

Unlocking the self: Can microdosing psychedelics make one feel more authentic?

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Abstract

Background and aim: In the present study, we focus on the relationship between state authenticity – the experience of being true to oneself in a particular moment – and microdosing – a practice that implies repeatedly ingesting very small doses of psychedelics that do not reach the threshold for perceptual alterations. We propose that microdosing could increase state authenticity through influencing people's mood and the number and satisfaction with daily activities. **Methods:** We used self-assessments of state authenticity collected from 18 microdosers in the Netherlands across the period of 1 month for a total of 192 observations. **Results:** We found that on the microdosing day and the day thereafter, state authenticity was significantly higher. Furthermore, the number of activities and the satisfaction with them were higher on the day when participants microdosed, while the following day only the number of activities was higher. Both the number of activities and the satisfaction with them were positively related to state authenticity. **Conclusion:** We propose that feeling and behaving authentically could have a central role in explaining the positive effects of microdosing on health and wellbeing that are reported by current research.

Keywords

authenticity, experience sampling methods, microdosing, psychedelics

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To know yourself and to act according to that knowledge constitute the basis for expressing oneself authentically (Al-Khouja et al., 2022; Harter, 2002; Wood et al., 2008). The importance of authenticity for health and wellbeing is underscored by the variety of positive outcomes associated with it, such as hedonic and eudaimonic wellbeing, engagement, mindfulness and emotional intelligence (Sutton, 2020; Tohme & Joseph, 2020). Conversely, inauthenticity has been linked to negative affect and lower feelings of autonomy (Al-Khouja et al., 2022; Hopwood et al., 2021; Sutton, 2020). Therefore, there is little doubt that the pursuit of authentic expression is central to living a fulfilling life.

People engage in activities solely “to find themselves”, for example by traveling the world, playing improv theatre and trying out different hobbies, sports and musical instruments. Ingesting psychedelics is one of the behaviours after which people report feeling more authentic (Grusauskaite & van Eijck, 2022). In this contribution, we examine a specific way of ingesting psychedelics, known as microdosing. This practice involves repeatedly ingesting very small doses of psychedelics (such as LSD or psilocybin mushrooms) that do not reach the threshold for perceptual alterations (Kuypers et al., 2019). We propose that microdosing influences *state authenticity*, that is “the subjective experience of being one’s true self” (Lenton, Bruder, et al., 2013).

Scholars define authenticity as the congruence between a person’s experience, awareness, outward behaviour and communication (Wood et al., 2008). They distinguish between two ways of quantifying it: state authenticity concerns feelings of authenticity in the moment, while trait authenticity pertains to a stable pattern over time. In daily life, people often refer to it in terms of personality, using statements such as “Our new boss is more authentic than the last”. Such statements capture trait authenticity, which is generally considered to be a stable individual trait (Wood et al., 2008). To measure this construct, the authors

established three dimensions: accepting external influence (the extent to which one follows others’ instructions); authentic living (the extent to which one acts in accordance with their own values); and self-alienation (the extent to which one feels disconnected from oneself).

While individuals may differ in their baseline level of trait authenticity, they tend to experience greater fluctuations in their state authenticity. For instance, Lenton et al. (2016) found that authenticity is in the range of 1.5–3 times more *within* than between individuals. This makes sense since people behave differently according to the situations they are in: behaving as a parent or a co-worker could have a different expression than behaving as a friend or a romantic partner. Furthermore, each day brings about new challenges and new situations for individuals to navigate. Different contexts ask for different ways to act, some allowing more freedom for individuals to express themselves and others enforcing stricter rules of acceptable or desirable behaviour. It is thus unlikely that individuals could express themselves identically from one context to another. In fact, Harter (2002) pointed out that too much authenticity, i.e., being inflexible and not adapting to particular contexts and roles, could be detrimental.

