

Fruiting Bodies of Evidence

Amber Baker

Helena College University of Montana

WRIT101: College Writing

Hannah Abraham-Shea

December 14th, 2022

Fruiting Bodies of Evidence

1 billion people struggled with some form of mental health or addiction issue as of 2020 (Lowe et al., 2021, p. 2). Among the many treatment options available for these issues, psychedelics are proving to be just as, if not more, efficacious for providing immediate and long-term results. Psilocybin, in particular, is gaining a lot of renewed attention for treating such conditions. As someone who has suffered from life-long depression, I had been interested in psilocybin's therapeutic benefits for several years and finally got to experience it for the first time in September of 2021. After doing some research and speaking with a close friend who had recently experienced it and could give me great advice to ensure a good outcome, I decided to try it.

It was by far the most amazing spiritual, mystical, and therapeutic experience I have ever had in my life. My life-long depression was without a doubt alleviated and still is to this day. I have also experienced it a handful of times since and each time has been even more amazing than the last. Despite the growing data and anecdotal evidence that supports the use of psilocybin to treat many psychiatric conditions and addictions, many stigmas and misconceptions still surround it, and it is still illegal in most parts of the world. This essay will cover the history of psilocybin, misconceptions/stigmas, current laws, and its potential for therapeutic treatment. It will also argue that psilocybin should be legal due to its efficacy in treating addiction, depression, and existential anxiety in terminal cancer patients.

There are over 100 species of *Psilocybe* genus mushrooms, also known as "magic mushrooms", that contain the compound psilocybin. Of these, *Psilocybe cubensis* is the most common of the *Psilocybe* genus mushrooms and is found

worldwide. Psilocybin is considered a classic psychedelic and it has been used for thousands of years for spiritual, religious, and healing practices. There are documented uses as far back as the Mesoamerica period in the Florentine Codex, which ranges in dates between 1529 to 1579. There are also 6,000-8,000-year-old cave paintings in Spain of magic mushrooms (Lowe et al., 2021, pp. 1, 5-6, 8; Teixeira et al., 2021, p. 12; Ziff et al., 2022, p. 1-2). It should be noted here that it is not safe or recommended to go scavenging for these types of mushrooms for consumption without the proper education and knowledge as there are also poisonous and toxic mushrooms that grow all around the world that could easily be mistaken for psilocybin mushrooms. As the saying goes, “all mushrooms are edible, but some are edible only once”.

Although the recreational, spiritual, and therapeutic use of psilocybin in the United States has probably occurred under the radar for many years, psilocybin didn't gain significant attention in the U.S. until 1957, when Dr. Gordon Wasson, a banker at JP Morgan and amateur mycologist, published an article in LIFE magazine on magic mushrooms. The article was about his trip to Huautla de Jimenez, Mexico in 1955, where he and his wife had their own psychedelic experiences that had profound effects on both of them. Wasson's wife also published her own article in newspapers about their experience shortly after his came out and both articles combined had over 10 million copies in circulation.

These articles sparked a great deal of interest, and that same year, Wasson gave Albert Hoffman, who discovered LSD in 1938(which started the scientific study of psychedelics), a sample of the *Psilocybe mexicana* mushroom that he acquired on his trip to Mexico. Then, in 1958, Hoffman identified and isolated the active compounds in

the mushroom and named them psilocybin and psilocin. In 1960, Indocybin, the synthetic form of psilocybin, was distributed by Sandoz Pharmaceuticals, which began the period of clinical research involving psilocybin in the United States (Lowe et al., 2021, p. 5; Walker & Ellwood, 2022; Ziff et al., 2022, p. 1). Psychedelic research had involved over 40,000 people by the 1960s and over 1,000 clinical reports were published that documented the efficacy of psychedelic treatment (Anderson et al., 2020, p. 102; Lowe et al., 2021, p. 5; Patchett et al., 2022, p. 824). Unfortunately, some of the studies involving psilocybin had inadequacies as far as protocols for proper screening and setting, causing unfavorable outcomes.

During this time, psilocybin also became associated with the “hippie” movement, which caused the public to develop negative views and misconceptions, despite the growing data to support psilocybin’s efficacy in treating psychiatric disorders and addictions. It was then classified as a Schedule 1 substance by the U.S. government in 1970 and all clinical research came to an end (Anderson et al., 2020, p. 102; Lowe et al., 2021, pp. 1, 5; Patchett et al., 2022, p. 824; Teixeira et al., 2022, pp. 12-13; Walker & Ellwood, 2022; Ziff et al., 2022, p. 3). It is more than likely that during this time, recreational and therapeutic use still occurred under the radar, but stigmas and misconceptions continued to grow, especially since psychedelics were now classified as highly addictive and having no medicinal value due to the Schedule 1 label.

