**Psilocybin’s Potential**

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**For centuries, psychedelic experiences have been a topic of debate. People throughout the years have described a multitude of different experiences with drugs that bring on psychedelic experiences. Some have said that these psychedelic drugs have actually been beneficial to their health and others saying the drugs should be avoided due to the dangerous possibilities.**

**Introduction**

**The most recent studies done have shown that there are radical beneficial effects in test subjects battling depression and anxiety. In the past, the war on drugs caused all psychedelic drugs to be banned from use in the US, while other countries allowed their use. In some countries, the drugs were used as an aid in medication for those with depression and anxiety and in other countries the drugs were made completely illegal. Because of the controversial legalizations in other countries, there has been more interest in the possible medicinal effects of the psychedelic drugs, psilocybin specifically. The worry comes in when discussing the side effects of the use of psilocybin, this is because there have been unfortunate events in people who have abused the psychedelic. People have experienced events in which they have witnessed their own ego die, something they have described as a terrifying experience in the moment but also an eye-opening experience that brought them growth as people. The field of research is rapidly growing and obtaining more and more information on the benefits of the psilocybin.**

**In the beginning, psychedelics were being looked at for their possible benefits for those with anxiety and depression. It was found in the late 1930s by many scientists that these drugs did in fact provide help with little to no negative side effects in those with anxiety and depression. But, in Reagan’s presidency the War on Drugs happened and all drugs like these were banned from use in the U.S. This put a halt on the research being done and hampered the amount of research that was put out to the public. As time went on up until the present, more and more places began to allow the use of these drugs and more questions were being raised about the possibilities these drugs bring. In the recent years, with the legalization of marijuana around the U.S., more attention has been pointed towards psilocybin as a treatment for those with anxiety and depression. Because of this, more research has been done on the possibilities of treatment of multiple different disorders with psilocybin. Doctors agree that “it’s time to take psychedelic treatments in psychiatry and oncology seriously, as we did in the 1950s and 1960s, which means we need to go back to the future” (Nutt 2016). That being said, research had begun gaining popularity in the science world. Research from the past ended up becoming extremely helpful in recent years. This began with a man named Albert Hoffman who is known for having discovered lysergic acid diethylamide (LSD). In fact, this discovery led to him discovering the active ingredient and both mushrooms and LSD (Nutt 2016). This discovery became the basis of research to be done, but was it legal to investigate these psychedelic drugs that were banned from use? The answer is yes because no evidence was found that psilocybin had been harmful to the user (Nutt 2016). Therefore, the research being done has been given more focus by scientists interested in their possible psychiatric treatments.**

**Recent Progress**

**Like everything in life, too much of anything is dangerous and could result in horrifying results. But surprisingly, with psilocybin, the number of negative incidences is very low for the number of users. A study was done by Griffiths’ team on social media that was comprised of “1,993 completed surveys, 78 percent of respondents were men, 89 percent were white, and 51 percent had college or graduate degrees. 66 percent were from the United States. On average, the survey participants were 30 years old at the time of the survey and 23 years old at the time of their bad trips, with 93 percent responding that they used psilocybin more than two times.” It was reported from these surveys that “10.7% of the respondents said they put themselves or others at risk for physical harm during their bad trip, 2.6% said they acted aggressively or violently, and 2.7% said they sought medical help” (McCains 2017). That being said, bad things can happen and do happen unfortunately. The biggest fear that comes out to play when one is using psilocybin is the fear of death. Some say that the use of psilocybin and other psychedelics like it work on your subconscious as well and can bring some very real personal fears to the foreground, like death. Varsha Dutta says that “death is our most repressed consciousness, it inheres our condition as the primordial fear” (Dutta 2012). By saying this, Dutta is saying that death makes man look weak and fragile so the brain suppresses that thought to make us forget how encroaching death may really be. When taking psilocybin, the brain tends to connect thoughts together that may seem totally insane at any other moment, but in that moment, those are the most intense and real thoughts that you’ve ever had. So. when the user gets hung on the thought of death, they open themselves up to a very scary trip, referred to as a ‘bad trip’. These bad trips happen quite frequently, but depending on the user the reaction varies. Some that have experienced a bad trip have claimed it to be an eye-opening experience that they are thankful to have had because it helped them become a better person. There are some that have had bad trips and refuse to partake in the drug ever again because of their experience, but what is important to note here is that every single trip an individual has on this drug is unique to the individual and their surroundings. Dutta continues and says that “where the ‘denial of death’ while ‘embracing one’s symbolic immortality’ would be worshipped, so this ideology simply overturned and repressed looking into the morass of the inevitable when it finally announced itself” (Dutta 2012). She is saying that psilocybin makes you really look at yourself in a completely new way that you may have never thought possible, but undeniably true. The personal experiences make this drug’s use popular in spiritual medicine and healing which shouldn’t be taken lightly, given how safe the drug must be to be a spiritual medicine, maybe what some would call ‘food for the soul’. This all being said, the war on drugs in Reagan’s presidency told society that “psilocybin may seem a strange and possibly even dangerous treatment of serious mental issues” (Nutt 2016). This shed a negative light on an already iffy subject making the risks far greater with the justice system being involved because pf the power that the government holds over drug use, no scientists wanted to risk their license and job for research that may have no legitimate results.**