The arguments above emphasise the importance of a state construct of authenticity, which can fluctuate based on specific circumstances that shape individuals’ lives. State authenticity refers to the subjective experience of being true to oneself in a particular moment or situation. It involves aligning one’s thoughts, emotions and behaviours with their internal values, beliefs and desires (Lenton, Bruder, et al., 2013). It captures the degree to which an individual feels genuine, sincere and congruent in the present context. Research has shown that feeling authentic when acting in a particular role was related to higher satisfaction and preference for that role, as well as higher levels of wellbeing, compared to when individuals rate themselves as behaving consistently across the different roles that make up their life (Sheldon

et al., 1997). These findings highlight the importance of the felt experience of being authentic in the moment, as it signals that the individual is acting with “a full sense of choice and self-expression” (Sheldon et al., 1997, p. 1381).

Further research has provided additional evidence highlighting the difference between state and trait authenticity. In this regard, the results by Lenton, Slabu et al. (2013) are telling, i.e., in their study the authors found that state authenticity was not fully predicted by trait authenticity. Furthermore, the research reviewed by Harter (2002) indicates that people acknowledge that they can express themselves differently in different contexts and this is not a threat to still being considered an authentic person. As such, the flexibility of self-presentation is considered by individuals as being normal, sometimes even desired, and it does not necessarily indicate inauthenticity. Therefore, state authenticity is a construct that reflects the capacity of individuals to respond to the daily challenges in a way that is adapted to the context and/or specific roles. This also implies that it is more malleable than trait authenticity as a result of exterior or interior conditions (e.g., purposeful action).

In the present study, we propose that microdosing is a practice that could support a higher state authenticity on the days where individuals ingest psychedelics. The relationship between microdosing and state authenticity has been hinted at in several studies, as we will detail in the next section, but without being made explicit or quantitatively investigated. Therefore, we aim to bridge this gap in the literature and to answer the question: “What is the relationship between microdosing and state authenticity?” By answering this question, our contribution to the literature is twofold. First, we make this relationship explicit, illustrating it with examples from the existing literature and articulating potential mechanisms at work. Our proposal is that engaging in the microdosing practice will relate to people’s experience of positive affect as well as their satisfaction with daily activities, that is both the emotional and the cognitive aspects of wellbeing, and in turn this will influence their

felt level of state authenticity. Noting that the literature linking microdosing with authenticity is qualitative in nature, a second contribution is to provide a first quantitative empirical test of the relationship, using self-collected data, i.e., assessments of state authenticity collected from 18 individuals that engaged in microdosing across the period of a month for a total of 192 observation days.

Microdosing and state authenticity: What does the current research suggest?

The link between microdosing and expressing oneself authentically has been hinted at by current research. For instance, the following excerpt clearly showcases this relationship: “Speaking of microdosing to access an ‘authentic place’ (Santiago, 37, painter) within oneself as well as to reach one’s full potential at work, Santiago suggests that microdosing allows him to create ‘something rather than copying. [...] *That’s the question of being honest, being authentic with your work* [...] then you create something worthy’. In a similar fashion, he shows the same pursuit of authenticity in his personal life: *‘it helps you be completely and truly yourself, raw and authentic’*” (Grusauskaite & van Eijck, 2022, p. 7). As such, the authors found that the theme of authenticity had an important part in the accounts of the participants, especially in relation to their ability to express authentically at work, an environment that is usually more rigid in terms of desirable or prescribed behaviour.

Similarly, Ferenstein (2021) presents the testimonial of one participant that makes the connection between the practice of microdosing and authenticity: “I made myself vulnerable and was willing to have the courage to make myself vulnerable and be authentic. I guess that’s what my search was for. [...] So my anxiety and depression went away. *But I wanted to be authentic. I just wanted to be me. I wanted to know who I wasn’t, my true self.* And that was what my quest has been,

you know. And so, that's what LSD gave me the courage to make myself vulnerable. And that's how you make meaningful connections" (Ferenstein, 2021, p. 6 [italics added]).

Another study that looked at videos and comments related to microdosing on the YouTube platform, found the topic of authenticity clearly linked to the practice of microdosing (Andersson & Kjellgren, 2019). In the account of their microdosing practice, the users made reference to the gained insights that resulted from their practice and how these insights increased the users' knowledge on who they were, what their priorities were, their core beliefs. The authors conclude that "the discussed insights and changes in proclivity appeared to proceed from an *increased awareness of, and subsequent desire to, live 'authentically'* and with more connection to nature and care for the needs of self and others" (p. 5 [italics added]).

