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Patients' Accounts of Increased "Connectedness" and "Acceptance" After Psilocybin for Treatment-Resistant Depression

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Abstract

Objective: To identify patients' perceptions of the value of psilocybin as a treatment for depression. **Method:** Twenty patients enrolled in an open-label trial of psilocybin for treatment-resistant depression participated in a semistructured interview at 6-month follow-up. Thematic analysis was used to identify patients' experiences of the treatment and how it compared with previous treatments. **Results:** Two main change processes were identified in relation to the treatment. The first concerned change from disconnection (from self, others, and world) to connection, and the second concerned change from avoidance (of emotion) to acceptance. A third theme concerned comparison between psilocybin and conventional treatments. Patients reported that medications and some short-term talking therapies tended to reinforce their sense of disconnection and avoidance, whereas treatment with psilocybin encouraged connection and acceptance. **Conclusions:** These results suggest

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that psilocybin treatment for depression may work via paradigmatically novel means, antithetical to antidepressant medications, and some short-term talking therapies.

Keywords
psilocybin, psychedelic therapy, depression, treatment-resistant depression

> We are like islands in the sea, separate on the surface but connected in the deep
>
> —William James

Over the past 10 years, there has been a growing interest in psychedelic substances as treatments in psychiatry (Griffths & Grob, 2010; Moreno, Wiegand, Taitano, & Delgado, 2006). Recent clinical trials have found promising safety, tolerability, and efficacy (Nichols, 2016). Treatment models typically involve one or two dosing sessions with a psychedelic substance as part of a brief psychotherapy. The impressive results of these modern trials are beginning to excite the attention of the scientific and medical establishment and motivate careful thinking about the value of this approach and how it may complement and/or challenge conventional treatment models. These developments come after a 50-year hiatus in human psychedelic research and represent an intriguing new zeitgeist in modern psychiatry.

Modern investigations into the therapeutic potential of psychedelics started in the mid-1990s with basic human psychology (Strassman & Qualls, 1994) and neuroimaging research (Vollenweider et al., 1997) before transitioning back into psychiatry in the 2000s (Moreno et al., 2006). Since 2006, there have been nine separate studies conducted by eight independent research teams on the clinical utility of psychedelics (Bogenschutz et al., 2015; Carhart-Harris, Bolstridge, et al., 2016; Gasser et al., 2014; Griffiths et al., 2016; Grob et al., 2011; Johnson, Garcia-Romeu, & Griffiths, 2016; Moreno et al., 2006; Osorio Fde et al., 2015; Ross et al., 2016). Much of this work has focused on conventional clinical outcomes, however, and there has been relatively little discussion of underlying psychological mechanisms. The motivation of the present qualitative analysis was to address this lacuna in order to better determine and communicate the psychological mechanisms involved in this promising and distinctive treatment modality.

Qualitative studies are useful for clarifying and defining the complex composite of components that make up novel therapeutic approaches (Braun & Clarke, 2013). Such work may inform future research and guide the

development of psychedelic-based treatments in clinical practice. Qualitative studies are an important adjunct to quantitative data (Hill, Chui, & Baumann, 2013; Lewin, Glenton, & Oxman, 2009; Midgley, Ansaldo, & Target, 2014). Information about patient experience can supplement information obtained from neuroimaging and psychometric measures, for example, to provide fuller, richer accounts of treatment mechanisms. Qualitative research is also a useful way of providing extra information on long-term progress; for example, subjective accounts of the nature and duration of change may shed light on how therapeutic benefits may be maximized, for example, through complementary treatments or behaviors, or repeat dosing after a particular period.

Two recent clinical trials involving psychedelic-based treatments have included qualitative analyses of patient experiences as reported at 6- or 12-month follow-up (Belser et al., 2017; Gasser, Kirchner, & Passie, 2015). Both trials focused on psychedelic treatment of anxiety related to life-threatening illnesses and both qualitative analyses of patient-reported experiences found themes relating to similar concepts, although they were described and organized in different ways. The present study is, to our knowledge, the first qualitative analysis of the effects of psychedelic treatment on patients with depression in a modern controlled trial.

The current qualitative study involved interviewing patients from the first clinical trial of psilocybin for Treatment-Resistant Depression (TRD; Carhart-Harris, Bolstridge, et al., 2016) using a phenomenological approach. In the clinical trial, 20 patients who met clinical criteria for TRD (i.e., failure of at least two different medications within the current depressive episode) were seen for six appointments: one screening session, one preparation session, a low-dose (10 mg) psilocybin session, a high-dose psilocybin session (25 mg), and two follow-up sessions at 1 day and 1 week after the high-dose session. Each patient was allocated two experienced clinicians (either psychiatrists or clinical psychologists) as the therapeutic "guides" who were introduced to the patient at screening and thereafter attended all visits.

Screening sessions explored patient history and presenting problems and the preparation session involved discussion of possible drug effects and sought to build trust and rapport. During the two dosing sessions, patients reclined on a bed, wearing eyeshades, and listened to a specific music playlist. (Note. A separate paper will address patients' perceptions of the music.) Patients were encouraged to follow the natural lead of the music and to adopt an introspective focus. Guides provided support by "checking-in" with the patient every 30 to 60 minutes, which involved enquiring how they were feeling. Gentle reassurance was provided if distress or discomfort was apparent and patients were encouraged to "surrender" or "let go" to the drug effects without resistance. Posttreatment sessions provided time for the patient to

describe their experience, and focused on helping them draw together a narrative of what they had experienced, and what it might mean for them going forward. The traditional psychological/psychotherapeutic approach used in this trial and similar previous trials (e.g., Griffiths et al., 2016; Ross et al., 2016) is often somewhat of a composite of approaches, tailored (it is assumed) to the idiosyncratic nature of the psychedelic experience (Grof, 1980; Richards, 2015). The practice of "guiding" in the current study required clinical skills emphasized in humanistic psychology: empathy, unconditional positive regard, and genuineness (Rogers, 1951).

A report on clinical outcomes in the first 12 subjects (Carhart-Harris, Bolstridge, et al., 2016) has been published and an update with the data from the full 20 is currently in preparation. In brief, before versus after treatment effect sizes (Cohen's *d*) were exceptionally large (e.g., >2) at 1, 2, 3, and 5 weeks posttreatment follow-up but dropped to levels associated with more conventional treatments at 3 and 6 months (i.e., Cohen's $d = 1.5\text{-}1.6$, respectively). Fifteen of the 20 patients showed some degree of reduction in depressive symptoms at 6 months follow-up, with 7 continuing to meet criteria for clinical response (50% reduction in depressive symptoms) and 6 meeting criteria for remission (Carhart-Harris, Bolstridge, et al., 2016; Carhart-Harris, 2017). Formal reports on the clinical and neuroimaging data are currently in preparation. It should be noted that subjective drug effects were barely detectable (both doses) for three of the patients. Two of these reported no drug effects at all and no discernable changes in their depression (P10, P20) whereas the remaining patient reported some perceptual distortions during the high dose but no clinical benefits (P13).

In the current study, patients were interviewed about their experiences 6 months after the high-dose session. Core research questions were the following:

- What were the patients' experiences of the dosing sessions?
- How did they feel in the weeks and months afterward?
- What (if any) were the major processes of change?
- What did the patients see as the main benefits and harms of the treatment?

Method

Current Study: Patients

Twenty patients with TRD enrolled in a clinical trial of psilocybin for TRD conducted at Imperial College London. All 20 in the clinical trial took part in the qualitative follow-up interview.

Six women and 13 men (15 White, 3 Black, 1 Asian, and 1 Hispanic) aged between 30 and 64 years. Key entry criteria were the following: TRD, defined by a score of 17+ on the Hamilton Depression Scale, and to have tried at least two different antidepressant medications without response. Key exclusion criteria were the following: no personal or immediate familiar member with a current or previously diagnosed psychotic disorder (see Carhart-Harris, Bolstridge, et al., 2016, for further details). Five patients had previously tried a psychedelic drug; in four of five cases, this had occurred in recreational contexts in early adulthood. All but one had undergone at least one trial of cognitive behavioral therapy (CBT).

Procedures: Qualitative Interviews

Six months after their dose, patients were invited to be included in an optional follow-up interview. Nineteen patients gave their informed consent to take part and were interviewed in person or over Skype using a semistructured interview, which consisted of a series of questions tracking patient experience, for example, *What was your experience of depression before the study? What treatments have you tried? What happened during dosing? How did you feel in the weeks and months afterward? How does it compare to other treatments?* (see the appendix for complete interview schedule). Prompts were used to encourage elaboration, if this was lacking. Interviews lasted about an hour and were recorded and transcribed by the first author. The first author acted as a guide for three patients. For transparency, references to these three patients have been marked with an asterisk.

Analysis

Thematic analysis (Braun & Clarke, 2013) was used to identify central themes for each patient. Data were analyzed sequentially by the first author, using a process of constant comparison (Corbin & Strauss, 2008), which is an iterative method of content analysis where each emerging category is searched for in the entire data set. In accordance with good qualitative research practice guidelines (e.g., Stiles, 1999), the other authors read transcripts to verify that the final themes were a fair representation of the data set. Respondent validity checks (Torrance, 2011) were carried out.

Results

The thematic analysis generated three superordinate or "master" themes (see Table 1). The first two reflect the most commonly reported change processes.

Table 1. Themes.