However, in the last couple of decades, research on psychedelic treatment has resurfaced and clinical trial results are confirming what researchers had already discovered before the 1970 Schedule 1 ruling. In 2000, Johns Hopkins was granted approval to continue clinical research on psychedelics, making them the first to do so

since 1970 (Johns Hopkins, 2022; Lowe et al., 2021, p. 7). Then, in 2004, clinical trials began at UCLA on psilocybin for treating depression, anxiety, and pain related to terminal cancer. In 2006, Johns Hopkins University released a publication that sparked a renewed global interest in psychedelic research, which led to the creation of a psychedelic research unit at Johns Hopkins that same year. More than 80 peer-reviewed psychedelic research articles have been published by them. Johns Hopkins University also recently constructed the first-ever Center for Psychedelic and Consciousness research in September 2020. It is estimated that there are currently over 27,000 published scientific articles on psychedelic research and over 1,000 of them on psilocybin, specifically, making it the most studied psychedelic (Lowe et al., 2021, pp. 5-6). Despite all of this, it remains illegal in most of the world. However, some progress is being made in some areas of the United States.

In the United States, psilocybin is illegal at the federal level, however, Denver, CO, and Oakland, CA became the first cities to decriminalize psilocybin in 2019. The following year, Washington D.C. also decriminalized psilocybin, and Oregon legalized and decriminalized psilocybin mushrooms, making it the first state to do so. As of November of this year, however, Colorado joined Oregon and also voted to legalize psilocybin, with effects planned to begin in early January of 2023 (Kenney, 2022; Lowe et al., 2021, p. 23). These are exciting and promising movements forward and will hopefully lead to more states following suit, especially since depression and other psychiatric conditions as well as addiction are on the rise.

It might seem counterintuitive to treat addiction of any kind with psychedelics, however, there have been numerous studies on the efficacy of psilocybin as a treatment

for addiction, from alcohol and tobacco/nicotine to cocaine and opioids (Yaden, et al. 2021, p. 2). And the current body of evidence shows that psilocybin has very low toxicity, adverse effects, and abuse potential, with some studies declaring that it is actually non-addictive, making it a favorable treatment option for people suffering from addiction (Lowe et al., 2021, pp. 13, 20; Teixeira et al., 2022, p. 13; Yaden et al., 2021, p. 2). These findings alone are promising for the treatment of substance abuse disorders and shed light on the fact that psilocybin should not be considered a Schedule 1 substance. Even the founder of AA considered psychedelic treatment to be an important part of recovery.

Bill Wilson, the very founder of AA, credited his psychedelic-induced “spiritual awakening” for being able to quit drinking. He intended for psychedelic therapy to be integrated into his 12-step program as a type of MAT (medication-assisted therapy). He believed this would help to bring about the “spiritual awakening” needed to help people quit drinking (Yaden et al., 2021, pp. 1, 4). There is plenty of scientific evidence to support his belief that psychedelics can treat addiction. Studies on psilocybin, including data from a meta-analysis and a systematic review, on the treatment of alcoholism, have shown that it causes significant decreases in alcohol consumption and cravings within the first week of treatment and up to 8 months or longer. There is also an identical and successful recovery group that exists named “Psychedelics in Recovery” which is based on Wilson’s 12-step program; lending further proof and credibility to his belief that psychedelics can aid in recovery (Anderson et al., 2020, p. 109-110; Romeo et al., 2021, p. 276; Yaden et al., 2021, p. 3-4; Ziff et al., 2022, p. 4). In a recent survey of 343 people that were treated for alcohol use disorder with either LSD or psilocybin,

83% of participants reported that they were no longer considered in the AUD category after treatment (Teixeira et al., 2022, p. 15; Yaden et al., 2021, p. 3). As for tobacco/nicotine dependence, several studies have also shown psilocybin to be an effective treatment.

According to the CDC, 1 in 5 deaths in the United States, annually, is caused by cigarette smoking. This equals out to about 500,000 a year, including second-hand smoke-related deaths (CDC, 2022). Data from a range of studies, including a meta-analysis and a systematic review, show that psilocybin treatment can cause reductions in use and even complete cessation altogether up to 1 year after treatment (Anderson et al., 2020, pp. 109-110; Romeo et al., 2021, pp. 273, 277; Teixeira et al., 2022, p. 16; Yaden et al., 2021, p. 3; Ziff et al., 2022, pp. 4, 10). This is promising, especially considering how many people, including minors, are likely to pick up this deadly habit every day. Aside from tobacco and nicotine dependence, cocaine and opioid addiction have also been shown to be alleviated by the treatment of psilocybin.

