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Psychedelic Experience and the Narrative Self

An Exploratory Qualitative Study

Abstract: *It has been hypothesized that psychedelic experiences elicit lasting psychological benefits by altering narrative selfhood, which has yet to be explicitly studied. The present study investigates retrospective reports (n = 418) of changes to narrative self that participants believe resulted from, or were catalysed by, their psychedelic experience(s). Responses to open-ended questions were analysed using inductive and deductive thematic coding and interpreted within agent-centred approaches to development and well-being. Themes include decentred introspection, greater access to self-knowledge, positive shifts in self-evaluation processes, greater psychological and behavioural autonomy, and enhanced connectedness with others and the world. While this explorative qualitative study offers some initial support for the explanation that changes to narrative self are a cornerstone of psychedelics' therapeutic and transformative potential,*

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methodological and recruiting limitations preclude the ability to make objective claims and generalizations. Future scientific research is necessary to further elucidate this hypothesized mechanism.

1. Introduction

Research over the past decade has elucidated the potential of psychedelic substances to generate lasting changes in individuals' well-being (e.g. Rucker *et al.*, 2016). While the mechanisms of therapeutic action remain largely unknown, the scientific community has consistently documented the potential of these substances to transform the way one thinks about oneself, others, and the world (Roseman, Nutt and Carhart-Harris, 2018; Letheby, 2015; Griffiths *et al.*, 2008). The beneficial effects of psychedelic experiences may come from how individuals integrate and make meaning out of these experiences in the larger context of their narrative selves; however, there is a lack of research specifically investigating how individuals perceive their experience(s) influenced their sense of self. The present study contributes to this endeavour with an exploratory qualitative analysis of psychedelic users' retrospective accounts of acute and lasting changes to their sense of self that they believe resulted from, or were catalysed by, their psychedelic experience(s). Themes that inductively emerged from the data were interpreted within agent-centred theoretical approaches to human development and well-being.

To set the foundation for this study, previous research from psychedelic science and a brief overview of the narrative self are presented. After which, the theoretical framework is introduced to explain how the researchers interpreted results. Methodology and results follow, with participant quotes integrated in the results section to reflect emergent themes. In the discussion, results are tied back into previous research in the field as well as evaluated within the theoretical framework in order to evaluate whether reported changes to narrative self were adaptive or maladaptive.

1.1. The self in psychedelic science

Research suggests that the transformative and therapeutic potential of psychedelics, such as LSD (lysergic acid diethylamide) and psilocybin (magic mushrooms), lie in their ability to alter self-related cognitive processes during and after the psychedelic experience (Carhart-Harris *et al.*, 2014; Letheby, 2015; 2016; Millière *et al.*, 2018). Psychedelics produce altered states of consciousness characterized by ego-

dissolution, which is the experiential disintegration of a coherent and stable sense of self and merging with one's surroundings (Nour *et al.*, 2016; Letheby and Gerrans, 2017). Recent findings suggest that the acute experience of ego-dissolution predicts the degree of lasting psychological benefits, such as the amelioration of depressive and anxiety symptomatology and substance abuse, and increases in pro-sociality and trait level openness (MacLean, Johnson and Griffiths, 2011; Garcia-Romeu, Griffiths and Johnson, 2014; Griffiths *et al.*, 2016; 2018; Grob *et al.*, 2011; Ross *et al.*, 2016; Roseman, Nutt and Carhart-Harris, 2018).

Additionally, qualitative studies on clinical populations suggest that self-insights gained through the psychedelic experience, such as major shifts in self-referential cognition and clarity around values and goals, are central to changing maladaptive cognitions and behaviours (Malone *et al.*, 2018; Noorani *et al.*, 2018; Bogenschutz *et al.*, 2018; Gasser, Kirchner and Passie, 2015; Nielson *et al.*, 2018). While the narrative self has not been the explicit focus of these studies, lasting changes to the way one engages in self-referential cognition and the self-contents generated from these processes is evidenced by these findings.

It is hypothesized that psychedelic therapy involves gaining direct experiential knowledge of the malleability of self-related contents (Letheby, 2015; Letheby and Gerrans, 2017). The acute disintegration of self-related cognition may allow for subsequent reintegration of these processes in a healthier configuration (Carhart-Harris *et al.*, 2017; 2018; Nichols, Johnson and Nichols, 2017). Thus, psychedelics may temporarily disintegrate the neural substrates of self-representation, creating a window of opportunity — encompassing both the acute experience and the post-acute 'integration' phase — during which new and more beneficial forms of self-representation can be consolidated (Carhart-Harris *et al.*, 2014; Nichols, Johnson and Nichols, 2017). Therefore, it is necessary to understand the kinds of changes to narrative self that psychedelic users believe were caused or catalysed by psychedelic experience(s).

1.2. The narrative self

Self-representation refers to the brain's ability to model the self at both minimal (lower-order perceptual) and narrative (higher-order cognitive) levels (Seth, 2013). The present study focuses on narrative self-representation, which is the abstraction or idea of oneself as a

temporally extended agent with an autobiography, possessing specific character traits and core self-related beliefs (Gallagher, 2000). The narrative self creates meaning in one's life by giving order, consistency, and unity to experience, and aids in the selection of goals and motivational resources (Veglia and Di Fini, 2017).

