Perceived attachment history predicts psychedelic experiences: A naturalistic study

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ABSTRACT

Background and aims: Emerging research indicates that psychedelics may have therapeutic potential by fostering meaningful experiences that act as “inflation points” in people’s narratives of personal development. However, psychedelic research has largely failed to address pertinent developmental considerations. We investigated whether attachment-related variables were associated with psychedelic experiences and whether psychedelic experiences moderated expected links between perceived attachment history and current adult attachment orientations.

Methods: We administered an online survey to an international Jewish sample (N = 185) with psychedelic experience. The survey included measures about recollection of attachment interactions with parents (perceived attachment history), adult attachment orientations (anxiety, avoidance), and psychedelic phenomenology (mystical experiences, challenging experiences, emotional breakthrough, ego dissolution, sensed presence) associated with respondents’ most memorable psychedelic experiences.

Results: Perceptions of an insecure attachment history were positively linked to all measures of psychedelic phenomenology (r’s = 0.19–32, p’s mostly < 0.01). In contrast, adult attachment orientations were unrelated to psychedelic phenomenology. Also, psychedelic phenomenology mostly did not moderate the links observed between perceptions of an insecure attachment history and adult attachment orientations.

Conclusions: Our findings suggest that perceptions of early attachment experiences may be relevant to psychedelic phenomenology. However, subjective experiences associated with naturalistic psychedelic use do not typically attenuate links between a perceived insecure attachment history and attachment insecurity at present.

KEYWORDS

phenomenology, attachment history, adult attachment orientations, earned security

INTRODUCTION

Psychedelics have been an area of increased scientific research in clinical trials (Andersen, Carhart-Harris, Nutt, & Erritzoe, 2021) and naturalistic use (Nygård et al., 2022) due to their therapeutic potential and risks (Bender & Hellerstein, 2022). Studies have examined psychedelics’ effects, often facilitated by psychedelic phenomenology, especially mystical experiences (Aday, Mitzkovitz, Bloesch, Davoli, & Davis, 2020; Preller & Vollenweider, 2016). Research has contributed valuable information about how psychedelics and their subjective effects can potentiate changes in psychological functioning that are generally positive and enduring. However, virtually no research has been conducted on developmental factors associated with psychedelics, which is particularly striking since study participants frequently rate therapeutically supported psychedelic sessions among the most meaningful experiences of their lives (Yaden & Griffiths, 2021).

The lack of developmentally based psychedelic research has not stopped scholars and others from claiming, for example, that “the psychedelic miracle” (Mac, 2017) can “cure” or “erase” “childhood traumas” or “wounds” (Gravitz, 2022; Ielyseieva, 2020; Kelvey, 2021), “heal the inner child” or “attachment trauma” (Armstrong, 2021; Izel, 2022), or “prepare the
path to enlightenment by healing childhood attachment injuries” (Armstrong, 2023). However, no research can substantiate these claims; empirical data is needed. Engaging in this kind of discourse without evidence exacerbates the times already poorly managed discourse around trauma (McNally, 2003) and attachment (Verhage, Tharner, Duschinsky, Bosmans, & Fearn, 2023), and it also threatens to enlarge the hype bubble around psychedelics (Yaden, Potash, & Griffiths, 2022).

Attachment theory, one of psychology’s most lasting and influential theories, can inform research about psychedelics’ therapeutic potential and neurobiological underpinnings (Cherniak et al., 2022, in press). In this article, we examine empirical data linking attachment to naturalistic psychedelic phenomenology.

Attachment theory and research

Attachment theory postulates that an innate behavioral and motivational system, activated in stressful situations, motivates a person to strive for proximity to close others (Cassidy & Shaver, 2016). Attachment theory was formulated to characterize and explain the affectional bonds that develop between infants and their caregivers (Bowlby, 1982) and then later extended and applied to adult close relationships and emotional well-being (Hazan & Shaver, 1987; Mikulincer & Shaver, 2023). The theory states that experiences in close relationships result in the creation and elaboration of internal working models (IWMs) of self and others that influence, for example, personality development and emotion regulation strategies (Bowlby, 1973).

