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Psychedelic Therapy for Body Dysmorphic Disorder

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Abstract

In this opinion piece we propose the investigation of psychedelic-assisted psychotherapy for the treatment of body dysmorphic disorder (BDD). BDD is a psychiatric disorder characterised by appearance-based preoccupations and accompanying compulsions. While safe and effective treatments for BDD exist, non-response and relapse rates remain high. Therefore, there is a need to investigate promising new treatment options for this highly debilitating condition. Preliminary evidence suggests safety, feasibility, and potential efficacy of psychedelic treatments in disorders that share similar psychopathological mechanisms with BDD. Drawing on this evidence, as well as on relevant qualitative reports and theoretical proposals, we argue that it would be worthwhile to conduct a phase 2a study aimed at assessing the safety and feasibility of psychedelic-assisted psychotherapy in BDD. We also offer some suggestions for how future research ought to proceed.

Keywords: Body dysmorphic disorder; classic psychedelic; psilocybin; psychedelic therapy

Introduction

Recently, the prevalence of body image disturbance, a core feature of body dysmorphic disorder (BDD), has increased (Robert-McComb & Massey-Stokes, 2013), as have rates of BDD in adolescent and young adult populations (Himanshu et al., 2020). Moreover, existing BDD treatments have inadequate response rates (Hong, Nezgovorova, & Hollander, 2018). Therefore, the exploration of novel evidence-based treatments aimed at targeting this complex and debilitating disorder is warranted. In this opinion piece we argue that psychedelic-assisted psychotherapy (henceforth "psychedelic therapy") is a promising candidate that merits investigation. We begin by briefly outlining the need for new BDD treatments, which stems from the severe nature and increasing prevalence of this condition, and the limitations of existing approaches to its treatment. Next, we synthesise evidence and theory concerning psychedelic therapy to argue that there is a strong *prima facie* case for trialling this intervention in the treatment of BDD. Finally, we offer some suggestions about how this research might proceed.

The Need for New BDD Treatments

BDD is a psychiatric disorder characterised by appearance-based preoccupations and accompanying compulsions (Phillips, 2017). In the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders, BDD is classified as an obsessive-compulsive and related disorder; BDD preoccupations are centred around perceived facial or bodily imperfections (American Psychiatric Association [APA], 2013). Common compulsions in response to these preoccupations include camouflaging, skin picking, body repositioning, and reflection checking (APA, 2013). Avoidance behaviours are also common in this population. For example, due to a fear of negative evaluations, patients may avoid mirrors and social

interactions, which can lead to agoraphobia (Phillips, 2017). The course of BDD is chronic, with poor outcomes when extended treatments are unavailable (Emmelkamp & Ehring, 2014).

Upwards of 53% of patients who present to cosmetic surgery settings satisfy diagnostic criteria for BDD (Vindigni et al., 2002); such patients are rarely satisfied with the surgical results, often shifting their preoccupations to a new area of the body (Phillips, 2017). Some patients attempt pernicious "self-surgeries", which may result in severe bodily mutilation (Veale, 2000). Indeed, Veale (2000) reports that one-third of adults with BDD have attempted self-surgeries.

BDD has been detected across cultures, with an estimated global prevalence rate of 1 to 3% (Minty, Minty, & Heun, 2020). Drawing on 25 years of BDD literature, Jassi and Krebs (2021) argue that BDD is one of the most debilitating and high-risk mental health conditions. This is consistent with a meta-analysis by Angelakis, Gooding, and Panagioti (2016) which found that, compared to healthy and clinical controls, those with BDD had a fourfold increase in suicidality and were 2.6 times more likely to attempt suicide. The authors concluded that these estimates were "comparable with severe psychiatric morbidities such as PTSD and major depression" (Angelakis et al., 2016, p. 63). Moreover, compared to country-specific population norms, individuals diagnosed with BDD have been found to have a poorer quality of life across multiple domains of functioning (Phillips, 2000).

