

CASE REPORT

Long-COVID symptoms improved after MDMA and psilocybin therapy: A case report

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Key Clinical Message

Long-COVID syndrome lacks effective holistic treatment options. We present a case of a 41-year-old fully vaccinated female with Long-COVID syndrome who obtained significant symptomatic relief after self-medicating with psilocybin and MDMA.

Abstract

Long-COVID, a syndrome persisting after the acute phase of coronavirus disease 2019 (COVID-19), lacks effective holistic treatment options. We present a case of a 41-year-old fully vaccinated female with Long-COVID syndrome who obtained significant symptomatic relief by self-prescribing psilocybin and MDMA. Future research is needed to assess safety and efficacy.

KEYWORDS

case report, COVID-19, long-COVID, MDMA, neurotropics, psilocybin

1 | INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a highly contagious respiratory illness caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus was first identified in Wuhan, China in December 2019 and has since spread globally, leading to a worldwide pandemic. The majority of individuals who contract COVID-19 experience mild-to-moderate symptoms and recover within a few weeks. However, a significant proportion of individuals continue to experience symptoms long after the acute phase of the illness has resolved, a condition known as Long-COVID or post-acute sequelae of SARS-CoV-2 infection (PASC).¹ Long-COVID symptoms can be diverse and can range from mild to severe

and can include fatigue, depression, anxiety, joint pain, headaches, and cognitive impairment.

There are currently no effective or broad treatment options for Long-COVID, but some symptom-related management has been trialed. Traditional treatment options, including rehabilitation, physical therapy, and medications, may not be fully effective for all individuals.² The pathophysiology of Long-COVID is still being elucidated, and there is a need for alternative treatment options. A recent review has suggested that psilocybin and 3,4-methylenedioxymethamphetamine (MDMA) may be an effective treatment option for the mental health challenges associated with COVID-19.³ Psychedelics have been traditionally used in spiritual and religious practices, but in recent years, there has been a resurgence of research on the

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therapeutic potential of psychedelics.⁴ Psychedelics have shown promise in the treatment of various medical conditions such as depression, anxiety, PTSD, and addiction.⁴ This case report describes the experience of a 41-year-old female who developed Long-COVID symptoms after contracting COVID-19, and her experience managing her symptoms and using psychedelics as a treatment. To our knowledge, this is the first case report describing the potential efficacy of psychedelics for Long-COVID symptoms.

2 | CASE HISTORY

A previously-healthy 41-year-old female (BMI 27.4) with history of migraines developed Long-COVID symptoms after contracting COVID-19 in February 2022 (Figure 1). Her migraines intermittently occurred two–four times per month since adolescence. She had received three vaccinations (Pfizer for the first two and Moderna for the third) but still contracted the virus. The patient's symptoms at the time of diagnosis of acute COVID-19 included a sore throat, headache, fever, cough, post-nasal drip, fatigue, body aches, altered sense of taste (everything tasted extremely salty), and diminished sense of smell.

After the acute phase of the illness resolved, 1 month after diagnosis, the patient continued to experience post-COVID symptoms, including severe anxiety, depression, insomnia, joint pain (hips, knees, shoulders, jaw), cognitive issues (brain fog, poor reading comprehension and endurance, word finding, and short-term memory), headaches, and a sharp decrease in libido.

3 | METHODS

Complete blood count, basic metabolic panel, coagulation values, and inflammatory biomarkers were within normal limits during this period (Appendix A, Table A1). On chest X-ray, there was no evidence of

cardiopulmonary or pleural disease. The patient also reported an intense unique headache, which was different from her migraines. This headache was a global pressure-like feeling that occurred almost daily for 2–12 h without nausea, photophobia, or phonophobia. These symptoms persisted for 3 months.

The patient tried various traditional treatment options to manage her symptoms, including graded return to activity and medications. She was taking dimenhydrinate 200 mg (daily for 3 months) for insomnia during this time. Her headaches subjectively improved up to 60% maximum relief with sumatriptan 85 mg and naproxen sodium 500 mg but persisted. The patient also tried non-traditional treatments such as massage therapy and intermittent fasting with very mild to no relief. The patient participated in four sessions of chiropractic and osteopathic therapy with resulting non-enduring mild relief on day of treatment. One session of acupuncture led to a non-enduring 15%–20% improvement the day of treatment. She found the fasting and meditation only mildly helpful, and the improvement persisted only as long as the activity occurred. The patient was referred to a Long-COVID clinic, but was never seen due to long waitlists (Late August/Early September). In the meantime, the patient decided to try psychedelics as a form of treatment under the guidance of a therapist who recommended a protocol of 3,4-methylenedioxymethamphetamine (MDMA) and golden teacher *psilocybin cubensis* dried mushrooms.