All in all, the above qualitative accounts from individuals involved in microdosing suggest that their practice resulted in an increased feeling of authenticity, although it is not clear whether the change is in the trait authenticity or in the state authenticity. In addition, how that change in authenticity as a result of microdosing came about is not revealed. In the next section, we proceed to examine the existing literature on microdosing as well as the authenticity literature in order to find overlaps that could explicate why engaging in this practice would be related to an increase in state authenticity. We will propose two main mechanisms that could explain this relationship, that is, through the role of positive emotions and through influencing the number and the satisfaction with daily activities.

Feeling good, feeling authentic and microdosing psychedelics

When approaching the question of how microdosing would impact state authenticity from the angle of the literature on authenticity, a possible direction is provided by findings linking feeling authentic to emotional states. Lenton, Slabu et al. (2013) provided evidence that

state authenticity related to emotional valence so that feeling good was related to higher ratings of state authenticity, that inducing positive mood enhanced state authenticity and negative mood reduced it, and that this relationship could not be explained by emotion regulation capacities, self-esteem, self-consciousness and other constructs.

Microdosing has been related to positive mood through investigations of sub-threshold doses and large doses. Kometer et al. (2012), in a randomised, double-blind study, found that a large dose of psilocybin's effect at the serotonin 5HT-2A receptor enhanced positive mood and increased goal-directed behaviour towards positive cues, creating an emotional bias towards positivity. In terms of microdosing, Bershad et al. (2019) conducted the first placebo-controlled investigation of LSD's sub-threshold effects and found a significant positive effect of the 26- μ g condition on the vigour subscale of their mood measure, which includes moods such as "lively, active, energetic, cheerful, alert, full of pep, carefree, and vigorous". In addition to these studies, observational research using self-reported data also provides support for the idea that microdosing results in an increase in positive mood and decrease in negative mood (Lea et al., 2020; Ona & Bouso, 2020).

According to this research, it is possible that on the microdosing day, positive mood would be elevated and/or negative mood reduced and through this mechanism, individuals would evaluate their state authenticity to be higher (*H1*). In order to accommodate anecdotal claims from the community, this effect could also manifest, albeit to a lower degree, to the day after the microdosing day (*H2*).

Living authentically and microdosing psychedelics

If we approach the question of why microdosing psychedelics would result in higher state authenticity from the angle of psychedelic literature, it is useful to frame this practice

within the more general human development framework (Liokaftos, 2021). For many, the practice of microdosing is embedded in a larger effort of self-improvement, resulting in “engaging with microdosing in an instrumental, measured manner in pursuit of self-improvement goals through, for example, enhanced mood and cognition” (Liokaftos, 2021, p. 2). In this sense, microdosing serves as a support tool to help users reach their goals, and these goals are framed as rational and conventional, i.e., pursued in a responsible way regarding the safe modes of procurement and use, and with the practice being integrated in a more general lifestyle outlook that includes health and healthy living (Webb et al., 2019).

All in all, individuals that engage in microdosing emphasise the delineation between their practice and recreational–hedonic use. They seem to be guided by the desire to shape a specific kind of life for themselves, where the alleviation of mental illness or reaching purely hedonic states is not sufficient, but the accent seems to be placed on a more holistic approach for what a good life is, including a mindful approach to health and wellbeing, deeper and more satisfying relationships, as well as pursuing valued goals (Liokaftos, 2021). As such, this strand of literature emphasises that within this broad understanding of what a good life is, an important part is to know oneself and to behave according to ones’ values and who you are. These two elements, i.e., self-knowledge and value-aligned behaviours, are, of course, directly mapping onto the concept of authenticity.

The study by Andersson and Kjellgren (2019) suggests that microdosing could be related to increased knowledge into the users’ values and priorities: “A stronger sense of an authentic self and a clearer understanding of personal truths, or core beliefs, were often mentioned as a result of microdosing insights. *‘They’ve been able to show me who I am.’*” (p. 5 [italics added]). But how are these insights generated? Another strand of research brings forth the concept of mindfulness, i.e., the

increased capacity to observe, describe or act with awareness in a non-judging and non-reactive way (Hartong & van Emmerik, 2022). If microdosing increases mindfulness, this would certainly provide a plausible explanation of the anecdotal accounts linking microdosing practice with increased awareness and insights.

