychedelic experience, I saw a higher power
	During the psychedelic experience, I became one with the ultimate/true reality
	During the psychedelic experience, I experienced unity with ultimate reality
	During the psychedelic experience, I felt free of personal limitations allowing me to be greater than myself
Positive Mood	During the psychedelic experience, I felt more peaceful
	During the psychedelic experience, I felt joyful
Space/Time Distortion	During the psychedelic experience, I felt amazing
	During the psychedelic experience, I lost the sense of time
	During the psychedelic experience, I lost the sense of space
Ineffability	During the psychedelic experience, I felt the world had no space boundaries
	During the psychedelic experience, I cannot fully describe the experience in words

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