4 | CONCLUSION AND RESULTS

The patient's first dosing session was on May 05, 2022, where she consumed 1 g of dried whole golden teacher *psilocybin cubensis* mushrooms from an online store. The patient subjectively reported a 20% improvement in her depression, fatigue, joint pains, and headache for 7 days. However, she also reported chills and shivering with a sensation of being cold while “coming up.” The patient's second dosing session was 24 days later on May 29th

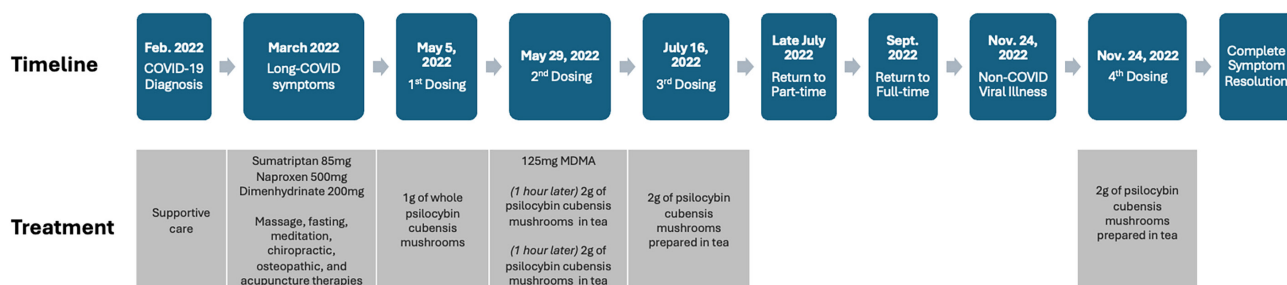


FIGURE 1 Timeline and corresponding treatments from time of COVID-19 diagnosis to resolution of symptoms.

where she consumed a single dose of MDMA 125 mg, 1 h later 2 g of whole dried golden teacher psilocybin cubensis mushrooms prepared in a tea, and 1 h later a second dose of 2 grams of whole dried golden teacher psilocybin cubensis mushrooms prepared in a tea. The substances were reportedly verified by getyourdrugstested.com.

The patient reported a slower build-up without shivering and reported feeling very detached from Long-COVID symptoms. The patient's experience while under the influence of MDMA and psilocybin was reported as feelings of being in a childlike state, having an intense connection to nature, and of being in an alternate reality. Though the patient experienced transient nausea and emesis 40 min after ingestion of psychedelics, she endorsed 0/10 pain within 1 h of ingestion irrespective of the nausea. After this second dosing session, the patient subjectively reported significant improvement in her post-COVID symptoms including fatigue, depression, anxiety, joint pain, and headaches. The patient was able to return to work and her cognitive function improved, allowing her to resume her PhD studies. The patient's insomnia also improved, and she was able to stop taking antihistamines. The patient's unique headache, which was different from her migraines, decreased in severity and frequency. Headache frequency reduced to approximately once per week compared with a May 2022 baseline of 5 per week. Headache duration also decreased to less than 2–4 h per attack—an improvement from the typical 8–12 h duration in May 2022. After the July dosing session, her headaches intensity remained at 30% of their former peak intensity. Overall, the patient indicated her symptom improvement was approximately 80% when asked to self-report on a scale of 0%–100%.

Six weeks later (on July 16th), her head pressure returned at approximately 30% of its previous severity. After another 2 g dose of psilocybin cubensis mushrooms, her symptoms abated to 90% relief of symptoms. She was able to work part-time thereafter and return full-time in September.

After several months of improvement, the patient reported experiencing an early November relapse of her post-COVID-19 symptoms in the setting of a non-COVID-19 flu-like illness. Her headache returned, although it was less severe and not as frequent as before. The patient decided to try another dosing session with psychedelics on November 24th. This time, 2 g of dried golden teacher psilocybin cubensis mushrooms led to a remission of her symptoms. The patient subjectively reported complete resolution of her symptoms. The patient was again able to return to work 3 days later and continue with her PhD studies.

5 | DISCUSSION

Long-COVID, also known as PASC, is a condition where individuals continue to experience symptoms of COVID-19 long after the acute phase of the illness has resolved. The symptoms of Long-COVID can be diverse and can range from mild to severe, making it challenging to manage and treat. Traditional treatment options for Long-COVID include rehabilitation, physical therapy, and medications for specific symptoms such as pain and fatigue.⁵ However, these treatment options may not be effective for all individuals, and there is a need for alternative treatment options.