In fact, Polito and Stevenson (2019) found a significant decrease in mind wandering and a significant increase in absorption linked to the practice of microdosing. Previous research has shown that expectation effects are significant predictors of the outcomes of microdosing (Kaertner et al., 2021). Therefore, is possible that if users set one of their main goals to be enhancing mindfulness, it is quite understandable that their attention will focus with more intent and awareness on their daily experience, resulting in less mind wandering and higher levels of absorption. This idea might be supported by a recent study, the largest so far in terms of sample size ($n=4050$ microdosers), in which 82.9% of participants endorsed “Enhancing mindfulness” as the reason for engaging in their microdosing practice (Rootman et al., 2021). Similarly, microdosing practice seems to be embedded in a holistic lifestyle that also includes contemplative practices (Aronov, 2019; Webb et al., 2019). and psychedelics and meditation have been shown to have a synergistic effect if large doses are administered during a mindfulness retreat (Smigielski, Kometer, et al., 2019; Smigielski, Scheidegger, et al., 2019), which could further support mindfulness. As such, the possibility of more insights into one’s true self could be facilitated.

Grusauskaite and van Eijck (2022), when analysing the narratives around microdosing within an online community, further identified an explicit branding of this practice as a “tool for self-examination and subsequent improvement” (p. 7). The subsequent improvement is the key element here; insight is not enough, but the translation of the insights into practice seems to be a key motivation for engaging in microdosing. Similarly, Andersson and Kjellgren (2019) described the same ethos in

the users accounts, i.e., users reported increased motivation to engage in activities that are supporting health and wellbeing, such as exercise or healthier food, coupled with less urge to engage in unhealthy habits and less procrastination towards what one could classify under the category of chores.

Based on the above, we propose that microdosing psychedelics could relate to higher state authenticity by supporting the users' attempts to live in alignment with their values and priorities, which directly corresponds to at least one facet of authenticity (Wood et al., 2008). In practice (and also related to the limitations of the data that we use), we argue that on microdosing days, individuals will engage in a higher number of activities (perhaps overcoming procrastination and being able to act according to their goals and priorities) and will evaluate the engagement in their daily activities as being more satisfying. This last expectation is based on the results of research that linked microdosing to increased presence and absorption (Polito & Stevenson, 2019), or to improving abilities and performance, e.g., creativity, energy or focus (Prochazkova et al., 2021), which can act as supporting conditions for deriving more satisfaction from daily activities. In addition, if indeed the activities engaged in reflected to a larger extent the values and priorities of microdosers, this would be a reason for increased experienced satisfaction. In turn, a higher satisfaction with daily activities would translate in higher state authenticity. Subsequently, we expect that on the microdosing day and the day after, the number of activities and the satisfaction with them will be higher and, in turn, state authenticity will be higher (*H3*).

Data and methods

We collected prospective data from 18 respondents over a period of 28 days. Participants were enrolled when they had an active practice of microdosing at the time of enrolment. We started collecting data on 20 February 2020 and by 5 March we had recruited six students

enrolled at the researchers' university. Due to the situation around the COVID-19 pandemic, we had to reassess the recruitment strategy by including respondents located at other universities and abroad, populations of students and not-students. The second wave of data collection started on 12 May 2020 and the last participant was enrolled in the study on 21 May 2020. Participants were incentivised with a gift card and a report on their own data. Ethical approval from the Ethics Review Board of the authors' university was obtained and all participants signed a written agreement upon enrolling in the study.

At baseline (day 0), we collected information on demographics, trait authenticity, as well as other measures not relevant for the current study. Starting with day 1 until day 28, we assessed state authenticity, daily habits and satisfaction with the daily habits. During week 1, each day was sampled, during weeks 2 and 3, we sampled every other day (e.g., days 8, 10, 12 and 14), and during week 4, we sampled 3 days (days 23, 27 and 28). This was done in order to reduce participation burden. On the sampled days, we also collected information on emotional states using experience sampling methods, i.e., signal-contingent sampling with triggers sent five times a day, every 3 h between 10am and 10pm. Participants could also submit information on their own will, which resulted in one participant submitting data on 30 observation days. We used EthicaData (EthicaData, 2020), an application that is used in the field and is approved by the Ethics Review Board of the authors' university in terms of compliance with GDPR regulations.