Depending on experiences in close relationships, especially in relation to stressful or frightening situations, people develop a persisting sense of attachment security or one of several possible insecure attachment dispositions (Ainsworth, Blehar, Waters, & Wall, 1978). Attachment security is characterized by a firm sense that one is generally lovable and others are generally available and supportive (Mikulincer & Shaver, 2016). Adult attachment insecurities can be conceptualized in terms of two orthogonal dimensions: attachment-related avoidance and anxiety, where low scores on both dimensions indicate a greater degree of attachment security (Brennan, Clark, & Shaver, 1998). Avoidance reflects negative representations of others, discomfort with closeness, and denial of attachment-related needs. Individuals high in avoidance tend to use deactivating strategies in distressing situations, directing their attention away from triggers of distress and other people. In contrast, anxiety is characterized by hyperactivation of the attachment system, marked by excessive vigilance and worrying about one’s lovability, fear of abandonment, clinginess, and sensitivity to rejection cues and separations (Mikulincer & Shaver, 2016).

Individual differences in attachment stem largely from variations in caregiving experiences across childhood and later relational experiences (Fraley, Roisman, & Haltigan, 2013; Mikulincer & Shaver, 2016). Sensitive and responsive caregiving promotes attachment security, whereas rejection, intrusion, marked inconsistency, and frightening caregiver behaviors predict attachment insecurities along the anxiety and avoidance dimensions (Cassidy & Shaver, 2016). Evidence for the continuity of attachment across long developmental time spans (e.g., early childhood to adulthood) is not robust (Fraley et al., 2013). However, studies have shown that attachment in adulthood is linked to recollections of parenting quality and attachment history (Einav, 2014), as well as perceptions of childhood relationships with parents (Brennan & Shaver, 1998). Specifically, Brennan and Shaver found that adults high in adult attachment security were more likely to report remembering parents who were warmly accepting, fostered independence, and were “the ideal parent,” as opposed to people with subtypes of attachment insecurity (i.e., fearful, preoccupied, and dismissing).

While adult attachment orientations are mostly stable (Chopik, Edelstein, & Grimm, 2019), they may be modified by other relational experiences (Fraley, Vicary, Brumbaugh, & Roisman, 2011), for example, experiences that disconfirm insecurity-based expectancies in favor of security (Bosmans, Bakermans-Kranenburg, Verhulst, Verhees, & van Ijzendoorn, 2020; i.e., corrective attachment experiences, Mikulincer, Shaver, & Berant, 2013). Two possible examples are psychotherapy (Levy, Kivity, Johnson, & Gooch, 2018) and experiences denoted as religious, spiritual, or mystical (Cherniak, Mikulincer, Shaver, & Granqvist, 2021; Granqvist, 2020). Particularly relevant, perceptions of an insecure attachment history and current unresolved/disorganized states regarding attachment-related trauma and loss have been found to be predictive of naturally occurring mystical experiences and sudden religious conversions (Granqvist, Hagekull, & Ivarsson, 2012; Granqvist & Kirkpatrick, 2004). Such findings have been interpreted as supporting a “compensation” hypothesis in the attachment-religion literature (Kirkpatrick, 2005). During states of emotional turmoil, people with such experiences and attachment dispositions may find compensatory attachment security in spiritual entities (e.g., God). However, whether such spiritual experiences can promote “earned” (i.e., increased) attachment security is still unresolved (Granqvist, 2020).

Attachment and psychedelics

In recent conceptual papers, we have argued that attachment theory may serve as a heuristic, integrating framework guiding psychedelic science (Cherniak et al., 2022). We made three specific proposals. First, we suggested that variations in attachment-related experiences and current attachment security may predict people’s subjective experiences with psychedelics and therapeutic outcomes. Second, increased attachment security may be a viable and worthwhile outcome for clinical interventions using psychedelics. Third, attachment dynamics are highly relevant process-level mechanisms in psychedelic-assisted therapy, including the client-therapist relationship and psychedelic-induced spiritual or mystical experiences.