Theme	Number of endorsing patients
A. Change Process 1: Disconnection to Connection	17
A.1. Disconnection	20
A.1.1. "Trapped in my mind"	18
A.1.2. Disconnected from senses	8
A.1.3. Disconnected from self	20
A.1.4. Disconnected from others	19
A.1.5. Disconnected from the world	19
A.2. Connection	17
A.2.1. Mind "rebooted"/"opened up"/"switched on"	14
A.2.2. Connected to senses	10
A.2.3. Connected to self	16
A.2.4. Connected to others	16
A.2.5. Connected to the world	16
A.2.6. Connected to a spiritual principle	9
B. Change Process 2—Avoidance of Emotion to Acceptance	16
B.1. Avoidance of emotion	16
B.1.1. Rumination shuts down emotional repertoire	11
B.1.2. "Numb"—Unable to feel emotions	11
B.1.3. Attempt to avoid painful emotions	13
B.1.4. Attempt to avoid traumatic childhood memories	10
B.2. Acceptance of emotion	16
B.2.1. Intensity of feeling during the dose	16
B.2.2. Surrender to emotion	13
B.2.3. Trauma memories from childhood confronted	8
B.2.4. Memories of love accessed	12
B.2.5. Embodiment of emotion	10
B.2.6. Emotional repertoire expanded long-term	15
C. Psychedelic Therapy Compared With Traditional Therapy	20
C.1. Traditional treatments reinforce disconnection and avoidance	16
C.1.1. Talking therapy—Difficult to access substantial treatment	15
C.1.2. Some therapists unable/unwilling to address traumatic experiences	11
C.1.3. Structured treatments can prevent rapport and trust developing	11
C.1.4. Therapy can feel like it is exacerbating depression	8
C.1.5. Antidepressants—avoidance of underlying issues	18
C.1.6. Antidepressants—debilitating side effects	12
C.2. Psychedelic treatment reinforces connection and acceptance	17
C.2.1. Given the time and space to talk about the hard things (insufficient integration)	13 (4)
C.2.2. Focus on preparing for turbulence (inadequate preparation for withdrawal from antidepressants)	8 (2)

(continued)

Table 1. (continued)

Theme	Number of endorsing patients
C.2.3. Music enables surrender to painful emotions	14
(study playlist seen as restrictive/too "dark")	(3)
C.2.4. Connection to guides	17
(difficulties with guides)	(2)
C.2.5. Connection to "inner therapist"	6
C.2.6. Connection to others who have experienced psychedelics	12
C.2.7. Psychedelic treatment considered preferable to other treatments	20
C.2.8. Sense of well-being/meaning retained after symptoms return	14
C.2.9. Further psilocybin treatment obtained elsewhere	3

First, patients described depression as a state of disconnection (from self, others, and the world around them) that was (often profoundly) rectified by psychedelic treatment. Second, patients reported histories of avoiding painful thoughts, feelings, and memories and found that psychedelic treatment helped them confront, process, and accept these things. The third theme reflected their views of previous treatments (i.e., talking therapy and antidepressant medication) as compared with the psilocybin treatment they received in the trial. They described previous treatments as mirroring their sense of disconnection and tendency to avoid painful emotions, while the psychedelic treatment program worked in the opposite direction, to promote reconnection and acceptance.

Note. In what follows, we refer to "the dose" or "dosing session," without differentiating between whether this was the high- or low-dose session. This is because patients did not often differentiate between these sessions. When probed about this, patients would typically report that they were referring to their high-dose session or that they could not quite remember which particular session they were referring to (because it had been 6 months).

A. Change Process 1: Disconnection to Connection

A.1. Depression is Disconnection

A. 1.1. Trapped in the prison of the mind. Patients spoke about their experience of depression as being "trapped in their minds." Three referred to living in a "mental prison" (P8, P2, P16). P11 described a sense of being "enclosed in the most narrow confined space imaginable, it was like a sack over my head," an image similar to P14's description of a metal cage "locking him in"

from the shoulders up. Metaphors used to describe depression were aggressive and violent; patients reported feeling persecuted and besieged, retreating into ever smaller and darker corners of their mind. One patient reported his thoughts "attacking [him] from morning til night" (P4).

Other patients used metaphors of their minds feeling like computers that have been "switched off" (P11), "short circuited" (P2), or "shut down" (P16): "it felt like when a computer gets locked and you can't do anything about it" (P1).

All patients described a process they referred to as "rumination," whereby their thoughts would get "stuck" on a single track. For some, this "gridlock" (P15) of automatic single-tracked negative thoughts happened almost constantly:

> I had this washing machine in my head going round and round, I didn't even need to be there, it was an automatic process. (P2)

A. 1.2. Disconnected from the senses. Most patients described that their senses were shut down. The most commonly reported deterioration in sensing was a lack of response to music they used to enjoy. Patients variously described reductions in appetite, sense of touch, and visual perception:

> Depression had worn down all sensation, and I had no sexual response. (P15)

> I would look at orchids and intellectually understand that there was beauty, but not experience it. (P3)

One patient described living in a world that was "flat" and "gray" (*P14).

A. 1.3. Disconnected from self. One patient directly described feeling disconnected from their "self" (P7), and many others described that the things they used to enjoy had retreated far from their minds. Patients reported that their rumination "took up hours and hours of time" (P19), "robs you of confidence in yourself" (*P14), and "traps you, because you're simply struggling to get by rather than thinking about things that you could do to improve your life" (*P18).

Patients described becoming a much diminished form of who they once were or who they might become (were they not depressed).

A. 1.4. Disconnection from others. A sense of disconnection from others was particularly distressing for all patients. For most, the response to the first interview question: "Can you describe your depression?" was contextualized in the social sphere; human contact was what they missed most.

> I had less and less in common with my peers, I felt so alone. (P9)

> I felt isolated. I was never part of any groups and I didn't really have any close friends. I couldn't relate to my peers. I was almost agoraphobic. I craved emotional company. (P11)

For some, the process of disconnection from others had gone so far that they no longer felt able to be touched:

> I always put up resistance to being held, I used to be tactile before I was depressed, but then I didn't like being hugged, even by my mum. (P8)

A. 1.5. Disconnection from the world. In the broadest terms, patients reported feeling unable to engage with their environment. Many reported spending unusually long hours in bed:

> I couldn't leave my bed for a year. (P15)

> If I had a day off, like on the weekend, I wasn't happy to wake up. (P7)

A. 2. Psilocybin Treatment as Bringing Connection

A. 2.1. Mind is opened up/"rebooted"/the lights switching on. Regardless of the quality and valence of the drug experience, nearly all of the patients who showed a clinically significant response to the treatment described its most salient effect as a sudden dramatic change in the quality of their consciousness. Whereas depression had felt like a mental prison, they reported feeling a sense of mental freedom after the treatment. This feeling of expanded mental "space" was often exhilarating during the dose, and seemed to last for weeks to months after the treatment.

> [During the dose] It was like a holiday away from the prison of my brain, I was a ball of energy bouncing around the planet, I felt free, carefree, re-energised. (P8)

> [After the dose] It was like this great shroud had been lifted. (P1)

> You're not immersed in thought patterns, the concrete coat had come off. (P4)

> I felt spatial, not depressed. (P6)

> A feeling of space and openness. (P17)

And where depression had been likened to a computer that had been locked and shut down, patients reported feeling "rebooted" or "reset" after the treatment:

> The reset switch had been pressed so everything could run properly, thoughts could run more freely, all these networks could work again. It unlocked certain parts which were restricted before. (P1)

> I felt my brain was rebooted, I had the mental agility to overcome problems. (P8)

> It was like when you defrag the hard drive on your computer, I experienced blocks going into place, things being rearranged in my mind, I visualized as it was all put into order, a beautiful experience with these gold blocks going into black drawers that would illuminate and I thought: 'My brain is bring defragged, how brilliant is that! (P11)

Many described the sense of mental clarity, sometimes likened to a light going on or a fog evaporating:

> It flicked on a switch, clarity from the inside out. (P12)

> It was like the light switch being turned on in a dark house. (*P16)

> I had a clear mind, it lifted the fog of depression. I could see my life, like a light in the tunnel. (P7)

> I was lucid and alert, the depression had evaporated. It puts your head above the fog. (*P14)

> My mind felt sharper and clearer and less foggy. (P17)

The experience of mental spaciousness and clarity reminded one patient of a state he had reached during a long meditation retreat. Going back to this clear and open state made him realize that the heavy concrete mind-set that he felt trapped in during depression was not the "truth" and could be escaped from (P19).

Patients reported ruminating less for many weeks afterwards: "not stuck on thoughts—more in the moment now" (P15). Six months on, some reported ruminating much less:

> It was a change of state, to be stuck in that place of rumination and to be able to move out. It reconfigures you somehow. (P2)

> My mind works differently [now]. I ruminate much less, and my thoughts feel ordered, contextualized. Rumination was like thoughts out of context, out of time; now my thoughts feel like they make sense, with context and logical flow. (P11)

However, one patient for whom the treatment was effective overall mentioned that rumination was not improved:

> If I start those [ruminative] thoughts, I get stuck, I think it was the same even when I came out of the dose. (P15)

A. 2.2. Connection to the senses. The dosing experiences, for the 17 patients who experienced a normal (i.e., "intense") level of subjective drug effects, were rich in sensory phenomena. Four described seeing colored shapes toward the start of the dose; otherwise sensory experiences were unique to different patients but tended to be described as awe-inspiring and "four dimensional," as if the senses were hyperalert.

Interestingly, patients described improvements in sensory capacities following dosing. Two patients whose depression affected their sensitivity to touch, reported dramatic improvements during the dose. P6 reported a hypersensitivity to textures that meant "everything felt like sandpaper," but during the dose "all that went out the window [and] everything felt like it did when I was a kid, the blanket felt brilliant." P15 had the opposite problem however; he was previously so undersensitive that he reported feeling no sensations in his body, and his experiences during the dose were "pure sensory, tactile, sexual bliss." This connection to senses was long-lasting for P6 but not P15. However, both described the connection to sensation, even if short-lived, as a very significant and meaningful experience. Another participant found his sensation to be so heightened in the dose that he described it as a "mental orgasm, a state of pure bliss and ecstasy that went on for hours and hours" (*P18).