A recent review has suggested that psychedelics could be an effective treatment option for the mental health sequelae of COVID-19.³ Psychedelics have been traditionally used in spiritual and religious practices, but in recent years, there has been a resurgence of research on the therapeutic potential of psychedelics. Psychedelics have shown promise in the treatment of various medical conditions such as depression, anxiety, PTSD, and addiction.

The mechanisms by which psychedelics could improve Long-COVID symptoms are not understood. The pathophysiology of Long-COVID symptoms include chronic neuroinflammation and neurologic dysfunction.⁶ Psychedelics are known to modulate the activity of neurotransmitters such as serotonin and dopamine, leading to changes in brain connectivity and potentially increasing neural plasticity. Psychedelics activate areas of the brain that are involved in self-referential processing, emotional regulation, and alter connectivity within and between intrinsic brain networks such as the default mode network (DMN).⁷ It has been hypothesized that the ability of psychedelics to alter DMN connectivity infers benefit in chronic neuropathic conditions by improving efficiency of these networks.⁷ There is research showing alterations in default mode network connectivity in patients with Long-COVID symptoms.⁸ Other research has pointed to the effects of psychedelics on gene expression as a means of influencing synaptic plasticity and neural inflammation as well as decreasing acute phase reactants, which could underlie the sustained benefits seen in studies of depression and other chronic neuropathic conditions.⁹

Psilocybin and MDMA are not yet authorized for use in the United States by the FDA. The Drug Enforcement Agency qualified both psilocybin and MDMA as Schedule I drugs in the Controlled Substances Act, indicating their lack of acceptance for medical use and high abuse potentials.¹⁰ Common side effects of these psychedelics include headache, nausea, dizziness, anxiety,

dysphoria, transient increases in blood pressure, and drug–drug interactions,^{11–13} though prior literature suggests that their safety profile is largely benign at lower doses.¹⁴ In June 2023, the FDA to release the First Draft Guidance on Clinical Trials with Psychedelic Drugs,¹⁵ as recent research in the medical uses of psychedelics has garnered significant attention. To date, there are no consensus guidelines for standard dosing or administration protocols, though there are several reports in the literature citing 0.143 mg/kg for chronic headaches.^{16,17} No prior literature was found regarding the use of MDMA or psilocybin for Long-COVID treatment; therefore, the natural history of the disease treated with psychedelics is not well-known.

As with any case report, the present study is limited in its generalizability. A universal cause–effect relationship between psychedelics and Long-COVID may not be drawn, particularly given the lack of blinding, randomization, and direct oversight over psychedelics dosing protocol in this study. However, this case reinforces the need for more robust investigation with larger sample sizes into the psychedelics use for a poorly controlled chronic illness such as Long-COVID.

Long-COVID is a complex condition that can be challenging to manage and treat. Traditional treatment options may not be effective for all individuals, and there is a need for alternative treatment options. We report a case of a patient using psychedelics and seeing dramatic improvement in her Long-COVID symptoms. Further research is needed to determine whether psychedelics are safe and effective for Long-COVID and to understand the potential mechanisms of action.

AUTHOR CONTRIBUTIONS

Harman Chopra: Investigation; writing – original draft. **Tim Furnish:** Supervision. **Monica Verduzco-Gutierrez:** Supervision; writing – review and editing. **David S. Jevotovsky:** Visualization; writing – review and editing. **Joel Castellanos:** Conceptualization; resources; supervision; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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APPENDIX A

TABLE A1 Laboratory data from March 02, 2022, revealing complete blood count, basic metabolic panel, coagulation values, and inflammatory biomarkers within normal limits.

Basic metabolic panel	
Sodium	141 mmol/L
Potassium	4.3 mmol/L
Chlorine	104 mmol/L
Bicarb	28 mmol/L
BUN	4.9 mg/dL
Creatinine	0.63 md/dL
Glucose	90 mg/dL
Complete blood count with differential	
WBC	$6.9 \times 10^3/\text{uL}$
HGB	11.9 g/dL
HCT	36.7%
PLT	$202 \times 10^3/\text{uL}$
MCV	90.6 fL
RDW	13.2%
Neutrophils, absolute	$4.3 \times 10^3/\text{uL}$
Lymphocytes, absolute	$1.9 \times 10^3/\text{uL}$
Monocytes, absolute	$0.5 \times 10^3/\text{uL}$
Eosinophil, absolute	$0.1 \times 10^3/\text{uL}$
Basophils, absolute	$0 \times 10^3/\text{uL}$
Granulocytes, immature, absolute	$0 \times 10^3/\text{uL}$
Coagulation studies	
INR	1 ratio
PT	1.8 s
Inflammatory biomarkers	
Troponin	Not elevated