State authenticity was measured by the Real-Self Overlap Scale (Lenton, Slabu, et al., 2013), i.e., we presented participants six sets of circles with various degrees of overlap and we asked them to report which depiction best represents how close they felt that day to their real self. This measure was collected every other day from the sampled days.

The *microdosing practice* was measured by an indicator variable differentiating between

the microdosing day “I have taken a dose today” (MD 0), the day after “I have taken a dose yesterday” (MD 1) and “no dose today or yesterday” (MD no). We asked respondents each of the sampled days to record whether they microdose that day, a day before or 2 days before. Using this information, we imputed missing values when that was possible. Note that we did not impose any type of schedule for microdosing and participants had their own ideas and practice, ranging from a schedule that implied taking a microdose every 3 days (i.e., resulting in a sequence MD0, MD1, MD no, MD0, etc.) to taking a microdose without a fixed schedule. To maintain consistent definition of the microdosing practice, we conducted interviews with each participant before starting data collection to discuss practical issues regarding substances and regimens.

We included two activity-related measures. The *number of activities* that participants engaged in on a specific day was calculated as a sum scale of the following: meditation; cardio; strength training; household chores (cleaning, grocery shopping, etc); cooking; yoga; hobbies (playing an instrument, painting, knitting, drawing, etc.); writing/journaling; reading; sex (with partner or alone); spending time in nature; spending time with friends/family; spending quality time with dog, cat or other animal; studying; work; watching TV, Netflix or YouTube; sauna; and others. When participants indicated that they engaged in a particular activity, they were also asked to indicate how satisfied they were with that activity, using a scale from 0 (not at all satisfied) to 6 (very satisfied). For our analyses, we computed a mean scale summarising the *satisfaction with the activities* engaged in for each observation day.

Average positive and negative affect was calculated for each day across nine positive and nine negative items, capturing the emotions of participants. Participants were instructed to report which emotions they have felt since they filled out the last questionnaire or for the first trigger in the day, from the time since

they woke up. The basis for the questionnaire was the modified differential emotion scale (mDes) originally used by Fredrickson et al. (2001). This original scale’s psychometric properties were validated in another Greek sample of respondents (Galanakis et al., 2016). The participants were asked “Thinking about yourself and how you felt today, since the last time you filled in this questionnaire, to what extent did you generally feel: ‘Amused, fun-loving, or silly’, ‘Awe, wonder, or amazement’, ‘Grateful, appreciative, or thankful’, ‘Hopeful, optimistic, or encouraged’, ‘Interested, alert, or curious’, ‘Joyful, glad, or happy’, ‘Love, closeness, or trust’, ‘Proud, confident, or self-assured’, ‘Angry, irritated, or annoyed’, ‘Ashamed, humiliated, or disgraced’, ‘Contemptuous, scornful, or disdainful’, ‘Disgust, distaste, or revulsion’, ‘Embarrassed, self-conscious, or blushing’, ‘Guilty, repentant, or blameworthy’, ‘Sad, downhearted, or unhappy’, ‘Scared, fearful, or afraid’, ‘Serene, content, or peaceful’, ‘Stressed, nervous, or overwhelmed’, ‘Sympathetic, concerned, compassionate’.” The responses were recorded on a 21-point Likert scale ranging from 0 (“Never”) to 21 (“All the time”).

In order to test our hypotheses, we used a mixed-effects model with observation days (level 1) nested within individuals (level 2) and only the intercept estimated as a random effect. We included a series of control variables. *Gender* was measured by an indicator variable differentiating between men (ref.) and women ($n = 4$). *Age* of the participant was introduced as a continuous variable. Of the participants, 17 were aged 19–30 years and one was aged 57 years at the time of data collection. Trait authenticity was assessed with the scale by Wood et al. (2008). In the analyses, we introduced three items corresponding to the three dimensions of the scale, i.e., self-alienation, authentic living and accepting external influence. A higher score indicated a higher level of trait authenticity. In order to control for potential systematic differences between daily activities during weekdays, we added the *days of the week* as indicator variables in our

models (Saturday was the reference). We also added an indicator variable differentiating between the period before and after 5 March 2020 in order to account for the two *waves of data collection* that were a result of the pandemic. In order to address possible habituation effects due to participants becoming used to filling in the surveys (Eisele et al., 2022), we included dummies for the observation days.

