

**Psychedelic Treatment for Psychiatric Disorders like Anxiety**

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## **Introduction**

The prevalence of psychiatric disorders and mental health problems globally is increasingly growing; more generations are developing disorders, and doctors find developing a treatment plan to become more difficult as patients become more treatment-resistant. However, clinical research is attempting to open new doors into the world of psychedelics and its therapeutic potential for psychiatric disorders. There are many renewed investigations taking place with psychedelics, such as psilocybin, MDMA, LSD, ecstasy, and mescaline on treating mental illnesses like addiction, depression, anxiety, and post-traumatic stress disorder (PTSD) (Tupper et al., 2015). Psychedelic research paused after the Controlled Substance Act was released in 1970 by President Nixon, placing all substances as Schedule I drugs and no medical use with the potential for abuse. This in return caused a moral dilemma across the nation, and the recreational and medical use of psychedelics was shunned because of its illegitimacy. Researchers paused all research to evade tainting their reputation and legitimacy due to the stigma of any substance use at that time. However, a new wave of psychedelic research is emerging, and controlled clinical studies have begun to assess the psychopharmacological properties, mechanisms, and therapeutic efficacy of psychedelics in a psychotherapeutic approach. However, mechanisms, safety, and efficacy of the use of these drugs are still yet to be fully understood, but current evidence supports further investigation as a radical approach to treating psychiatric disorders. There are promising results to transform the future of first-line treatments for psychiatric disorders (Tupper et al., 2015). This review research article aims to evaluate the current literature on specific psychedelic treatments of LSD and psilocybin for psychiatric disorders like anxiety.

## **Background**

A mental disorder is clinically classified as a disturbance in one's cognition, emotional regulation, or behavior; it typically affects one's daily life including ongoing signs and symptoms. Some include anxiety, depression, bipolar disorder, post-traumatic stress disorder, and schizophrenia, but there are many more classifications, including many subcategories (*Mental disorders 2022*).

Anxiety is considered the feelings of fear, uneasiness, and dread. Symptoms include a rapid heartbeat, tenseness, sweating, loss of control, and physiological problems like gastrointestinal discomfort. Under the "Diagnostic and Statistical Manual of Mental Disorders" or DSM, a person typically has recurrent episodes of intense anxiety or consistent anxiety that do not go away. Symptoms are also supposed to interfere with and impact daily activities, such as relationships and school/work performance, to be clinically diagnosed with an anxiety disorder. A few main types of anxiety include Generalized Anxiety Disorder (GAD), Panic Disorder, Phobias, and Social Anxiety Disorder (SAD). Each disorder has its symptomatic presentation along with basic anxiety symptoms, like fear and dread. Risk factors include traumatic events, family history, physical health conditions, and specific personality traits, but there is no known cause of anxiety (*Anxiety 2023*).

While mental health is on a spectrum, it can be difficult to approach treatment as every condition differs on a case-by-case basis. Standard treatments for psychiatric disorders include cognitive behavioral therapy, psychotherapy, depressants, hallucinogens, stimulants, anti-anxiety drugs, and anti-convulsive drugs (*Anxiety 2023*). For example, depressants and anti-anxiety drugs work by increasing serotonin and dopamine levels in the brain; these hormones are connected to pleasure, motivation, satisfaction, calmness, and happiness. Unfortunately, solely

the pharmacological treatment does not alleviate all symptoms of the psychiatric disorder, but it can make a difference in combination with a personalized type of therapy.

Recently, a new wave of pharmacological treatment is streamlining a potential new therapeutic drug to help with psychiatric disorders: psychedelics. Psychedelics are a class of psychoactive substances that produce changes in perception, mood, and cognitive processes. With the proper amount of dosing, psychedelics can alter a person's five senses and emotions. Hallucinations are likely to occur at higher doses but are not extremely detrimental to one's health. Common psychedelics that are being tested include psilocybin, lysergic acid diethylamide (LSD), Ecstasy (MDMA), ketamine, and mescaline (*Psychedelics* 2023). Psilocybin and LSD both create similar emotional, physical, and psychological effects. These psychedelics produce both visual distortions and hallucinations, including a euphoric experience of high sensory input, like the animation of someone's surroundings. These two psychedelics are different in molecular formula, but they both work on the glutaminergic (helps balance learning, memory, mood, and cognition) and serotonergic (helps with feelings of well-being and happiness) neurotransmitter systems. This leaves the question of whether these can be an alternative to typical FDA-approved pharmacological treatment or can create more harm in those already with psychiatric disorders, like bipolar disorder and schizophrenia.

Psychedelics have been used for many centuries now dating back to ancient times and different cultures around the world; it is used for "mystical" and "spiritual" association as opposed to its current recreational use. The history of psychedelics is extraneous due to the stigma and conversation of psychedelics; once the law President Nixon enacted turned all psychedelics into Schedule I drugs, there was a universal stigma against their use. It has been frowned upon immensely because of its illegitimacy and adverse effects that are claimed to

occur, in actuality, it is not that simple; people claimed that they dealt with heavy vomiting, delusions, hallucinations, depersonalization, and some even claimed to endure psychosis.