Safe and effective treatments for BDD exist, but these treatments have substantial limitations. Here we emphasise these limitations, as they constitute part of the rationale for trialling psychedelic therapy in this disorder. The first-line treatment for BDD is a combination of cognitive-behavioural therapy (known as CBT-BDD when used for this condition), selective serotonin reuptake inhibitors (SSRIs), and/or tricyclic antidepressants (TCAs; Hong et al.,

2018). CBT-BDD is designed to help patients gain a deeper understanding of their condition and address the cognitive, behavioural, and emotional factors that perpetuate symptoms. To this end, CBT-BDD utilises gradual exposure and response prevention, cognitive restructuring, and perceptual retraining (Wilhelm et al., 2013). A meta-analysis by Harrison and colleagues (2016) found CBT-BDD to be more effective than placebo in reducing BDD symptom severity. However, a significant number of BDD patients are considered treatment non-responders, and such individuals tend to have complex comorbidities (Hong et al., 2018). In their meta-analysis (Harrison et al., 2016), low rates of remission were detected and only 40 to 54% of participants receiving CBT-BDD were deemed to be treatment responders. Due to high rates of treatment unresponsiveness and poor quality of life, researchers have gone as far as recommending targeted neurosurgery (Hong et al., 2018). Neurosurgery has been used in a few cases of treatment-resistant BDD, with two reported cases failing to demonstrate efficacy (Hadley, Newcorn, & Hollander, 2002).

Pharmacological interventions such as SSRIs and clomipramine (a TCA) are standardly used as adjuncts to CBT in the treatment of BDD. A 2006 meta-analysis by Williams Hadjistavropoulos, and Sharpe comparing the efficacy of BDD treatments found that while the pharmacotherapy treatments (SSRIs and clomipramine) significantly reduced the symptoms of depression and BDD, their efficacy was inferior to that of psychological interventions. Krebs, Fernández de la Cruz, and Mataix-Cols (2017) found that individuals with BDD typically require very high doses of medication, which often exceed recommended limits. Hong and colleagues (2018) report that low insight, side effects from high doses of medication (Krebs et al., 2017), and high rates of comorbidity (Blashill et al., 2017) limit treatment adherence. To reduce relapse rates, it has been recommended that patients continue their use of medication for extended periods following remission; however, even with extended use of medications,

the risk of relapse remains high (Hollander & Hong, 2016). Prolonged and/or lifelong use of these medications in combination with access barriers, desires to cease medication use, and side effects limit the utility of antidepressants in the treatment of BDD (Hong et al., 2018). Hong and colleagues (2018) note that augmenting SSRIs with antipsychotics has shown some efficacy in patients with treatment-resistant OCD (Dold et al., 2013); however, there is limited available research to suggest efficacy in BDD populations. One placebo-controlled study found that augmentation of the SSRI fluoxetine by the antipsychotic pimozide was no more effective than placebo in ameliorating the symptoms of BDD (Phillips, 2005).

Further known treatment barriers in BDD populations include treatment costs, shame, stigma, and the preference to self-manage symptoms (McCausland, Paparo, & Wootton, 2020). BDD populations have a propensity to seek out services from cosmetic surgeons and dermatologists, and rarely present to mental health clinics; when mental health services are sought, inadequate screening practices, misdiagnoses, and implementation of non-evidence-based treatments are common (Marques et al., 2011; Veale, Akyüz, & Hodsoll, 2015). A study conducted in Germany investigated treatment access and barriers in BDD populations, concluding that despite adequate mental health infrastructure and minimal financial barriers, BDD was under-recognised and under-treated (Schulte et al., 2020).

While attrition rates vary widely, meta-analytic research on CBT-BDD has detected rates as high as 56% (Williams et al., 2006), with a more recent study finding that compared to the supportive psychotherapy group, the CBT-BDD group had higher rates of dropout (Wilhelm et al., 2019). In other words, the most effective known treatment for BDD has limited utility since patients struggle to complete it. Collectively, these limitations of existing treatments warrant serious investigation of any promising alternatives.

Psychedelic Therapy

Recent clinical trials have provided preliminary evidence for the safety and transdiagnostic efficacy (i.e., efficacy in multiple conditions) of an understudied mental health treatment: psychedelic therapy (Andersen et al., 2021). In psychedelic therapy, one to three doses of a psychedelic substance are administered in conjunction with psychotherapy (Andersen et al., 2021). The aim is to induce a dramatically altered state of consciousness that is believed to facilitate therapeutic progress (Sessa, 2012).