Descriptive information for all our variables is presented in Table 1.

Results

We started by estimating a null model, without any predictors, in order to calculate the intra-class correlation and we found that approximately 26% in the variation of state authenticity was explained by differences between individuals, leaving a substantial part to be explained by differences within individuals. In order to first tackle whether habituation effects resulting in different response patterns as participants spend more time in the study could be present, we estimated the effect of a variable storing the day since the start of the observation period (range = 0–29) on our dependent variable, but we did not find a significant effect. This implies that there was no significant change in time in state authenticity linked to simply the passing of time.

Turning to the results of our formal analyses, these are summarised in Table 2. In Model 1, we included the microdosing dummies as well as the control variables and we found that both reported a significantly higher state authenticity on the day when participants ingested a microdose and the day after. On the microdosing day, the effect was 1.7 times stronger compared to the effect of the following day. In addition, we found that the three dimensions of trait authenticity did not predict state authenticity scores.

Nevertheless, we found support for the hypothesis linking microdosing with higher state authenticity as well as for the anecdotal accounts from the community so that the

effects of microdosing are experienced, albeit with lower intensity, the day after.

In Model 2, we added the measures of average negative and positive affect and we found that the reduction in the effects of the microdosing variables was negligible. Furthermore, in this model where the microdosing dummies were included, we found that a higher daily average negative affect was related to significantly lower state authenticity. In a separate model where the microdosing dummies were not included, we found, in line with previous research, that average positive affect was related with higher state authenticity and average negative affect with lower state authenticity (the unstandardised effects and corresponding standard errors were 0.05, 0.02 and -0.13 , 0.05, respectively). In additional models, we examined whether the average positive and negative affect was influenced on the microdosing days. We found that only on the day after microdosing was the average positive affect significantly lower (-0.70 , $p < .04$). Furthermore, participants who had high scores on the authentic living dimension of trait authenticity also had significantly lower average negative affect and significantly higher positive affect, indicating that at least for the participants in our study, consistently expressing themselves authentically in their actions was the driving factor influencing their mood. All in all, the above results do not support the idea that mood is a mediator between microdosing and state authenticity.

In Model 3, we added the measures that capture the number of activities that participants engaged in as well as the satisfaction with these activities and found a reduction in the effects of the two microdosing variables in the range of 34%–35%. In addition, with more daily activities and with a higher satisfaction with them, the participants also reported significantly higher state authenticity. These results suggest a mediation at work. Indeed, when we regressed the variables included in Model 1 on the number of activities and the satisfaction with activities, we found that microdosing day was significantly and positively associate with both

Table 1. Descriptive information of the variables included in the analyses.

Variable	Range	Mean (%)	SD	N valid
State authenticity	0–5	3.10	1.1	224
MD0	0–1	26.19		313
MD1	0–1	21.73		313
Average negative affect	0–10.45	2.02	1.86	267
Average positive affect	0.25–20.77	6.73	3.69	311
Number of activities	1–9	4.47	1.71	224
Satisfaction with activities	0.75–6	3.63	1.09	222
Second wave of data collection	0–1	59.74		313
Monday	0–1	13.1		313
Tuesday	0–1	14.38		313
Wednesday	0–1	14.06		313
Thursday	0–1	16.29		313
Friday	0–1	15.34		313
Sunday	0–1	12.78		313
Sex = female	0–1	22.22		18
Age	19–57	24.61	8.57	18
Observation days	5–30	17.39	6.55	18
Self-alienation	1–14	8.39	4.33	18
Authentic living	1–11	6.28	2.82	18
Resisting pressure from peers	1–16	7.67	4.78	18

these dependent variables (the unstandardised effects and corresponding standard errors were 0.61, 0.22 on daily activities and 0.31, 0.12 on satisfaction with activities), while the effect of the dummy standing for the day after the microdosing day was positive and significant, albeit only at $p < .10$, for daily activities (0.39, 0.22). These results provide support for our hypothesis, linking microdosing practice to state authenticity through an influence of the

number and experienced satisfaction with daily activities.

