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The Incorporation of Indigenous Tradition in Psychedelic-Assisted Psychotherapy: A Pathway to Cultural Inclusivity Within Mental Health

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The Incorporation of Indigenous Tradition in Psychedelic-Assisted Psychotherapy: A Pathway to Cultural Inclusivity Within Mental Health

Senior Project Submitted to
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of Bard College

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Abstract:

The use of psychedelic medicine has been a part of society and the evolution of humanity since the beginning of our existence. Throughout the years, these practices were integrated into cultures around the world throughout the years, as societal structures promoted traditional practices reflective of ritual and custom. One such practice that survived the test of time is the use of psychoactive substances to promote mental states that put the user in touch with spiritual ancestors as well as with the subtleties of the world around them. These practices included tribal usage in indigenous cultures from Africa, the Americas, parts of Europe and other geographical areas where psychoactive substances naturally occur. The reality of these emerging traditions across the world provides a directive towards one key point: humans have valued the ability to transcend normal mental states through the use of chemical substances ranging from a variety of plant and animal sources. Reflecting on the value of these transcendental experiences, the incorporation of these practices in culture has withstood the test of time. Today, the use of psychoactive substances is re-emerging as a formidable source of treatment for mental disorders that have been considered incurable since their discovery, creating a pathway for incorporating psychedelics yet again into society and culture in a meaningful way. This review will investigate past and current research regarding psychedelics to project the transitions that may occur as these substances become more mainstream. Additionally, this revitalization raises a vital question that is the focus of this study: How can the current psychedelic movement avoid the clinically sterile history to promote a culturally inclusive approach towards the future of mental health treatment? Through the integration of Traditional Ecological Knowledge (TEK) into the formulation of psychedelic-assisted therapy, it remains possible to weave tradition-based ways of life into therapeutic modalities that leverage psychedelics. Finally, by involving more diverse individuals in the formulation of psychedelic-assisted therapies, the field transitions from supporting a traditionally white system of mental health care to a culturally diverse health system that may provide a more culturally competent approach for patients. In developing these idiographic therapies, we support a system of health that works to de-stigmatize a long-standing history of abuse and discrimination and a society that accounts for a culturally diverse experience in the diagnosis of disorder.
Psychoactive substances are an object of today's reality that went from heavy stigmatization to much greater normalization in a matter of 20-30 years. Just this past week I was home visiting family after a winter in Denver, Colorado when my mother approached me to ask, “Son, what is micro-dosing?” Admittedly, I was a bit taken off guard, thinking her question could be related to the recent decriminalization of psilocybin in Denver, but soon realized the inquiry was more so a testament to the emerging mainstream nature of psychedelics and their recognized therapeutic benefits. I happily explained how microdosing involved taking a less-than-psychoactive dose of psychedelic chemicals such as acid or the aforementioned psilocybin. When questioned about the potential therapeutic benefits of microdosing, I responded with a grin paired with, “How would I know?” After reassuring her my expertise on these drugs was born within the confines of this paper, I followed up with some quick yet remarkable facts about various cognitive and emotional benefits such as heightened focus and decreased anxiety.

While one could assume mother's questions were additionally warranted given my topic for this senior project, it was surprising to learn that a discussion between suburban parents on a Facebook forum piqued her initial interest. In coming to discover my mom’s and similar parents’ increased interests regarding the world of psychedelics, I became more comfortable with the idea this is a burgeoning realm of scientific study that can find its way into discussions of any modern-day American family.

While it’s comforting to know that what you find interesting is of interest to others, this is not the sole reason I sought out to study this realm of research; rather, I am intrigued by the past, present and future state of psychedelic use and surrounding context including therapeutic applications. The indigenous history of psychoactive substance use has roots all around the world
deep into chapters of different cultural history books. Yet, the recent history of psychedelics within the modern era has been erratic and surrounded with mysticism. Following the synthesization of LSD, isolation of the active chemical in mushrooms (psilocybin), and mass distribution of these chemicals, an important chapter of history seems to be erased away from the everyday mind. Various questions that arise from my analysis of this anthropology regarding psychedelics are around why these drugs disappeared for so long, and why is society now choosing to give them another chance? The criminalization of psychedelics provides a veil of misunderstanding regarding the progress in the emergence and evolution of these compounds, which warrants rectification. While psychedelic substances became criminalized in the US and many subsequent countries following drug act policies in the 1970s, research around these compounds did not stop altogether. In these times, clandestine chemists and underground research marked a transition in the exploration of this science, as it truly became the responsibility of a scientist to be a subject within their own research.

There may come a time where psychedelic researchers, coined “psychonauts,” such as Alexander Shulgin, Stanislav Graf, Paul Stamets, among many others, could rather prove to be the “Einstein’s” of psychological research involving consciousness and the implications of the therapeutic and cognitive potentials associated with psychedelics. While the world of physical health is being refined with modern technology, the world of mental health follows with a shortened history that necessitates any advance that may be presented. This lack of history – and consequently, less refined science – surrounding mental health presents a wonderful opportunity for pivotal scientific advances in the field.