Although there are limited study results on cocaine and opioid dependence currently, pre-1970 studies confirmed the efficacy of classic psychedelics for treatment. There are also current studies being conducted on psilocybin for the treatment of both. Early findings for a currently ongoing study for psilocybin as a treatment for cocaine addiction are providing favorable results. There are also informal/non-therapeutic self-reports of decreased opioid use among 44,000 opioid-addicted individuals showing up to a 40% decrease in opioid abuse risk. In another survey of 444 individuals who experienced psychedelic treatment (including psilocybin) in a non-therapeutic setting, of which 96% were considered SUD (substance use disorder) criteria for opioid, cannabis,

and stimulant use; only 27% were considered so after their experience. Experts in the field are also advocating for classic psychedelics (including psilocybin) as a way to overcome the opioid addiction crisis. Psilocybin's part in helping with this could be due to its "analgesic property" (pain-relieving) and has been reported as being just as and even more effective than opioids in treating pain (Lowe et al., 2021, p. 4; Teixeira et al., 2022, p. 15; Yaden et al., 2021, p. 3). These findings are promising and could mean that opioid addiction can be prevented from occurring in the first place. This is even more reason for psilocybin to be declassified as a Schedule 1 drug. Another area where psilocybin is proving to be a beneficial treatment is for depression.

Psilocybin is gaining more and more traction in the mental health world, especially as a potential alternative to treating depression. Considering the countless side effects that come along with traditional anti-depressants, the fact that psilocybin has been found to be the safest psychedelic with very few adverse effects and low toxicity lends credibility to its use as a treatment for depression. Adding even more credibility is the fact that both Compass Pathways Ltd. And Usona Institute received "breakthrough therapy" status from the USFDA in 2018 for their psilocybin treatments in treatment-resistant depression and major depressive disorder, respectively (Hackl et al., 2022, p. 280; Lowe et al., 2021, pp. 2, 6, 20,22; Teixeira et al., 2022, pp. 12-13; Yaden et al., 2021, p. 2; Ziff et al., 2022, pp. 1, 3, 9). There are also several current studies being conducted on psilocybin and its therapeutic potential for treating depression and it will be interesting to see what the results determine.

Depression affects more than 200 million people around the world, according to a 2018 statistic (Lowe et al., 2021, p. 2). That number has probably increased

significantly, especially since the COVID-19 pandemic. Therefore, the need for effective treatment has also more than likely increased. SSRIs are the standard treatment for depression, but it can take weeks before patients even start to notice their effects. They also usually come with a long list of negative side effects and are not always effective. There is an unresponsive rate among patients of 30%-50% with 10%-30% being considered treatment-resistant. Data from several studies, including a meta-analysis and a systematic review, has shown psilocybin to be more efficacious in treating major depressive disorder and treatment-resistant depression, even showing more favorable results in treating MDD than escitalopram, an SSRI (Anderson et al., 2020, p. 112; Daws et al., 2022, pp. 844, 846-847; Doss et al., 2021, p. 7; Lowe et al., 2021, p. 2, 5-6; Romeo et al., 2021, p. 278; Ziff et al., 2022, pp. 5-6). These findings are significant and exciting for the future treatment of depression, but more studies are needed to fully understand psilocybin's mechanisms of action and effects on the brain. Psilocybin is also proving to be a beneficial treatment for anxiety, especially in cancer patients.

Death is an inevitable part of life. Everyone faces mortality at some point but having a terminal cancer diagnosis makes it even more real and can cause severe end-of-life anxiety. The last thing anyone with a terminal diagnosis needs is to live what little time they have left in fear and uncertainty. Although there is no known cure for cancer, studies on psilocybin are proving its efficacy in providing patients with peace of mind and relief from their end-of-life anxiety. In 2018, it was reported that anxiety affected more than 280 million people globally (Lowe et al. 2021, p. 2). Considering there have been more cancer diagnoses since then, that number has likely increased significantly. And the sad reality is that everyone knows someone with cancer. Whether terminal or

not, a cancer diagnosis can have a profoundly negative psychological effect on a person and current modes of treatment are not always an option or effective due to contraindications with cancer-related medications (Ziff et al., 2022, p. 6). Fortunately, there is evidence to support the therapeutic benefits of psilocybin as a treatment option.