In additional analyses (Supplementary file) we found that the propensity to engage in specific types of activities was different between microdosing and non-microdosing days. On the day when participants have microdosed, they more likely engaged in chores and/or cooking and hobbies/reading/writing. Furthermore, we also found that on the microdosing day, participants reported significantly higher satisfaction with doing chores and/or cooking and with work and/or studying. On the day after the microdosing day, satisfaction was significantly higher with spending time with family and friends and/or having sex, and engaging in health-related activities (cardio, strength, sauna, meditation, yoga).

Conclusions and discussion

In the present study, we set out to make explicit and to test the relationship between state authenticity and microdosing practice. Using self-collected data from 18 participants over 30 days and 192 observation days, we derive the following key conclusions.

First, we found that on the microdosing days as well as the day after, state authenticity was higher; this effect was almost double in strength on the microdosing day compared to the next day. Our findings provide a first empirical test of a relationship that was hinted at in various qualitative studies (Andersson & Kjellgren, 2019; Ferenstein, 2021; Grusaускаite & van Eijck, 2022). Furthermore, state authenticity but not trait authenticity was also related to an item assessing the global reported daily satisfaction (results presented in the Supplementary file), which, taken together with results of previous research (Lenton, Bruder, et al., 2013), emphasises the importance of this construct for the well-being of individuals. The fact that we found empirical evidence for the microdosing practice as a contributor to an increased sense of state authenticity is a novel finding within the literature examining the precedents of state authenticity.

Table 2. Effects of mixed effects models, state authenticity as dependent variable.

	Model 1	Model 2	Model 3
MD 0	0.75 (0.14)	0.77 (0.14)	0.51 (0.13)
MD 1	0.43 (0.14)	0.45 (0.15)	0.29 (0.13)
External influence	0.00 (0.03)	-0.00 (0.02)	0.00 (0.03)
Authentic living	0.11 (0.04)	0.04 (0.04)	0.06 (0.04)
Self-alienation	0.02 (0.04)	0.02 (0.03)	0.02 (0.04)
Average negative affect		-0.14 (0.04)	-0.11 (0.04)
Average positive affect		0.04 (0.02)	-0.02 (0.02)
Number of habits			0.18 (0.04)
Satisfaction with the habits			0.48 (0.07)
18 participants with:	224 observations	192 observations	190 observations

Note. Effects with standard errors in parentheses. Bold effects are significant for $p < 0.05$. All models included control variables for gender, age, day of the week, data collection phase and dummies for the observation day. MD 0 = I took a microdose today; MD 1 = I took a microdose yesterday; MD no = I did not take a microdose yesterday or the day before (ref.).

Second, by reviewing the literature on emotions and authenticity as well as the literature on microdosing psychedelics, we made explicit two potential mechanisms at work: the first pointing toward the role of mood as eliciting higher states of authenticity and the second pointing towards the microdosing practice as providing a supporting context for value-aligned behaviours that we translated into more daily activities and a higher satisfaction therein. Regarding the role of mood, while we could replicate the results by Lenton, Slabu et al. (2013), which found state authenticity to be related to both positive and negative mood, our results did not provide support for the role of affect as a mediator between microdosing and state authenticity. In fact, the magnitude of the effect of the mood variables on authenticity turned out to be quite small in comparison to the overall effect of microdosing, that is after accounting for microdosing days, only daily average negative mood was linked to decreased state authenticity. Regarding the role of microdosing for mood, our results add to the mixed reports from previous qualitative studies, i.e., microdosing practice has been shown in some cases to improve mood but also to increase certain negative emotions or decrease certain positive emotions (Anderson et al., 2019;

Johnstad, 2018; Pop & Dinkelacker, 2023). Regardless of the relationship between microdosing and emotional states, suffice it to say that we did not find evidence supporting the idea that it constitutes a path linking microdosing to state authenticity.