Some other sensory experiences during the session(s) were claimed to have led to a long-term improvement in sensing. Many patients described being able to enjoy listening to music again afterwards, and sight was sharpened. Some also specifically referred to an appreciation of the aesthetics of the natural world:

> [After the dose] When I went outside, everything was very bright and colourful and it felt different. I noticed things I didn't notice usually, the leaves on the trees and the birds, small details. (P7)

> A veil dropped from my eyes, things were suddenly clear, glowing, bright. I looked at plants and felt their beauty. I can still look at my orchids and experience that: that is the one thing that has really lasted. (P3)

> Things look different even now. I would look over at the park and it would be so green, a type of green I'd never experienced before. Being among the trees was incredible, like experiencing them for the first time, so vibrant, so alive. (P12)

A. 2.3. Connection to self. One of the strongest themes was the connection to self, which happened in a number of different ways and at different times (e.g., during and after the treatment). Examples include the following: a boost of self-worth; restarting previous hobbies and reconnecting to "who they had been" before the depression developed; fresh perspectives; and engaging in new activities that reflected new values.

A. 2.3.1. Self-worth. Nearly half of the sample had realizations of being a "good person" (P3) and feelings of self-worth and self-compassion:

> I realized how nurturing and protective I am. (P11)

> I had an encounter with a being, with a strong feeling that that was myself, telling me it's alright, I don't need to be sorry for all the things I've done. I had an experience of tenderness towards myself. During that experience, there was a feeling of true compassion I had never felt before. (*P16)

Some felt more "confident, more resilient" (P5), "able to take on anything" (P1), and efficient: "My center of gravity is stronger, I'm gliding through life, getting things done, [being more] effective" (P2).

One patient was able to write and deliver a eulogy at a funeral, something he would not have considered previously, "I was willing to expose myself more" (P19).

A. 2.3.2. Reconnecting to past activities. All patients for whom the treatment was effective reported engaging in past activities like teaching classes (P2), and taking up old hobbies such as writing music (P1). One participant described flying on a plane again after avoiding this for a long time (P11), and another who had not seen his extended family for more than a decade was able to drive a long distance to visit them (*P16).

Four patients described themselves as "depression-free" for a while, in which time they reconnected to who they had been before depression had diminished their lives. Elsewhere, accounts of psychedelic experience have referred to a 'rebirth' process (Grof, 1980) and although none of the patients in the current study used that analogy, many of them described "connecting back to myself again" (P7).

> At it's most basic, I feel like I used to before the depression. (P1)

A. 2.3.3. Discovering new values/perspectives. A sense of connecting to a new version of themselves was a very strong theme. Most patients reported having gained a fresh perspective on their lives.

> I was thinking about relationships I had with other people and thinking I could see them clearly almost as if for the first time. I had fresh insight into things. It was almost as if suddenly the scales dropped from my eyes, I could see things as they really are. (*P18)

Sometimes these lessons were viewed as having come from an "outer teacher":

> This teacher student relationship came about, so although I knew it was going on in my head, it was as if there was somebody there giving me prompts, think about this or that, it could weave its way and drop you straight into an image. Direct revelations [occurred]. (*P14)

In two cases, patients reported experiencing apparently spontaneous "lessons" about eating plants instead of animals, and many had lessons that they were loved and perfect and did not need to feel lonely.

> These voices were ancient, she was so eloquent. She kept calling me "my darling": "Life is to be lived my darling." She talked to me in such a loving way, all these things to say about my life. (P12)

As a result of these lessons, there were some major lifestyle changes; nearly half of the sample reported improvements to diet, exercise, and cutting down on drinking alcohol. One described the improvement to his diet that happened after the dose as "life-changing," although he was not sure how these changes came about as he did not receive direct "lessons" about diet:

> Before, I had stomach problems, food sensitivities. [During the dosing session] I had stomach pains, it (psilocybin) was going where it needed to go. After [the dosing session], I changed my mindset and then my diet, and my sensitivities have gone. I know what I need to eat now, my understanding of how food affects me is a new thing. (P6)

Another patient described how after the dose he instinctively stopped doing things that had caused him problems before, without receiving direct "lessons." These changes seemed to materialize without conscious awareness, they were *felt* rather than thought about:

> I lost a lot of weight just purely because I didn't want to eat badly and that went on for some months. I couldn't eat what I knew wasn't good for me. And I

> couldn't watch pornography after the second dose. I started feeling it was sullying and not wholesome. I just didn't want to do that. (P19)

A. 2.3.4. New activities. A whole range of new activities were started after the treatment, ranging from going out more, getting new jobs, learning to drive, building a new kitchen, rock climbing, volunteering with refugees, attending acting classes, comedy classes, dance classes, and traveling.

Many described changing social circles to allow for the changes within themselves:

> Friends that have been giving me a hard time, I've let go of, I've just backed away. I've made good new friends, that share my values. (P2)

> I refuse to compromise any more, this enlightenment has made me a bit more focused on the blue sky; [to] go and swim in it, [to] do what you want to do; let her do that, let him do that, I'll do what I want to do! (P11)

A. 2.4. Connection to others

A. 2.4.1. Connection to those who had abused and wronged them. Some patients felt that they gained understanding about the circumstances of abuse that they reported having suffered in childhood. One participant, felt a sense of compassion toward his mother, who he said had inflicted unbearable suffering on him:

> When I was being toilet trained my mother lost it with me and drowned me in my own human waste and throughout my life, I tend to replay that. [In the dosing session], I realised that my mother was out on an ledge, we were two people out on an ledge, she too was completely unconnected, disconnected. I felt some compassion for her . . . a different perspective, that it wasn't an all powerful world and universe against me, my mother too was out on a ledge. (P19)

A. 2.4.2. Close family and friends. Patients described strengthening bonds with loved ones (friends, children, parents, colleagues, and spouses) after the dose:

> [My wife and I] went for dinner for the first time in 6 years: we were like a couple of teenagers. (*P16)

For many, there was a general sense of ease and well-being when socializing with friends in situations that might have previously caused anxiety and discomfort:

> Now there's a greater sense of "we're all in the same boat"; less unease. (P19)

A. 2.4.3. Strangers. This sense of connection to people often extended to strangers such as shop assistants, people on trains and in the street:

> I went past a bike shop and went in off the street and said "can I hang out and help out?" I went there for 6 months and helped renovate his shop. (P9)

> I was talking to strangers. I had these full long conversations with everybody I came into contact with. (P1)

> I would look at people on the street and think "how interesting we are"—I felt connected to them all. (P3)

A. 2.4.4. All humanity. Many patients described how the sense of connection seemed to spread wider, a "deep connection to everyone" (P4).

> This connection, its just a lovely feeling . . . this sense of connectedness, we are all interconnected, it's like a miracle! (P1)

A. 2.5. Connection to the world. Four patients described having powerful insights about the European refugee crisis during the dose, which was unexpected and uncharacteristic for them (P9, P12, P15, P4), and some others reported becoming more concerned about global issues in the months after their treatment:

> I got a wider perspective, I stepped back. It helped me appreciate that the world is a big place that there's a lot more going on than just the minor things that were going on in my head. (P17)

Some patients thought more about climate change, and many felt more connected to nature:

> I felt like sunshine twinkling through leaves, I *was* nature. (P8)

> Before I enjoyed nature, now I feel part of it. Before I was looking at it as a thing, like TV or a painting. You're part of it, there's no separation or distinction, you *are* it. (P1)

When describing their depression, the patients had not spontaneously referred to feeling disconnected from nature. It seems rather they had not realized that they were missing it/disconnected from it until reminded of its value during and after their experience with psilocybin.

A. 2.6. Connection to a spiritual principle. Some patients who did not previously identify themselves as spiritual reported having spiritual-like experiences under the psilocybin: "connecting to all other souls" (P15), "I wonder if this is how the pope feels!" (P4). One patient, who had described his depression as "psychological and spiritual lethargy," reported becoming more "wholesome" and less "sullying" in his habits after the dose (P19). He began to partake in "movement meditation" and silent retreats.

Two patients had experiences of feeling the presence of God:

> Not God in some dogmatic way, a God-like archetype within your psyche, that is real and within you. I know this exists, I directly experienced it. I was suddenly taken in a rapture and I was floating in midair, with my eyes wide open and my mouth open, completely in a state of awe and ecstasy. It's a very powerful message to take away. (*P18)

> Then I felt the presence of God: I have always thought that he was a man because of the way I was raised, reading the bible, but it felt like a female energy. (P7)

Another patient described a female "ancient being" who, although not referred to as "God," was omnipotent and unconditionally loving (P12).

Some saw religious imagery and/or iconography during the dose, such as temples (P4 and P2) and Hindu gods (P2, P3). At one point during the peak of the experience, P3 identified with a deity: "I was Shiva, dancing."

For some patients, although a spiritual principle was not directly referred to, they described "love" as a powerful supernatural force (P11, P3, P8).

For some patients, the overall sense of expanding connection, was said to be so intensely felt during the dosing session that they struggled to put it into words. Their attempts at description 6 months later were often beautiful and poetic, and spoken passionately:

> [During the dose] I was everybody, unity, one life with 6 billion faces, I was the one asking for love and giving love, I was swimming in the sea, and the sea was me. (P3)

Echoes of these unitive experiences often lasted for weeks or months:

> Like google earth, I had zoomed out. [For weeks afterwards], I was absolutely connected to myself, to every living thing, to the universe. (P4)

B. Change Process 2: Avoidance to Acceptance

Patients described another change that took place. Most patients described depression as a state of being cut off from their emotions in one way or another, and the treatment helped them surrender feelings long suppressed.