Individuals construct their narrative self by identifying, valuing, and integrating self-related identity constructs (e.g. character traits, self-conceptions, attitudes, values, and goals) (Ryan and Deci, 2004). However, this capacity to edit and update narrative components is biased by previously adopted self and socio-environmental constructs (Veglia, 1999; Veglia and Di Fini, 2019). With acknowledgment of biased self-referential processing, agent-centred approaches to human development view individuals as intrinsically motivated to shape themselves and their lives by regulating internal and external forces to bring about desired change (Brycz and Karasiewicz, 2011; Hechkausen, Wrosch and Schulz, 2010).

1.3. Theoretical framework for data interpretation

The innate process of constructing a narrative self can take adaptive or maladaptive forms, ultimately influencing narrative structure and psychological well-being (Kernis and Goldman, 2006; Ryan and Deci, 2002). To identify what may constitute an adaptive narrative self, we integrated various agent-centred approaches to human development and well-being and extracted five major components of narrative self. These components then informed the interpretation of inductive themes.

According to our agent-centred narrative construction framework, an adaptive narrative self is characterized by: (1) active engagement with the organization, interpretation, and unification of experience (Veglia and Di Fini, 2019; Ryan and Deci, 2004), (2) the ability to attain accurate and complete self-knowledge (Brycz and Karasiewicz, 2011), (3) regulated congruence between self, goals, and actions (Kernis and Goldman, 2006), (4) positive and constructive self-evaluations (Neff, 2003; Dweck, 2000), and (5) a sense of connectedness within oneself, others, and the world (Carhart-Harris *et al.*, 2018). By contrast, a maladaptive narrative self is characterized by: (1) passivity and fragmentation in narrative construction (Ryan and Deci, 2002; Zimmerman, 2000), (2) the inability to attain accurate and complete self-knowledge (Brycz and Karasiewicz, 2011) (3) negative and ruminative self-evaluations (Neff, 2003; Neff, Kirkpatrick and

Rude, 2007), (4) a lack of congruence between self, goals, and actions, and (5) alienation from others and the world (Kernis and Goldman, 2006). Psychedelic experience(s) may elicit lasting change in narrative self-construction and can be investigated from this operational framework, evaluating shifts in the narrative self along a criterion of what constitutes (mal)adaptive change.

1.4. Present study

Previous research suggests that psychedelics may enhance well-being and psychological functioning through an alteration of self-representation (Carhart-Harris *et al.*, 2017; Nichols, Johnson and Nichols, 2017), with the ability to potentially generate lasting changes in self-related cognition. However, there have been no explicit investigations into psychedelic-induced lasting changes to narrative self and its construction processes. Therefore, the present study had two primary research questions: (1) do experience(s) with psychedelics influence the narrative self, and if so, how?; (2) are psychedelic-induced changes to the narrative self adaptive or maladaptive?

By responding to a series of open-ended response questions, participants reported the various ways they believe their psychedelic experience(s) influenced their self-relationship. Themes that emerged from the data were interpreted within the agent-centred narrative self framework to evaluate the adaptiveness of these changes to narrative self.

2. Methods

2.1. Participants and procedure

Participants were recruited from individuals who signed up for a monthly newsletter from ‘The Third Wave’, a psychedelic education website (www.thethirdwave.co). Information about the survey was emailed to subscribers. Interested individuals clicked on a survey link in the email, which led to an informed consent document. Individuals who consented to the study then completed an online survey, hosted on SurveyGizmo. Participants were excluded if they were not fluent in English or if they have not had a psychedelic experience. Reports were excluded from analysis if they were not about medium–high dose experiences (e.g. microdosing experiences not included in this analysis), incoherent, or if participants reported that they did not remember the effects of their psychedelic experience(s). This led to a final sample of 418 participants.

Among respondents who provided demographic information ($n = 276$), the mean age was 38.6 years ($SD = 15.0$, range 17–80), and 59% were male. Thirty-nine percent of respondents had completed high school, 9% had completed an associate degree, 32% an undergraduate degree, and 20% a postgraduate degree. Forty-one percent of respondents reported no religion, were agnostic, or atheist, 15% identified with a new age religion or as spiritual, 14% were Buddhist, 12% Christian, 2% Hindu, 2% Muslim, 2% Jewish, and 12% identified with another religion. Among all respondents ($n = 418$), the majority resided in the United States (67%), and the remainder were from Canada (6%), the United Kingdom (4%), other parts of Europe (13%), South Africa (3%), Australia (2%), Asia (2%), and Central or South America (2%).

2.2. Measures

The original survey contained seven open-ended response questions designed to investigate how psychedelic experiences influence the sense of self, social relationships, and beliefs and perceptions of the world (see Appendix A for survey questions). The present paper focuses on any reported influences or changes to the narrative self and the reported effects of those changes. Therefore, only aspects of the reports which are considered part of the narrative self or its construction were coded and reported in the present study. Understanding how psychedelic experience(s) influenced the narrative self was one of several original research questions and did not have specific hypotheses — hence, the present study is exploratory.

Additional questions asked participants to report duration of psychedelic use, age at initiation, and first substance used. Participants also rated the impact psychedelic experiences have had on them (range from 1 = *no impact at all*, to 6 = *very large impact*), and the quality of this impact (range from 1 = *extremely negative*, to 8 = *extremely positive*). The purpose of collecting these data was to characterize and describe our sample.

