The Flourishing Effects of a 3-day Psilocybin Retreat

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Abstract

Background and aims. Psychedelic research has experienced a striking resurgence in recent decades, with scientific studies and clinical trials increasingly exploring the potential applications of psychedelic substances including the possible benefits for wellbeing and optimum human functioning. Despite this, research into the psychological benefits of psychedelics for mentally healthy individuals in real-world settings is lacking. This study contributes to resolving this by investigating the hypothesis that a 3-day psilocybin retreat will enhance indicators of hedonic and eudaimonic wellbeing in healthy adults.

Methods. This quasi-experimental study relied on the collection of web-based data from a self-selected volunteer sample of 19 healthy adults taking part in legal psilocybin retreats. Questionnaires to self-assess the wellbeing effects of the retreat were completed at three key timepoints: 1 day before, 2 days after, and 3 weeks following the experience.

Results and conclusion. The findings indicated a significant increase in flourishing, wellbeing, gratitude and positive affect in the weeks following the psychedelic retreat, suggesting that psilocybin retreats can improve wellbeing for healthy people, thus becoming a potential intervention of interest to the field of positive psychology and wellbeing.

Keywords: Positive psychology; psychological wellbeing; psychedelic retreats; psilocybin; gratitude; flourishing

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INTRODUCTION

Employing theories of psychological wellbeing, this paper explores the knowledge gap concerning the relationship between participating in psilocybin retreats and psychological wellbeing in healthy people. As far as we know, the literature exploring psilocybin use in the positive psychology context is limited with few studies examining the impact of these experiences on human flourishing and wellbeing.

Mental health issues place significant social and economic costs at both personal and global levels (World Health Organization, 2021), making the promotion and maintenance of wellbeing a priority beyond the individual concern to national indices and global policy (Layard, 2021; United Nations Department of Economic and Social Affairs, 2023). Simultaneously, psychedelic therapy is emerging as a promising alternative paradigm for mental health interventions (Yehuda & Lehrner, 2023). In recent decades, interest and investment in psychedelics have surged, fuelling research (Andersen et al., 2021), pharmaceutical ventures (Phelps et al., 2022) and naturalistic use (Keyes et al., 2023).

Previous studies of clinical populations have already demonstrated psilocybin's efficacy in improving mental health outcomes (Carhart-Harris et al., 2016; Griffiths et al, 2008). This study goes beyond these important results by exploring a 3-day psychedelic retreat's potential psychological benefits on healthy individuals, a demographic seldom addressed in current psychedelic literature (Elsey, 2017). With the legislative landscape surrounding psychedelics changing, it is possible that retreats such as those studied here will increasingly become a popular option within the general population for experiencing these proven wellbeing effects of psychedelics, and are therefore of interest to the developing science of positive psychology (PP). This paper explores the question: To what extent does a 3-day psilocybin retreat affect wellbeing?

Wellbeing

While establishing a clear conceptualisation of wellbeing is made complex by the broad variety of approaches to and definitions of wellbeing in academic literature (Dodge et al., 2012), it is crucial for understanding the effects of a psilocybin retreat. In this paper, wellbeing is explored through the lens of PP. Originally conceived of as the science of authentic happiness (Seligman & Csikszentmihalyi, 2000), PP has evolved to become the scientific "study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups and institutions" (Gable & Haidt, 2005). Flourishing goes beyond wellbeing to encompass not just "feeling good", but "functioning effectively" (Huppert & So, 2013).

The PP construct of flourishing is still in its early years. Seligman (2011), often regarded as the founder of PP, presents flourishing as a multi-dimensional construct integrating such facets as positive emotion, accomplishment and meaning. This is in line with a burgeoning body of research proposing that wellbeing is most effectively understood as a multifaceted construct comprising distinct elements (Longo et al., 2016). However, consensus is lacking regarding the critical components of this conceptualisation (Huppert, 2009) with no single definition being generally accepted (Mans, 2021).

