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BRIEF REPORT

Exploring the relationship between mental health, drug use, personality, and attitudes towards psilocybin-assisted therapy

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ABSTRACT

Background: Psilocybin, the psychoactive compound in magic mushrooms, is increasingly discussed in terms of its psychotherapeutic potential; however, little is known about community attitudes towards psilocybin assisted therapy (PAT). *Aims:* To address the question: What are the public's attitudes towards psilocybin and psilocybin-assisted therapy? And what factors explain these attitudes? *Methods:* This study investigated the attitudes of 118 young adults in the Australian Capital Territory through an online survey. *Results:* Participants who were more open to experience and who had used recreational drugs were more likely to have positive attitudes towards all aspects of PAT. Additionally, psychedelic drug use and agreeableness was positively associated with attitudes towards psilocybin safety, legality, and research; and psilocybin use was positively associated with attitudes towards psilocybin knowledge and acceptability. *Conclusions:* This convenience sample of young adults was generally positively disposed towards PAT. People who were more open to experience and who had used recreational or psychedelic drugs had more favourable attitudes towards PAT.

KEYWORDS

psilocybin, psilocybin-assisted therapy, mental health, attitudes, personality

MENTAL HEALTH, DRUG USE, AND PERSONALITY AS EXPLAINERS OF ATTITUDES TOWARDS PSILOCYBIN-ASSISTED THERAPY

The prevalence of mental illness is growing worldwide (World Health Organisation, 2022). An emerging mental health treatment involves use of psilocybin (the psychoactive alkaloid in magic mushrooms) in conjunction with psychological support. Psilocybin-assisted therapy (PAT) studies have shown benefits including improved psychological wellbeing (e.g., Goldberg, Pace, Nicholas, Raison, & Hutson, 2020; Vargas, Luís, Barroso, Gallardo, & Pereira, 2020; Yu et al., 2021), enhanced perception (Hartogsohn, 2018), smoking cessation (Johnson, Garcia-Romeu, & Griffiths, 2017), and spiritual experiences (Griffiths, Richards, Johnson, McCann, & Jesse, 2008). Risks include anxiety, paranoia, challenging experiences, and hallucinogen-persisting-perception-disorder. However, the risks of significant harm appear to have been overestimated (Johnson, Griffiths, Hendricks, & Henningfield, 2018). Further research is needed to better understand psilocybin's psychotherapeutic potential and risks, as well as attitudes towards psilocybin and PAT.

Little is known about public attitudes towards PAT. Corrigan et al. (2021) surveyed Irish mental health service users ($N = 99$), finding that 72% supported further psilocybin research, 55% would accept psilocybin with psychological support if a doctor recommended it, and 27% had used psilocybin recreationally. Similarly, a Norwegian study found that 51% of the adult population ($N = 1{,}078$) would try psilocybin in a medical setting (Jacobsen, Stubhaug, Holmøy, Kvam, & Reme, 2021). However, little is known about Australian attitudes towards PAT. A representative poll of 1,062 Australians found that over 60% had favourable attitudes, but understanding was low (Mind Medicine Australia, 2022).

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Individual differences may help explain attitudes towards PAT, including personal mental health history, previous recreational drug use, and some personality traits. Corrigan et al. (2021) found that participants with mental health diagnoses were more likely to agree that psilocybin may be useful for some mental health disorders.

Previous recreational drug use is also likely to influence attitudes towards PAT. A US National Survey found that recreational drug use was associated with a higher likelihood of trying psilocybin (Yockey & King, 2021). Previous psychedelic and psilocybin use are likely to influence attitudes towards PAT (Meyer, Meir, Lex, & Soares, 2022; Raju, 2020). For example, Norwegians who had tried psilocybin recreationally were more willing to try it medically (Jacobsen et al., 2021).

Certain personality traits are associated with psilocybin use. For example, openness clearly has a positive relationship with psychedelic usage (Bouso, Dos Santos, Alcázar-Córcoles, & Hallak, 2018; Johnstad, 2021; Nour, Evans, & Carhart-Harris, 2017). Agreeableness and emotional stability may also have a positive relationship with psychedelic usage (Johnstad, 2021), whereas there are mixed results for conscientiousness and extraversion (Johnstad, 2021; Molumby, Gaynor, Guerin, & McNamara, 2022; Nour et al., 2017).