In recent years, the revitalization of psychedelic science is due largely to the presentation of these drugs as a viable treatment for a range of clinical conditions. Insight into the application
of these drugs seems to be a result of not only past research but as well underground reports regarding the efficacy of these forms of drugs within a range of applications. While I will specifically focus on LSD and psilocybin throughout this paper, it is important to note these are not the only formidable psychedelics being used for treatment in the clinical setting.

Ketamine, Ayahuasca, Ibogaine, and MDMA are others among the wave of psychoactive chemicals being applied to a variety of clinical patients investigating the use of psychedelics. While Ketamine and MDMA clinics are becoming more prevalent in cities like New York and San Francisco, Ayahuasca ceremonies remain underground in much of the United States but are a main attraction in countries such as Peru and Mexico. With psychedelics on the rise in a variety of environments for a diverse array of applications, these substances are once again on the come up to reaching peak societal involvement.

Though there are a variety of different psychedelic drugs in use today, this project sought primarily to understand the drugs used in clinical trials. The most prominent of the classical psychedelics in trials today is psilocybin, the active ingredient found in magic mushrooms. To answer questions like my mother’s in addition to my own, this review investigates the various ways psychoactive substances have evolved along with society over time. Over the course of exploring this history, the aim is to better understand the use of these drugs by both clinicians and underground researchers within the realm of psychedelic research. In gaining a more thorough comprehension of the history of these drugs, I hope to provide a detailed projection regarding the future of this field and how psychedelics could change the cultural conversation surrounding mental health treatment.
Decriminalization of Psychedelics in Oakland, Denver, Santa Cruz, Oregon and Washington D.C.

While psychedelics remained heavily criminalized for a considerable period following the 1970s, recent investigation into the therapeutic potentials of various psychoactive compounds has yielded a new wave of psychedelic research. Pairing substances like ketamine and psilocybin with assisted therapy for disorders such as anxiety, depression, PTSD and substance abuse disorders has produced a following of individuals advocating for the therapeutic efficacy of these substances (Lyons-Carhart Harris, 2018; Grob et al., 2011; Anderson et al., 2020). Yet, as cannabis decriminalization and legalization have shown us, the pathway from illicit to medically approved therapeutic is filled with various FDA and DEA-enforced processes; these include clinical trials, licensing, revised legislature and substance reclassification. Additionally, similar to the cannabis decriminalization movement, changes in laws concerning psychedelics are only occurring at local and state levels. Therefore, the legalization and reclassification of psychedelics face not only state restrictions but also federal regulations.

Decriminalization efforts surrounding psychedelic substances began with the cities of Oakland, Denver, and Washington D.C., igniting more significant movements across Oregon, Washington State and California. The earlier legal changes allowed for possession of psilocybin without criminal repercussion for both recreational and medical users in these regions, who can now experience the substance without interference from local officials. While the medical potential of these drugs presents a strong case in support of further legalization and decriminalization, this consideration is just one of many within the realm of psychedelics. In the shadow of the medical push for legalization remains the equally important arguments from
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religion, neuroscience, and identity politics that play a role in the formulation in the laws regarding psychs (Marlan, 2019).

Smaller movements of 2019 acted as catalysts for statewide decriminalization in 2020; notably, Oregon's 109 and 110 ballot measures legalized the distribution and manufacturing of psilocybin, while also decriminalizing all substances. Following suit in 2021, California has proposed bill SB 519 to decriminalize psychedelics, which has already passed the Senate health committee (Roberts, 2021). These movements have shown that policies surrounding psychedelics are changing not only for a medical audience but also for recreational users. The issue with legalization strictly for therapeutic purposes then provides a confusing line of illicit vs. legal use surrounding psychedelics, which already has a difficult barrier for access (Noorani, 2019). It seems more extensive efforts to completely decriminalize all substances, arguably allowing safe possession for both medical and recreational patients, promote a clearer route towards better public health treatment.

Interestingly, due to the nature of the clinical process towards legalization, a bulk of the legwork done with these substances has been directly supported by the pharmaceutical industry. While MAPS, the Multidisciplinary Association for Psychedelic Studies, has tried to sustain a substantial role in advising clinical trials and weighing in on psychedelic legalization, the financial promise of psilocybin therapy remains a focal point to pharmaceutical investors. A valid fear surrounding the medicalization of psychedelics is rooted in the clinical environment becoming too far removed from the tradition this form of treatment stems from; additionally, criminalizing use by recreational participants muddies the waters. In focusing solely on what psychedelics can do for us medically, we lose sight that these drugs can elicit strong spiritual,
cognitive, emotional and religious changes that may be just as impactful as the therapeutic healing that can be experienced.