Two important often discussed facets of flourishing are hedonia (subjective wellbeing) and eudaimonia (psychological functioning). Hedonia has been defined as consisting of emotion as well as the sense of satisfaction with life (Diener et al., 1999), while eudaimonia refers to how well people are functioning under the conditions of optimal living (Ryan et al., 2008). Therefore Seligman's 2011 definition of flourishing is in line with most contemporary psychological models that suggest wellbeing includes both hedonic and eudaimonic elements (Wagner et al., 2020) and that flourishing can be most effectively enhanced through cohesive promotion of both hedonic and eudaimonic activities (Henderson et al., 2013).

In 2010, Diener et al. developed the flourishing scale (FS; Diener et al., 2010), which conceives flourishing as a state of optimal functioning and wellbeing comprising positive emotions, engagement, relationships, meaning and accomplishment. This aligns with the broader PP perspective, which emphasizes the importance of focusing on generating both hedonic and eudaimonic wellbeing, moving away from the traditional 'deficit' model of psychology that views psychological functioning through the lens of pathology, deficits and disorders (Ryff & Singer, 2008). Understanding wellbeing as a generative concept beyond the absence of psychopathology is an increasingly accepted position in psychological theory (Huppert, 2014). As Keyes (2016) explains, "even if we could find a cure for mental illness tomorrow, it does not mean that most people would necessarily be flourishing in life".

Seligman (2011) further proposed that flourishing is the result of building and sustaining the five pillars of his PERMA model: Positive emotions, engagement, relationships, meaning and accomplishment. Scientific evidence supports these pillars, with resilience and life satisfaction both positively correlated with positive emotions (Cohn et al, 2009), which provide a buffer against symptoms of depression (Kiken et al., 2017) and help us to recover from stress faster (Ong et al., 2006). More recently, the importance of positive emotions in a range of health-enhancing functions has been demonstrated, including improved sleep quality (Pressman et al., 2019) and making healthier decisions that indirectly contribute to better health such as increased exercise (Boehm & Kubzansky, 2012) and healthier eating (Sirois et al., 2015). Seligman's second pillar, engagement, develops the concept of "flow", referring to "the holistic sensation that people feel when they act with total involvement" (Csikszentmihalyi, 1975). Engagement is frequently associated with wellbeing across a broad range of areas in the literature (Bryce & Haworth, 2002). Considering relationships, positive social connections are a key component of positive wellbeing (Ryff & Singer, 2001), with implications for life expectancy (Holt-Lunstad et al., 2010). Earlier research by Cohen et al. (1997) demonstrating the physiological impact negative social relationships can have has also been supported contemporarily (Song et al., 2021). Positive relationships are closely associated with experiencing

meaning in life (O'Donnell et al, 2014), a factor that has been empirically linked with happiness and wellbeing (Howell et al., 2012; Zhao et al., 2019). Lastly, recent literature associates a sense of accomplishment with increased wellbeing (Seligman, 2011; Seligman et al., 2004), with clear goals an important predictor of satisfaction with life (Fritz & Avsec, 2007).

While the PERMA model provides a framework for flourishing, it does not provide a comprehensive account of all factors that have been found to be positively related to wellbeing (Goodman et al., 2018). Other researchers argue for domains such as optimism, self-esteem, vitality, resilience (Huppert & So, 2013) and gratitude (Wood et al., 2009) to be included, while a 2016 review (Linton et al.) of self-report measures identified 196 dimensions of wellbeing.

It is understandable then that critics argue that the wide variety of measures for determining flourishing lack theoretical cohesion, over rely on psychometric validation and are questionable regarding their universality (Fowers et al., 2023), and that due to the cultural and temporal nature of flourishing no universal account can be reliably determined (Alexandrova, 2017). However, these criticisms are widely applicable to many areas of social science and are frequently levied at wellbeing research (Cook et al., 2016).

Regardless of the lack of consensus about what makes up flourishing, improving wellbeing has many positive implications, and therefore it is of interest to further investigate routes towards it.

Psychedelics

Psychedelics are "powerful psychoactive substances that alter perception and mood and affect numerous cognitive processes" (Nichols, 2016). Naturally occurring psychedelics such as ayahuasca and psilocybin have a rich history and have long been integral to spiritual ceremonies in indigenous cultures (Fotiou, 2020). In contrast, synthetic psychedelics such as lysergic acid diethylamide (LSD) were formulated by Western scientists in the early 20th century primarily for psychotherapeutic research (Sessa, 2016).