The current study

The current study aimed to investigate public attitudes towards PAT. The study examined the extent to which mental health status, previous recreational, psychedelic, and psilocybin use, and personality traits are related to the attitudes of young adults' in the Australian Capital Territory (ACT) towards PAT. It was hypothesised that a personal history of mental health problems; recreational, psychedelic, and psilocybin use; and openness, agreeableness, and emotional stability personality traits would positively explain attitudes towards PAT. Neither extraversion nor conscientiousness were expected to contribute.

METHOD

Participants

Participants (N = 118) were 18- to 30-year-olds (M = 23.1, SD = 2.9) who lived in the ACT (62% female; 33% male; 5% non-binary/other). There were two subsamples: University of Canberra first-year psychology students (28%) and those recruited via social media (N = 81, 72%). The data were collected in 2022, during which time psilocybin was classified by the Therapeutic Good Administration (2023) in Australia as a Schedule 9 prohibited substance. Most participants (87%) had previously experienced mental health problems. Three-quarters (74%) had used recreational drugs. Less than half had used psychedelic drugs (41%). Thirty nine percent of participants reported having used psilocybin recreationally compared to 27% of participants in Corrigan et al. (2021).

A self-report survey was used to collect data about background characteristics (i.e., mental health ("Have you ever experienced mental health problems?" (0 = *No*; 1 = *Yes*) and three questions about previous drug use ("Have you ever tried any recreational (non-prescription) drugs/psychedelic drugs/psilocybin (magic mushrooms)?" (0 = *No*; 1 = *Yes*), personality, and attitudes. The 50-item International Personality Item Pool (Goldberg, 1992) provided 10 items to measure each of the big five personality traits: agreeableness (α = 0.81), conscientiousness (α = 0.80), emotional stability (α = 0.82), extraversion (α = 0.89), and openness (α = 0.79).

Attitudes towards psilocybin and PAT were measured using 22 items adapted from Corrigan et al. (2021) (see Supplementary File). Each item related to one of three attitude domains. Therapeutic potential measured whether participants thought that PAT shows promise in treating some mental disorders (α = 0.89; k = 7). Safety, legality, and research measured whether participants thought that therapeutic use of psilocybin can be safe, should be legalised, and warrants further research (α = 0.84; k = 6), and knowledge and acceptability measured participants' knowledge about, and willingness to use, psilocybin under medical conditions if it was advised (α = 0.87; k = 9). Responses options used a 5-point Likert scale (1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Neither Agree/Disagree*; 4 = *Agree*; 5 = *Strongly Agree*). Three items were reverse-coded so that all attitudes were measured in a positive direction.

Procedure

This study was approved by the University of Canberra Human Research Ethics Committee (11,681). A nonexperimental correlational research design collected online survey data via convenience sampling May to June, 2022. The target population was 18- to 30-year-olds living in the ACT. The sample was drawn from University of Canberra first-year psychology students who participated for academic credit and a social media sample incentivised by entering a AUD100 prize draw.

RESULTS

Descriptives

Overall, participant attitudes towards PAT were positive. Participants most strongly endorsed safety, legality, and research (M = 3.95, SD = 0.74), followed by therapeutic potential (M = 3.70, SD = 0.73), and knowledge and acceptability (M = 3.50, SD = 0.72). These were significant differences, based on a one-way repeated measures ANOVA, $F(2,111) = 31.67$, $p < 0.001$) and post-hoc pairwise contrasts ($p < 0.001$). Item-level responses indicated that 91.5% of participants agreed that psilocybin should be tested for medical value and 77.1% agreed that they would accept psilocybin with psychological support if a doctor recommended it (see Supplementary File).

Relationships

Correlations between background characteristics, personality traits, and psilocybin attitudes are shown in Table 1. Multiple linear regressions were conducted using background variables (personal history of mental health problems, recreational drug use, psychedelic drug use, and psilocybin use), and the big five personality factors as explanatory variables for each of the PAT attitude domains (see Table 2).

For attitudes towards psilocybin's therapeutic potential, the model accounted for 24% of the variance, $F(9, 107) = 3.82$, adjusted $R^2 = 0.18$, $p < 0.001$. Recreational drug use ($\beta = 0.28$, $t = 2.88$, $p = 0.005$, $sr^2 = 0.04$), openness ($\beta = 0.23$, $t = 2.41$, $p = 0.018$, $sr^2 = 0.04$), and agreeableness ($\beta = 0.20$, $t = 1.99$, $p = 0.049$, $sr^2 = 0.02$) had significant positive relationships with attitudes. Mental health problems ($\beta = -0.22$, $t = -2.37$, $p = 0.020$, $sr^2 = 0.04$) had a significant negative relationship with therapeutic potential attitudes. Previous psychedelic drug use, previous psilocybin use, and the personality dimensions of conscientiousness, extraversion, and emotional stability were not significant predictors.