**Discussion**

**So how did research begin again? Well with the internet, most things spread very quickly and demand for more knowledge is always high. Even in 2005, which was over a decade ago now (crazy right), there was an “explosion of information available via the internet could herald a storm of morbidity to come” (Halpern and Sewell, 2005). The information available on the internet allows citizens to read about these drugs with the little research that has been done thus far and decide with that whether or not to try psilocybin. Halpern and Sewell suggest “mounting more targeted research and educational efforts today may reduce later use and abuse, inform society about the special circumstances of religious use, and better prepare clinicians and other health care providers about the issues involved when people choose to indigenously source psychoactive drugs for human consumption” (Halpern and Sewell, 2005). After this, more research was done and more information was put out on the drug and have led to more research being done with the new findings. For example, “recent developments in the study of classic hallucinogens, combined with a re-appraisal of the older literature, have led to a renewal if interest in possible therapeutic application for these drugs” (Bogenschutz, 2013). The interest is still growing in these psychoactive drugs and more research will continue to be done with the findings that come out.**

**The research that has been done is all relatively similar, given that this is a psychedelic drug and therefore can only work on certain aspects. Psilocybin specifically is one of “the classic hallucinogens, which include psilocybin (psilocin) and (+)-lysergic acid diethylamide (LSD), are a structurally diverse group of compounds that are 5-HT2A receptor agonists and produce a unique profile of changes in thoughts, perceptions, and emotions (Halberstadt, 2015; Nichols, 2016) (Griffiths, Johnson, Carducci et al). Because these drugs can change thoughts, perceptions and emotions, they are researched for their possible aide in those with anxiety and depression and specifically in cancer patients who often deal with very rough depression and anxiety symptoms. The experiment that I am using as an example was done “in 12 patients with life-threatening illness, including cancer” and is experimenting to see how these drugs could help the patients’ overlaying mental illnesses. To test how the drugs would affect the patients, the researchers varied the size of the doses given to the patients to compare the strength needed to work on certain issues, like depression and anxiety. “Grob and colleagues showed that a low-moderate dose of psilocybin (14mg/70kg) decreases a measure of trait anxiety at 1 and 3 months and depressed mood at 6 month follow up. Also, relevant, a recent open-label pilot study in 12 patients with treatment resistant depression showed marked reductions in depressive symptoms 1 week and 3 months after administration of 10 and 25 mg of psilocybin in two sessions separated by 7 days” (Carhart-Harris et al., 2016). This study shows the beneficial reactions that multiple people experienced. Their depressive symptoms and anxiety all lowered and those in the study all reported feelings happier and more at peace with the world. They even claimed to have better outlooks and perspectives on life (Griffiths, Johnson, Carducci et al., 2016).**