2.3. Data analysis

Open-ended responses were analysed with an interactive thematic coding approach (Clarke and Braun, 2017) using Atlas.ti (2013). Inductive coding generated semantic codes, or codes that directly reflected what the participants stated. Semantic codes were then grouped into four major themes by common and distinctive

conceptual features. Each major theme was broken down further into subthemes. Deductive coding was used to interpret inductive codes and name themes and subthemes coinciding with theoretical approaches to human development and well-being.

After themes and subthemes were developed, the codebook was then agreed upon by all authors and interrater reliability tests ensured consistency in coding across reports. Interrater reliability was calculated as a 'percent agreement' score. The interrater reliability was 79.27%, which is considered good to excellent (Cicchetti, 1994; McHugh, 2012).

3. Results

3.1. *Descriptive analyses*

Most participants' first psychedelic experience was with LSD (52%) or psilocybin (38%), early in life (45% between 14 and 18 years of age, and 36% between 19 to 29 years of age). Participants reported using psychedelics for a number of years (42% between 1 and 6 years of use, and 41% with more than 7 years of use) and that their psychedelic experiences have had a very large ($n = 314$, $M = 5.20$, $SD = 1.01$) and extremely positive impact on their lives ($n = 309$, $M = 7.92$, $SD = 0.88$). These sample characteristics may explain why reports of strictly negative or challenging influences on narrative self were found in less than 2% of all reports.

3.2. *Qualitative analyses*

Themes represent interpretations of emergent patterns that are important and meaningful to the research questions. Subthemes capture additional nuanced differences within a major theme. Responses were coded by meaning-unit; a discrete phrase, sentence, or series of sentences that convey one idea or a related set of ideas (see Table 1) (Mostyn, 1985). Peripheral statements unrelated to the research questions were not coded. The results are presented with the major theme and its frequency, representing the number of participants for which that theme emerged. More than one subtheme can emerge per report, therefore the summation of subtheme frequencies does not equate to the frequency of its major theme. Participant responses were woven throughout the results section to illustrate the major themes and their subthemes.

Meaning-Units	Thematic Codes
<i>The impact has been huge. From consistent psychedelic mushroom use I have grown exponentially. This would be in regard to self-understanding,</i>	Self-Insight: Knowledge
<i>self-dependency,</i>	Autonomy: Psychological
<i>self-belief,</i>	Self-Attitudes: Self-Esteem
<i>and consistent growth in my spiritual, physical, and mental health.</i>	Autonomy: Psychological
<i>It has assisted in giving clarity in my daily life, what I truly want from my life, be it work wise, or my relationships.</i>	Self-Insight: Purpose
<i>I am not drained of energy, but in control of my energy throughout my day.</i>	Autonomy: Self-Regulation
<i>These experiences have helped me understand that my morals and values are my own, and cannot be depicted to me by others, be it friends or family.</i>	Autonomy: Resisting External Influence
<i>I am in control of my own life, and therefore have to take responsibility for that. It has helped in eradicating beliefs that did not help or serve me, but that would keep me stagnant. My Ayahuasca ceremony helped me remove myself from the belief that work should not be enjoyed.</i>	Autonomy: Psychological
<i>Therefore, I was able to remove myself from work that kept me stagnant and stuck, purely due to the fact that the income was high.</i>	Autonomy: Behavioural

Table 1. Example report from Participant 158 broken down into meaning-units and analysed to identify appropriate thematic codes.

Self-insight. Self-insight was reported by 51% of participants. Self-insight is a shift in consciousness that involves a feeling of knowing, understanding, or perceiving something that was previously inaccessible or eluded one's awareness (Kounios and Beeman, 2014). A specific shift in self-related cognitive processing was found across

many of the reports (subtheme: *decentring and objectivity*). Many participants indicated that it was this shift through which a new perspective or knowledge was generated (subtheme: *knowledge*). The content of these self-insights varied across individuals, with *constructed experience*, and *purpose* emerging consistently enough to report as additional subthemes.

Decentring and objectivity. Decentring and objectivity was reported by 20% of participants. A decentred mode of introspection is a shift in perspective from within one's subjective experience onto that experience (meta-awareness), a disidentification from internal experience and reduced reactivity to thought content (Bernstein *et al.*, 2015). Participants reported that their psychedelic experiences led to introspection characterized by non-attachment and non-reactivity, allowing for clearer and less biased self-perceptions. For example, Participant 149 reported: '[Psychedelics] helped me to have a more enhanced and in-depth experience of myself and to see myself in a new light. For instance, it feels as though the ego strips away and I can see issues in my life without being attached to them and helps me to peel the layers off myself to see who I am more clearly.'

Results further indicated that decentred introspective processing may be perceived as a route to accurate and complete self-knowledge. In addition to the aforementioned components laid out by Bernstein *et al.* (2015), participants commonly reported feelings of objectivity (i.e. seeing themselves as they truly are). For example, Participant 220 stated: 'Psychedelics have offered me the opportunity to "take a walk" with myself. What I mean by this is they have opened me up to viewing myself plainly and objectively exactly how I am, without any preconceived notions or ideas, and without the ability to hide behind a facade.' Participant 306 reported: 'Psychedelics help by removing my ego and let me think about my life without its judgment. So I get a much clearer image of my situation. Kind of like a zoom out on life. It made me take a more positive stand on life in general.'