B.1. Depression as Avoidance of Emotion

B. 1.1. Rumination narrows emotional repertoire. For some, before the dose, fixed negative thinking patterns left little space for processing emotions, as if their emotional repertoire had become constricted due to constant rumination. One patient referred to this as the "emotional erosion of rumination" (P15). Attempts to think their way out of their problems were said to have left them feeling stuck in their heads and unable to feel; described as a detached, numb state: "you miss so many things because you can't feel them" (P7).

B. 1.2. Emotions avoided or repressed. For many, when stressful or painful things happened, emotions were avoided, distanced, suppressed, or disguised.

> After a while of having overwhelming negative emotions it wears you down and you end up feeling nothing in the end. Dad [became seriously ill], I was so detached I wasn't able to be with him. I was so numb; I wasn't feeling emotions, I wasn't really there. (P15)

Some of the male patients described how social norms around masculinity had restricted their emotional repertoires. One described how in adult life he "had always found it difficult to be emotional, found it uncomfortable to be around other people if they were emotional" and saw "emotions as weakness." As a child, his parents had told him that "boys don't cry," and as he matured he had learned to "put his feelings in a box because you can't be upset, you're a man" (P17).

Some patients avoided emotions not so much because of cultural expectations, but more because they felt they did not have the inner resources to "face" or "accept" all the negative feelings that had been building up since childhood. The image of putting feelings into a box came up again.

> A lot happened when I was younger, more than I could deal with. I put it all in a box. I used to sidestep things emotionally, push things away, but that doesn't get rid of what you've avoided, what you've sidestepped is still there. (P4)

Patients had developed a range of strategies for keeping painful emotions at bay, including avoidance of talking about emotions:

> If I was speaking about something traumatic that was happening, I would speak about it in the 3rd person, very detached. (P7)

And the use of food or substances to try and manage/suppress painful feelings:

> My whole life I've self-medicated to try to make emotions more bearable, sometimes with food, cigarettes, painkillers. I felt anger but it was not expressed. I might be in touch with resentment but not anger, because there is a fear of being overwhelmed by anger. (P5)

> I would drink to alleviate the symptoms of depression, but the depression would return very severely if I drank a lot of alcohol. (P19)

In an attempt to manage their emotional state, many had tried to disguise particular emotions for other emotions. Patients reported covering up anger with sadness, or covering up sadness with anger. And this culminated in attempts to control particular emotions that they felt they could not express, leaving them either in constant battle with the negative thoughts (P14 and P10) or living inauthentically, "acting a role" (P1).

B. 1.3. Avoid trauma memories. Patients were particularly focused on battling with trauma memories. Most could pinpoint particular events in childhood which they felt played a causal role in the development of depression, and they had usually tried to avoid talking about these memories, because the emotions they could trigger were so powerful: overwhelming fear, shame, guilt, disgust.

> Upsetting incidents and experiences would start flashing in my mind and I would desperately try to negate them by reading one of my favorite books, anything to distract from it. (P11)

> It was more than just avoiding or denying [memories of abuse], it was "if I don't remember it, it never happened." (P16)

B. 2. Psilocybin Treatment Bringing Acceptance of Emotions. Some of the dosing sessions involved experiences of surrendering to trauma memories.

Letting go of resistance and facing pain was hard for people, but after these intense "cathartic" experiences, patients described a feeling of openness to experiencing emotions that was often long-lasting.

B. 2.1. Intensity of feeling during the dose. During the dosing sessions themselves, patients described feeling intense emotions: joy, fear, terror, "tragedy, humour and love" (P14). Strong feelings of compassion, love, and bliss were frequently described. For one patient (P15) who described himself as having felt "numb" to emotion and sensation for a number of years prior to the study, the high-dose session was experienced as "overwhelming bliss." The intensity was so strong that he became uncommunicative for approximately 2 hours:

> The blissful feeling got more intense, really overwhelming, the glow grew until I was just that feeling, I had become bliss. (P15)

More commonly, emotional experience was labile, with highs and lows, and periods of turbulence and calm: one patient described his experience as a "rollercoaster" (P1).

> Incredibly funny and tears of joy, then crying because of the poignancy of the music. (P5)

The intensity of feeling was described as frightening at times:

> The beauty and the sadness, I was terrified by the depth of emotions. (P7)

> The hardest thing is to give in to what you're experiencing, it's as if you're in a car heading for the edge of the cliff, and you have to try not to turn the steering wheel. (*P14)

B. 2.2. Surrendering to emotions during the dose. People described that during the dosing session, unlike in their daily lives, they just could not avoid or hide from negative emotion: It was too overwhelming. And they found that when they finally surrendered after years of trying to avoid or fight these feelings, the feelings would swell and then diminish:

> There was a lot of sadness, really really deep sadness: the loss the grief, it was love and sadness together, and letting go, I could feel the grief and then let it go because holding onto it was hurting me, holding me back. It was a process of unblocking. (P2)

> Excursions into grief, loneliness and rage, abandonment. Once I went into the anger it went 'pouf' and evaporated. I got the lesson that you need to go into the scary basement, once you get into it, there is no scary basement to go into [anymore]. (P3)

> There was this huge terrifying creature with a rifle, and instead of running away, I looked at it, and it wasn't as scary as it had seemed. [My] fear subsided, it suddenly seemed ridiculous, I started laughing. If I had avoided it, it would have got more terrifying. (P4)

Two patients who showed less marked improvements in symptoms posttreatment described not really being able to "let go" (P9 and P5), implying that "letting-go" may be a key factor in lasting responses.

B. 2.3. Trauma memories from childhood confronted during the dose. It seemed that some of the most powerful experiences during dosing days were moments when past traumas were apparently revisited. Some reported seeing their abusers abusing them, or reliving traumas in infancy. Sometimes these memories came back in fragments—like sensory puzzle pieces that did not make sense until afterward:

> I had lots of waves of different feelings [which made it hard to] describe what they were and how they related to my life, but after the experience, it felt like they were a puzzle, [and] when I started thinking about what it meant, it made sense, it was about that time in my life. (P7)

> It was different, separate fragments of that experience that all came together, colours, sounds, smells, and afterwards when I was talking, I started to see how they were all connected, all aspects of that experience when I was younger, it became clear that was where the problems I've had all stemmed from. (*P16)

Some commented that the "memories" they revisited were not the ones they expected; some were anticipating a focus on recent challenges, problems in their adult life, and yet they were "taken back" to childhood.

Two patients described "going back to a memory I didn't realise was there" (P17). One reported seeing, from the perspective of himself as an infant, a pillow held over his face by a caregiver, and felt a deep fear of annihilation. Although this experience brought up many painful questions, the patient later felt that this putative "memory" helped him understand some things about himself (*P14).

Another reported:

> [I] became myself at age 7, after my [grandparent] had died. I totally was back there, so vivid, so real, I had the emotions that I would have felt at the time: fearful, why did this happen, the naivety, the shock and confusion. I was getting overly upset and my parents were saying "boys don't cry."

This helped him realize how his unhealthy emotional habits as an adult developed.

> I saw that it's not [a] weakness to be emotional, that's an unhealthy attitude. (P17)

B. 2.4. Memories of love revisited during the drug experience. Drug experiences were often interspersed with memories of love as well as trauma, which provided much-needed relief and sustenance. Some examples of this

include revisiting being safe in the womb, playing as children, happy times as teenagers, being in places where they had felt secure, like playing with perfumes at a great Aunt's dressing table, being with loved ones before they died, performing heroic acts, and times when they felt proud of themselves. In all these experiences, patients reported feeling as if they really were there, rather than just recalling something.

About an apparent reliving of being at a great Aunt's house, one patient said: "I saw things about that house that I'd completely forgotten, I was right back there after all these years" (P12).

B. 2.5. Embodiment of emotions during the dose. Many patients had quite physical responses during the dosing session. The most common bodily reaction was powerful bouts of sobbing, which were displayed by 10 of the patients. Some said they had not cried for many years, either because they could not access and express grief, or because it felt too exposing to show such vulnerability. One described how he had learned through years of abuse in childhood to "hang on to my tears" as a way of defending himself. Whatever the reason, tears had been suppressed, and sobbing during the experience was described as a welcome, physical "purging" or "purification":

> I had lost my ability to grieve and cry. [During the dosing session] I cried and that was a cathartic experience for me, a very welcoming sweet experience. (P19)

> It was a relief, physical, I felt lighter afterwards. (P17)

> I was weeping, tears were flowing out of me, it wasn't a painful crying, it was like turning on the taps, like a washing, a washing out. (*P18)

For many, the experience of surrendering to emotion was described as an embodied experience: "I didn't understand the emotions, it opened a box in my chest I didn't know was there" (P17).

Some also reported specific physical sensations, and they interpreted these as emotions that had manifested as somatic symptoms because they had not been expressed.

> I felt an ulcer where I was holding onto grief. (P2)

During the dose, these physical sensations sometimes resolved. Some patients thought this happened because they had an opportunity to freely express and process emotions that had been suppressed.

> The dose helped me realise why I felt the pain in my chest, I saw it visually and felt it emotionally, then I felt so much lighter, like something had been released. It was an emotional purging, the weight and anxiety and depression had been lifted. (P11)

> There was an implication, because of the challenge of this, I had gone through something. I had been shaking and then after, I accepted it, it was like my body just relaxed. (P16)

> My migraines stopped for a few months, I think I had them because I worried so much. (P7)

B. 2.6. After the dosing session: emotional repertoire expanded, more open to emotions. One of the most prevalent themes regarding posttreatment change was a long-lasting openness to emotional experience. Patients reported that this openness lasted even after the symptoms of depression came back.