In light of the recent decriminalization of these substances, it is essential to question how social changes stemming from legislative changes allowing increased use may induce changes in our society as a whole. As we dive deeper into the various potentialities of these substances as additional patients and users share their experiences, the discussion surrounding psychedelics is poised to develop and evolve. Will we learn to integrate these substances into our diverse ways of life, learning from other cultures from which these practices stem? Will the integration of psychedelic substances change how we approach mental health and public health not only on a local level but also on national and global scales? To downsize the relevance these substances have on modern society is to undermine these drugs’ influences on various influential social and political figures of our lifetimes. In exploring the role these drugs had in the past and comparing this influence to current and future movements in the psychedelics landscape, I hope to present a shifting perspective surrounding mind-altering drugs as we transcend the bounds of flawed drug policies into a more awakened society.
Section 1: Epistemology of Psychedelics

Chapter 1. Psychedelic Use in the United States: The Clinical History of LSD

The Origins of LSD

LSD, also known as lysergic acid diethylamide, is considered one of the main psychedelics that sparked the psychedelic revolution, oftentimes leading individuals to refer to acid as a classical hallucinogen. LSD, also known as L, Lucy, acid, tabs, and many other street names, has been used in clinical practice since the 1950s, with recreational use becoming more prevalent throughout the 1960s.

The discovery of the chemical basis for LSD was first stumbled upon in Switzerland by the Sandoz pharmaceutical researcher Arthur Stoll. At the time, Stoll was working to reduce the toxicity in ergot, an agent whose postpartum use and hallucinogenic properties stem back to Ancient Greek times. Stoll’s work with ergot helped to isolate the active compound responsible for the production of LSD by defining the starting point: lysergic acid. Building upon the foundation developed by Stoll, Albert Hoffman, another Sandoz researcher, synthesized the first batch of LSD by combining reacting lysergic acid with diethylamine to produce LSD-25. Though the LSD was officially created at this time, its subjective effects went unknown for another five years, until 1943. On April 19th, 1943, Hoffman again synthesized LSD-25 and accidentally came into contact with the substance, on what came to be known as Biking Day (Shroder, 2014). Through the accidental exposure to LSD and its subsequent effects, Hoffman unknowingly opened the world’s eyes to the possibility of synthetically produced agents that produce a profound psychedelic experience historically only attributed to certain psychoactive plants and fungi at the time.
Hoffman’s work led to an extensive exploration into the use of LSD, with a wide variety of animal subjects tested including mice, spiders, cats, chimpanzees; eventual self-experimentation was performed by Hoffman and his close associates. In addition to the discovery of LSD and its subjective effects, a notable initial finding by Hoffman was the associated lethal and effective doses for LSD. Hoffman found, “None of the animals in the tests seemed to suffer acute harm at the active dose, and the lethal dose was a hundred times higher than what was necessary for psychic effect, leaving a wide safety margin” (Freeman & Chandler, 2020). With caution to the extreme potency and associated effects of LSD, LSD use in experimentation and clinical practice exploded in 1947 as Sandoz laborites began to distribute LSD as Delysid worldwide to various research institutes for use in psychiatric experiments. (Hoffman, 1980 as cited in Freeman & Chandler, 2020)

The Spread of LSD: Experimentation, Clinical Use, and Recreation

Following its distribution, LSD became used in a variety of ways, from experimentation in mind control by the US government, to clinical treatment for various mental disorders, to social circles and experiments in university settings. Negative uses of this substance in the pre-prohibition era have been connected to testing on unknowledgeable subjects, administering extreme doses, and testing on mentally incapacitated patients.

After obtaining LSD, the CIA began testing unknowing patients with large doses of LSD coupled with interrogative practices to explore these drugs’ potential in interrogations and torture (Freeman & Chandler, 2020). In these experiments known as part of “Project MK-Ultra,” many subjects were released without the ethical debriefing processes in place today; others were contracted to participate in these questionable studies without the ability to fully consent to the treatment they were about to receive. The outcomes of these trials are still unknown but can be
viewed as an integral contribution to the mass hysteria surrounding the safety of psychedelics that persists today.

Additionally, negative studies attributing to the literature on psychedelics can be credited to experimental research done in the 1960s by researcher R. G. Smart and associates on the use of LSD for alcoholism. While their study was designed in light of other substance abuse studies involving psychedelics, it lacked attention to drug potency and the clinical design necessary to promote a therapeutic environment. Participants were dosed with 800ug, an extremely high dose for even the most experienced psychonaut (standard therapeutic doses start at 25µg), while also being interrogated regarding their subjective state (Smart et al., 1966). While this study concluded this treatment as a failure, the researchers noted facilitators and the facility might have contributed to the discrepancies between this study and previous ones (Smart et al., 1966).

Additional studies that failed to report significant therapeutic effects using LSD included those examining LSD for individuals with psychotic disorders such as schizophrenia. While these studies lacked the significant positive effects associated with other trials on neurotic disorders, it is important to note these treatments were conducted without the assisted forms of psychotherapy we utilize in clinical trials today, as most patients were left to deal with their own reactions (Rucker et al., 2018). Additionally, the basis for understanding mental disorders in the 1950s was much more narrow than today, so individuals diagnosed with schizophrenia may have been experiencing many different issues that could fall into another scope of understanding as well as alternative treatment paradigm by today’s standards.