Self-knowledge. Self-knowledge was reported by 36% of participants. Psychedelics have been used in therapy for their ability to enhance access to information that has been suppressed or avoided (Grinspoon and Doblin, 2001). For some participants, self-insight gained through psychedelic experience was found to be confrontational, whereby the individual could no longer avoid or suppress these hidden parts of the self. For example, Participant 226 reported: '[Psychedelic experience allowed me] to reflect in such a way where I had no choice but to face my inner demons... psychedelics have

allowed me to truly address these inner demons in order to be able to express myself more genuinely/authentically as a human being.'

Some participants reported that the confrontation with the self was unpleasant and anxiety provoking. However, the majority of those participants who reported distress or discomfort also reported that it was helpful for their personal growth. For example, Participant 30 reported: 'Past psychedelic experiences have made me more aware of myself, sometimes this is good, sometimes this can be anxiety provoking, I've found but the increased self-awareness serves as a base to build upon to improve myself.'

Some participants reported gaining clarity on previously adopted beliefs about oneself and the world, and the influences of those beliefs on their sense of self. Reflecting this theme, Participant 116 reported: 'In my psychedelic experience I had dialogue with myself about my actual self-image and former state of identities. I had access to old worldviews and ideas of how it transitioned to my actual self-image.'

Others reported insight into current patterns of thought and behaviour such as habits, coping mechanisms, self-dialogue, underlying motivations, as well as insight into the strengths and weaknesses of their own personality. For example, Participant 87 stated: 'Personally, it has brought all my faults, superstitions, beliefs, and insecurities to the surface in order for me to deal with them or accept them, and indeed, it has helped to the point that I feel like a better individual to this day.'

Many participants also reported increased self-awareness and alignment with their 'true' self. For example, Participant 104 stated: 'It has felt as if I am learning who I really am... maybe even for the first time.' While Participant 184 stated: 'Through my experiences I began to learn and connect with who I truly am, my inner or higher self.'

Constructed experience. Insight into constructed experience was reported by 8% of participants. This included insight into the structure of conscious experience generally and/or insight into how the mind constructs experience and sense of self. Participants reported that the psychedelic experience illuminated the self as a multifaceted and impermanent construction. For example, Participant 62 stated: 'My psychedelic experiences have fundamentally changed my self-perception and the integrity of that consistent picture of self. That is, I no longer see myself as a unified, unchanging subject, but instead see my conscious experience of self as transitory and ever-changing.'

For some participants, this insight into constructed experience was more personally relevant, describing that their psychedelic

experience(s) revealed the ways that past experiences and unconscious motives shape their perceptions and beliefs about themselves. For example, Participant 175 stated: 'My experiences with psychedelic gave me answers to the question: Why am I that way? Why do I react like this? It opened up my mind to the idea that I am a person with a lot of different experiences that model how I see things and the world around me.'

Purpose. Purpose was reported by 11% of participants. Purpose in life is an individual's sense of having meaningful goals and a sense of directedness in life (Ryff and Keyes, 1995). A sense of purpose consists of beliefs, values, and goals that make life meaningful and fulfilling. Some participants reported a newfound direction in life and alignment of one's goals with one's sense of self, values, and beliefs following their psychedelic experiences. For example, Participant 16 reported: 'I feel as though I have a clearer understanding of what I want from my finite amount of time on earth.' Participant 213 wrote: 'I have grown to understand who I am and my relationship to the world. I figured out what I want to do with my life. I am now in medical school because I realized I wanted to live a life of service helping people.'

Additionally, participants reported a shift in values or a realization of what is truly meaningful to them. Participant 398 stated: 'They totally changed life values. I always thought that money has high value, after psychedelics I discovered that feelings and inner happiness has much greater value.'

Purpose can also come from drawing meaningful connections between past experiences and one's current sense of self and life circumstances — an integral component of adaptive coping in narrative construction (Garland, Gaylord and Park, 2009). Some participants reported that, after their experience, they were able to reframe past events into the larger context of their lives, ultimately lessening the influence of those events on their sense of self. For example, Participant 239 wrote: 'Prior to my psychedelic experiences, I believed that there was something fundamentally wrong with me. I believed that I had failed at a lot of things, and that my life was going in the wrong direction... I came to believe that my life experiences happened the way they did for a good reason.'

Self-Attitudes. This theme was reported by 42% of participants and encompasses reports about the psychedelic experience affecting self-attitudes. Self-attitudes are formed through self-evaluation processes and are considered the directions or approaches people take when

thinking about themselves, and the self-concepts that form as a result of this process (Briñol and Petty, 2012).

Self-esteem. Self-esteem was reported by 21% of participants, reflecting the output of an individual's evaluation of self-worth along a spectrum of positive to negative attitudes (Schmitt and Allik, 2005; Baumeister, 1993). Many participants reported that the psychedelic experience improved their self-esteem, promoting a deeper sense of comfortability with themselves and greater confidence in their abilities. For example, Participant 297 wrote: '[Psychedelics] have greatly increased my self-esteem, specifically by pronouncing my strengths and weaknesses, increasing my motivation to improve myself and those weaknesses, and encouraging me to love and appreciate myself more.' Participant 57 reported a more extreme shift in self-perception, writing: 'I had discomfort in my life towards myself and even hatred. I lost confidence and saw myself in such a negative light I was close to suicide. Using psychedelics changed that almost overnight and showed me how not only were my problems not even real but the way I viewed myself as an entity was wrong. I'm now so much more confident and love myself which has helped me love others.'