There have been several studies on psilocybin and its therapeutic efficacy in providing these patients with relief from their anxiety and depression related to their diagnosis. These findings, including data from a systematic review, show patients reporting results as soon as 1 day after treatment, up to 6 months after, and even up to 4.5 years after treatment. In one study, 60% of subjects reported no longer suffering from existential anxiety and depression anymore at their 6-month follow-up. Subjects also reported the treatment as being the most spiritually significant and meaningful experience of their lives (Anderson et al., 2020, p. 108; Patchett et al., 2022, pp. 823-824, 827; Teixeira et al., 2022, p. 15; Walker & Ellwood, 2022; Ziff et al., 2022, p. 7). These study results are exciting for the future of psychedelic treatment and should provide comfort to not only those faced with a terminal illness diagnosis but also to their family as they will gain some peace of mind knowing their loved one is no longer anxious or afraid in the face of their mortality.

Despite all of the previously mentioned evidence to support the legalization of psilocybin, it can still be argued that psychedelics can cause certain individuals to have negative side effects and scary experiences. While this argument does hold some validity as adverse effects and such experiences have been documented, it can also be argued that the same holds true for some pharmaceutical drugs, and they are legal. It should also be noted that the small number of adverse effects that have been

documented are mild and do not last. Data from several studies, including a systematic review of 7 different trials on psilocybin that included 145 subjects, show that the most common side effects include mild and short-term high blood pressure and elevated heart rate, anxiety, headaches, nausea, and/or vomiting. In rare cases, short-term psychosis has also been documented (Anderson et al., 2020, pp. 109-110; Lowe et al., 2021, p. 20; Yaden et al., 2021, p. 2; Ziff et al., 2022, p. 3). These side effects can seem scary and off-putting but compared to standard forms of medication used to treat certain conditions such as depression, for example, they are minor.

Common side effects of standard SSRIs, MAOIs, and Tricyclic anti-depressants also include cardiac events, anxiety, nausea, and headaches, but also a myriad of other symptoms such as diarrhea, insomnia, tremors, lowered sex drive, dizziness, lethargy, constipation, obesity, and blurred vision, among others (Ramic et al., 2020). In comparison, the former mode of treatment seems favorable as far as side effects alone. These findings also prove further that classic psychedelics such as psilocybin need to be made legal so more people can gain access to treatment when other standard medications/therapy fail them. Although some concerns around their safety will still remain, there are ways to address them to ensure the safety of those that seek this avenue of treatment.

These concerns can be addressed by ensuring there are still strict laws in place if psilocybin were to be made legal. Such laws would be that a person must be 21 years of age and undergo a strict screening process and evaluation of medical history before they can safely access psilocybin. This would help to prevent those with any predisposition that could cause adverse effects, such as psychosis, from gaining

access. It could also only be made legal to those that have a medically necessary reason for use. There would also need to be more treatment facilities available nationwide with trained professionals that can ensure safe and efficacious outcomes, for both therapeutic and recreational use.

Psilocybin has been around and used all throughout history for spiritual and healing practices. Although there is a plethora of research and evidence to support its legalization, therapeutic benefits, and efficacy in treating psychiatric disorders and addictions, it is still considered a Schedule 1 substance, making it federally illegal and considered addictive with no medical use. This could not be further from the truth and fortunately, there is progress being made with certain cities and states decriminalizing and making it legal. There are also several studies underway that will provide more evidence to support psilocybin's safety and efficacy as a therapeutic treatment, which will hopefully cause an even bigger shift toward declassifying it as a schedule 1 drug.

It is imperative for the future of mental health and addiction treatment that people keep the ever-growing evidence in mind when it is time to vote should their state consider legalizing psilocybin. I also urge anyone with an interest in this issue to write to Congress and demand that it be declassified as a Schedule 1 substance so that more in-depth research can be conducted and those in need of this life-changing treatment can receive it without any obstacles. We all know someone struggling with addiction, depression, or end-of-life anxiety and we can and should use our collective power to ensure they are able to get the effective treatment they need.