The adverse reports following experimental studies such as Smart and associates and the CIA’s Project MK-Ultra created amplified concern regarding psychedelic substances and their potentiality for acute harm stemming from psychotic states and associated behaviors. While
these reports worked to perpetuate negative stereotypes associated with LSD, there was simultaneous work being done by researchers in the realm of treating other neurotic disorders, including depression, OCD, and substance abuse disorders that showed promising results. Recreationally, as LSD also became available to street users, a shift in social perception around the use of the substance and its place in the context of the social realm began to occur.

In the time period from 1950 to the late 1960s, there were thousands of psychedelic trials being run in various settings throughout the world to investigate the potentiality and positive applications of LSD-assisted therapy. The two forms of therapy that became central to using these drugs in treatment became defined as psycholitic and psychedelic-assisted therapy. Psycholitic therapy required patients to draw and focus upon childhood events to engage the unconscious, whereas psychedelic-assisted therapy included higher doses of LSD coupled with doctors to provide support throughout the experience but without the guidance associated with psycholitic therapy (Freeman & Chandler, 2020). These practices were enacted in various experiments investigating a range of symptoms, with one of the most notable trials occurring in the United States at the Spring Grove State Hospital and Maryland Psychiatric Research Center. This experiment included approximately 234 patients with a range of non-psychotic disorders such as anxiety, depression, personality, and addiction. Following the administration of psychedelics, without any assisting psychotherapy, 197 (81.1%) of the 243 patients reported that their condition had improved to some degree with only 2.1% of the population reporting that the treatment had worsened their state (Rucker et al., 2018). Other studies ran simultaneously in various other regions reported similar successes across different participant pools, with improvements or remissions of symptoms noted in roughly 70% or more of participants across many studies.
Meanwhile, clinicians worked to investigate and develop empirical support for the use of psychedelic medicine and notable societal figures came forward as advocates for the use of LSD. Some figureheads that may come to mind could include Einstein, the Grateful Dead or the Beatles; yet, the most historically notable individuals advocating for LSD use include Ram Dass (born Richard Alpert), Dr. Timothy Leary, and Owsley Stanley. Ramdas and Leary were both renowned psychologists in their field and supported the use of LSD in clinical settings as well as within daily life, with Leary coining the famous phrase, “turn on, tune in and drop out” (Leary, 2008). Much of the hippy counter-culture that ensued throughout the 1960s is often attributed to figures such as Leary and Ramdas. Still, even these figures renounced much of the cultural appropriation occurring at the time; they sought to awaken individual’s potentiality rather than make them reliant upon a dissociated way of life. The recreational proliferation of these substances can be accredited to clandestine chemists seeking to synthesize LSD in the same form developed by Hoffman. Among such chemists was Owsley Stanley, who was able to mass-produce and distribute LSD. Owsley Stanley contributed to not only the spread of LSD but also to the integration of the substance into music and culture in the Bay Area of California. Stanley worked closely with various social figures in the area, hosting concerts coined as “trip tests” in which mass groups of people would take LSD in a musical or performance setting. This promotion of combining culture and psychoactive substances developed into the idea that we know today as the counterculture and the hippie movements of the 1960s.

In contextualizing the counterculture movement into our understanding of psychedelics today, this culture drew much of its origin from African American and Native American cultures, ultimately leading to their criminalization and stigmatization. While the hippie movement was seen as a force for social change, defined by using or “dropping” acid, traveling, and leaning into
greater actualization of the self, this came at the cost of demonizing the use of psychedelic substances and the cultures that initially embraced and embodied use of psychedelic substances. Rather than acknowledging the indigenous origins of the hippie movement, the white hippie narrative projected a label of white understanding without acknowledging the history of colonialism and racial injustice that subjugated indigenous cultures. The fallout of this movement resulted in a fervent anti-hippie counterculture that undermined the movement’s repercussions in perpetuating racial stereotypes (George et al., 2020). The resulting drug prohibition in response to the counterculture was largely reared at the Black, Hispanic, and Native communities. These perceived “hippie” integrated cultures were targeted while white individuals reaped the benefits of psychedelic-induced transcendental experiences without recourse. The reparations needed to acknowledge the damage done to these cultures are immeasurable, financially speaking. Therefore, as these drugs reemerge in our modern society, it is essential to ask how we may include different cultures in the discussion on the administration as well as the availability of psychedelic substances for various ethnic communities.