From the 1950s to the 1970s, studies were conducted on various psychiatric conditions (Jensen, 1962; Johnson, 1969; Ludwig et al., 1969; Cohen, 1959; Kast & Collins, 1964). However, a concurrent surge in recreational usage prompted the United States to enact the Controlled Substances Act while the United Nations established the Convention on Psychotropic Substances, which categorized many psychedelics as Schedule 1 drugs, substances with “high abuse potential with no accepted medical use” (Drug Enforcement Administration, n.d.).

However, we are currently witnessing a "psychedelic renaissance", marked by a recent surge in research that has contributed to the growing popularity and movement towards decriminalisation of some psychedelic compounds. The psychedelic relevant to this study is psilocybin, a psychedelic compound found in more than 200 species of mushrooms (Nutt, 2023). It is one of the most used hallucinogens in human studies (Johnson et al. 2008), with the most favourable safety profile (Hendricks et al., 2015), with no significant negative outcomes (Roscoe & Lozy, 2022) or reported deaths (Hodge et al., 2023).

Psilocybin is illegal in most countries, however, often creating difficulties for advancing research (Howard et al., 2021). However, in 2020 the United States Food and Drug Administration granted psilocybin “breakthrough therapy” status for treatment-resistant depression, followed by Australia in 2023, suggesting that it may soon be the first psychedelic to become a licensed medicine (Nutt, 2023).

Despite the barriers to accessing approval for research, emerging data is showing the potential of psilocybin in producing both rapid and sustained effects in treating several indicators of psychiatric disorders (van Amsterdam & van den Brink, 2022). A 2023 systematic review (Hodge et al., 2023) of the use of psilocybin found positive outcomes for conditions including depressive (Carhart-Harris et al., 2016; Li et al., 2022) and anxiety disorders (Grob et al., 2011; Goldberg et al., 2020), OCD (Maloney et al., 2024), and substance addiction involving nicotine (Johnson et al., 2017) and alcohol

(Bogenschutz, et al., 2015). These findings must be considered preliminary, however, as the studies that met the eligibility criteria for analysis were of variable quality, limiting the reliability of observed effects, while studies with negative results may not have been published resulting in publication bias (Walker et al., 2008).

While clinical research on psilocybin's potential to improve diagnosed mental disorders is expanding, studies exploring its potential benefits for healthy human functioning remain scarce (Wiepking et al., 2023), despite claims that it may promote wellbeing alongside remedying illness (Elsey, 2017). A scoping review of contemporary research on psilocybin use in healthy individuals and its effects on wellbeing and related sub-concepts of interest to PP, found that in all 13 eligible studies psilocybin use led to mostly positive outcomes including positive emotions, life satisfaction and overall wellbeing (Wiepking et al., 2023), while a cross-sectional survey study into users' perceptions of psilocybin found 87% attributed a positive or very positive effect on wellbeing; only 2.4% attributed a negative effect (Carhartt-Harris & Nutt, 2010).

In a prominent clinical study of psilocybin's impact on wellbeing (Griffiths et al. 2006), 30 healthy volunteers received high-dose psilocybin, completing questionnaires before, immediately after, and 2 months later, with additional assessments published 2 years later. At the final assessment, nearly 64% sustained positive wellbeing and attitudes towards life, with 58% ranking the experience as one of the most significant of their lives (Griffiths et al., 2008). In contrast, in an online survey of 1,993 individuals, 39% ranked it among their top 5 most challenging experiences, yet despite this, 84% reported benefiting from it with 76% attributing increased wellbeing or life satisfaction to the experience (Carbonaro et al., 2016).

Supporting these findings, a recent longitudinal survey study found a significant increase in mental wellbeing as evaluated using 14 measures that the researchers clustered into 3 factors: "Being well" (e.g., optimism, mood, meaning in life); "Staying well" (e.g., mindfulness, psychological

flexibility, resilience); and “Spirituality”. Positive changes in the first two factors but not the third remained statistically significant up to 2 years later (Mans et al., 2021), albeit with high participant attrition rates of 91%.