> I took away from the experience that I used to get angry about having anxiety, now I think I can have the anxiety, I can just feel it and it will go, I don't have to have the fear or run away. (P2)

> I saw negative patterns in my life where if something bad happens, I used to just put it [to the back of my mind]. Afterwards, I allowed myself to experience everything - even if it is sadness. Now I know how to deal with my feelings rather than repress them. (P7)

> I have felt a sense of acceptance; more acceptance of agony, boredom, loneliness, and also appreciation of the wonderful times. [A] willingness to try to accept the negative times. (P5)

Some patients reported that their partners had noticed that they were more able to connect emotionally:

> My relationship with my girlfriend has improved, now I'm more able to open up and chat, more able to express myself. (P17)

Alongside this "openness," some other personality changes were reported: For example, being less impulsive, having fewer arguments with other people, and responding to difficult situations with a new sense of calm, patience, and responsibility:

> It helped me take responsibility for my emotions. I feel like before [the treatment] I would hide, now I'm not hiding. . . . I am responsible for how I

> react when the same thing happens again. Knowing that it's not my fault helped me respond differently. The way people respond to me now is very different to a year ago. (P8)

This process of going from avoidance to acceptance of emotion was described metaphorically by *P18:

> Depression is like when you have a dead leg and the psilocybin made the bloodflow start to come back.

C. Comparison of Psychedelic Treatment to Previous Treatments

The patients in this trial were by definition "resistant to treatment," so it was not surprising that they did not have very positive views of talking therapy and antidepressant medication they had tried. However, there was a certain consistency in the nature of the criticisms.

Only three patients had positive experiences of talking therapy: two cases of psychodynamic psychotherapy and one case of CBT. The effects of this CBT were described by the recipient as "not long-lasting, it only helped while I was seeing the therapist" (*P14). Only psychodynamic therapy was described as having provided long-lasting benefits, and both cases were privately funded. Interestingly, one of these patients described that during Jungian analysis he had a dream that was very similar to his experience of psilocybin.

> In analysis, I had a dream where I saw a guitar playing itself . . . you're in the presence of the Divine, in wholeness connecting, it left me with a warm feeling inside which lasted for several days, a feeling of wellbeing and warmth inside me. I went through a good phase after that. (*P18)

C.1. Traditional Treatments for Depression Reinforce Disconnection and Avoidance

C. 1.1. Talking therapy: Difficult to access substantial treatment. Many patients described having difficulty accessing talking therapy. They were often prescribed antidepressants, but struggled to access psychotherapy:

> It was "here's some tablets now go away." (P1)

Patients reported that sometimes therapy was promised but not delivered and sometimes it was withheld for no clear reason:

> I have been trying to get talking therapy since January 2014, still nothing. I'm making a complaint as a last resort to get some help. (P15)

> It was that NHS thing of offering talking therapy but it never actually happens. (P10)

> They told me to speak to MIND. I made an appointment with this girl of about 25, she said "Hi I'm an assessor, we can offer 12 weeks of CBT, I'm going to ask you some questions, it will last 45 minutes." After 5 minutes she stopped and said "I don't think our services will be able to help you." She didn't say why. (P9)

Services were seen as incompetent, with poor communication between different teams, and to patients:

> The mental health team was quite dismissive—I wasn't a strong enough case, go away, we only deal with proper patients. (P1)

> This department don't talk to that department, the waiting lists are so long, they don't call when they say they will. (P4)

For some who did access talking therapy, it was very short term:

> I got nothing out of it. I had 4 or 5 different people for a few sessions each. (P12)

> I tried so many talking therapies, nothing made a difference, they are all so short you never get anywhere, just as you settle in you have to stop. (P6)

Many found themselves bouncing from one short-term intervention to the next, and felt strongly about the damaging effect of having to tell their story over and over again to different people.

> I'm sick to the back teeth of telling people again and again the backstory. All the talking therapies, each time you go for an 8 or 6 week course of that stuff, you spend the first few weeks going over the stuff, they ask all the questions again then its session 4, and then, you think who's learning something here, 'cos I'm not. You are! (P13)

> The problem, the pattern is NHS offering a certain period of time, I have a whole history of short-term stuff and endings. It just becomes a sense of being a failure. Most therapists aren't trained enough in how to not to make you feel like that, it left me with a feeling of somehow I've failed. Short-term therapy is awful, you leave the most difficult things right to the end, then that awful feeing on a last session. (P5)

C. 1.2. Some therapists are unwilling/unable to address traumatic experiences. Some patients talked about how it takes a while to build up therapeutic rapport that you can only get so far in a short series of 1-hour sessions. The short-term nature of therapy meant that some patients never had a chance to reveal information about their past that they felt was important or difficult to tell.

It was not necessarily treatment brevity that prevented patients from receiving appropriate support to explore their trauma histories. Anecdotes about poor clinical practice were described with alarming frequency.

Two patients who had bravely disclosed childhood abuse described feeling desolate after a health professional responded inappropriately (P16, P4). "I got up the courage to tell him, I'd never told anyone. And he just looked at his shoes" (*P16).

Sometimes, patients felt that therapists were unable to contain and explore their distress, and thus exacerbated it:

> [In private long-term CBT] The counselor kept saying don't talk about your abuse yet, wait 'til later. It was just delaying tactics to prolong the therapy to get more money, it made me feel awful. (P4)

> There was a young chap, sat there stroking his beard, [who] just said "I can tell you, in my experience, it will get better." You can't tell people that! There are people for whom it hasn't got better! You can't tell me, with your miniscule experience, *that*, in *that* tone! (P5)

It should be noted that for some patients, therapy had taken place many years previously: Therefore, current clinical practice standards may not have been in place. Also, attentional biases that are a common feature of depression could have increased the saliency of memories of the more negative aspects of therapy.

C. 1.3. Structured treatments can prevent a therapeutic relationship developing. Most of the talking therapies described were CBT and they were mainly reported to have been unhelpful, as the patients felt that they were rigid and prescriptive:

> The lady there was "It's my way or the highway, you've got to listen, you've got to do this, you've got to do that." (P1)

Overall, it seemed to be the directive nature of therapies received that was the most frustrating and upsetting for patients:

> I once lost my temper in a group therapy session, this woman saying "you've got to own your illness". What does that mean? "You've got to!" That's not the kind of help I need. Another clinical psychologist, lecturing me, "you've got to face up to the fact that . . . " (P11)

Goal setting was discussed by many as an example of directive therapy seeming condescending:

> Going, talking, setting goals. I was like, if I can't accomplish this on my own, putting it on paper and them saying go do it, I mean you're telling me to go do something I already know I need to do. They try and motivate you but it doesn't work if the motivation is coming from your therapist, it has to come from inside. (P12)

> I found CBT really simplistic, condescending, "oh you're feeling a little bit sad, buy yourself some flowers to cheer yourself up." (P10)

Goal setting exercises, if delivered in an unhelpful way, could also exacerbate a sense of guilt and low self-esteem.

> Maybe there are therapies out there that would work better than the ones I've had, but I've had quite a few. They all seemed to be trying to fit a person into a preconceived set of patterns: "try to do this," "make this your goal, and we'll measure it." But just having these goals set for you is more pressure and when you don't meet those goals, you feel even worse because you're letting them down, and you already feel let down yourself! (P1)

C. 1.4. Therapy seen as exacerbating depression. As above, goals-based talking therapies were said by some to have exacerbated their depression. For three patients, community mental health team services were described as so disappointing that ongoing struggles to receive adequate care worsened their stress levels their and sense of despair (P9, P15, P4).

> I went to see the local mental health team, these people are frauds, so useless. They get their money and they do not give a shit. (P9)

In one case, a course of psychodynamic therapy was described as exacerbating depression, despite a competent therapist and good rapport: weekly analysis of problems did not lead to any relief or change:

> I felt like I was being squeezed in a vice by the therapy, it was incredibly painful, that's why I stopped, I just couldn't cope, it was too much, it was making my depression worse. (*P18)

C. 1.5. Antidepressants: Avoidance of the underlying issues. Most of the patients described how antidepressants were the first line of treatment suggested by the general practitioner, and for some, the only treatment available. All patients had tried a range of antidepressant medication. Some reported temporary benefits: medications were described as dampening some symptoms of depression and anxiety. During crises, this emotional blunting could be very valuable: "the citalopram kept me afloat" (P4). However, even for the few patients who reported being helped by antidepressants, taking tablets to suppress pain was seen as avoidance of the real issues that were driving their depression:

> It did help. It cut the bottom off the peaks and troughs which helped me cope. It didn't solve anything, but it helped me manage in the day to day. Some people might argue that's all you'd want but it wasn't really dealing with the issue underlying the problem. (P4)

> Medications just suppress, it never feels like it's making a change. (P5)

> It's like taking a painkiller for a toothache, you don't get to the source of the problem. (P1)

And one patient pointed out how taking antidepressants, while significant life problems went unaddressed, made him feel even worse about himself:

> I remember occasions when I met my ex. I felt so bad after, I felt at my most desperate because I thought "well I'm on these antidepressants now and I still feel this bad so what do I do?" (P4)

Generally, antidepressants were seen as a short term rather than long-term solution.

C. 1.6. Antidepressants as debilitating. The other problem reported by those patients who considered antidepressants to have had some benefits was that they were only effective while taking them. This encouraged dependency:

> I get depressed, I go on the pills, they eventually work partially, then I try to come off them. I'm ok for 6 months, then it comes back, that's been the pattern. (*P18)

Many patients described negative reactions to antidepressants. Three referred to antidepressants as making them feel like a "zombie" (P9, P1, P6).