Other participants reported more self-respect, self-worth, and self-appreciation following the psychedelic experience. For example, Participant 232 reported: 'In my darkest times I found confidence and self-worth through psychedelics.' While Participant 234 wrote: 'It's given me a higher level of respect for myself and what I'm capable of.'

Self-compassion. Self-compassion was reported by 26% of participants and entailed three major components as defined by Neff (2003): (1) having kindness and understanding to oneself rather than self-criticism and judgment; (2) seeing personal experiences as a part of the human experience rather than separate and isolating; and (3) holding painful thoughts and feelings in awareness without over-identifying with them. While all three dimensions of self-compassion in Neff's framework were prevalent, the last dimension taps into a previously reported subtheme of decentring and objectivity, therefore, only the first two dimensions are addressed as part of the self-compassion theme.

Participants reported that their experiences with psychedelics helped develop a more compassionate self-dialogue. Acceptance of self-contents and emotions commonly co-occurred with compassion. For example, Participant 167 reported: 'My psychedelic substance

experience has definitely influenced my relationship with myself in many positive ways. I understand myself better, respect, love, and accept myself, something I never did before my experience.'

Participants also reported that lessened self-criticism allowed for patience and forgiveness towards themselves, instead of fixating on one's flaws and mistakes. For example, Participant 291 stated: 'I am starting to love myself and forgive myself for past mistakes.'

Participants also reported a shift in perspective whereby they were connecting with larger humanity and viewing their personal situation as part of the larger human condition and not exclusive to themselves. Reflecting common humanity, Participant 114 reported: '[Psychedelic experiences] make me take a critical look at my actions and how they affect others. At first I found this discomforting but later on the psychedelics showed me that all people have areas to work on so this is not something to worry about. Over time they have made me more comfortable with myself.'

Participants also reported that the causes of negative self-perceptions were viewed with an accepting and non-judgmental attitude during and following their psychedelic experiences. For example, Participant 237 wrote: 'Psychedelics have most certainly and without a doubt been the method of fastest growth in my life — looking at the speed at which I have come to see myself — see the critical self that is at the root of many negative thinking patterns. I have learned such deep compassion for myself which in turn has spilled over to my relationships with others. I have found a place of complete forgiveness as journeying deep into my past shed light on why I made certain choices.'

Autonomy. Autonomy was reported by 43% of participants. Autonomy is the extent to which behaviour is volitional and regulated by the self rather than by external contingencies (Weinstein, Przybylski and Ryan, 2012; Ryan and Deci, 2004). For the present data, autonomy as a thematic code was broken down into *psychological autonomy* (sense of freedom from automatic thoughts and emotions) and *behavioural autonomy* (sense of freedom in decision making) which both converge at subthemes of *self-regulation* and *resistance to external influences*.

Psychological autonomy. Psychological autonomy was reported by 17% of participants. This included the felt sense of freedom in one's own mind and in one's capacity to improve the functioning and quality of one's own inner experience. For example, Participant 219 reported: 'I learned that I can change. I learned that in my mind there

is freedom from delusion and craving and hate.’ Participant 366, struggling with depression, wrote: ‘I needed my SSRIs before these experiences, and was able to forego them after. It’s not all bliss after, but a glimpse alone of “what can be” is very helpful/useful.’

Other participants found a newfound sense of psychological autonomy in their own narrative construction. For example, Participant 366 reported: ‘I had several experiences that profoundly changed my self-image and gave me freedom in the way I see myself and the way I can act. I realized I can construct my self-image the way that suits me.’

Behavioural autonomy. Behavioural autonomy was reported by 20% of participants and encompassed reports of psychedelic experiences catalysing an increase in active independent decision making and implementing change in oneself and one’s life.

As described by Participant 374, these changes were often regarding physical and psychological health: ‘Yes, [psychedelic experience] opened my mind to look into health issues that I would not have without psychedelic experience. I was able to take control of my health; not the case before psychedelic experience.’

Participants further reported increased self-improvement behaviours directed towards a healthier lifestyle, such as improved diet, level of activity, spiritual practice, and reduced substance abuse. For example, Participant 218 reported: ‘I think psychedelics have helped open my eyes to a lot of things and have helped me get clear on what I choose to be around and what I choose not to have in my life. I’ve found since starting to explore psychedelics, I also began to explore more activities like meditation and mindfulness.’ Participant 39 reported: ‘When I first took psychedelics, I was a very heavy drinker with no idea where I wanted to go in life. After only a few more experiences I quit drinking and was able to focus my mind on where I wanted to go in life. I am now able to be around others as they drink with no desire to drink at all. I believe that wouldn’t have been possible without my psychedelic experiences. I also own a successful business which wouldn’t have been possible with my alcoholism.’

