

A Case Report of Psilocybin-induced Psychosis in a Predisposed Patient

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Psilocybin is gaining popularity as research shows potential benefits to those with anxiety, depression, and other mental health conditions. Individuals with risk factors for psychosis are typically excluded from such studies, limiting the empirical research of the risks and benefits in vulnerable populations. In the real-world setting, many individuals who seek treatment with psilocybin will have comorbid psychiatric conditions and other factors that predispose them to psychosis. We report a case of a patient with multiple predisposing risk factors, including a history of depression, personality disorder traits, and cannabis use, who experienced a psychotic episode with catatonic features and suicidality after several months of heavy psilocybin use. A review of similar previously published case reports demonstrates a pattern of psilocybin-induced psychosis occurring primarily in individuals with predisposing factors who have consumed either high or repeated doses of the drug. This case report furthers this pattern, which serves as both a warning that psilocybin use is not without risks and reassurance for researchers using much lower doses to treat mental illness.

KEY WORDS: Catatonia; Hallucinogens; Psilocybin; Substance induced psychoses; Suicidal Ideation.

INTRODUCTION

Psilocybin use is increasing and is being explored as a treatment for depression, anxiety, post-traumatic stress disorder, obsessive-compulsive disorder, and other mental health conditions. Reports of severe adverse reactions to psilocybin are rare; however, some individuals develop psychotic symptoms after psilocybin use. When studying hallucinogens for their therapeutic benefits, participants with risk factors for psychosis are typically excluded, limiting the empirical research of the risks and benefits in vulnerable populations [1]. This case report presents a male patient with a history of depression who experienced psychotic, depressive, and catatonic symptoms after several months of heavy psilocybin use. His predisposing risk factors may have included chronic cannabis use, premorbid schizoid and avoidant personality traits, prodromal schiz-

ophrenia symptoms masked by depression, or an undiagnosed bipolar disorder. From a review of published case reports on psilocybin-induced psychosis, a pattern emerges of psychotic symptoms occurring primarily in individuals with a past psychiatric history after using large or repeated doses of psilocybin, as in this case. This pattern may be reassuring for those studying the therapeutic potentials of low doses of psilocybin but also serves as a warning that psilocybin use is not without risks and risk factors for psilocybin-induced psychosis may include more common psychiatric conditions such as anxiety and depression. Our case report and associated review provides guidance on the risks of psilocybin use in vulnerable patient populations that are otherwise excluded from research of psilocybin as a treatment.

CASE

A 37-year-old male presented in clinic to establish care after two recent hospitalizations for psychosis and suicidal ideation with plan.

He had a history of depression, chronic suicidal ideations, and a prior suicide attempt. He had been socially

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withdrawn since adolescence but had no history of depressive symptoms during childhood or developmental delays. He was briefly engaged with psychiatry around the time of his suicide attempt 10 years ago. His psychiatrist at the time noted avoidant and schizoid personality disorder features, as well as symptoms of depression and anxiety. He had no personal or family history of psychosis or mania. He had been using cannabis to self-medicate for years. Eight months ago, he began using psilocybin. His consumption increased until he was ingesting 150 mg of psilocybin, 3 or 4 times a week. Over the last month, he was hospitalized twice for depression, suicidal ideation, and psychosis. Two weeks after discharge from his second hospitalization, he presented to our clinic.

During the clinic visit, he reported hallucinations, delusions, and suicidal ideations with a plan and intent. He also described a history of episodes of physical excitement lasting several hours that were managed with lorazepam as needed. He screened positive on the Bush-Francis Catatonia scale [2], having immobility, staring, and stereotypy present. He was placed under an involuntary psychiatric hold for danger to self and was hospitalized again.

After discharge, he continued to have catatonic symptoms and was started on scheduled lorazepam. His catatonic symptoms improved, but his psychotic and depressive symptoms remained refractory to treatment with antipsychotics and antidepressants, with persistence of delusions, hallucinations, and suicidal ideations.

DISCUSSION

The Diagnostic and Statistical Manual of Mental Disorders, 5th edition criteria for substance-induced psychosis requires the presence of delusions, hallucinations, or both, that developed during or within one month of substance intoxication or withdrawal. The disturbance must not be better accounted for by another diagnosis or occur exclusively during delirium. The disturbance must also cause clinically significant distress or impairment in functioning [3]. A literature search of PubMed, using the keywords “psilocybin-induced psychosis” and “hallucinogen-induced psychosis,” yielded eight published case reports describing nine cases of psilocybin-induced psychosis (Table 1) [4-11].