> It stopped all thoughts, I was a zombie, I felt a bit like a machine. (P1)

For some, the side effects were debilitating, weight gain, excessive sedation and sleep, and suicidal ideation were all reported.

> I tried it must be 15 [different medications] over the years, many caused weight gain, which I've never gotten off, and all of them made me sleep all the time. (P12)

> I was sedated, I didn't care about anything. (P8)

> It was absurd, antidepressants were pretty much forced on me and they made me feel awful and suicidal. (P11)

Many patients reported that coming off medications led to severe withdrawal symptoms:

> When I went off them, I felt I had electric shocks going off in my brain. (P8)

> It's horrible to come off, and if I forget to take one pill I can't sleep, and I have to change the bedsheets, It's one of the worst things I ever experienced. (P20)

> They were a horror to come off, I would not go back on them unless things were seriously bad. (P14)

At the time of the 6-month follow-up, some of the patients had indeed gone back on to these medications to manage the return of symptoms of depression. They typically said that this was because antidepressants were the only option available.

C.2. Psychedelic Treatment Enhances Connection and Acceptance of Emotion

C. 2.1. Given the time and space to talk about the hard things. Many patients referred to the length of preparation, dosing, and integration sessions as being a refreshing change. Rather than standard hour sessions with a therapist, they were seen for sessions ranging from 90 minutes (prep sessions) to 8 hours (dosing sessions). This allowed them to settle in to the sessions, knowing that they had as much time as they needed to bring up issues that were hard to talk about.

> All the treatments I'd had previously were very dismissive, rushed, and when I went there (the study) it felt like I was being given the time to express how I felt. (P1)

Two patients mentioned talking to their guides about things they had never been able to say to a therapist before:

> The guides were so sweet. I talked about stuff I don't usually say to people. (P10)

Patients reported that the preparation helped them feel safe to cry during the dosing session. However, although prep and dosing sessions were felt to be sufficient, three patients would have like more therapy sessions afterwards. Two who did not have strong support from family or friends described feeling vulnerable and alienated afterward:

> There should be more sessions with the therapist afterwards. I needed support to incorporate it into my life, maybe just for a few weeks. I couldn't go to a therapist that doesn't know about the research, I might feel stupid telling them "I had a drug and had some insights." (P7)

One patient (P14) whose session included what seemed to him to be a reexperiencing of a repressed memory of an attempted suffocation in infancy said that he would have benefitted from additional "integration" sessions with an expert. Despite integration work at one week posttreatment, he reported still feeling unsure about what his experience meant.

> Ok it could be just symbolic, but it was cruel. It feels like there is something there that wasn't there before, and I'm still finding it hard to come to terms with. But it explained why I've felt the way I've felt as an adult and that is something talking therapy has never done. (*P14)

C. 2.2. Preparation sessions: Anticipating turbulence. Patients described how they had been prepared for difficult experiences, and given reassurance that this would not harm them, and could lead to good treatment outcomes. They described how this enabled them to look their demons in the eye. This was seen as crucial, as otherwise they might have thought they were having a "bad trip" and panicked, rather than being able to engage with whatever arose for them.

However, although patients had been told about the possibility of psychological turbulence during dosing, some of them had a very difficult time withdrawing from their antidepressants in the lead up to the study, which they felt inadequately prepared for.

This focus on the challenging aspects of psychedelic treatment during the preparation sessions, and accessing information on the web about challenging trips meant that seven people reported high anxiety going into the dose. This did not seem to affect outcome or treatment effectiveness. Some who expected to have a difficult time found their drug experiences to be very pleasant and vice versa.

> Before the high dose, I was quite scared. I had read a lot of things about "ego death." I almost accepted I was going to die in a way, it was that scary. I felt I was being brave, I had no idea about what was going to happen to me, if I would come out in one piece, where it would take me, how terrifying it would be. I'd read some terrifying experiences, and you are just jumping off. But in fact it was gentle, powerful and benign. (*P18)

The patient who was perhaps the most skeptical about the treatment found it to be very effective and found his worldview very much changed:

> To be honest, I didn't think it was going to work because I didn't have a good response to medications in the past, therapy had kind of disappointed me. (P4)

Many people described how the hospital setting made them feel that no matter what happened they would be safe. However, two patients did not like the setting. For P9, it was too clinical and cold, and he said he would have preferred a holistic treatment center with a more artistic and informal feel. For P5, the hospital setting felt uncomfortable and lonely in the postdose state.

> That feeling at 5 p.m., alone in a hospital with a hospital dinner, someone watching TV which I don't want on, it's all a bit of a downer. (P5)

C. 2.3. The music enables surrender to and acceptance of painful emotions. Most patients considered the music playlist an integral part of the treatment and commented on how their experience was guided by the music. Sometimes, the particular genre of a track could trigger specific images, for example, a tribal drum beat could lead to visions of Bedouins in the desert. Most commonly, the music seemed to facilitate change process two (avoidance of emotion to acceptance) very powerfully. The emotional tone of the music could lead to a surge of the same emotion, which could lead to memories of childhood when that emotion had been present. Music also seemed to provoke emotions that had been long repressed. Many people referred to some of the darker pieces of music as directing the inner journey toward places of pain and despair:

> There was this point in the music, Gorecki, it was as though suddenly everything went quiet and there was just this bell, like a church bell ringing, chiming, and suddenly the atmosphere got very spooky. (*P18)

The darkness of some of the pieces of music was sometimes felt to be unbearable and a few patients reflected that they would have wanted to remove the Gorecki track if they were to do the study again (this piece of music is about

a young Jewish woman being prepared for death; it evokes deep sorrow). This brings up an important question about how directive sessions should be. Most patients were happy to accept all elements of the session, but a few wanted freedom to change the music, and one wanted much more freedom generally:

> They wanted me to stay lying down, to keep the blindfold on and headphones in with music they chose. I hoped for having my eyes open, seeing things around me, talking. I wanted to do things under the effect of the drug, they were not keen on that. They wanted me to listen to their music, but it was quite sickening and nauseating . . . —but they wouldn't change the music so that was annoying. (P15)

C. 2.4. Connection to guides. Patients described good rapport with their guides and felt well looked after. After the dose, many reported feeling bonded to their guides, saying they had been through something substantial together. Rapport helped build trust that they were in safe hands and gave them a sense of an equal relationship rather than a traditional "doctor vs. patient" dyad.

Patients valued the integration sessions after dosing, which helped them weave a story of what happened. Guides were able to support the patients in this process. Overall, support from skilled guides was seen as a key part of the intervention. Some patients commented that although they wanted further psychedelic treatment, they would not take psilocybin in any context other than a research trial because they would not expose themselves to such vulnerable states of mind without experienced clinicians supporting them.

There were two reports of negative interactions with guides. The first was P15 who wanted more freedom (see above). And one other who seemed to have had problematic transference:

> I felt that Dr. A, I dunno, honestly there was a part of me, I didn't feel he was sincere or caring. . . . I think I told Dr. A this, a part of me imprinted onto him. I had this horrible stepfather growing up, I imprinted that on to him. (P9)

Both patients still reported positive treatment outcomes, although P15 did not come back the next day for the scan. His experience of the dose was very intense, and although he described it as "sexual bliss," it was quite overwhelming for him.

C. 2.5. Connection to inner therapist. Many referred to a new capacity for psychological self-reflection. This was very strong after the dose but was often still present after 6 months:

> It's almost as if when you take the capsules It's like taking onboard your own psychotherapist. (*P14)

Interestingly, guides were rarely referred to in much detail as patients recounted their experiences; during interviews, they recalled more vividly the things they had realized for themselves during the dosing session than the things their guides had said to them.

Whereas patients had often found their previous therapists condescending, proffering advice that felt irrelevant or inaccessible, or trying to motivate them from the "outside," the psilocybin helped people access an "inner voice," which they said felt immensely powerful and highly motivating. Some said that the "inner voice" had now faded, but the memory of empowered self-reflection and capacity for change brought them hope that they might access such states again.

C. 2.6. Connections to others who have experienced psychedelics. Some patients commented how the 6-month follow-up interview (on which the present analysis is based) helped them reconnect to how they had felt during their dosing days, and thought that follow-up talk sessions with others involved in the study months or even years afterwards could help maximize the benefits.

> The memory of the experience of unity has become something I can only intellectually appreciate, but as we are talking about it, I can actually connect with it emotionally, I've been able to revisit that experience which is interesting because I wouldn't have expected that. All of the emotion [cries]: in an emotional sense, it's like being back there for a moment or two. (P3)

C. 2.7. Psychedelic treatment considered preferable to other treatments. For those whose symptoms of depression had returned, or for whom it had not worked, the radically different nature of this treatment approach was still seen as refreshing and offering hope. All 20 patients said that they would like to experience the psychedelic treatment at Imperial again, and some suggested that in order to maintain benefits, they would probably require at least one "booster dose" (i.e., a repeat dosing session). Two said they would have wanted a booster dose after 1 month but on average, 3 months was seen as the ideal time for this. Three patients felt that they did not yet require a top-up, although they did not rule it out for the future.

All patients for whom the treatment was effective said that they considered psilocybin to be a more promising model than other treatments they had tried. The three patients who identified as "depression free" at the follow-up were unequivocal in their enthusiasm:

> No comparison. It works, whereas the other stuff doesn't. (P1)

> There is no comparison. There is the Nissan Micra and the Range Rover. (P2)

> My previous treatments, talking therapy and meds, were next to useless, utterly useless. My experience of psilocybin has been very positive. I believe there is an unknown physiological and neurochemical change in me, I am absolutely convinced of that. (P11)

A further four patients were formally in remission although some symptoms of depression had returned, and 10 patients who described psilocybin as reducing symptoms of depression for a number of weeks or months were depressed again at the time of the follow-up interview. These patients, although disappointed by the return of symptoms, did maintain that the psilocybin treatment had been a positive experience for them and still considered it the most effective treatment they had tried to date.