In preliminary support of these predictions, Stauffer, Anderson, Ortigo, and Woolley (2021) pilot study of
psilocybin-assisted group therapy for demoralized AIDS survivors found that adult attachment anxiety predicted psychedelic-induced mystical experiences, and avoidance predicted challenging experiences. Moreover, attachment anxiety decreased from before treatment until three months post-treatment. However, they did not examine the contribution of perceived attachment history with parents to psychedelic phenomenology, nor whether psychedelic experiences may promote earned security via attenuating links between a perceived insecure attachment history and current adult attachment insecurities.

Three other psychedelic studies have, however, examined relevant developmental constructs. A survey study of individuals who endorsed a history of childhood maltreatment found that respondents who reported intentional therapeutic use of psychedelics reported lower complex trauma symptoms and internalized shame than respondents who did not, despite similar histories of maltreatment (Healy, Lee, & D’Andrea, 2021). This finding suggests that psychedelics may reduce the impact of a history of adverse childhood experiences (ACEs) on distress in adulthood. In addition, a randomized, double-blind, placebo-controlled study of MDMA-assisted therapy for severe PTSD found that ACEs did not moderate the observed marked clinical efficacy of MDMA therapy (Mitchell et al., 2021). Hence, ACEs did not reduce the reported efficacy of psychedelic treatment for symptoms of trauma. Lastly, a survey study reported that the association between ACEs and psychological distress was lower for people who had used psilocybin within the past three months than those who had not (Card et al., 2023). Though the evidence is not conclusive as yet, it suggests that psychedelics may help reduce the toll of ACEs on mental health in adulthood. By extrapolation, psychedelics may reduce the role of an insecure attachment history in contributing to difficulties like attachment insecurities in adulthood.

**Current study**

Previous research has not contextualized psychedelic-induced processes of change in a broader developmental framework, which is surprising given that psychedelic experiences have been viewed as transformational “inflection points” in personal narratives (Yaden & Griffiths, 2021). To fill in this gap, we studied links between attachment and psychedelic experiences based on our proposed research agenda (Cherniak et al., 2022). First, we asked whether psychedelic phenomenology was associated with perceived attachment history and current adult attachment orientations (anxiety, avoidance). Second, we asked whether the presumed links between a perceived insecure attachment history and current adult attachment insecurities, either anxious or avoidant, were attenuated by psychedelic phenomenology.

Regarding the first question, based on the compensation hypothesis and Stauffer et al.’s (2021) findings, we tentatively predicted that a perceived insecure attachment history and current adult attachment anxiety would be associated with more psychedelic-induced mystical experiences and that adult attachment avoidance would be associated with more challenging experiences. We also explored associations between attachment-related variables and constructs of interest in the study of psychedelic phenomenology, such as emotional breakthrough, ego dissolution, and sensed presence.

Regarding the second question, we tentatively expected that healing aspects of psychedelic phenomenology (e.g., mystical experiences, emotional breakthrough, sensed presence) would attenuate the presumed links between a perceived insecure attachment history and current adult attachment insecurities.

**METHOD**

**Participants & procedure**

Participants were recruited as part of an online survey study about culture, lifespan development, and retrospective reports of naturalistic psychedelic experiences among Jews via topical groups on social media. To be eligible, respondents had to be ≥ 18 years of age, be fluent in English or Hebrew, self-identify as Jewish, and have used a psychedelic substance at least once. In total, 185 individuals gave informed consent and completed the survey. Participants received $5 for their participation. Participants were requested to answer questions about psychedelic phenomenology according to their most memorable experience using classic psychedelics, whether positive or negative.

Participants had an average age of 39.4 years (19–79, SD = 12.8). The gender split was as follows: 148 males (54.4% of valid cases), 110 females (40.4%), 11 non-binary (4%), two selected “Prefer not to say” (0.7%), and the remaining participants did not identify their gender. Most participants were American (156, 57.8%) or Israeli (83, 30.7%), and the rest reported various Commonwealth (e.g., UK, Canada) or other European nationalities (e.g., France, Romania, Spain). In terms of family status, 111 (41%) were married, 89 (32.8%) were single, 38 (14%) were living with a partner, and 33 (12.2%) were divorced, separated, or widowed.