Post psychedelic use decisions were commonly mentioned and took many forms in various domains of physical and mental health, goal achievements, and social life. For example, Participant 128 remarked: ‘I’ve let go of some unhealthy relationships, and insisted on having healthier boundaries and more balanced relationships.’ Participants also reported orienting their actions towards goals they felt were more meaningful and better connected to their true sense of self. For

example, Participant 144 reported: 'After each psychedelic experience... my overall level of active decisions increased. I now know that I choose who I surround myself with, as well as the ability to choose where my life is heading. I changed my degree, changed my friendships, and even chose to be more of myself with my family. I took charge of my life; I woke up.'

Self-regulation. Self-regulation is a component of psychological and behavioural autonomy and was reported by 8% of participants. Controlled self-regulatory processes are generated through conscious access to aspects of the self and allow for intentional and deliberate influence over internal states and decision making (Williams *et al.*, 2017). For example, Participant 396 reported: 'I am much less reactive with my partner and am able to control my defensiveness and reactions to things I typically would start a fight over or have a negative response.'

Participants further reported improved regulation of internal states, emotional control, and mental clarity. For example, Participant 30 responded: 'It is helping me a lot facing my social anxiety issues, because now I am more aware of my behaviours and I feel more in control of myself... Now when I do some mistakes I don't think about that like it is the end of the world and I am able to face challenges more easily without worrying about a possible failure.'

Enhanced self-regulation was often reported with self-insight, as new self-knowledge enhanced awareness to previously automated thoughts and behaviours. For example, Participant 200 reported: '[Psychedelic experience] made me realize some negative ways I've dealt with stress and fear for decades. And gave me the ability to remember them and change the negative to a positive in real time. Instead of dwelling on the negative wishing I could change. They allow me to not get overwhelmed when I have more than 2 things to do which would then get nothing done.'

In some reports, it was evident that participants believed enhanced self-insight from psychedelic experiences helped them develop better coping skills. Reflecting this, Participant 298 reported: 'It [psychedelic experience] doesn't necessarily "solve" my problems, but the deep insight not only has given me clues to my own behavior but also how to adjust my inner dialogue and the resulting behavior. I can now cope a little better because of my change in point of view, I understand the consequences of my behavior and why it ended up always working against me, and I have realized and learned more effective ways to live the life I want.'

Resisting external influence. Resisting external influence, or independent thinking, was reported by 14% of participants. Participants reported insight into how external forces, such as the opinions of others, parental influence, culture, religion, and society shaped their self-conceptions, self-attitudes, and values. This code was applied when participants' insight into the influence of external factors co-occurred with feeling a separation or lessening of those influences on their sense of self.

Some participants reported a realization that their self-conception was heavily influenced by societal expectations or norms. For example, Participant 359 reported: 'I would not be the same person I am today had I never done a psychedelic. They have allowed me to shed layers of socialized and constructed beliefs and let me feel more powerful and free in just being me.' Participant 293 reflected on their religious upbringing, stating: 'I was raised a Jehovah's Witness, and my first LSD experience showed me that religion has been about control of people. After that experience, I have increasingly been unwilling to let others think for me, and I take responsibility for all of my own behaviors and thinking.'

Other participants reported awareness of how their self-conceptions, goals, and decision making were influenced by their parents. For example, Participant 154 reported: 'My original undergrad goal of becoming a physician was radically altered as I came to understand that desire was more a matter of enculturation by my parents than a genuine desire of my own. After my early psychedelic experimentation, I changed my undergrad major to philosophy.'

Participants commonly reported the psychedelic experience gave them greater awareness of and desire to resist or release the external influences they had previously accepted and adopted. Participant 30 reported: 'Many times I found myself thinking in the same way as my parents and that I didn't elaborate their thinking but just integrate in myself. That's really wrong because when I faced it with the use of psychedelics, I understood that I don't agree with that beliefs and more importantly that they are not mine at all.' Frequently, participants reported that these realizations loosened the grip of past influences and gave them a newfound trust in themselves and belief in their ability to resist influences in the future. Participants also reported feeling more independent socially, more resistant to internalizing other people's opinions, and less dependent on the affirmation of others. For example, Participant 132 stated: 'Since using psychedelics I have become more in tune with my beliefs. For a long time, I wasn't

sure what I stood for, if anything, and psychedelics helped me feel like I'm actually standing for things as they come up, not just passively taking on the opinions of others.'

Connectedness. Increased connectedness has been consistently reported by patients in prior psychedelic research (Watts *et al.*, 2017; Carhart-Harris *et al.*, 2018). In line with this, increased connectedness was reported by 43% of participants in the present study. Connectedness is integral to psychological well-being (Cervinka, Röderer and Hefler, 2012), and may be one of the key factors contributing to the therapeutic potential of psychedelic experiences.

While participants conceived of connectedness differently, the common thread throughout the reports was that psychedelic experiences led to a more interconnected sense of self; a self that is embedded in, affected by, and affecting the system, or context, in which it exists. For example, Participant 41 reported: 'The psychedelic experiences that I have had gave me a greater awareness that I am part of my environment in a type of symbiosis. That I am not separate.' For some, the psychedelic experience led participants to view the self as embedded in other-worldly or spiritual systems, while for others it was a feeling of connection to the world, nature, humanity, close others, and/or the universe at large. Participant 34 reported: 'I rediscovered the love for nature and how we are part of an extremely complex system, I regained curiosity on knowing how the physical world works and gained an understanding of the interconnectedness of everything.'