These findings indicate that psychedelics may exert a comprehensive, resilient, and enduring positive influence on mental wellbeing. However, psychedelic research is not without its limitations. As many studies are open label, limited conclusions can be drawn about treatment efficacy (Muthukumaraswamy et al., 2021). A major limitation is the discernible effects of psychopharmaceuticals, which renders blinding of participants and researchers ineffective, an issue that is well discussed in psychiatric literature (Baethge and Baldessarini, 2013).

Alongside this, the current hype in the media surrounding psychedelics (Kamin, 2021; Siebert, 2020) may introduce expectation and selection bias in a population that is already intrigued by psychedelics (Hovmand, 2023). Overall, without further longitudinal or controlled studies, there are significant challenges in applying current findings to the general population.

Retreats

Rahmani (2023) conceptualises the ‘retreat’ as an experience that aims “at balancing, maintaining, improving, and developing an individual’s body, mind, and spirit in a relaxing and supportive context”, with retreat centres providing programs of classes, activities or therapies “for the purpose of learning or improving a body–mind–spirit activity” (Smith & Puckzkó, 2017). All share the common theme of wellbeing (Kelly, 2010). The retreat industry is rapidly growing (Global Wellness Institute, 2023), and within that sector the popularity of the psychedelic retreat is on the rise (Kamin, 2021). The focus of psychedelic retreats is not on psychotherapeutic interventions or spiritual practices (Ferenstein, 2018), but on the healing, transformative or recreational experience of the psychedelic itself.

As psychedelic retreats grow in popularity with people traveling from countries where they are not accessible legally, ethical concerns have been raised about the lack of industry regulation, long-term follow ups and presence of medically trained professionals (Osterhold & Fernandes-Osterhold, 2023), making further research into best industry practice essential.

Hypotheses

Based on the literature documented and the research question proposed above, the following hypotheses were declared.

1. A 3-day psilocybin retreat will increase self-reported wellbeing in healthy people.

2. A 3-day psilocybin retreat will increase self-reported flourishing in healthy people.

3. A 3-day psilocybin retreat will increase self-reported positive mood in healthy people.

4. A 3-day psilocybin retreat will increase self-reported gratitude in healthy people.

The motivation for this study was to explore the potential of psilocybin retreats within the context of the PP conceptualisation of wellbeing, while adding to the body of research informing future legislation and application of psilocybin in a wellbeing context.

METHOD

Data collection

This naturalistic, quasi-experimental study relied on the collection of web-based data using the Qualtrics XM secure online platform to create, host and automate delivery of self-report surveys consisting of four measures theoretically linked to the concept of wellbeing: The Flourishing Scale (FS; Diener et al., 2010; see Appendix B); Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant et al., 2007; see Appendix C); Gratitude Questionnaire (GQ-6; McCullough et al., 2002; see Appendix D); and the Positive Affect Score (PAS) subscale of the Positive and Negative Affect

Schedule (PANAS; Watson et al., 1988; see Appendix E). A pre-intervention survey collected demographic data including participants' ages, genders and mental health statuses.

Participants were invited to join the study by the retreat provider, the Essence Institute (EI; www.essence.nl) via email containing a link to the research aims and consent form. Following this, participants received emails containing links to the surveys 1 day pre-retreat, 2 days post-retreat, and at 3 weeks follow-up. To match the individuals' responses across timepoints, email addresses were collected. Otherwise, data were processed anonymously. Confidentiality was contracted between the researchers and retreat provider.

Measures

The Flourishing Scale

A brief 8-item measure of "self-perceived success in areas such as relationships, self-esteem, purpose, and optimism" (Diener et al., 2010) containing 8 statements (e.g., "I lead a purposeful and meaningful life", "I am competent and capable in the activities that are important to me") for which participants indicate their agreement. Scores range from 7 ("Strongly agree") to 1 ("Strongly disagree"), giving a potential single score of 8 to 56. Higher scores indicating greater flourishing. The FS has a high internal consistency (Cronbach's alpha = 0.89) and validity (Hone et al., 2014).