The term "psychedelic" has been used in broader and narrower senses but is increasingly reserved in scientific contexts for the *classic* psychedelics, also known as "serotonergic hallucinogens." This is a class of psychoactive substances that alter consciousness primarily via agonism of the 5 HT_{2A} receptor (Nichols, 2016). Here we follow this terminological convention and focus exclusively on substances of this class, the best-known of which are lysergic acid diethylamide (LSD), mescaline, N,N dimethyltryptamine (DMT), and psilocybin (Letheby, 2021). At moderate to high doses, these substances can induce a dramatically altered state of consciousness, featuring memorable changes to perception, emotion, cognition, and the senses of space, time, body, and self; some subjects report religious or mystical experiences and psychological insights (Masters & Houston, 1966; Shanon, 2002; Strassman, 2001).

Naturally occurring psychedelics have been used in religious and medicinal contexts for centuries, if not millennia (Miller et al., 2019). A sustained wave of scientific research examined the properties of these substances throughout the 1950s and 60s (Dyck, 2008). Several studies suggested that psychedelic experiences might have lasting beneficial psychological effects, both in healthy subjects and in psychiatric patients (Krebs & Johansen,

2012; Masters & Houston, 1966; Rucker et al., 2016; Weston et al., 2020). Many of these studies suffered from serious methodological limitations, but one meta-analysis found evidence for the efficacy of a single high-dose LSD session in the treatment of alcoholism (Krebs & Johansen, 2012). However, socio-political controversy led to the virtual cessation of human psychedelic research in the late 1960s (Grinspoon & Bakalar, 1979).

Since the 1990s, human psychedelic research has resumed, and several clinical trials have been completed and published (Andersen et al., 2021). These have invariably found that moderate-to-high doses of psychedelics can be administered to carefully screened and prepared volunteers, in controlled clinical conditions, without serious and lasting adverse effects (Dos Santos & Hallak, 2020). Both open-label and double-blind trials have reported substantial reductions in symptoms of anxiety, depression, and substance use disorders, lasting weeks or months after one to three psychedelic sessions combined with psychotherapy (Andersen et al., 2021).

Why think that psychedelic therapy might be a promising treatment for BDD? One published case report speaks directly to this possibility. Hanes (1996) reported on a patient diagnosed with BDD who spent upwards of four hours per day obsessing about his perceived imperfections. This patient reported that, on several occasions, following consumption of psilocybin-containing mushrooms, he experienced doubts about whether his imperfections were real, and no longer viewed himself as deformed. This significantly lowered his distress levels and accompanying compulsions.

The possibility raised by this case report is bolstered by emerging preliminary evidence that psychedelic use may have therapeutic effects in eating disorders, which share overlapping

symptoms with BDD. Spriggs et al. (2021) conducted a survey study of psychedelic use in naturalistic environments by people with eating disorders. They reported significant reductions in depression and increases in well-being after a single psychedelic experience. Furthermore, two qualitative studies documented reports of seemingly insightful and transformative experiences undergone by people with eating disorders who took psychedelics in ceremonial contexts (Lafrance et al. 2017, Renelli et al. 2020). In some cases, interviewees reported positive changes in body image and improved relationships to their bodies.

This last point connects our proposal to current theoretical perspectives on psychedelic therapy. Multiple authors have proposed that psychedelics might facilitate therapeutic benefits by disintegrating mental models, especially models of the self, on the premise that rigid and negative self-models are characteristic of multiple psychiatric pathologies (Carhart-Harris & Friston, 2019; Letheby & Gerrans, 2017; Letheby, 2021). Most directly relevant to our concerns, Ho and Preller (2020) have noted that aberrant *bodily* self-models seem to occur in various disorders and proposed that psychedelics might facilitate beneficial revision of these. This idea has some plausibility given that dramatic alterations in bodily experience are well documented in the psychedelic state (Masters & Houston 1966; Shanon, 2002). Furthermore, many psychedelic therapy patients report beneficial changes to body-related thoughts and feelings (Breeksema et al., 2020).

While controlled, clinical trials are still required, another line of preliminary evidence pertains to obsessive-compulsive disorder (OCD), whose phenotype overlaps with that of BDD. Moreover, a double-blind randomised trial of nine individuals with moderate to severe OCD found that psilocybin significantly reduced OCD symptoms (Moreno et al., 2006). Two

participants endorsed symptom relief for almost one week and one participant remained in remission at six-month follow-up.