**Tripping Out: Physiological and Subjective Responses to LSD-25**

LSD can be taken in a variety of ways, from injections, through touch by glands in the skin, and most commonly through oral sublingual administration. Frequently, users will take LSD in the form of a tab that can range anywhere from 125ug-250ug for one complete square, or by dropper, taking the substance and placing it on or under the tongue for approximately 10-15 minutes. Upon taking the substance, LSD is completely absorbed by the digestive tract, distributing the chemical throughout the body through plasma binding to blood proteins (Passie et al., 2008). LSD intake produces a range of sympathomimetic responses in the body that start within 30-45 minutes and peak anywhere from 1.5-3 hours, depending on an individual’s
stomach contents and physical makeup. Observed autonomic responses resulting from the consumption of LSD include increases in blood pressure, heart rate, temperature and pupil size. Other related physiological, autonomic changes include headache, nausea, imbalance, and feelings of exhaustion (Liechti, 2017). While these changes in body state have been noted, the overall responses do not pose acute harm to the individual as long as they do not accentuate pre-existing conditions. To date, there have been no recorded deaths related to autonomic responses induced by LSD (Passie et al., 2008). The duration of action of this drug lasts about 12 hours with LSD being completely metabolized 48-72 hours following initial consumption of the substance. One of the more interesting components that warrants further research is changes in brain connectivity and heightened brain entropy in response to LSD. In preliminary studies, it seems LSD increases brain functionality in multiple regions, decreasing the integrity of brain networks by providing new networks of functional activity by which the brain processes and integrates information (Carhart-Harris et al., 2016).

While the previously listed physiological responses do not provide much room for concern in regard to toxicity, the related subjective effects have been marked as the most dangerous, as well as the therapeutic component of this drug. The biggest room for apprehension regarding this drug’s subjective response is psychosis and sustained psychosis resulting from consumption, defined as hallucinogen persisting perception disorder (HPPD). This condition can consist of brief trip flashbacks in which the user experiences anxious and dissociated states, or a continuous psychosis that causes functional impairment and anxiety for months to years (Halpern et al., 2018). While cases of HPPD are rare, they have been noted in scientific literature throughout the years. The prevalence of this occurrence may provide context for the hysteria that perpetuates the fear behind LSD and the possibility of losing one’s mind. While cases of HPPD
have been recorded, the occurrences are far and few between, with anxiety being a more commonly reported negative effect associated with the use of this substance.

The subjective positive effects of LSD have been reported in various past and current research. The most common effects of this psychedelic are changes in audio-visual synesthesia, distortions in imagery, and finally, an experience of a blissful state, sometimes referred to as oceanic boundlessness (Liechti, 2017). Users often report kaleidoscope-like shifts in visual perception and changes in how the self is perceived when looking at one’s own image in a reflective surface. Also, users report a range of symptoms such as positive fixation on certain objects, random bouts of joy, uncontrollable laughing and tears of joy. These empathogenic feelings often mark the euphoric sense of happiness seen in subjects and the reports these same users have about their unbreakable connection with others. This increased connectivity is one of the more significant attributes of LSD in relation to therapy as it provides a possible route to an increased therapeutic alliance between patient and practitioner. This alliance could prove key in providing a deeper investigation into the components of experience and trauma that may not be reachable in one regular counseling session with a therapist.

Ego dissolution is a vital component in the waning perceptions of the self and reality as a whole throughout this experience. Ego effects can be some of the most profound qualities of LSD use; to describe this so-called ego dissolution, it is easiest to observe the process in its simplest form, as each perception of self is also relative to experience. Ego dissolution is a departure from the self in which the lines of the subject’s narrative erode away, leaving reality for simply what is. The individual is then left in space as an object within reality connected to everything in the universe and no longer a subject of their own cinematic experience within that reality.
Mechanisms of Action: The Neurochemical Effects of LSD-25

Many stories exist regarding the effects LSD can have on both the mental and physical state, from visual and auditory shifts, to sweating, tremors and dilated pupils. What about LSD controls the multitude of changes we observe? Which neurological pathways may provide some context regarding how LSD initiates this variety of responses? The indole base of carbon, hydrogen and nitrogen is a key structure found in LSD that mimics the same composition of the neurotransmitter serotonin, providing some insight into the mechanism of action by which LSD promotes physiological and affective response. Before going too deep into the possible ways LSD acts upon the human body, it is important to note that research and understanding around this drug’s pharmacology and pharmacokinetics are still being investigated and examined today. That said, there is no resounding conclusion regarding the exact way this substance acts upon our system.

As previously stated, LSD mimics the structure of serotonin molecules, leading researchers to believe LSD binds to receptors within the serotonin pathway. Specifically, LSD acts as an agonist upon the serotonin 5-HT$_{1A}$, 5-HT$_{2A}$, Dopamine D$_2$ and a$_2$ adrenergic receptors (Liechti, 2017), promoting stimulation at these receptor sites. This draws an interesting parallel to our understanding of the use of LSD for treatment for depression and anxiety, as these conditions result from depressed receptor activity in the 5-HT receptor regions and poor neurotransmission of serotonin. These neurochemical issues are typically treated with antidepressants such as selective serotonin reuptake inhibitors (SSRIs) and monoamine oxidase inhibitors (MAOIs) that promote better signaling and neurotransmission in these regions. Yet, the side effects and questions related to the placebo effects of antidepressants draw into question whether these substances are a viable source of treatment. The immediate impact of LSD on
these regions provide an expedited means of treatment that is unmatched by other forms of medication. Notably, follow-ups on patients undergoing LSD therapy after 6-12 months following treatment were marked as positive, referencing the effects of the psychedelic-assisted therapy as life-changing and resounding (Fuentes, 2020). These positive long-term outcomes allow us to consider how a couple of LSD treatment sessions could provide a viable response to depressive disorders just as effective as administering anti-depressant substances and prolonged therapy sessions, which are often costly and sometimes ineffective.