In terms of mental health, 155 (60.1%) reported having received a mental health diagnosis at some point in their life, including 92 (35.7%) with at least one comorbid diagnosis. The most prevalent diagnoses were anxiety disorders (66, 22%), Major Depressive Disorder (64, 21%), attention deficit hyperactivity disorder (55, 18%), and post-traumatic stress disorder (52, 17%). In addition, 129 (49%) participants reported having been prescribed psychiatric medication at some point in their life. In terms of lifetime psychedelic use, 16 (6%) reported only one time, 60 (23%) reported 2–5 times, 34 (13%) reported 6–10 times, 36 (14%) reported 11–20 times, 52 (20%) reported 21–50 times, 33 (13%) reported 51–100 times, and 33 (13%) reported more than 100 times. Many respondents reported having used other substances in the past, chief among them cannabis (253, 83%), cocaine (137, 44.9%), amphetamines (98, 32.1%), opiates (87, 28.5%), and benzodiazepines (78, 25.6%).
At the time of their most memorable psychedelic experience, participants were, on average, 29 years of age (16–66, SD = 11). On average, 11.2 years (1–56, SD = 14.3) had elapsed since the experience that respondents reported. Most participants reported their experience while using psilocybin/magic mushrooms (79, 35%) LSD (70, 31%), ayahuasca (20, 9%), DMT (11, 5%), or ketamine (10, 4%).

Ethical approval was granted by the Internal Review Board of Institution: #2021142.

Materials

Attachment-related variables. Attachment history. To assess participants’ perceived attachment history, we administered the Insecure Attachment History measure (IAH; Granqvist, 2005). For each parent, respondents are asked to rate eight Likert-type items (ranging from 1 = does not at all apply, to 7 = applies very well). Two items represent sensitive parenting (e.g., “She/He was generally loving and understanding”), and the other six items represent different forms of insensitive parenting – dismissing (e.g., “She/He was generally fine but not very affectionate”), preoccupied (“She/He was generally loving but not as understanding as I would have liked”), and fearful (e.g., “She/He was generally unpredictable and sometimes even hurtful”). We used aggregated scores to keep the number of variables within reasonable limits. Specifically, following reverse-scoring of the sensitive parenting items, the eight items were summed to form a perceived insecure attachment history score for each parent. Also, scores for both parents were combined into a single perceived insecure attachment history score (see Birgegard & Granqvist, 2004; Granqvist, 2005). High scores indicate memories of receiving insensitive parenting in childhood, whereas low scores indicate memories of receiving sensitive parenting. Numerous studies have demonstrated this scale to be reliable and to have satisfactory predictive validity (e.g., in predicting attachment and mental health related to religion; Birgegard & Granqvist, 2004; Granqvist, 2005). In the current sample, the overall scale showed good reliability (α = 0.81, ω = 0.86).

Adult attachment orientations. To measure participants’ attachment orientations, we used the 12-item version of the Experiences in Close Relationships scale (ECR; Lafontaine et al., 2015; for the original, longer version, see Brennan et al., 1998). Six items assess attachment-related avoidance (e.g., “I don’t feel comfortable opening up to romantic partners,” α = 0.84, ω = 0.89), and six items assess attachment anxiety (e.g., “I worry about being alone,” α = 0.81, ω = 0.86). Participants rated their agreement with each item, using a 7-point scale (1 = Do not agree at all to 7 = Completely agree). The reliability and validity of the scales have been repeatedly demonstrated (see, e.g., Brennan et al., 1998, and studies reviewed by Mikulincer & Shaver, 2016). Attachment anxiety and avoidance were uncorrelated (r = 0.10, p = 0.186) as intended.

Perceived insecure attachment history was associated, as expected, with the ECR anxiety score (r = 0.25, p < 0.001) but not with the ECR avoidance score (r = 0.04, p = 0.625).