Hyperactivation of 5-HT_{2A} receptor activity during the psychedelic state produces changes to the cortico-striatal-thalamus-cortical (CSTC) pathway (Fantegrossi et al., 2008; Nichols, 2004) which is thought to be implicated in obsessive-compulsive symptomatology (Jacobs, 2020). Jacobs (2020) has proposed that psilocybin might exert therapeutic effects by altering the functioning of the CSTC pathway in OCD patients. According to Jacobs (2020), the purported anti-compulsive effects of psilocybin might also be partly due to changes in affective processing, with psilocybin enhancing motivation towards positive cues (Kometer et al., 2012) while decreasing amygdala activity in response to negative facial expressions (Barrett et al., 2020). This is notable, as there is evidence of amygdala abnormalities (Feusner et al., 2007) and biases toward negative facial expressions (Johnson et al., 2018) in BDD populations.

Finally, Ramachandran et al. (2018) reported on a case of a patient with phantom limb pain who experienced unsatisfactory results while undergoing mirror therapy. This patient reported acute relief from his pain while under the influence of psilocybin, but his symptoms rapidly returned when the effects wore off. However, when mirror therapy was used while under the influence of psilocybin, the patient reported long-term benefits and was able to terminate treatment (Ramachandran et al., 2018). This is noteworthy, given that perceptual retraining using mirror-based exposure is a common element of CBT-BDD (Wilhelm et al., 2013). Thus, consistent with the phantom pain case, the effects of mirror therapy might be bolstered in patients with BDD by co-administration of psilocybin. We discuss this possibility further below.

Given its potential anti-compulsive properties, herein we focus exclusively on psilocybin, which clinical trial research has demonstrated can be delivered safely. Multiple controlled studies in healthy volunteers have found that moderate-to-high doses of psilocybin are safe and well-tolerated, with no serious and lasting adverse effects and some evidence suggesting psychological benefits (Carhart-Harris et al., 2012; Griffiths et al., 2006, 2011, 2017; Madsen et al., 2020; Nicholas et al., 2018; Smigielski et al., 2019; Vollenweider et al., 1997). Due to a growing body of literature (Carhart-Harris et al., 2016, 2017, 2018; Erritzoe et al., 2018; Roseman et al., 2018; Stroud et al., 2018; Watts et al., 2017), psilocybin-assisted psychotherapy for treatment-resistant depression was granted breakthrough therapy status by the Food and Drug Administration in 2018, and later, for major depressive disorder (Nichols, 2020). Recent findings from a randomised controlled trial of psilocybin-assisted psychotherapy for major depressive disorder provided further evidence of the safety and potential benefits of psilocybin as a therapeutic aid in populations with depression, reporting large antidepressant effects with rapid onset and sustained benefits (Davis et al., 2020). According to Johnson, Richards, and Griffiths (2008), psilocybin has a particularly strong safety profile, which has been demonstrated in large trials at high doses (Griffiths et al., 2016; Nicholas et al., 2018). According to the Usona Institute (2020), there have been no reported cases of pharmaceutical psilocybin overdoses.

Most of the evidence we have outlined here provides only an indirect case for entertaining the potential efficacy of psychedelic therapy in BDD. Moreover, all of it is preliminary and subject to major limitations. However, we contend that the circumstantial case here assembled, incorporating case reports, qualitative research, quantitative survey studies of naturalistic use, and considerations drawn from influential theoretical models, is sufficiently strong to warrant investigation in the form of a phase 2a study.

Trialling Psychedelic Therapy for BDD

BDD is an understudied psychiatric disorder that has only recently entered widespread public and academic discourse. It is a severely impairing condition with high comorbidity and suicide rates linked to a poor quality of life (Phillips, 2000). Significant treatment barriers exist, and existing treatment options involve specialised, long-term psychotherapy (Hong et al., 2018) that is often coupled with high doses of medication (Krebs et al., 2017) known to contribute to treatment barriers. As a result, new, effective, and accessible treatments are urgently needed to reduce the suffering and disease burden of BDD. Considering the suggestive evidence highlighted above, it seems clear to us that psychedelic therapy warrants exploration in the treatment of BDD.