Another notable effect of LSD is the activation of glutamate systems, resulting in increased glutamatergic activity, which directly affects prefrontal cortex functionality. This component of LSD reactivity may provide insight into how this substance reacts to promote change in individuals undergoing this form of therapy for substance abuse. Increased glutamate activity from LSD may allow a more heightened awareness stemming from reward pathways, specifically the glutamate pathway as, “the role of glutamate transmission in two complex heterogeneous brain regions, namely the nucleus accumbens (NAcc) and the ventral tegmental area (VTA), mediate the rewarding effects of drugs of abuse” (D’Souza pg. 1, 2015). With the understanding that LSD acts upon key components of this pathway, it is reasonable to suggest marked changes in the user’s perception of reward in relation to objects of trauma or abuse will occur; the exact shift in perception is likely to be influenced greatly by an individual’s unique experience and is an excellent question of exploration for future research.

While there seems to be compounding evidence for the use and efficacy of LSD therapy in non-psychotic disorders, other portions of scientific literature appear to negate the use of this substance for more severe psychotic disorders. Reflecting on LSD treatment’s efficacy for schizophrenic patients, our modern understanding of schizophrenia does not lend itself to
suggesting LSD as a viable way to induce a therapeutic neurochemical change for these patients. Oftentimes, schizophrenic patients deal with malfunctions of the 5-HT receptors, leading to over-agonized or antagonized signaling in this region, causing the array of symptoms associated with schizophrenia; these range from hallucinations (positive effect) to catatonic states (negative effect). Therefore, using an agonist such as LSD on someone with a possibly malfunctioning NDMA region may explain the lack of efficacy for this treatment in psychotic disorders. It seems likely that agonizing the 5-HT1 receptor may promote more of the effects associated with schizophrenia, specifically psychotic episodes stemming from hallucinations. In addition to 5-HT agonism, the increased glutamate activity component of LSD may accentuate the effects of schizophrenia, as research in NDMA blockades has implicated that increased cortical glutamate molecules may be a key mechanism responsible for schizophrenic related psychosis (Stone, 2011). Therefore, LSD is observed to negatively impact the related effects associated with 5-HT receptors in people with schizophrenia and may also affect the cognitive states controlled by glutamine activity.

While LSD may not apply to treating schizophrenia, there are many other applications this classical psychedelic drug may be used for. Established evidence has shown this drug may be beneficial for issues related to the 5-HT region malfunctioning and serotonin imbalances prominent in disorders such as anxiety and depression. In learning more about the neurochemical mechanisms responsible for profound changes witnessed with LSD administration, we can come to know the exact ways in which this drug may be used to achieve the highest level of therapeutic potential.
Chapter 2. Indigenous Origins: Magic Mushrooms and Shamanic Ceremonies

Where Did Psilocybin Use Originate?

Psilocybin and Psilocin are the active compounds responsible for the psychedelic properties of most psychoactive mushrooms. The emergence of psychoactive fungi is difficult to pinpoint, but use of these substances is dated to prehistoric times. Some hypotheses even suggest psychoactive mushrooms played a pivotal role in the evolution of human consciousness. These theories are based on the idea that increased visual acuity and sensation stemming from mushrooms provided an evolutionary advantage for those under the influence. According to these hypotheses, these advantages allowed for more enhanced hunting capabilities and thus better food availability leading to increased brain development (McKenna, 1993).

While it is unclear when humans consumed the first “magic” mushrooms, it is evident the incorporation of psychedelic mushrooms became integral to many cultures across different geographical locations. For example, in parts of Europe, the Muscaria species of mushrooms were consumed to help cope with the climate and for their medicinal properties (Nyberg, 1992). The mushroom was revered by Mayan and Aztec culture as a bridge to nature and the spiritual realm, with the native people referring to the fungi as Teonanacatl, or flesh of the Gods (Carod-Artal, 2015). Over time these substances became pivotal in defining religious and cultural systems in a variety of locations.

The visionary properties of psychedelic mushrooms are among the many benefits this substance was used for in the indigenous context. Other therapeutic benefits included relief from a range of physical and mental health problems such as gastrointestinal issues, inflammation, depression, anxiety, addiction and more. The allure of these benefits came to the public eye in the late 1950s and 1960s following Robert Gordon Wasson's reports of his experiences with the
mystical qualities of the magic mushrooms (Wasson, 1957). After multiple reports in reputable journals and media features, including the front page of TIME magazine, Wasson’s reports shed light on a hidden gem within the indigenous tradition of the Mazatec culture (Wasson, 1958).