A newfound perspective of connectedness had a variety of lasting effects for this sample, such as a greater sense of responsibility for others, society, and the environment. For example, Participant 357 wrote: 'I have a much deeper sense of connection to everyone and a deeper sense of responsibility for their well-being. Radiating out in intensity from my child and wife to my wider relations.' While participant 390 reported: 'Feeling connected with nature under an LSD trip has instilled a greater sense of personal responsibility toward the earth.'

4. Discussion

With the narrative self at the centre of development and well-being, it follows that dysregulation and rigidity in self-related cognition is characteristic of mental health conditions and maladaptive behaviours (Clark, 2004; Doron and Kyrios, 2005). Psychedelics show

therapeutic promise for pathologies characterized by deleterious changes to self-representation (Sui and Gu, 2017), or in other words, dysfunctional self-structures (Doron and Kyrios, 2005) and cognitive rigidity (Holtzheimer and Mayberg, 2011). Evidence and subsequent theories in neuroscience suggest that psychedelics loosen rigid and heavily weighted beliefs and maladaptive cognitions, especially those related to the self (Carhart-Harris and Friston, 2019). These results map onto previous research on psychedelics and self-related cognition as well as the present study, which contributes to this body of work by providing thematic interpretations of perceived psychedelic-induced changes to various components of the narrative self and its constructive processes.

The adaptiveness of reported changes to the narrative self was interpreted within a theoretical framework drawn from a synthesis of agent-centred approaches to human development and well-being. The operational framework for data interpretation consisted of whether an individual (1) is active rather than passive in their narrative construction (Veglia and Di Fini, 2019; Ryan and Deci, 2004), (2) can attain accurate and complete self-knowledge (Brycz and Karasiewicz, 2011; Wilson and Dunn, 2004), (3) regulates congruence between self, goals, and actions (Kernis and Goldman, 2006), (4) generates positive and constructive self-contents (Neff, 2003; Dweck, 2000), and (5) experiences a sense of connectedness with others and the world (Carhart-Harris *et al.*, 2018). Results are evaluated with these elements in mind, pairing present findings with extant psychedelic science and agent-centred theoretical approaches.

Results indicate that psychedelic experience may catalyse active engagement with narrative construction. The default mode of introspection is characterized by a first-person perspective whereby the individual is the subject of experience and is identifying with thoughts and feelings (Berstein *et al.*, 2015). By contrast, a decentred mode of introspection is a shift in perspective from within one's subjective experience onto that experience (*ibid.*). Through a decentred lens, the contents of the self are viewed in the mind as events rather than reflections of reality (Campanella *et al.*, 2014), facilitating a more flexible and detached way to navigate through thoughts and feelings. As hypothesized by Letheby and Gerrans (2017), having psychedelic experience might lead to long-term benefits in introspective processes whereby the contents of consciousness are more decentred and less personally and emotionally attached to one's sense of self. Our study finds some support for this.

With regard to the attainment of accurate and complete self-knowledge, participants in the present study perceived psychedelic-induced decentring as a way to gain such insights. Self-insight is the first component of authenticity, which has cross-culturally predicted well-being (Robinson *et al.*, 2013) and healthy psychological functioning (Goldman and Kernis, 2002). In connection with previous work, self-insight into alcohol use problems as well as enhanced motivation for change were both key change-related phenomena towards cessation or reduction of alcohol use after psilocybin treatment (Nielson *et al.*, 2018). Additionally, decentring is considered an essential mechanism of change in mindfulness and acceptance-based interventions (Hoge *et al.*, 2015; Baer, Lykins and Peters, 2012) and has positive associations with overall well-being (Fresco *et al.*, 2007; Lara, Trindale and Ferreira, 2014).

Some participants reported that psychedelic-induced insight into the constructed nature of experience changed the way they perceived narrative self-consciousness. The detachment from a static sense of self has been found to result in new insights, diminished psychological suffering, and lasting effects on well-being (Austin, 2009; Nielson *et al.*, 2018; Hölzel *et al.*, 2011), perhaps contributing to lasting feelings of psychological autonomy and sustained increases in compassion (Dambrun and Ricard, 2011). Meditative and mindfulness practices are centred around cultivating a sense of flexibility in self-conscious experience, suggesting possible parallels between cognitive alteration experienced through mindfulness practice and psychedelic experience (Smiglianski *et al.*, 2019).

The present study found support for psychedelics' potential to shift individuals from negative and ruminative self-evaluations to positive and constructive self-evaluations, facilitated for some by psychedelic-induced self-insight. A related feature of compassionate self-evaluation is acceptance, which has been found to be an essential change process for patients with treatment-resistant depression undergoing psilocybin therapy (Watts *et al.*, 2017). Additionally, Soler and colleagues (2018) found that four weeks of ayahuasca sessions led to increases of acceptance that were comparable to participants of a standard eight-week mindfulness training programme. Acceptance is a key feature of mindfulness, whereby thoughts and feelings are observed non-judgmentally (Creswell, 2017), which in turn may also contribute to a more comprehensive self-schema (Amada and Shane, 2018; Slagter, Davidson and Lutz, 2011).