C. 2.8. Sense of well-being/meaning retained after symptoms return. Focusing on patients' experiences of depression returning, for many, this process was gradual, for example, after a few months, they noticed old behaviors returning:

> I felt a reluctance to go and see people, the feelings and behaviours just came back, subtle at first and then slowly built back up. (*P16)

> The way I was able to communicate and write (after dose): it's gone again. (*P18)

For some, depression came back and then went again:

> I was really good for 6 weeks, 2 months, and then the depression started to come back, I recognised the symptoms and so I started taking meds but it still got me quite bad. But now fortunately, I'm back on the sunny side of the street again. (P19)

For one patient, P14 who experienced the apparent re-living of a suffocation, the depression seemed to dissipate for a few months and was then replaced by anger:

> I'm still off the meds. . . . So the depression is not there, I'm not back in the void. I felt really good for a few months but now it has been replaced by anger and irritability. (P14)

One patient who had felt extremely low without reprieve or change for the past 5 years described that after the dose, he was shifting in and out of remission. He also described how his perception of treatment effectiveness would alter in line with these shifts:

> It's a feeling that I'm not depressed and I don't have this depression and problems, I feel free of them, and then I think "hang on, have I ever been depressed?" and then I think maybe this trial helped me feel that way. But when it comes back, and at the moment, I'm depressed again. It feels like it's always been there, it never left and will always be there. (P15)

For many of the patients, depression symptoms had returned, but not back to baseline, and alongside the depression they also felt an improved a sense of well-being, meaning, purpose, and hope.

> Now nothing is the same as it was before, things have gone downhill but not back, they've not gone back to what they were like; things are different, I am not the same, and that's hard to explain. My mood has dropped and my depression has come back and it's not very pleasant, but I feel this hope. A faith that nature will provide the treatments we need, it's all there, it grows in the ground. (*P16)

> I noticed when I started to feel nervous around other people again, it was gradual, that connection and lack of worry and anxiety about interacting with others gradually faded away and the replays started happening again, but there was no moment where I lost sight of everything or went back to my default pattern, It's been gradual. And while I was in a much better place in the 3-4 months after the trial, I can't forget what I've experienced. While things may be 90% back to my old self, (well except I believe my real self is what I experienced there and in the months after)—yeah, I've still got the residue of that experience, so it still helps to an extent. (P4)

C. 2.9. Further psilocybin treatment obtained elsewhere. Some patients experiencing relapse reported wishing to seek psychedelic therapy elsewhere, something the trial team felt we could not condone, even if the therapy was legal (e.g., in another country). In at least three cases, this course of action had been enacted (at 4, 5, and 8 months posttreatment). Two patients reported having benefited, while another reported a less positive response, including feelings of guilt. It was not clear what dose had been taken, although all patients reported taking psilocybe mushrooms and feeling some acute subjective effects.

Discussion

A qualitative, thematic analysis performed on 6-month follow-up interview data in a recently completed clinical trial of psilocybin for TRD generated

two major themes relating to how the treatment had been effective. Specifically, patients described the treatment as having driven a change from disconnection to connection, and from emotional avoidance to acceptance. Additionally, patients described previous treatments as being reinforcing of disconnection and avoidance, and so the psilocybin treatment was seen as a welcome and valuable alternative.

As will be detailed in a forthcoming formal study report (Carhart-Harris, 2017) average treatment effects were exceptionally large for the first 5 weeks and then dropped to levels associated with more conventional treatments at 3 and 6 months. Most patients still reported feeling some discernable benefits after 6 months, however, and all reported preferring psilocybin to conventional treatments they had previously tried and expressed an interest in further psilocybin therapy. None reported classic craving behavior in relation to psilocybin, consistent with evidence that psilocybin carries no recognizable addiction potential (Bogenschutz et al., 2015). There were also no reports of enduring psychoses, persisting "hallucinations," or phenomena consistent with hallucinogen persisting perceptual disorder.

Regarding the first change process, whereas the experience of depression was described as a sense of the world getting smaller until patients felt like they lived inside their minds, the psilocybin treatment was described as providing an experience of *expansion*: the mind "rebooted," they were able to connect to their senses, others, and the outside world again. Such a rebooting process was often described as a "normalization" back to how they had been before the depression, rather than a hypomanic-like response.

Alongside this expansion outward, an "inner" expansion also seemed to have taken place: During dosing sessions, patients were able to accept rather than avoid painful feelings and memories, and reported a range of intense emotions. For many, a sense of openness to emotion persisted for months afterward, including long-term improvements in willingness to accept difficult memories and painful feelings, and also the capacity to feel compassion, love, and appreciation. This is consistent with previous findings of sustained increases in trait Openness in healthy volunteers after high dose psilocybin sessions (MacLean, Johnson, & Griffiths, 2011). The notion of an expanded "emotional repertoire" seems consistent with the length and descriptiveness of patients' accounts of their experiences. The 17 who reported feeling significant drug effects during the dosing sessions gave far richer accounts of both their depression and psychedelic treatment than the three patients who did not have appreciable drug experiences.

Mechanistically, the above described "expansion" resonates with insights gleaned from recent neuroimaging and pharmacological studies of psychedelics. Psychedelics are known to stimulate serotonin receptors in the brain (the 2A subtype) that mediate flexible thinking (Boulougouris, Glennon, &

Robbins, 2008; Carhart-Harris, Kaelen, et al., 2016; Kuypers et al., 2016). Moreover, acute brain imaging has suggested that the brain enters a hyperplastic state under psychedelics that may facilitate learning and change (Carhart-Harris et al., 2012; Carhart-Harris, Kaelen, et al., 2016; Carhart-Harris, Muthukumaraswamy, et al., 2016). Such a process can be likened to annealing in metallurgy, where a metal is heated in order to make it malleable. In this case, the metal is analogous to the mind and brain and the heat is the excitatory action of the psychedelic. In line with this analogy, future research is required to investigate how crucial psychological priming and environmental factors are in determining the short- and long-term effects of psychedelics. From the reports provided here, one suspects that drug × environment interactions are essential determiners of the quality of responses.

The processes of connection and acceptance have parallels to ideas from depth psychology: for example, Jungian notions of the collective unconscious, symbolism, archetypes and the shadow, and Freudian themes of the unconscious, dreamwork, abreaction, and catharsis. Maslow's notions of self-actualization, and the assimilation of problematic experiences model (Stiles et al., 1990) are also relevant.

Initiatives to systematically examine the relative merits of different therapeutic approaches and environmental components (e.g., music) are currently being considered, and this work should ideally lead to a standardization of the therapeutic approach for psychedelic therapy. This process should help address present ambiguities about what psychedelic "psychotherapy" actually entails (see Fadiman, 2011; Goldsmith, 2011; Grof, 1980; Masters & Houston, 1966; Meckel Fisher, 2015, Richards, 2015; Stolaroff, 2004, for a variety of approaches) and what components are essential (or not) for maximizing positive therapeutic outcomes.

Acceptance and commitment therapy (ACT) is an approach that may be particularly complementary to the specific character of the psychedelic experience. ACT aims to improve "psychological flexibility" via six key processes, all of which resonate with the themes generated by patients in this study, that is, willingness to experience painful emotions, "defragging" rigid thought patterns, exploration/observation of experience, contact with the present moment, focusing on values, and committing to actions in the service of those values. There is a growing evidence base to suggest that ACT has long-term benefits for patients with depression (Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Forman, Shaw, Goetter, Herbert, & Park, 2012). What ACT and depth psychology have in common is the focus on exploration, acceptance, and integration of painful experience and difficult emotions, rather than attempting to change those emotional states. Future research may be carried out to assess the possibility of using ACT in conjunction with

psychedelics. Group therapy may also be complementary to psychedelics, as it aims to facilitate reconnection (Yalom & Leszcz, 2005).

Patients in this study reported feeling disenchanted with traditional treatments for depression. Antidepressants and poorly delivered short-term talking therapies were seen as repeating and reinforcing the disconnection and emotional avoidance that they knew was a fundamental feature of their depression. For some, these treatments are seen as promoting a view of psychological pain as something that should be systematically suppressed, rather than explored as a symptom of an underlying problem that needs to be accessed and processed. Granted CBT and antidepressants have solid evidence bases of safety and efficacy (Pilling, Anderson, Goldberg, Meader, & Taylor, 2009); however, the patients in the current study appeared to value the opportunity the present treatment afforded them to access their emotional pain. This was described as cathartic for many, bringing tears of relief, and reports of feeling lighter and more open afterwards.

The novelty and potential antithetical nature of psychedelic therapy in relation to conventional talking and pharmacological therapies could be seen as a major positive, since it suggests that patients and clinicians may be granted a broader palette of treatment options in the future, affording them an opportunity to select a treatment that best suits the specific needs and/or desires of a given patient. Also, rather than viewing psychedelic treatment as competitive with conventional treatments, future studies may wish to examine the possibility of using psychedelic therapy as a possible catalyst of and/or supplement to these conventional treatments. For example, a psychedelic experience could be introduced at a strategic point within a standard 12-week course of CBT, with the intention of improving insight and motivation. A similar design was piloted in a recent psilocybin for tobacco addiction trial, with considerable success (Johnson et al., 2016).