A natural first step would be a phase 2a study to establish safety and feasibility for the use of psychedelic therapy in this population. Researchers could design an open-label cohort study with participants to be randomised to a psilocybin-assisted therapy condition or a supportive psychotherapy control condition, as the latter is the most common therapist-delivered psychosocial intervention used in this population (Phillips et al., 2013). Consistent with prior studies of psychedelic therapy, safety could be determined by measuring the occurrence of adverse events; the severity of these events could be graded using The Common Terminology Criteria for Adverse Events version 4 criteria (Usona Institute, 2020). Consistent with the feasibility pilot for psilocybin-assisted therapy in treatment-resistant depression, feasibility could be measured by self-reports of psilocybin's intensity (Carhart-Harris et al., 2016), the ability to recruit the required number of participants, and attrition rates (Rucker et al., 2021). As mentioned, treatment barriers common in BDD populations include factors such as

misdiagnosis, under-recognition, the desire to self-manage symptoms, shame, and poor insight (Hong et al., 2018; Marques et al., 2011; McCausland et al., 2020; Schulte et al., 2020; Veale et al., 2015), which could pose difficulties for recruitment and retention. Consistent with the BDD literature (Phillips, 2017), therefore, researchers undertaking this study should consider recruiting from plastic surgery and dermatology clinics.

Apart from issues of safety and feasibility, there are ethical considerations involved in the design of a trial of this sort. For example, Smith and Sisti (2020) have recently noted that psychedelic therapy has many unusual features that distinguish it from existing psychiatric treatments, including its potential to rapidly and durably change patients' personalities, worldviews, and fundamental beliefs. On this basis, they argue that psychedelic therapy ethically requires an "enhanced consent" process in which the existence and nature of these possible effects is communicated to prospective participants as clearly and fully as is possible. Safety and ethical concerns specifically relevant to BDD populations might include liaising with prescribing practitioners to help participants taper off antidepressant and/or other psychiatric medications, a common practice in psychedelic research protocols (Sarparast et al., 2022).

We recommend the use of psilocybin as the best-studied classic psychedelic in recent research, with preliminary evidence of anti-compulsive effects (Jacobs, 2020), and an optimal duration of action and well-established safety profile for therapeutic use (Andersen et al., 2021) rendering it an ideal option for BDD populations.

If early research finds favourable evidence of safety and tolerability, an obvious next step would be to undertake double-blind, randomised controlled trials. Such trials could investigate

combining psilocybin administration with evidence-based interventions targeted at specific features of BDD, such as CBT-BDD, which includes mirror retraining, cognitive flexibility, and exposure and response prevention to reduce compulsions and experiential avoidance (Wilhelm et al., 2013). If incorporating mirror retraining into psychedelic therapy, caution should be taken, as the perceptual effects of psychedelics may further distort the perception of facial features or body parts (Masters & Houston, 1966). Thus, it may be prudent for researchers considering the use of mirrors in psychedelic therapy for BDD to introduce this once the peak effects of the drug have worn off. Alternatively, mirror exposure could be introduced during the integration phases of therapy wherein participants meet with therapists in the days or weeks following the experimental session; the purpose of integration is to work through challenging experiences and consolidate any insights gained (Pilecki et al., 2021). Perceptual retraining is commonly used in the treatment of BDD to retrain attention away from specific aspects of appearance towards a more global or holistic mode of perception. This assists patients to see the bigger picture by retraining their attention to focus on the external environment (Wilhelm et al., 2013). It might also include teaching patients to focus on a person's appearance as a whole, instead of zoning in on areas relating to the perceived imperfections (Wilhelm et al., 2013). It seems plausible, therefore, that psychedelics might assist this process, given their propensity to induce states of "ego dissolution" in which experiential subject/object boundaries are weakened or lost, and attention can be captured by external, perceptual phenomena (Watts 1962). Suggestively, Alan Watts (1964) remarked that psychedelics seem to "make the spotlight of consciousness a floodlight", a description that evokes the holistic mode of perception aimed at by perceptual retraining in BDD. In conjunction with the processes of representational revision described above, and the "deeply felt positive mood" that characterises the psychedelic-induced mystical-type experience (Griffiths et al. 2006), the potential for enduring beneficial effects would seem substantial.

Conclusion

In closing, we wish to emphasise the debilitating and often treatment-resistant nature of BDD. In this opinion piece we have highlighted the limitations of current available first-line treatments for BDD. We have also explored the proposed neurobiological and psychological mechanisms of psychedelic therapy to argue for its possible utility in targeting the perceptual biases and obsessive-compulsive symptoms that characterise this disorder. Finally, we have offered suggestions about how future research should proceed. A phase 2a study assessing the safety and feasibility of psilocybin-assisted therapy for BDD has the potential to open new prospects for the treatment of this understudied condition and serve as the basis for future randomised controlled trials.

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