Psychological phenomenology. Mystical experiences. We administered the revised Mystical Experience Questionnaire (MEQ; MacLean, Johnson, & Griffiths, 2011) to assess mystical experiences during participants’ recalled psychedelic experiences. The scale comprises 30 items rated on a 6-point Likert-type scale with the following anchors: 0 = none; not at all, 1 = so slight cannot decide, 2 = slight, 3 = moderate, 4 = strong (equivalent in degree to any previous strong experience or expectation of this description), and 5 = extreme (more than ever before in my life and stronger than 4). The 30 items belong to one of four subscales – Mystical (e.g., “Experience of unity with ultimate reality”), positive mood (e.g., “Feelings of joy”), feelings of transcendence of time and space (e.g., “Experience of timelessness”), and ineffability (“Sense that the experience cannot be described adequately in words”). A total score was obtained by calculating the mean score of all items of the questionnaire. The reliability and validity of this scale have been repeatedly demonstrated in psychedelic research (Barrett, Johnson, & Griffiths, 2015; Ko, Knight, Rucker, & Cleare, 2022). In the current sample, the 30 items showed excellent reliability (α = 0.95, ω = 0.96).

Challenging experiences. The Challenging Experiences Questionnaire (CEQ; Barrett, Bradstreet, Leoutsakos, Johnson, & Griffiths, 2016) asks participants to rate the degree they experienced seven different challenging aspects of psychedelic experiences: Fear, paranoia, insanity, physical distress, isolation, death, and grief. The CEQ has 26 items, which participants rate on a 6-point Likert-type scale ranging from 0 (None) to 5 (Extreme). A total score was computed by averaging participants’ answers to the 26 items. The validity and reliability of the CEQ have been demonstrated (Barrett et al., 2016). In the current sample, the 26 CEQ items showed excellent reliability (α = 0.92, ω = 0.94).

Sensed presence. We used three items to assess the sensation of felt presence of a sentient being during participants’ recalled psychedelic experiences. One item was taken from the EXIT scale (Persinger, Tiller, & Koren, 2000). Cortes et al. (2018) developed two additional items, which we also used. The three items were “(During the psychedelic experience) I felt the presence of someone or something,” “I felt the presence of another being,” and “I experienced that someone else was there.” Participants rated the items on a three-point scale (0 = not at all/never, 1 = to some degree/occasionally, 2 = to a great degree/frequently), and they received a total score from summing the three items. Cortes and colleagues found the three-item scale to show high internal consistency. In the current sample, the reliability for the three items was excellent (α = 0.90, ω = 0.90).

Emotional breakthrough. We used the six-item Emotional Breakthrough Inventory (EBI; Roseman et al., 2019) to assess participants’ experiences of having acute emotional breakthroughs during their psychedelic experience. It uses a Visual Analogue Scale (VAS) scoring system, ranging from 0 (No, not more than usual) to 100 (Yes, entirely or completely) with incremental units of one. The EBI includes statements such as “I felt able to explore challenging emotions and memories” and asks about...
“emotional release,” “closure,” “emotional breakthrough,” and “resolution of conflict.” The EBI has demonstrated high reliability and validity (e.g., Peill et al., 2022). In the current study, the six items showed good reliability as well ($\alpha = 0.90, \omega = 0.95$).

**Ego dissolution.** We used the 8-item Ego Dissolution Inventory (EDI; Nour, Evans, Nutt, & Carhart-Harris, 2016) to assess participants’ experience of a compromised sense of self, or distortion of the subjective ego experience, during their recalled psychedelic experiences. Participants provide a rating using VAS that ranges from 0 (No, not more than usual) to 100 (Yes, entirely or completely) with incremental units of one. Items included “I experienced a dissolution of my ‘self’ or ego” and “I felt at one with the universe.” The scale demonstrated excellent reliability in the validation study (Nour et al., 2016). In the current study, the reliability of the eight items was also excellent ($\alpha = 0.90, \omega = 0.94$).

The intercorrelations among psychedelic phenomenology variables are displayed in Table 1. Unsurprisingly, these variables were interrelated, modestly to strongly, as has been shown in several studies (see Pontual A. A. D. et al., 2022, for a review).