For attitudes towards psilocybin safety, legality, and research, the model accounted for 40% of the variance, $F(9, 107) = 7.81$, adjusted $R^2 = 0.35$, $p < 0.001$. Recreational drug use ($\beta = 0.32$, $t = 3.63$, $p < 0.001$, $sr^2 = 0.07$), psychedelic drug use ($\beta = 0.31$, $t = 2.89$, $p = 0.005$, $sr^2 = 0.05$), openness ($\beta = 0.30$, $t = 3.48$, $p < 0.001$, $sr^2 = 0.07$), and agreeableness ($\beta = 0.24$, $t = 2.61$, $p = 0.010$, $sr^2 = 0.04$) had significant positive relationships with attitudes towards safety, legality, and research. Mental health problems ($\beta = -0.27$, $t = -3.28$, $p = 0.001$, $sr^2 = 0.06$) and extraversion ($\beta = -0.20$, $t = -2.41$, $p = 0.018$, $sr^2 = 0.03$) had significant negative relationships with attitudes. Psilocybin use and the personality dimensions of conscientiousness and emotional stability were not significant.

For psilocybin knowledge and acceptability attitudes, the model explained 44% of the variance, $F(9, 107) = 9.31$, adjusted $R^2 = 0.39$, $p < 0.001$. Recreational drug use ($\beta = 0.31$, $t = 3.60$, $p < 0.001$, $sr^2 = 0.07$), psilocybin use ($\beta = 0.30$, $t = 2.82$, $p = 0.006$, $sr^2 = 0.04$), and openness ($\beta = 0.22$, $t = 2.58$, $p = 0.011$, $sr^2 = 0.04$) had a significant positive relationship with attitudes. Mental health problems ($\beta = -0.18$, $t = -2.23$, $p = 0.028$, $sr^2 = 0.03$) had a significant negative relationship with knowledge and acceptability attitudes. Psychedelic drug use and the personality dimensions of conscientiousness, extraversion, agreeableness, and emotional stability were not significant.

DISCUSSION

This convenience sample of young adults in the ACT had moderately positive attitudes towards PAT, however responses varied. A personal history of mental health concerns, drug use, and personality traits explained approximately a third of the variance in the PAT attitude domains. Previous recreational drug use and openness to experience were the strongest predictors, each uniquely accounting for three to seven percent of the variance in attitudes towards PAT.

Previous mental health problems was not significantly correlated with attitudes, however it was negatively associated with each attitude construct in the regression models. This suppression effect arose due to use of recreational drug use and openness as predictors; when these variables were included, previous mental health problems became a significant, negative predictor of attitudes, uniquely accounting for six to seven percent of the variance in attitudes.

Previous psychedelic drug use was significantly, positively associated with psilocybin safety, legality, and research attitudes, consistent with the hypothesis and existing literature (Meyer et al., 2022; Raju, 2020). However, previous psychedeic drug use was not significantly associated with psilocybin therapeutic potential or knowledge and acceptability attitudes.

Openness to experience was the personality trait with the strongest relationship to attitudes, consistent with the hypothesis and literature (Bouso et al., 2018; Johnstad, 2021; Nour et al., 2017). Thus, those who are more imaginative, creative, and reflective tend to be positively disposed towards PAT. This relationship could be bidirectional, such that psilocybin fosters openness which may, in turn, foster positive attitudes towards psilocybin.

Table 1. Correlations between psilocybin assisted therapy attitude constructs, background characteristics, and personality traits

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Therapeutic potential	–											
2. Safety, legality, and research	0.65*	–										
3. Knowledge and acceptability	0.68*	0.63*	–									
4. Mental health problems	−0.06	−0.11	0.01	–								
5. Recreational drug use	0.31*	0.34*	0.47*	0.27*	–							
6. Psychedelic drug use	0.24*	0.35*	0.50*	0.07	0.40*	–						
7. Psilocybin use	0.21*	0.14	0.49*	0.15	0.36*	0.69*	–					
8. Openness	0.28*	0.34*	0.25*	0.15	0.11	0.05	0.01	–				
9. Conscientiousness	−0.08	−0.06	−0.16	−0.01	−0.26*	−0.21*	−0.23*	0.20*	–			
10. Extraversion	0.09	0.03	0.10	−0.09	0.11	0.06	0.04	0.28*	0.01	–		
11. Agreeableness	0.17	0.24*	0.03	0.02	−0.10	−0.11	−0.32*	0.38*	0.28*	0.25*	–	
12. Emotional stability	−0.00	0.06	−0.03	−0.22*	−0.12	0.05	0.02	0.10	0.13	0.17	−0.01	–