Like any other prized possession, the qualities of the sacred mushroom became sought after by people far and wide, bringing heavy foot traffic to a once-hidden and sacred community in rural Mexico. Maria Sabina, the curandera that administered Wasson’s ceremony, became ostracized by various parties of the region due to all the foreigners coming to the community for the sacred ritual. While Wasson may have revered the ceremony and had the best of intentions in bringing the psychedelic mushroom to the public eye, the downstream effects led to the disruption of a sacred culture and exploitation of this therapeutic resource. This staunchly echoes themes similar to the downfall effects that followed the counterculture movement and LSD in a way that must be noted and not repeated in future psychedelic revivals.

The Harvard Psilocybin Experiments: Concord Prison and Marsh Chapel

Following an introduction into the public space in the 1950s and 1960s, psilocybin and other psychedelics became hot topics of interest in the realms of research. Researchers began by testing the effects of various psychedelic drugs in the lab environment, followed by more thorough investigations in applying these substances as medicine for a variety of physical and mental health disorders. It’s interesting to consider that almost 60 years ago, researchers viewed these substances with possible therapeutic benefits that we are just now as a society coming to accept as legitimate.

Two notable experiments defined early psychedelic research of psilocybin; these were led by two aforementioned formidable psychonauts, Timothy Leary and Ram Dass. Leary and associates conducted the Concord Prison Experiment to determine if administering psilocybin to
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inmates could reduce recidivism following release. While noting the sessions’ positive impact in an acute setting on the subjects, it was clear the original hypothesis that these drugs could reduce recidivism was lacking the comprehensive treatment plan and follow-up to incorporate the experience into daily life (Doblin, 1998). Through the Concord Experiment, it became clear that psilocybin could cause mental state changes in the acute setting but required some form of residual therapy or ceremonial practice to induce a lasting psychological impact.

While the Concord experiment marked an initial step towards therapeutically applying psychedelics, there remained myriad research opportunities regarding the properties and uses of these substances. Pursuit of evaluating these properties sprung another experiment named the Marsh Chapel Experiment, an extension of Leary’s project examining the mystical qualities of psilocybin and their effects on spiritual experiences. In this experiment, a group of theology students were either given a niacin pill (placebo control) or a psilocybin-containing pill and were observed and questioned following the experience. Results showed each individual who participated had a spiritual experience, with many within the psilocybin group citing heightened spiritual experiences with God (Shipley, 2014). Following this experiment, compounding evidence began to support the idea that these drugs could truly incite spiritual experiences with profound effects.

Experiments such as these were rampant throughout the 1960s, with both legally recognized and underground researchers exploring the various benefits psilocybin mushrooms could offer. Following this era, the same drug enforcement administration that eliminated much of the LSD movement also began to conceal and eradicate research on psilocybin-containing mushrooms. Much of the underground research work conducted between 1970-1990 was led by figures including Steven Pollock, Paul Stamets, and Alan Watts. These investigators spent their
time examining the wide array of psilocybin-containing mushrooms worldwide, using their taxonomy and mycology skills to bring scientific light to a world previously unknown to many. Pollock is viewed as a founding father of defining the agricultural substrates required to produce highly potent mushrooms on an industrial scale while also discovering new species of mushrooms such as *Psilocybe Tampanensis*, coined “the philosopher's stone” (Morris, 2011). The downstream effects of Pollock’s work can still be felt today as he helped develop the methodology of procuring spores and mycelial colonies for distribution and home growing that enabled many to toe the line of legality while still producing psychedelic medicine for personal use. Stamets, alongside Pollock for much of his career, is now one of the leading mycologists in reference to both psilocybin-containing mushrooms and other medicinal mushrooms – those without psychedelic properties – that can be supplemented into anyone’s diet. Stamet’s influence stems far beyond hallucinogenic compounds to show how a deeper taxonomic understanding of fungi can help alleviate various problems ranging from supporting mental health to solving world hunger through mass production of consumable fungi. Also working in periods similar to Stamets and Pollock, Watts was an essential figure for defining how spiritual experiences related to psychedelics may be explained to a Western audience through Eastern teaching. Together, these individuals are primarily responsible for the scientific revival of these substances by their methodological approaches of investigation that their antecedent peers of the 1960s did not as strictly observe. Many accredit these underground psychonauts’ strict adherence to scientific methodology with helping to introduce the current psychedelic renaissance occurring throughout the world today.
The Mushroom Trip: Physiological and Subjective Effects of Psilocybin

The ingredient in magic mushrooms responsible for hallucinogenic effects is psilocybin. In a recreational setting, users may consume small amounts such as .1-.5g, which would be therapeutically defined as a microdose. A more experienced user may consume up to 3-5gs, which would be considered a “heroic dose.” The toxin within the mushroom’s fruiting body works by releasing upon consumption, often being broken down by acids in the stomach and the mouth. Psilocybin is then converted from its inactive form into the active compound psilocin by enzymes along the digestive tract. In dissolving into the active ingredient psilocin, the toxin becomes lipid-soluble, allowing the psilocin to be actively distributed throughout the body through the bloodstream (Bauer, 2020).