Maladaptive self-contents are cognitive and emotional patterns that have detrimental effects on development and well-being (van Wijk-Herbrink *et al.*, 2018). In the present study, compassion often co-occurred with increased self-esteem, or a shift from negative to positive self-contents regarding one's self-worth, confidence, and self-appreciation. These aspects are linked with adaptive psychological and behavioural functioning (Tsaousis, 2016), and converge with previous work showing increased optimism two weeks post LSD experience (Carhart-Harris *et al.*, 2016). In addition to positive shifts in self-esteem, enhanced sense of purpose was also found, representing goals, a sense of direction in life, and clarity around values that make life meaningful (Ryff and Keyes, 1995). In other research, alterations to identity and revisions to life priorities have been found to treat existential and psychological distress following a cancer diagnosis (Belser *et al.*, 2017).

While it has been hypothesized that the psychedelic experience may generate an adaptive sense of being able to change oneself and one's life, this has only been inferred from previous research (Letheby, 2015; 2016). For patients facing terminal illness, psychedelic therapy has led to lasting behavioural changes, such as eating healthier, increased exercise, and increased meditative or spiritual practices (Malone *et al.*, 2018). Psychological autonomy is a functional property of the brain to control attention and deliberate task/goal-related thought, focusing heavily on the ability to carry out conscious self-regulation (Metzinger, 2013). Both psychological and behavioural autonomy was a recurrent theme in the present study, mostly centred around a felt sense of freedom to make changes to one's self-narrative and engage in self-improvement behaviours.

Finally, an enhanced sense of connectedness was found in many reports, congruent with a history of documented increases in connectedness both during and after psychedelic experiences. Connectedness is considered a key component of psychological well-being and a major factor in recovery from mental illness (Cervinka, Röderer and Hefler, 2012; Leamy *et al.*, 2011). Watts and colleagues (2017) recently found that enhanced connectedness was essential to lasting amelioration of depressive symptoms following psychedelic therapy, leading these researchers to hypothesize that psychedelic therapy targets this core factor underlying mental health generally. Our findings further attest to the potential of psychedelic experiences to increase individuals' connectedness.

4.1. Limitations and future directions

While the study used a large and diverse sample size for qualitative work, it was a convenience sample recruited through a psychedelic community website. This is reflected by the majority of participants reporting that psychedelic experiences had a large and positive impact on their lives. Negative changes to narrative self were found in less than 2% of reports. Due to this sampling bias, future research should be conducted with a general-population sample to capture more varied psychedelic experiences and their effects. It is also important that future research investigates the role of set and setting in facilitating positive psychedelic experiences.

The study was conducted online, meaning that there was no control over where, how, or when participants completed the survey. Moreover, some questions may have been viewed as redundant. Future research that uses semi-structured interviews may help increase the depth and nuance of participant responses. Another limitation of the study was that it did not focus on details regarding the integration phase, which could have provided insight into the kinds of techniques or practices that helped to sustain beneficial effects. Future research should focus on characterizing important features of the integration phase and beneficial practices for sustaining positive effects.

The study relied on participants' retrospective understanding of how their psychedelic experiences influenced their narrative self. Future research that prospectively tracks participants' development using quantitative and qualitative measures longitudinally is needed to more fully understand how psychedelic experiences relate to lasting changes.

4.2. Concluding remarks

Our findings suggest that psychedelic substances have the potential to catalyse adaptive shifts in developmental trajectories by tapping into fundamental components of narrative selfhood. This seems to be largely dependent on the way individuals integrate their experience into their self-story post psychedelic use.

Psychedelic users' accounts of how their experiences influence their self-relationship have implications for research and psychedelic therapy. First, lasting psychological benefits of psychedelic experience may lie in the process of integrating this experience with one's sense of self, as almost all participants in the present study reported at least one alteration to their narrative sense of self, and many reporting

multiple kinds of self-transformation. Future research could consider focusing on personalized integration protocols, during and after therapy sessions. Secondly, themes in the present study point to several conceptual connections between the benefits of psychedelic experiences with meditation and mindfulness practice. Future research should investigate these parallels more fully, and therapeutic protocols should empower individuals with meditative and mindfulness tools that instantiate self-awareness, construction, and control. While the present study offers initial support for the ability of psychedelics to facilitate lasting changes in narrative self-construction, more research is needed to better understand how the psychedelic experience and subsequent integration engenders these transformations.

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Appendix A

Open-Ended Survey Questions

- 1) How have your psychedelic experiences influenced your relationship with yourself? If your psychedelic experiences have not influenced your relationship with yourself, please type ‘they did not’.
- 2) How have your psychedelic experiences influenced your interpersonal relationships? If your psychedelic experiences have not influenced your interpersonal relationships, please type ‘they did not’.
- 3) How have your psychedelic experiences influenced you socially? If your psychedelic experiences have not influenced you socially, please type ‘they did not’.
- 4) How have your psychedelic experiences influenced the way you think about and/or perceive the world? If your psychedelic experiences have not influenced how you think about or perceive the world, please type ‘they did not’.

- 5) How have your psychedelic experiences influenced your morals and values? If your psychedelic experiences have not influenced your morals or values, please type 'they did not'.
- 6) How have your psychedelic experiences influenced your prior beliefs? If your psychedelic experiences have not influenced your prior beliefs, please type 'they did not'.