* $p < 0.05$

Table 2. Coefficients for the multiple linear regression models explaining attitudes towards psilocybin assisted therapy

Variable	Therapeutic potential			Safety, legality, and research			Knowledge and acceptability		
	B [95% CI]	β	sr^2	*B* [95% CI]	β	sr^2	*B* [95% CI]	β	sr^2
Mental health problems	−0.47* [−0.85, −0.08]	−0.22	0.04	−0.59* [−0.95, −0.23]	−0.27	0.06	−0.37* [−0.71, −0.04]	−0.18	0.03
Recreational drug use	0.49* [0.15, 0.82]	0.28	0.06	0.56* [0.25, 0.86]	0.32	0.07	0.52* [0.23, 0.80]	0.32	0.07
Psychedelic drug use	0.05 [−0.30, 0.40]	0.03	0.00	0.46* [0.15, 0.77]	0.31	0.05	0.27* [−0.03, 0.56]	0.19	0.02
Psilocybin use	0.25* [−0.11, 0.61]	0.17	0.01	−0.13 [−0.46, 0.20]	−0.09	0.00	0.44* [0.13, 0.75]	0.30	0.04
Openness	0.28* [0.05, 0.51]	0.23	0.04	0.36* [0.16, 0.57]	0.30	0.07	0.25* [0.06, 0.45]	0.22	0.04
Conscientiousness	−0.06 [−0.26, 0.14]	−0.06	0.00	−0.06 [−0.24, 0.12]	−0.06	0.00	−0.04 [−0.21, 0.13]	−0.04	0.00
Extraversion	−0.07 [−0.23, 0.09]	−0.08	0.00	−0.18* [−0.33, −0.03]	−0.20	0.03	−0.06 [−0.19, 0.08]	−0.05	0.00
Agreeableness	0.24* [−0.00, 0.47]	0.20	0.02	0.28* [0.07, 0.50]	0.24	0.04	0.14 [−0.05, 0.35]	0.13	0.01
Emotional stability	−0.02 [−0.20, 0.17]	−0.02	0.00	0.05 [−0.12, 0.21]	0.04	0.00	−0.04 [−0.20, 0.11]	−0.04	0.00

CI = confidence interval

There were mixed results for the other personality traits. Extraversion was negatively associated with attitudes towards psilocybin safety, legality, and research, but was not significantly associated with attitudes towards therapeutic potential and knowledge and acceptability. This relationship was also a suppressor effect because extraversion did not significantly correlate with safety, legality, and research attitudes. Agreeableness was significantly associated with safety, legality, and research, but not with therapeutic potential or knowledge acceptability attitudes. Conscientiousness was not a significant predictor, consistent with the hypothesis and previous literature (Johnstad, 2021; Nour et al., 2017). Emotional stability was not a significant predictor, contrary to the hypothesis (Johnstad, 2021).

As an exploratory study, there were several methodological limitations. Generalisability is limited due to convenience sampling of 118 young adults from a small, progressive Australian territory, 28% of whom were psychology students. Self-selection bias (e.g., people who are already favourable of psilocybin) seems likely. Furthermore, public attitudes may have shifted positively since rescheduling of psilocybin was announced after data collection (Therapeutic Goods Administration, 2023).

There is a lack of instrumentation for measuring attitudes towards psychedelic-assisted therapy. The items used to measure the three attitude constructs in the current study were internally consistent, however further psychometric testing and development is needed.

Future research could further explore the personality-psilocybin relationship. For example, the HEXACO personality model offers an extension of the big five by including an honesty-humility component (Ashton & Lee, 2007) which may be related to PAT attitudes.

Evidence for the effectiveness of PAT is growing worldwide; however, attitudes regarding PAT are not well known and understanding of PAT is low (Corrigan et al., 2021; Mind Medicine Australia, 2022). The current study explored individual differences which may help to explain attitudes towards PAT. Openness and previous recreational drug use were associated with positive attitudes, whilst previous mental health problems had a more complex negative relationship with attitudes due to suppressor effects. As PAT becomes more widely known and used, there is opportunity to understand how public attitudes are formed and influenced.

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SUPPLEMENTARY MATERIAL

Supplementary data to this article can be found online at https://doi.org/10.1556/2054.2023.00264.

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