## RESULTS

**Are attachment variables associated with psychedelic phenomenology?**

To examine whether attachment variables (perceived attachment history, ECR anxiety and avoidance scores) are associated with the assessed aspects of psychedelic phenomenology, we computed Pearson correlations between the two sets of variables (Table 2). Perceptions of an insecure attachment history with parents in childhood were associated with all facets of psychedelic phenomenology studied:

$$\begin{align*}
1. \text{Mystical Experience} & : 0.24^{**} \\
2. \text{Challenging Experience} & : 0.77^{***} \\
3. \text{Emotional Breakthrough} & : 0.49^{***} \\
4. \text{Ego Dissolution} & : 0.35^{***} \\
5. \text{Sensed Presence} & : 0.32^{**}
\end{align*}$$

Table 1. Pearson correlations among facets of psychedelic phenomenology

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mystical Experience</td>
<td></td>
<td>0.24**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Challenging Experience</td>
<td>0.24**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional Breakthrough</td>
<td>0.49***</td>
<td>0.31**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ego Dissolution</td>
<td>0.77***</td>
<td>0.29**</td>
<td>0.50***</td>
<td></td>
</tr>
<tr>
<td>5. Sensed Presence</td>
<td>0.35***</td>
<td>0.22**</td>
<td>0.38***</td>
<td>0.33***</td>
</tr>
</tbody>
</table>

Notes. * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

**Do psychedelic experiences moderate the link between perceived attachment history and adult attachment orientations?**

Next, we examined whether the observed link between perceptions of an insecure attachment history and the ECR anxiety score was moderated by psychedelic phenomenology. No analysis was run on the ECR avoidance score, as it was unrelated to perceived attachment history. Attachment history and each psychedelic phenomenology variable were centered, and interaction terms were computed. Five hierarchical regression analyses were run. In each model, block 1 contained attachment history alone as a predictor of the ECR anxiety score. Block 2 included both attachment history and a psychedelic phenomenology variable; separate analyses for each psychedelic variable were conducted. Block 3 in each model included attachment history, the psychedelic variable, and the interaction between them.

None of these analyses yielded results indicating that a facet of psychedelic phenomenology attenuated the link between a perceived insecure attachment history and current attachment anxiety. The only analysis that yielded a significant interaction effect was the regression with mystical experiences as a moderating variable ($\beta = 0.21, p = 0.021, \Delta R^2 = 0.04, F (3, 121) = 5.83, p < 0.001$). However, this analysis indicated that high scores on mystical experiences augmented rather than attenuated the association (See Table 3 and Fig. 1). The remaining analyses yielded non-significant interaction effects (range of $\beta$s 0.06-0.18, n.s.; see Supplementary material for further details).

## DISCUSSION

This study assessed links between attachment-related variables and psychedelic phenomenology and whether mystical experiences, $r = 0.24$; emotional breakthrough, $r = 0.26$; ego dissolution, $r = 0.32$; and sensed presence: $r = 0.25$ (all $p’s < 0.01$), as well as challenging experiences, $r = 0.19$ ($p < 0.05$). This was not true for adult attachment orientations (ECR scores), however, for which the only statistically significant association was an inverse correlation between the ECR avoidance score and mystical experience ($r = –0.19, p < 0.05$). No significant association was found between the ECR anxiety score and psychedelic phenomenology.
phenomenology associated with a memorable psychedelic experience could attenuate links between recollections of insensitive caregiving in childhood and current adult attachment insecurities (ECR anxiety and avoidance scores). Regarding attachment insecurities in adulthood, and unlike the results from Stauffer et al.’s (2021) clinical pilot study, ECR avoidance and anxiety scores were unrelated to mystical and challenging experiences as well as to emotional breakthrough, ego dissolution, and sensed presence. In contrast, and in line with the compensation hypothesis, recollections of insensitive caregiving were associated with all facets of psychedelic phenomenology studied. Participants with recollections of receiving insensitive care from parents reported a greater degree of mystical and challenging experiences, emotional breakthroughs, ego dissolution, and the sensed presence of a sentient being during their psychedelic trips. Moreover, while we expected psychedelic phenomenology to attenuate the link between a perceived insecure attachment history and current attachment anxiety, no variable did. At least from this naturalistic study, there was no support evident for psychedelic phenomenology promoting earned attachment security. If anything, mystical experiences appeared to magnify the link between insensitive caregiving and insecurities in adulthood. In the absence of therapeutic support, intense psychedelic experiences may not only fail to provide enhanced security but may also be destabilizing and exacerbate pre-existing insecurities. This result aligns with some findings from the attachment-religion/spirituality literature; insecurity may increase the likelihood of spiritual/religious experiences during emotional turmoil, though these experiences can also be turbulent and do not necessarily provide security (Granqvist, 2020; Greenwald, Mikulincer, Granqvist, & Shaver, 2021).