**While the need for education like previously mentioned is much needed, the question also arises; how exactly can/does a psychoactive substance benefit those with depression/anxiety? From the studies that were done before the war on drugs and from more recent studies, scientists have been able to gather a few recognizable characteristics of the ways that psychedelics may work. It seems that the drugs stimulate serotonin receptors in the part of the brain that controls our basic cognition and memory, the frontal cortex (Shaer 2017). But, because of the halt in research, scientists haven’t been able to find out what exactly is going on the molecular level. Scientists are unsure of “how many of these healing experiences are biological in nature or how many are a product of experiential healing, a substance giving a person fresh perspective on his life” (Shaer 2017). That being said, it is important to note the advancements being made today in the research being done on the drugs. The more that we learn on the molecular level of these drugs, the better we will be able to understand the full potential of the drugs as well as their beneficial side effects. To conclude, psilocybin has an incredible potential to help those battling depression and anxiety gain a better footing in life and experience happiness in a way that many of them never have before. The drug is scary, but safe and legal and shouldn’t be banished from the realm of possibility of treatment. The need for more research is fierce in this field, but the research being done thus far is promising with more and more things being discovered with every study. People have begun pulling away from pharmaceuticals and are looking for alternative methods that are more natural and less costly; psilocybin is just that. It’s a mushroom that grows naturally from the earth and has been proven to be safe when used in the right circumstances. As a society, we deserve more information on this drug since it has been proven to be helpful and not dangerous.**

**References**

Nutt, David. “Psilocybin for Anxiety and Depression in Cancer Care? Lessons from the Past and

Prospects for the Future.” *Sage Journals*, 2016,

journals.sagepub.com/doi/full/10.1177/0269881116675754#\_i1.

Griffiths, Roland. “Psilocybin Produces Substantial and Sustained Decreases in Depression and

Anxiety in Patients with Life-Threatening Cancer: A Randomized Double-Blind

Trial.”*Sage Journals*, 30 Nov. 2016, journals.sagepub.com/doi/full/10.1177/0269881116675513.

Abraham, Henry. “The Pharmacology of Hallucinogens.”

Griffiths, Roland R., et al. “Psilocybin Occasioned Mystical-Type Experiences: Immediate and

Persisting Dose-Related Effects.” *SpringerLink*, Springer-Verlag, 15 June 2011,

link.springer.com/article/10.1007/s00213-011-2358-5.

Dutta, Varsha. “Repression of Death Consciousness and the Psychedelic Trip.” *ICRT*, 17 Nov.

2012, [www.cancerjournal.net/article.asp?issn=0973-](http://www.cancerjournal.net/article.asp?issn=0973-)1482;year=2012;volume=8;issue=3;spage=336;epage=342;aulast=Dutta.

Bogenschutz, Michael P. “Studying the Effects of Classic Hallucinogens in the Treatment of

Alcoholism: Rationale, Methodology, and Current Research with Psilocybin.” *Latest*

*TOC RSS*, Bentham Science Publishers, 1 Mar. 2013,

www.ingentaconnect.com/content/ben/cdar/2013/00000006/00000001/art00003.

Halpern, John, and Andrew Sewell. “Hallucinogenic Botanicals of America: A Growing Need

for Focused Drug Education and Research.” *ScienceDirect*, 22 Dec. 2005,

www.sciencedirect.com/science/article/pii/S0024320505008829.

Vanessa McMains / Published Feb 25, 2018.

(2017, January 04). Study explores

the enduring positive, negative

consequences of ingesting 'magic

mushrooms'. Retrieved February 25,

2018, from

<https://hub.jhu.edu/2017/01/04/bad->

trips-mushrooms/

Shaer, M. (2017, May 02). Can Psychedelic

Drugs Treat Anxiety and

Depression? Retrieved February 25,

2018, from

<https://www.menshealth.com/health/>

anxiety-and-psychadelics/slide/1