Focusing on limitations of psychedelic treatment, an alternative explanation for the replicable benefits reported by patients here is that the level of care and attention from the research team was exceptional, especially in relation to previous treatments they had received. This level of care will likely have enhanced transference relationships and the (perhaps implicit) desire of the patients to get well for their therapists. Expectation is known to play a role in determining treatment outcomes (Greenberg, Constantino, & Bruce, 2006; Visla, Constantino, Newkirk, Ogrodniczuk, & Söchting, 2016; Wampold, 2015; Wampold et al., 2005) and it is likely that many of the patients in this trial had positive expectations and/or experienced a positive modulation of their expectations in response to their intense drug experience(s) and the positive attention they received from their therapists. The researchers' implicit positive regard toward the treatment may also have

biased outcomes and patients may have easily gleaned the study demand characteristics and felt an implicit desire to confirm them. All these factors can and will be better controlled and tested in future studies assessing the efficacy of psychedelic therapy.

Regarding other biases, it is likely that there was a (self)-selection bias, that is, that patients sought out this trial because they were "believers" wanting to demonstrate that it could and would be effective for them. Moreover, since all of the patients had treatment-resistant depression, it is not surprising they held negative views about their previous unsuccessful treatments and were thus inclined to see a novel, unconventional intervention such as psilocybin, in a positive light. This probably does not account for how marked and enduring the positive outcomes were for many of the patients and how specific and consistent their criticisms were about past failed treatments. Nevertheless, the issue of selection bias must be better addressed in future trials, for example, by recruiting more patients through external referral mechanisms rather than self-referral, and measuring expectations at baseline and calculating their explanatory power.

The present article focuses on positive outcomes. However, this positive "bias" is a product of the data. The two positive change themes were the dominant themes expressed by the patients (see Table 1). Enquiries were made about negative outcomes of the treatment but comparatively little was offered in this respect. Previous qualitative analyses of patient-reported experiences of psychedelic treatment have found similarly positive regard for these interventions (Gasser et al., 2015; Belser et al., 2017). In the current study, a very small number of patients criticized some aspect of the way the therapists delivered the treatment (i.e., one did not warm to a specific guide and three wanted more therapeutic support posttreatment) but there was nothing substantial relating to the intervention itself. There were no serious adverse events reported during the dosing sessions or their aftermath.

Regarding specific cases, Patient 14 reported an apparent "reliving" of a childhood trauma. The therapy team felt it unwise to offer a judgment on whether this was a real memory or fantasy, however, and instead chose to treat it as psychologically interesting and worthy of discussion regardless of its veridicality. This ambiguity was initially uncomfortable for the patient, however, who hoped for an "expert answer" about whether what he had "seen" was true. This desire for closure subsided in time, however, as the patient talked through the incident with the study team. Another patient (P15) had a particularly intense high-dose session, becoming uncommunicative for a prolonged period (i.e., 2-3 hours) during the peak drug effects. The patient's vital signs remained normal throughout, however, barely

deviating from predrug baseline, and subsequent interviews revealed that this period had mostly been extremely "blissful" for the patient. For the therapy team, this putative mutism was concerning for a period; however, hindsight has taught us to simply sit out such situations (unless vital signs suggest otherwise), waiting for the idiosyncratic symptoms to subside. The positive physiological safety profile of psilocybin can offer reassurance in this regard.

There is a need for further qualitative research within studies assessing psychedelics for other indications, such as addiction (Bogenschutz & Johnson, 2016) and obsessive compulsive disorder (Moreno et al., 2006). Subthemes identified in the current study closely matched themes identified in previous qualitative analyses of psychedelic treatment studies, for example, "deschematizing and viewing experiences in another perspective," "facilitated access to emotions and catharsis," and "no negative aspects of the treatment" (Gasser et al., 2015); "relational embeddedness," "emotional range," and "desire to repeat the psilocybin experience" (Belser et al., 2017).

It is notable that psychedelic treatment has been found to help a wide range of conditions, such as posttraumatic stress disorder, addictions, obsessive-compulsive disorder, depression, smoking cessation, and end-of-life anxiety (Griffiths et al., 2016; Ross et al., 2016). It may be that psychedelics have an impact on certain fundamental processes that underlie many psychiatric conditions. Perhaps the diagnosed disorders represent different manifest expressions of consistent latent problems, such as repression of emotional pain and/or ego-dystonic psychological material (Freud, 1995), and/or a lack of meaning (Frankl, 1961) and/or disconnection from others (Bowlby, 1978). Thus, psychedelic research may help further our knowledge of core, root features of mental ill-being. Over the past 20 years, there has been an ever-increasing push in psychiatry to start promoting consideration of disease *spectrums* rather than distinct entities, and perhaps psychedelics could play a role in informing and improving the way we think about, and treat, mental illness, and wellness. It is inevitable that such a paradigmatic shift will meet resistance as it treads on the toes of convention, but its "success" may ultimately prove irresistible, if its foundations are strong.

Within the current medical model of mental illness, treatments are designed to mollify symptoms. However, in the present study, the benefit of treatment was not restricted to a reduction in symptomatology. When rumination started again after a few months, several patients still reported feeling better than before the treatment, claiming that there was greater meaning in their lives. For some, although scores on standard depression rating scales indicated treatment relapse, their comments during the 6-month interviews suggested major persistent changes in their perspectives and behaviors. This suggests that

improved measures, more sensitive to changes in psychological well-being for example, should be considered to help capture and communicate real-world changes that are not adequately picked up by standard rating scales. It could be said that patients were not just losing symptoms of depression but were, in many cases, gaining happiness, which has been defined as "pleasure, engagement, and meaning" (Seligman, Parks, & Steen, 2004), Happiness, or psychological well-being, may be a valuable construct in this context. For example, it seemed that months after the psilocybin, patients were still able to benefit from the renewed *meaning* in their lives. To take one particular example from a patient whose depression had returned at the time of interview, she reported still feeling connected to what she described as her "inner teacher," remained vegetarian (since the dosing session), and said that the trees continued to looked greener:

> [The treatment] flicks on a switch. It opens a door. I can appreciate life [now] and because of that I can go on living. You feel it on the inside—it's from the inside out. I'm looking at life and it doesn't feel bad. There will always be suffering. If you only focus on that then you don't get to see the beauty around you. (P12)

In conclusion, via thematic analysis applied to structured interviews performed 6 months after psilocybin for treatment-resistant depression in 20 patients, we identified two major themes relating to how the treatment had been beneficial: (a) a change from disconnection (from the self, others, and the outside world) to connection and (b) a change from avoidance of difficult emotions and memories to acceptance. Provocatively, patients reported that previous treatments functioned to reinforce defensive strategies of disconnection/retreat and avoidance, whereas treatment with psilocybin promoted a confrontation and subsequent reconnection that was lasting in many cases. The approach taken here complements more formal, quantitative analyses of the utility of psilocybin (Carhart-Harris, Bolstridge, et al., 2016; Carhart-Harris, 2017; Gasser et al., 2014; Griffiths et al., 2016; Ross et al., 2016) and should help inform and enrich understanding of this novel treatment and its mechanisms of action, helping generate new hypotheses that can be tested in subsequent research.

Appendix

Semi-Structured Interview

"This interview will cover your experience of trying psilocybin as a treatment for depression. It will last about an hour. You are welcome to take breaks whenever you like. If you feel upset at any point we can stop. Do you have any questions before we start?"

1. Think back to yourself before you heard about the study—Can you briefly describe what your experience of depression was like?
2. How did you hear about the study and what made you decide to take part?
3. What was it like for you coming to Imperial for the first few meetings—the screening, and then the prep session? What were they like for you?
4. What happened during the session when you were given the first dose—the low dose?
   Probe: Both positive and negative experiences.
   Probe: Interactions with guides—how did it feel [also ask about afterward]
5. The second dose—the high dose—what happened?
   Probe: Both positive and negative experiences.
   Probe: Interactions with guides
6. How did you feel in the first week after the high dose? What about the next few weeks? Did you notice any changes in yourself?
   Probe: Both positive and negative experiences
7. What about later on? How have you felt over the past 6 (or however many) months after the session?
   Probe: both positive and negative experiences
8. Has the psilocybin had any effect, positive or negative, on your depression? Thinking about yourself now, do you think there are any other changes from the way you were before the dosing?
9. How do you understand what happened to you? What do you think the psilocybin did? (on the dosing day and since)
10. Anything else you would like to add about your experience?

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Rosalind Watts completed her clinical psychology doctoral training at University College London and practiced psychotherapy for six years before joining the Imperial Psychedelic Research Group as a therapist 'guide' and researcher. Her research includes qualitative analysis of the therapeutic effects of psilocybin and LSD. Current projects include designing clinical aspects of the upcoming psilocybin trial at Imperial, and consultancy work developing training models for therapists.

Camilla Day, BA, MBChB, MRPsych, studied psychology and physiology at Oxford University and fast-track medicine at Warwick Medical School. She is currently General Adult Psychiatry Registrar working full-time in South East London for South London and Maudsley NHS Trust. She is also honorary research associate working in the Psychedelic Research Group of the Centre of Neuropsychopharmacology in the Brain Sciences Division of Imperial College London Faculty of Medicine.

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David Nutt is a psychiatrist at Imperial College London. He trained at Cambridge, Guys Hospital, Oxford University, and NIH. His research focuses on the use of positron emission tomography and functional magnetic resonance imaging to understand how drugs work in the brain and the mechanism underpinning psychiatric disorders particularly addiction and anxiety disorders.

Robin Carhart-Harris received his PhD at the University of Bristol, where he focused on serotonin function and sleep EEG. In 2009, he moved to Imperial College London as a postdoctoral fellow, where he has remained ever since. Over the past 7 years, he has spearheaded a series of pioneering functional brain imaging studies with serotonergic psychedelic drugs such as psilocybin, MDMA, LSD, and most recently DMT. His most recent work involved designing and managing a clinical trial assessing psilocybin for treatment-resistant depression.