The absence of support from this study for the hypothesis that psychedelic experiences may yield earned security does not preclude the possibility of such an effect in other contexts. First, the attachment-psychedelics synthesis predicts changes in attachment security similar to how they are proposed to facilitate the temporary re-weighting of priors with the possibility, but not the guarantee, of changed priors. Our proposed research agenda was formulated for psychedelic studies in clinical settings where therapeutic support may considerably aid such an effect, whereas this study examined naturalistic experiences that varied in a number of respects that previous studies have identified as being highly influential (e.g., substances, settings, intentions; Carhart-Harris et al., 2018). It is possible that the positive effects of psychedelics on attachment may depend on having a therapeutic set and setting, as well as a therapeutic intervention that addresses attachment, or that increases in attachment security may revert to previous levels over time. Regardless, our study demonstrates that psychedelic experiences are by no means necessarily curative in terms of attachment security in uncontrolled, naturalistic settings. This result should caution those expressing uncritical enthusiasm about psychedelics as a “miracle cure,” particularly without therapeutic intervention.

While our study assessed the link between perceptions of caregiving received in childhood and insecurities in adulthood, therapeutic changes may be better conceptualized as either changes in reappraisals of caregiving experiences in childhood or changes in adulthood insecurities rather than a diminished link between the two. A frequently reported

### Table 3. Hierarchical linear regression of insensitive caregiving and mystical experiences predicting the ECR anxiety score

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t</th>
<th>p (CIs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>ΔR²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>0.30</td>
<td>0.10</td>
<td>0.27</td>
<td>3.11</td>
<td>0.002 (0.108–0.485)</td>
</tr>
<tr>
<td>Step 2</td>
<td>ΔR²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>0.33</td>
<td>0.10</td>
<td>0.30</td>
<td>3.36</td>
<td>0.001 (0.135–0.522)</td>
</tr>
<tr>
<td>ME</td>
<td>−0.04</td>
<td>0.03</td>
<td>−0.12</td>
<td>−1.37</td>
<td>0.172 (−0.097–0.018)</td>
</tr>
<tr>
<td>Step 3</td>
<td>ΔR²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>0.39</td>
<td>0.10</td>
<td>0.36</td>
<td>3.92</td>
<td>0.000 (0.194–0.589)</td>
</tr>
<tr>
<td>ME</td>
<td>−0.03</td>
<td>0.03</td>
<td>−0.10</td>
<td>−1.11</td>
<td>0.269 (−0.089–0.025)</td>
</tr>
<tr>
<td>IC * ME</td>
<td>0.01</td>
<td>0.00</td>
<td>0.21</td>
<td>2.33</td>
<td>0.021 (0.001–0.016)</td>
</tr>
</tbody>
</table>

Note. IC = Insensitive caregiving. ME = Mystical experience.