References

- Andersen, K. A. A., Carhart, H. R., Nutt, D. J., & Erritzoe, D. (2021). Therapeutic effects of classic serotonergic psychedelics: A systematic review of modern-era clinical studies. *Acta Psychiatrica Scandinavica*, *143*(2), 101–118. <https://doi.org/10.1111/acps.13249>. Retrieved November 23, 2022
- Centers for Disease Control and Prevention. (2022). *Tobacco related mortality*. Retrieved from https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/tobacco_related_mortality/index.htm. Retrieved December 8, 2022
- Daws, Timmermann, C., Giribaldi, B., Sexton, J. D., Wall, M. B., Erritzoe, D., Roseman, L., Nutt, D., & Carhart-Harris, R. (2022). Increased global integration in the brain after psilocybin therapy for depression. *Nature Medicine*, *28*(4), 844–851. <https://doi.org/10.1038/s41591-022-01744-z>. Retrieved November 10, 2022
- Doss, Považan, M., Rosenberg, M. D., Sepeda, N. D., Davis, A. K., Finan, P. H., Smith, G. S., Pekar, J. J., Barker, P. B., Griffiths, R. R., & Barrett, F. S. (2021). Psilocybin therapy increases cognitive and neural flexibility in patients with major depressive disorder. *Translational Psychiatry*, *11*(1), 574–574. <https://doi.org/10.1038/s41398-021-01706-y>. Retrieved November 10, 2022

Hackl, Todt, H., Kubista, H., Hilber, K., & Koenig, X. (2022). Psilocybin therapy of psychiatric disorders Is not hampered by hERG potassium channel-mediated cardiotoxicity. *The International Journal of Neuropsychopharmacology*, 25(4), 280–282.

<https://doi.org/10.1093/ijnp/pyab085>. Retrieved November 10, 2022

Johns Hopkins Center for Psychedelic and Consciousness Research. (2022, February 25). Retrieved from

<https://www.hopkinsmedicine.org/psychiatry/research/psychedelics-research.html>. Retrieved December 13, 2022

Kenney, A. (2022, November 25). *Coloradans vote to legalize psilocybin. What's next?* CPR News. <https://www.cpr.org/2022/11/25/colorado-psilocybin-legalization-whats-next/>. Retrieved December 1, 2022

Lowe, Toyang, N., Steele, B., Valentine, H., Grant, J., Ali, A., Ngwa, W., & Gordon, L. (2021). The therapeutic potential of psilocybin. *Molecules (Basel, Switzerland)*, 26(10), 2948–.

<https://doi.org/10.3390/molecules26102948>. Retrieved November 10, 2022

Patchett-Marble, O'Sullivan, S., Tadwalkar, S., & Hapke, E. (2022). Psilocybin mushrooms for psychological and existential distress: Treatment for a patient with palliative lung cancer. *Canadian Family Physician*, 68(11), 823–827. <https://doi.org/10.46747/cfp.6811823>. Retrieved November 22, 2022

- Ramic, E., Prasko, S., Gavran, L., & Spahic, E. (2020). Assessment of the antidepressant side effects occurrence in patients treated in primary care. *Materia socio-medica*, 32(2), 131–134.
<https://doi.org/10.5455/msm.2020.32.131-134>. Retrieved December 8, 2022
- Romeo, Hermand, M., Pétilion, A., Karila, L., & Benyamina, A. (2021). Clinical and biological predictors of psychedelic response in the treatment of psychiatric and addictive disorders: A systematic review. *Journal of Psychiatric Research*, 137, 273–282.
<https://doi.org/10.1016/j.jpsychires.2021.03.002>. Retrieved November 23, 2022
- Teixeira, Johnson, M. W., Timmermann, C., Watts, R., Erritzoe, D., Douglass, H., Kettner, H., & Carhart-Harris, R. L. (2022). Psychedelics and health behaviour change. *Journal of Psychopharmacology*, 36(1), 12–19.
<https://doi.org/10.1177/02698811211008554>. Retrieved November 23, 2022

Walker, L., Ellwood, A. (Directors). (2022). *How to change your mind* (2).

[Documentary]. Jigsaw Productions, Tree Tree Tree

Yaden, Berghella, A. P., Regier, P. S., Garcia-Romeu, A., Johnson, M. W., &

Hendricks, P. S. (2021). Classic psychedelics in the treatment of

substance use disorder: Potential synergies with twelve-step

programs. *The International Journal of Drug Policy*, *98*, 103380–103380.

<https://doi.org/10.1016/j.drugpo.2021.103380>. Retrieved November 23,

2022

Ziff, Stern, B., Lewis, G., Majeed, M., & Gorantla, V. R. (2022). Analysis of

psilocybin-assisted therapy in medicine: A narrative review. *Cureus (Palo*

Alto, CA), *14*(2), e21944–e21944. <https://doi.org/10.7759/cureus.21944>.

Retrieved November 10, 2022