Warwick-Edinburgh Mental Wellbeing Scale

A 14-item scale for monitoring mental wellbeing containing 14 statements about feelings and thoughts (e.g., "I've been feeling optimistic about the future", "I've had energy to spare"). Participants indicate which best describes their experience over the last 2 weeks. WEMWEBS is scored by summing the 14 items, which range from 1 ("None of the time") to 5 ("All of the time"). Total scores range from 14 to 70. Higher scores indicating greater positive mental wellbeing.

WEMWBS shows high internal consistency (Cronbach's $\alpha = 0.89$) and good validity (Stewart-Brown et al., 2011).

Gratitude Questionnaire

A short 6-item measure of the experience of gratitude consisting of 6 statements (e.g., "If I had to list everything that I felt grateful for, it'd be a very long list", "I am grateful to a wide variety of people") which are answered on a 1 ("Strongly disagree") to 7 ("Strongly agree") scale. Two items are reverse-scored to inhibit response bias. The score is computed by the mean across the item ratings, including the two reverse-scored items. The GQ-6 has good internal reliability and validity (Wood et al., 2009).

Positive Affect Score

PAS is one subscale of the PANAS. The PAS consists of 10 words describing positive feelings and emotions (e.g., "Enthusiastic", "Inspired"). Respondents determine to what extent a concept applies with scores ranging from 10 ("Very slightly") to 50 ("Extremely"). Higher scores represent higher levels of positive affect. PAS has high reliability (Cronbach's $\alpha = 0.90$) and good validity (Watson, 1988).

Participants

Convenience sampling was used to select participants with the collaboration of the retreat provider. Participants were invited via email (see Appendix A) once they had paid for the retreat. 38 adults (20 females, 17 males, 1 non-binary) registered for participation via the study website. Participants were aged between 32 and 61 years of age (M = 44), from Europe (n = 34), United States (n = 3), and Saudi Arabia (n = 1). Anyone under 21 without a good level of English was excluded prior to registration. Non-completers (n = 11) and those self-reporting as psychologically unhealthy (n = 8) were excluded. 19 participants completed all requirements of the study and were included.

Retreat procedure

Participants joined 3-day legal psychedelic retreats between December 2023 and April 2024 in the Netherlands. Prior to all retreats participants completed screening for mental and physical fitness and psychological readiness. Retreat activities included: Group exercises to foster a supportive and friendly environment; preparation and integration exercises (e.g., mindfulness, breathwork and yoga); personal reflection time; and the psychedelic session itself. (See Appendix F for full retreat itinerary.) Participants consumed between 20mg and 75mg of psilocybin in a "magic truffle" tea. "Magic truffles" are the sclerotia of the hallucinogenic fungi commonly known as "magic mushrooms".

Participants then lay on mattresses voluntarily blindfolded, while music was played through speakers. Perceptual effects are usually noticed approximately 20-40 minutes following a high dose of psilocybin, peaking at around 60-90 minutes and then lasting for another 60-120 minutes. Effects are usually completely worn off at 6 hours post intake (Hasler, 2004).

Ethics

Fully informed, written consent was given prior to acceptance on the study, confirming that any psychedelics taken were done so with prior intention, without influence by invitation to the study. Ethical approval for the study was granted by the University of East London School of Psychological Research Ethics Committee.

RESULTS

No scores were identified as significant outliers. Shapiro–Wilks testing for normality resulted in significant differences for the variables PAS and GQ-6 ($p < .05$), while normality was assumed for WEMWBS and FS ($p > .05$). Therefore, a parametric one-way repeated measures analysis of variance (RM-ANOVA) with planned contrasts was performed to check for statistically significant differences

between the means pre-test, post-test and follow-up related to WEMWBS and FS variables, while the non-parametric Friedman Test with pairwise comparisons was applied to assess differences in means for variables PAS and GQ-6. Mauchly's test of sphericity indicated that the assumption of sphericity had not been violated for the variable WEMWBS, $\chi2(2) = 3.24$, $p = .850$, nor FS, $\chi2(2) = 2.148$, $p = .342$.