\* = p < 0.05. ** = p < 0.01. *** = p < 0.001.
motivation for naturalistic use of psychedelics is the pursuit of a healing emotional experience that allows for intentional or therapeutic self-exploration of personal and family issues (Harris & Gurel, 2012; Kavenská & Simonová, 2015). Our finding that psychedelic experiences were more associated with perceived attachment history than current attachment may reflect this common motivation for psychedelic use. Alternatively, in line with research showing that being prompted to reflect on autobiographical events may affect autobiographical memories (Skowronska & Walker, 2004), asking participants to reflect on the caregiving they received in the same context as in-depth questions about their most memorable psychedelic experiences may have influenced their ratings of their perceived attachment history. In either case, analyzing and reconstructing childhood experiences with more honesty and flexibility is a central task of psychotherapy (Fonagy, 1999). Psychedelic use may have yet undetermined effects on perceptions of caregiving, such as by making certain aspects of childhood more evident or tolerable (Healy, 2021). There may be important differences between people’s perceptions of past relational experiences (e.g., reports of parenting received) and present-day, active relationships (e.g., romantic relationships in adulthood) in terms of their malleability (Lee, Zarit, Rovine, Birditt, & Fingerman, 2016). Future studies should examine changes in both attachment security and recollections of caregiving experiences from before to after a psychedelic experience.

Methodological considerations and future directions

This study had some notable limitations, not least its cross-sectional design, sole reliance on self-reports, including retrospective measures, and the uncontrolled, naturalistic psychedelic experiences studied. Therefore, we cannot establish process direction between model components or rule out alternative possible interpretations (e.g., shared method variance, self-report biases). Some of our null results may be due to the diverse conditions of the participants’ psychedelic experiences.

Due to the larger project’s focus on lifespan development and to avoid biasing respondents, we asked about their most memorable experiences, positive or negative, but this may have introduced other biases. In addition, as this research was conducted as part of a broader study of psychedelics and culture, we employed an online convenience sample of Jews. Our findings may not generalize to other cultural groups and more carefully stratified samples. Moreover, the sample reported a high prevalence of mental health issues, use of psychopharmacological medication, and substance use, which conflicts with studies showing lower prevalence of psychological difficulties among those who report lifetime use of psychedelics (e.g., Krebs & Johansen, 2013). The unrepresentativeness of the sample limits the generalizability of the findings. We call for future studies, including matched comparison cases who have not had psychedelic experiences, which would enable more direct tests of the study’s questions.

Although studying naturalistic experiences gives researchers less control than clinical settings do, some preliminary survey studies have shown that naturalistic psychedelic experiences may also provide some therapeutic benefit (Garcia-Romeu et al., 2019, 2020; Johnson, Garcia-Romeu, Johnson, & Griffiths, 2017). Also, despite their shortcomings regarding internal validity, naturalistic designs may better reflect people’s actual lived experiences.

In addition, participants were at different ages during the experiences reported, and they reported their concurrent attachment rather than in the aftermath of the psychedelic experience reported. Thus, different lifespan developmental considerations may have been relevant, and their attachment scores may not reflect their experiences as related to their reported psychedelic experience.

Notwithstanding these limitations, this study provides an important preliminary step in examining attachment-informed questions about psychedelics. Future research should overcome these limitations by testing attachment-psychedelic links in randomized controlled trials and studies using pre-post-follow-up process designs. Studies should also complement self-reports with independent modes of measurement. Although phenomenology is primarily measured via self-report, attachment can be assessed via other methods, such as the coded semi-structured Adult Attachment Interview (George, Kaplan, & Main, 1996) or the secure base script method (Waters & Waters, 2006). Moreover, future studies should more closely examine components of putative corrective attachment experiences in the psychedelic context, such as mixed-methods approaches to spiritual experiences occasioned by psychedelics and clients’ relationships with their therapists.

CONCLUSION

We conclude that perceived attachment history with parents in childhood may predispose individuals to more intense phenomenological experiences associated with psychedelic use, including mystical and challenging experiences, emotional breakthroughs, ego dissolution, and the sensed presence of a sentient being. This result aligns with the compensation hypothesis underlying research on the attachment-religion/spirituality connection (Granqvist, 2020). However, such psychedelic-induced phenomenological experiences may not suffice to bring about increased attachment security.

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SUPPLEMENTARY MATERIAL

Supplementary data to this article can be found online at https://doi.org/10.1556/2054.2024.00330.

REFERENCES