Regarding the second mechanism that we proposed, when examining aggregated measures of the number of activities and of the satisfaction with them, we found that both these measures were higher on the day when participants took a microdose, while the following day only the number of activities was higher. When we disaggregated these measures and we looked at particular types of activities, we found that the satisfaction with activities that reflect chores and work (have-to's) and activities that reflect relational aspects as well as health- or hobby-related activities was higher on one or the other of the 2 days when an effect of microdosing is likely to manifest. In addition, we found that on the day when participants have microdosed they more likely engaged in chores and/or cooking and hobbies/reading/writing.

These results echo findings from qualitative studies, e.g., the study by Andersson and Kjellgren (2019), where the authors conclude that "it was described how the urge for

unhealthy habits lessened significantly while the motivation for more exercise, healthier food, and less habitual use of social media was premiered. Also, users reported less procrastination and a spontaneous impulse to clean the house, tidy drawers, pay bills, or address other postponed or neglected tasks.” (p. 5). While not directly testing this, our findings could reflect a supportive context created by microdosing in the sense of increasing energy, focus and creativity, decreasing mind wandering and increasing mindfulness and the quality of being in the present, as reflected by previous studies (Polito & Stevenson, 2019). Furthermore, they could also reflect the two-step process that was uncovered by Andersson and Kjellgren (2019), i.e., gaining insights and follow-up desire to act according to these insights. All the above mechanisms could explain the relationships found between microdosing practice, number and types of activities, the reported satisfaction with activities and, ultimately, the level of state authenticity. Since we did not directly test these mechanisms, future research is warranted.

Generally, our results put previous findings on state authenticity into perspective: while Lenton, Slabu et al. (2013) argued that judgements of our own authenticity are made in the moment using general emotional state as a heuristic, our findings imply that improving mood may not be the only avenue to increase authenticity. Specifically, it may be even more fruitful to be engaging in valued habits that are “objectively” good and experiencing satisfaction with them (i.e., a cognitive form of appraisal), rather than only feeling good. Therefore, the memorable phrase by Lenton, Slabu et al. (2013) “I feel good, therefore I am real” might be altered to “I do what is important to me and I am satisfied with it, therefore I am real”.

While the above findings are compelling and in line with qualitative research, we note that the full causal chain was not tested. For example, we were not able to examine the impact of the microdosing practice on mind wandering and absorption, or the alleged effect on facilitating

insights on what is important for individuals, their core values. This has to do with the availability of the data and constitutes a limitation of our study. However, it also offers a possibility for follow-up studies that will examine the step-by-step causal chain that we spelled out as well as other potential mechanisms at work. The benefits of future research on this topic are evident as it will directly contribute to the better understanding of how microdosing could influence behaviour and by this could translate in a higher felt authenticity, with follow-up effects on wellbeing. A second limitation of our study is the sample size of participants. This deficiency was compensated by the time interval across which we collected data as well as the number of observation days. We also note that simulation analyses have shown that even with such low sample sizes the regression coefficients and their standard errors are only negligibly biased (Maas & Hox, 2005). A larger sample size covering a more diverse population is certainly needed to increase the robustness of our findings.

Another limitation concerns the potential placebo effects that cannot be addressed with these data. This, combined with the variability in doses and regimens for microdosing, makes it impossible to distinguish between genuine drug effects and placebo effects. While genuine drug effects are undoubtedly relevant to our understanding of microdosing, our study takes a different approach. Our study aims to capture the effects of microdosing in a natural setting, where variations in factors, such as dosage and regimen, are expected. This approach increases the external validity of the results, reflecting real-world conditions in which individuals are likely to have different practices, sensitivities to substances and goals for microdosing.

In conclusion, we have found evidence that the microdosing practice was related to higher ratings of state authenticity and that a behavioural mechanism is most likely at work. Our study opens the door to a new line of research as we propose that feeling and behaving

authentically could have a central role in explaining the positive effects of microdosing on health and wellbeing that are reported by current research. In addition, our data collection design captures the effects of a microdosing practice in a natural setting. It embraces the inherent variability in regimens and dosages while ensuring a common understanding of microdosing among participants. This approach enhances the external validity of our findings and reflects real-world conditions. Furthermore, our study is a positive example of the use of experience sampling methods with the use of a phone app, and an invitation for researchers to further explore this methodology.

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Supplemental material

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