Means, standard deviations (SD) and output values from RM-ANOVA and Friedman Tests for all variables are presented in Table 1. RM-ANOVA testing showed a statistically significant change in wellbeing mean scores over time $F(2, 36) = 7.604$, $p < .002$, $\eta^2 = .297$, with wellbeing increasing from pre-intervention ($M = 45.00$, $SD = 9.787$) to follow-up ($M = 51.53$, $SD = 8.289$). RM-ANOVA testing showed a statistically significant change in flourishing mean scores pre-test compared to scores post-test and follow-up, indicating an increase in flourishing over time, $F(2, 36) = 7.465$, $p < .002$, partial $\eta2 = .389$, with flourishing increasing from pre-test ($M = 44.47$, $SD = 7.813$) to follow-up ($M = 48.26$, $SD = 8.51$).

Planned contrasts for variables WEMWBS and FS are reported in Table 2. Planned contrasts showed that wellbeing statistically significantly increased from pre-test ($M = 45.00$, $SD = 9.787$) to follow-up ($M = 51.53$, $SD = 8.289$), a mean difference of 6.53, 95% *CI* [1.747, 11.306], $p < .008$, $\eta2 = .382$. In addition, there was a statistically significant increase in wellbeing from pre-test ($M = 45.00$, $SD = 9.787$) to the average of the post-test ($M = 52.47$, $SD = 6.535$) and follow-up ($M = 51.53$, $SD = 8.289$), a mean difference of 7.00, 95% CI [2.598, 11.402], $p < .001$, $\eta2 = .456$. Planned contrasts showed that flourishing statistically significantly increased from pre-test ($M = 44.47$, $SD = 7.813$) to post-test ($M = 48.26$, $SD = 8.51$), a mean difference of 3.789, 95% *CI* [1.051, 6.528], $p < .005$, $\eta2 = .389$. In addition, there was a statistically significant increase in flourishing from pre-test ($M = 44.47$, $SD = 7.813$) to the average of the post-test ($M = 48.26$, $SD = 8.51$) and follow-up ($M = 48.26$, $SD = 8.51$), a mean difference of 4.053, 95% *CI* [1.962, 6.143], $p < .001$, $\eta2 = .555$.

Friedman Tests indicated that median follow-up scores of the non-normally distributed variable PAS changed significantly statistically at the different time points during the study, $\chi 2(2) = 26.000$, $p < .001$, with Kendall's coefficient of concordance (Kendall's *W*) used to measure the effect size ($W = .684$). Friedman Testing indicated that median follow-up scores of the non-normally distributed variable GQ-6 changed significantly statistically at the different timepoints during the study, $\chi 2(2) = 24.609$, $p < .001$, $W = .647$.

Pairwise comparisons for variables GQ-6 and PAS are reported in Table 3. Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons on variable GQ-6, showing statistically significant differences in gratitude from pre-test (*Mdn* = 26) to post-test (*Mdn* = 29) (p <.005), and pre-test to follow-up (*Mdn* = 29) (p = <.001), but not post-test to follow-up (p = .433). Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons on variable PAS, showing statistically significant differences in positive affect from pre-test (*Mdn* = 27.00) to post-test (*Mdn* = 33.00) (p =000), and pre-test to follow-up (*Mdn* = 31.00) (p = .001), but not post-test to follow-up (p = .671).

SPSS version 29 was used for data analysis.

DISCUSSION

This study aimed to assess to what extent a 3-day psilocybin retreat affects the wellbeing of healthy individuals. Results supported all the prior hypotheses, as we observed significant improvements in wellbeing and flourishing post-retreat and at the week 3 follow-up compared to baseline measures. Additionally, increased gratitude and positive emotions also persisted over the 3-weeks post-retreat. The data presented here suggest that attending a psilocybin retreat such as that offered by the EI has a statistically significant positive impact on these facets of wellbeing in healthy individuals.

These findings support results from previous clinical studies involving psilocybin that have shown improvements in wellbeing factors after combining psilocybin and psychological therapy

(Carhart-Harris et al., 2016; Li et al., 2022). Correspondingly, other contemporary studies show improvements in wellbeing measures of healthy participants in clinical settings (Barrett et al., 2020) and in naturalistic settings (Raison et al., 2022) following psilocybin consumption.