Eventually, the accessibility to obtain these psychedelics increased, and the use of psychedelics came back into mainstream conversation. Literature reviews and new upcoming research have been changing the conversation in a positive light as a potential new therapeutic treatment for clinical psychiatric disorders (*Psychedelics* 2023).

The effects of psychedelics last 6-8 hours, but the way they affect your body and state of mind depends on many individual and external factors: weight, mental and physical health, dose, strength, environment (where the psychedelic is taken), and whether the person has used it before or not. Symptoms of the “trip” (consumption period) include euphoria, relaxation, dizziness, sweating, numbness, blurred vision, and clumsiness. Although these are the primary symptoms that are experienced when a psychedelic is consumed, there is a significant impact on one’s mood and environment during the trip. A person’s state of mind affects the way the person perceives the experience in the moment. For example, if a person is already experiencing stress and anxiety, the psychedelic may amplify the stress and anxiety; this leaves the person to have a bad trip/experience. Additionally, the ambiance of the environment matters when someone consumes a psychedelic drug. For example, a pleasant experience may be in a calm, quiet setting as opposed to a noisy, crowded one; this can allow for a negative experience or a bad trip. Additionally, adverse events may occur, such as hallucinations, psychosis, coma, and vomiting, but it is not a typical event. This is more likely to occur with the misuse of these substances (*Psychedelics* 2023).

The current question most neurologists and psychiatrists have is if psychedelics could have adverse effects on healthy individuals, how could it affect those with psychiatric disorders?

The effect psychedelics create has created great generosity in the scientific community, and early research has already suggested that there are clinical and therapeutic benefits for psychiatric disorders, like anxiety. These clinical studies have demonstrated rapid and consistent clinical benefits for various psychiatric disorders (Correa da Costa et al., 2020). After the COVID-19 pandemic, anxiety has increased in the general population, regardless of age (*Covid-19 pandemic* 2022). Patients are starting to increase dosages because they are becoming treatment-resistant. Additionally, standard psychiatric treatment is proving to take long (2-3 weeks) for symptoms to feel any relief. On the other hand, psychedelics have been shown to work clinically even after just one dose (Correa da Costa et al., 2020). That leaves the question of how psychedelics play on anxiety and if it has any clinical potential.

## **Methods**

A systematic electronic review search was conducted to find reliable and valid literature about LSD and psilocybin treatment for anxiety. The Virginia Tech Interloan Library was used to locate articles of studies related to this topic. Keywords such as anxiety, psychedelics, psilocybin, LSD, and psychiatric treatment were used to further specify relevant articles. Additionally, only empirical articles were prioritized and chosen to review as opposed to review articles; the main focus of this article is to analyze and review existing literature on LSD and psilocybin treatment for anxiety and see if evidence shows therapeutic potential.

Lastly, an additional free-response self-reported qualitative questionnaire was distributed via email to the School of Neuroscience at Virginia Tech facility and specifically to those who have a focus on psychiatry. This questionnaire consisted of three open-ended questions on their educated opinions about the use of psychedelic treatment on psychiatric disorders, like anxiety. These questions asked for their opinion on the therapeutic potential, whether the medical

community is ready to implement this type of treatment, and what future research should focus on regarding psychedelics. The form was distributed and results were collected through Google Forms; they were further analyzed based on the responses collected.

## **Results and Discussion**

### ***Psilocybin***

A naturalistic, observational study of participants 18 and older and proficient in English was conducted at a legal psilocybin retreat in the Netherlands; the Psychedelic Society UK held this study. The researchers aimed to investigate the effects of psilocybin ingested in a group setting and whether the participants' state and trait anxiety would increase or decrease. They hypothesized that psychological processes will predict a decrease in state and trait anxiety. The participants were assessed on three occasions: baseline, intervention (24 hours after ingestion), and post-intervention (7 days after ingestion). The average amount of psilocybin consumed per participant was 27.1 mg (Kiraga, et al., 2022).

In just the morning after, the researchers noticed a medium reduction in the participants' anxiety measures compared to their baseline observation. These effects lasted over an entire week after one dosing group session. It was found that the ratings of ego dissolution (or no sense in self) and changes in neuroticism were the strongest predictors of whether there was a reduction in state and trait anxiety. With this in mind, personality trait neuroticism decreased compared to baseline, and the mindfulness scale significantly increased in the participants; they were more open-minded, engaging, and aware. This study's findings deemed that the setting and atmosphere of the dosing session matters, preferably a group setting of others also ingesting the same dose (Kiraga, et al., 2022).

Overall, this study suggested through the evidence and data provided that there was a persisting reduction in anxiety symptoms, and psilocybin is a promising psychedelic treatment when compared to standard pharmacological treatment in congruence to psychological treatment, such as group therapies. Further research can be conducted on how group therapy can be cost-efficient and accessible to the general public to move forward with the acceptance and usage of psychedelic treatment for psychiatric disorders (Kiraga, et al., 2022).