Table 1. Published case reports of psilocybin-induced psychosis

Article	Patient demographic	Predisposing factors	Quantity consumed	Psychiatric symptoms
Suleiman <i>et al.</i> [4] (2022)	18-year-old man	History of ADHD, cannabis use	2 g of mushrooms	Delusions, hallucinations, decreased sleep, catatonic excitement
Barber <i>et al.</i> [5] (2022)	32-year-old woman	History of depression, GAD. Family history of bipolar disorder	Unknown	Depressive symptoms, paranoia, decreased sleep, racing thoughts, impulsivity, suicidal ideations
Hendin and Penn [6] (2021)	21-year-old woman	History of anxiety, PTSD, depression; cannabis use. Family history of bipolar disorder	“[S]ubstantial amount” of mushrooms	Racing thoughts, irritable mood, pressured speech, decreased need for sleep, agitation, delusions
Bickel <i>et al.</i> [7] (2005) ^a	25-year-old man	History of heroin, opiate, cannabis use	Unknown amount of mushrooms	Agitation, hallucinations, aggression, disorientation
Nielen <i>et al.</i> [8] (2004)	35-year-old man	History of negative symptoms; cannabis and psilocybin use	“[H]andful” of mushrooms twice daily for an unreported length of time	Delusions, hallucinations, agitation, irritability, cognitive slowing, depression, anxiety, mood swings
Nielen <i>et al.</i> [8] (2004)	33-year-old man	History of schizophrenia, psilocybin-induced psychosis; psilocybin use	Unknown	Delusions, hallucinations, illusions, impaired concentration and attention, anxiety, psychomotor agitation
Dewhurst [9] (1980)	25-year-old man	History of cannabis, LSD, psilocybin use	Approx. 300 mushrooms over three occurrences	Paranoia, impaired sleep, irritability, apathy, poor concentration, visual distortions, panic, aggression
Davies [10] (1979)	26-year-old man	History of overdose 4 years prior; cocaine, amphetamine, cannabis, LSD use	Repeated consumption of mushrooms for 6 months	Delusions, euphoric mood, auditory hallucinations
Hyde <i>et al.</i> [11] (1978)	20-year-old man	History of substance use	Approx. 100 mushrooms over 1 week	Clouded sensorium, euphoria, catatonic symptoms, agitation, paranoia

ADHD, attention deficit hyperactivity disorder; GAD, generalized anxiety disorder; PTSD, posttraumatic stress disorder; approx, approximate; LSD, lysergic acid diethylamide.

^aThe psychotic symptoms in this case are likely from acute encephalopathy, but a substance-induced psychotic disorder cannot be ruled out.

Of these nine cases, six had known histories of cannabis use, and an additional two cases had a history of substance use that may or may not have included cannabis [4,6-11]. Every case had a personal history of either substance use disorders, symptoms of psychiatric disorders, or both. Six of the cases involved either repeated doses or unusually high doses, or both [4,6,8-11]; the remaining three cases used unknown quantities [5,7,8]. For one of the cases, acute encephalopathy better explained the symptoms, but a substance-induced psychotic disorder could not be ruled out [7]. Two of the cases reported catatonic symptoms associated with the psychosis [4,11]. Cases of psilocybin-induced mood disorders in the absence of psychotic symptoms were outside the scope of this review.

The primary predisposing factors among these cases were a personal and/or family history of psychiatric disorders and a personal history of cannabis use. Most patients had also consumed unusually large quantities of mushrooms. Our case furthers this emerging pattern. The patient in our case report had a possible history of schizoid and avoidant traits, two personality disorders which have long been considered likely antecedents for schizophrenia, and a history of years of cannabis use, a known risk factor for schizophrenia and psychosis [12,13]. Additionally, he was ingesting 150 mg of psilocybin multiple times a week over the course of months leading up to this episode. By comparison, in research, an oral dose above 25 mg is considered high [1].

Limitations to this case include that it is unclear what role his cannabis use played in his developing psychotic symptoms and that his history of depression and interpersonal difficulties may have masked prodromal symptoms of schizophrenia, characterized by social withdrawal and cognitive decline. Notably, these new onset psychotic symptoms occurred only after the patient began using psilocybin heavily, and he had not experienced any prior psychotic symptoms during his years of cannabis use. While his cannabis use was likely a predisposing factor, it is far less likely that this presentation represented cannabis-induced psychosis than psilocybin-induced psychosis given the timing of the onset of symptoms. Distinguishing subtle prodromal symptoms of schizophrenia from co-morbid depressive symptoms is always challenging, especially in the context of a severe substance use disorder. That a patient may have been experi-

encing prodromal symptoms prior to developing a substance-induced psychotic disorder can very rarely be ruled out completely due to the confounding effects of intoxication and withdrawal symptoms from substance use.

Interest in research for psilocybin as a treatment for psychiatric illness has grown considerably over recent years. Psilocybin is already being studied as a potential treatment for anxiety and depression in patients with advanced cancer, major depressive disorder, post-traumatic stress disorder, obsessive-compulsive disorder, and tobacco and alcohol dependence, and even more indications are being explored with new research. Psilocin, for which psilocybin is a prodrug, probably acts primarily through agonism of 5-HT_{2a} serotonin receptors, and this is also the likely mechanism for the proposed anxiolytic and antidepressive effects. Current findings are encouraging, with potential benefits being found for anxiety, obsessive-compulsive disorder, depression, and suicidality, among others, with few adverse effects. However, though the body of literature is growing, small study size and paucity of comparison studies currently significantly limits the quality of evidence for the benefits of psilocybin [14].

Given this increasing popularity of psilocybin, both therapeutically and recreationally, the risks of its use need to be studied as extensively as the benefits. Our case report and associated review serves as a warning that psilocybin use is not without risks and predisposing risk factors for psilocybin-induced psychosis may include common psychiatric conditions such as depression, anxiety, and personality disorder traits. However, that these cases occurred primarily among those using doses much higher than those used in a therapeutic setting will be reassuring to researchers studying the medicinal uses.

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■ Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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