Alongside improvements in flourishing, and in line with a 2023 scoping review which found that psilocybin enhanced mood in all included and relevant studies (Wiepking et al.), we detected 3-week improvements in self-reported positive emotions. This reflects the findings of an earlier study that found improvements in positive mood persisted in healthy volunteers up to one month post dose (Barrett et al., 2020).

Additionally, and consistent with a previous study that found that elevated gratitude in healthy individuals persisted up to 6 months following high-dosage psilocybin administration (Griffiths et al., 2018), we also found increases in gratitude at follow-up compared to baseline. As no other published studies report the outcome of the effect of psilocybin on gratitude, this study contributes importantly to a gap in the literature.

The findings of this study of adults who have self-reported as psychologically healthy, in a naturalistic setting, complement previous studies (Raison et al., 2022; Kiraga et al., 2022), by demonstrating improvements in a range of wellbeing outcomes. Studying this population is relevant and important, as while psychologically healthy people can experience indicators of mental illness regardless of the diagnosed presence of mental illness (Lasello et al., 2020), their symptoms do not fulfil the criteria required for clinical diagnosis and therefore often go un-untreated. This population is not well represented in clinical trials. Moreover, there is growing evidence indicating that enhancing mental wellbeing serves as a path to preventing disease (Keyes, 2017; Keyes, 2005), offering an 8.2% reduction in the risk of developing mental illness over a 10-year period in people without mental illness (Wood & Joseph, 2010).

Given the current scale of the global mental illness burden (Arias et al., 2022), this highlights the importance of addressing mental wellbeing in non-clinical populations such as that considered in this study. Consequently, it underscores the need for further exploration of interventions and therapeutic strategies centred on promoting mental wellbeing as a primary outcome regardless of physical or mental diagnoses. This aligns with the discourse suggesting that long-term reduction in the incidence of common mental disorders necessitates not only early intervention (Marin, 2016) but also interventions at the general population level (Huppert, 2009).

Thus, the results presented here offer initial indications that participation in a 3-day psilocybin retreat could serve as a viable therapeutic avenue for individuals experiencing sub-optimal mental wellbeing without reaching clinical thresholds, should they choose to look for ways to alleviate their symptoms or to prevent future mental health issues.

While previous studies of psilocybin taken in a retreat setting have focused on only the pharmacological element of the experience (Kiraga et al., 2022; Lutkajtis, 2021) as a means of assessing the potential wellbeing benefits of psilocybin, these results consider the retreat as a whole and invite future development of a standardised retreat format recognising the need to consider not only pharmacological but also extra-pharmacological factors (e.g., the music playlist, meditation and breathwork models, group-work exercises). Although a detailed analysis of how each of these factors may influence participants' experiences is outside the scope of this paper, this should be considered in future research, including how the psychedelic experience is affected by set and setting (Hartogsohn, 2016) in order to optimize therapeutic strategies. By considering the synergy of the different elements involved in retreats they could be harmonised in the same way that psychotherapeutic practices and psychedelics have been (Walsh & Thiessen, 2018; Luoma et al., 2020)

This study, however, has several significant limitations that need to be acknowledged. While employing a naturalistic design to test the objectives boasts strong ecological validity (Schmuckler,

2001) given that the retreat has many characteristics typical to real-world psychedelic usage (Hartogsohn, 2016), this approach also introduces considerable confounding variables.

While the psilocybin tea was measured out between participants equally, the percentage of the offered dosage that was actually consumed was not recorded. Consequently, comparing the results of our study with those of controlled studies is problematic.

Additionally, the small sample size carries a risk of having falsely demonstrated the effectiveness of the intervention (Button et al., 2013). Alongside this, the lack of a control group presents a significant limitation, hindering the capacity to firmly interpret the data and draw conclusive findings. Furthermore, the retreats were held across three different retreat centres with different facilitation teams, which may have had different impacts on the experience of the attendees (Uthaug et al., 2021), as the retreat environment itself can affect outcomes of the experience (Ashton, 2020). Another limitation to consider is the propensity for longitudinal studies to experience high rates of attrition (Young et al., 2006). As this was also true for our study, this raises concerns regarding potential biases in the data, where individuals who perceive benefits from the retreat may be more inclined to continue engaging with the study and those who do not dropping out, thus skewing the results. A further potential source of bias in psychedelic research, and in this study, is being unable to control for expectancy (Olson et al., 2020) and confirmation bias, as the population consisted of people already intending to attend the retreat and take psilocybin. Participants were also predominantly western (95.7%), limiting generalisability beyond this population. And finally, the nature of self-reported data which cannot be verified and are subject to recall bias is problematic (Richter et al., 2020).