### ***Lysergic Acid Diethylamide (LSD)***

A two-center trial adopted a double-blind, placebo-controlled, random order, crossover design with 42 total patients and two dosing sessions of 200 µg of a placebo or LSD occurred in University Hospital Basel, Switzerland, and Solothurn, Switzerland for 16 weeks. There were four total sessions consisting of a baseline reading, two interventions, and a post-treatment assessment. This larger-scale study aimed to investigate the efficacy and safety of LSD-assisted therapy in patients who have experienced anxiety, with or without a life-threatening illness, like cancer (Holze et al., 2022).

The results of this study showed a significant reduction of state-trait anxiety 16 weeks after baseline. The patients who experienced the heightened euphoric effects of LSD correlated with long-term reductions in the patients' anxiety symptoms. The researchers implied that the experience of the drug as opposed to the chemical structure itself helped the patients find clarity in their relationship with their anxiety, leading to these reductions in symptoms. Although eight patients experienced some adverse effects, like vomiting and nausea, no one experienced psychosis. The results of this pilot study were able to expand on existing literature before this study, but also show that LSD can alter the mind and overall give the patient a pleasant and



positive experience that helps their well-being and life satisfaction after treatment (Holze et al., 2022).

Overall, LSD produced a lasting effect and notable reduction in anxiety and comorbid depression, but this study was the first study with a psychedelic treatment that included patients with anxiety but without a life-threatening illness. Further research needs to be conducted in a global setting, with varying demographics to test the accuracy of these new results (Holze et al., 2022).

### ***Professional Psychiatric Opinions***

A smaller-scale qualitative questionnaire was emailed to the faculty of the School of Neuroscience at Virginia Polytechnic Institute and State University. The survey was primarily catered to those who specialize in psychiatry to receive their professional opinion. A total of 12 responses were collected from varying professionals, ranging from professors, psychiatrists, psychology/neuroscience researchers, and neuroscientists. There was a total of three open-ended questions that were included in the Google form. The questions included their professional opinion on psychedelic treatment, whether psychiatrists are ready to implement this type of treatment into the medical system, and what future research should consist of.

When asked about their professional opinion on psychedelic treatment, all but one response spoke on the therapeutic potential of these drugs; they expanded on how some of the psychedelics act similarly, if not the same, on the neurotransmitter-modulating systems in the brain as standard pharmacological treatment. Additionally, some of the responses expanded on the therapeutic potential of the experience of the dosing session; they explained that the experience of the session in itself is “eye-opening” and “refreshing” for those with psychiatric disorders like anxiety, as it can be hard to alter someone’s mindset when they have anxiety.

The professionals also stated that the medical system across the world is not ready to implement psychedelic research. As psychedelics are still an illegal substance in the United States, accessibility can become difficult; additionally, the stigma of the use of this drug can alter the community's perspective on the professional, and it can undermine their business and expertise.

The majority of the respondents also believed that there needs to be more clinical research on psychedelics and the efficacy and safety of these drugs long-term if it is implemented in the medical world. They suggested future research should focus on the following topics: safety, efficacy, longevity, feasibility, cost-effectiveness, accessibility, and how it can be implemented into someone's daily life as each dosing session is time-consuming.

It is noted that there may be limitations to this survey as it is opinion-based, but coming from professionals who are consistently working and studying this field, it provides some validity and reliability as they have the proper education and background knowledge. In conclusion, the responses overall stated that there is potential for these drugs to become the new standard treatment for psychiatric disorders, but there needs to be more extensive clinical research on this route of treatment.

## **Conclusion**

Overall, this review article suggested there is significant therapeutic potential for the use of psychedelics as a psychiatric treatment. In terms of psilocybin, there was a significant reduction in neuroticism after just one dose. The literature also suggested there was a reduction in persisting anxiety symptoms in those who consumed the psychedelic after one dosing session as well. This in comparison to standard treatment has shown a more effective treatment option, especially for those who are treatment-resistant to the outstanding treatment plans. In the study

about LSD treatment on anxiety with or without a life-threatening illness, the euphoric experience produced by LSD was able to significantly reduce symptoms of anxiety and allow a positive change of mindset. This study suggested that the experience/trip in itself can be important. Lastly, after completing a qualitative questionnaire to professionals on their opinions on psychedelic treatments, it was found that overall, the professionals believe there is a large potential for the therapeutic use of psychedelic treatments, but there needs to be more extensive research.

A limitation of the studies included accessibility to the general population; getting access to treatments would be difficult for underprivileged communities. The sessions in the psilocybin and LSD studies were also conducted under professional supervision, which is an unrealistic standard if this is implemented nationwide and without enough trained professionals. Lastly, all participants, including those who completed the qualitative self-reported questionnaire, were volunteers; only motivated individuals participated in the different types of assessments. Given the efficacy of these drugs, there needs to be further clinical, longitudinal, and randomized trial studies on psychedelic treatment and its safety, longevity, and feasibility in the psychiatric world.

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