To allow for a better assessment of the retreat's effects on wellbeing, future research should endeavour to increase the sample size and include a control group of participants who attend the retreat centre under the same conditions without partaking in the activities. Additionally, recording the

quantity of tea consumed would provide useful data, and qualitative feedback regarding the supplementary retreat activities would give rich data for any future considerations around retreat planning. Finally, extending the observation period to six weeks would introduce more robust results longitudinally. Importantly, future research should consider the relationship between the pharmacological and extra-pharmacological factors to create suggestions for optimum wellbeing promotion and to better replicate the methodological rigour of psychedelic clinical trials (Aday et al., 2022). However, the findings of this paper show the relevance and importance of further research into psilocybin retreats as wellbeing interventions.

CONCLUSION

This is the first study to consider the wellbeing outcomes of a psilocybin retreat as a complete experience within the context of wellbeing as seen through the lens of positive psychology as a potential positive psychology intervention, showing that taking psilocybin in a group setting that includes additional supportive activities can improve participants' well-being. It stresses the importance of designing psilocybin retreats in a way to optimise the scientifically validated psychological health benefits of psilocybin given the rising interest and importance globally in wellbeing interventions. For this to be useful, there is a need to formalise the retreat process to create a structure that can be replicated.

While primary avenues for legally accessing psychedelics is through clinical trials, these are often extremely narrow in their criteria for eligibility, so for healthy people access remains through illegally obtaining them or travelling to one of the countries where legislation makes them available. Therefore, the consideration of this demographic in essential as more people look for safe and supportive environments for the benefits of taking psychedelics.

With data revealing a 62.5% increase in magic mushroom usage in people aged between 16 and 59 between 2020 and 2023 (Office for National Statistics, 2023) and legislation making access to

psilocybin easier, more retreat centres may become established. As the findings and discussion of this paper add to the evidence of the feasibility and outcomes of this type of experience for those looking to flourish, it could therefore be useful for establishing a replicable concept for these retreat centres.

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Tables

Table 1

Means, Standard Deviations (SD) and One-Way Analyses of Variance in Variables Wellbeing and Flourishing, and Friedman Test output for Variables Gratitude and Positive Affect

Variable	Pre-test		Post-test		Follow-up		RM-ANOVA		
	Mean	SD	Mean	SD	Mean	SD	*F*(2, 36)	p	η2
Wellbeing	45.00	9.787	52.47	6.535	51.53	8.289	7.604	<.002	.297
Flourishing	44.47	7.813	48.79	6.303	48.26	8.51	7.465	<.002	.389
Variable	**Pre-test**		**Post-test**		**Follow-up**		**Friedman Test**		
	Mean	SD	Mean	SD	Mean	SD	Z	p	W
Gratitude	26.58	2.987	29.00	2.357	30.89	3.828	24.609	<.001	.647
Positive Affect	24.74	6.081	32.00	3.172	29.26	6.323	26.000	<.001	.684

Note. N = 19

Table 2

Mean Differences and Planned Contrast Tests on Variables Wellbeing and Flourishing

Variable	Pre-test vs Follow-up			Pre-test vs Post-test & Follow-up			Post-test vs Follow-up		
	Mean difference	p	η2	Mean difference	p	η2	Mean difference	p	η2
Wellbeing	6.53	<.008	.382	7.00	<.005	.456	.947	.675	.011
Flourishing	3.789	<.005	.389	4.053	<.001	.555	.526	.714	.008

Note. N = 19

Table 3

Pairwise Comparisons on Variables Gratitude and Positive Affect

Variable	**Pre-test vs Post-test**		**Pre-test vs Follow-up**		**Post-test vs Follow-up**	
	p	W	p	W	p	W
Gratitude	.005	.789	<.001	.801	.433	.211
Positive Affect	000	.947	.001	.801	.671	.136

Note. N = 19