The dose-dependent effects of the psilocin begin to act within 20 minutes, with effects steadily elevating to the peak of the experience at around 180 minutes. During the time period 20-180 minutes post-dosing, psilocybin is actively converted to psilocin, inciting the psychedelic state as psilocin accumulates and psilocybin depletes. Throughout this process, the most notable physiological effects become prevalent with increases in cardiovascular measures, including blood pressure and heart rate, in addition to increases in body conductance, a measure of peripheral signals associated with emotions and behavior. Other noted physiological effects are dilation of pupils, with subjects reporting an increased visual field and – in some cases – even night vision. Lastly, psilocin has activating effects on the digestive system, with many individuals reporting nausea and interruptions in their gastrointestinal systems. In the traditional setting, irregular digestion is an opportunity for spiritual purging, a moment in which the partaker in ceremony can rid the body and soul of perceived evils and toxins that may be accentuating the negative feelings (Lane, 2018). On a technical level, the interaction of psilocin
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with stomach enzymes may result in an increased acidic environment that induces the nauseous and gaseous state.

While the physiological effects are specific to the activation of the body’s sympathetic systems, subjective effects are related to the activation of serotonergic receptor sites responsible for the emotional and perceptual responses that are the hallmark of the altered experience (Hasler et al., 2004). Along the same timeline as the initiation of physiological effects, cognitive changes begin to occur at around 20-40 minutes post-dosing, with peak changes in perception occurring around 120-180 minutes. During this timeframe, the changes that ensue have been categorized into four realms, with alterations occurring in the perceptual, cognitive, emotional, and ego segments of our unconscious and conscious mind (Kargbo, 2020).

Perceptual changes include shifts in visions, colors, and conception of time and space. Cognitive changes may also encompass expanded creativity, language expression, and synesthetic qualities such as seeing taste as colors or feeling sounds. The next area of alteration – changes in emotional state – is of particular interest to the potential therapeutic application, as these drugs intensify emotional reactivity and put the user in touch with their emotions. Also, uncontrollable bouts of euphoria and anxiety may occur, but these feelings can often be regulated within the context of appropriate therapeutic care. The final unique attribute of this medicine, the ego dissolution component, promises a heavy effect on destructive ruminative processes by forcing the user to depart from existing notions of self. By removing one’s ego from the equation, the subject is then forced to shift their perspective in a way that comes into observance of the universe as a whole (Lane, 2018).

The physiological and subjective qualities of psilocybin-based psychedelics offer a light of therapeutic possibility in applying this form of medicine towards treating mental disorders.
While studies on healthy populations have highlighted various effects of psilocybin at dose-dependent levels, current research seeks to examine how the results observed in healthy populations may work on clinically affected populations. Notable therapeutic areas of exploration and application include the potential treatment of depression, anxiety, and various addictions. Further research may examine the efficacy of this form of treatment for these patient populations as well as the mechanisms by which the therapy acts to impart changes in mental states.

**Mechanisms of Action: The Neurochemical effects of Psilocybin**

Like other classical psychedelics, psilocybin acts by agonizing serotonin receptors, specifically the 5-HT-2A region. This region is a hot spot of activation for many psychedelics including LSD and DMT; therefore it makes sense that psilocybin, another serotonergic, would affect the same region (Ly et al., 2018). This process of neuronal activation occurs after psilocybin is consumed and actively converted to psilocin, which then acts upon the serotonin pathways to incite a psychedelic reaction.

Once in the bloodstream, psilocin is actively distributed in the body, binding to serotonin receptor sites throughout while still maintaining a high affinity for the 2A region. The psilocin continually acts upon the body as psilocybin is converted to psilocin, thereby activating the 5-HT$_{2A}$ receptor to produce a hallucinatory experience. The binding process of psilocin especially interests some researchers as it appears that upon binding, the psilocin drug molecule alters its configuration to better activate the neuron. The observed changes in neural plasticity have led some to believe that serotonergic psychedelics can increase neuronal networks. Due to the malleable abilities of this molecule, psilocybin is categorized as a psychoplastogen, a substance capable of promoting plasticity at receptor sites (Ly et al., 2018). The drug's ability to
reintegrate and strengthen neuronal networks – as evidenced by increased dendrite density and signaling – gives hope to the idea that psychedelics such as psilocybin could be used to repair malfunctioning or damaged serotonin regions; these disrupted neuronal pathways are implicated as root causes for disorders such as depression and anxiety. Therefore, in consideration of positive correlations of this therapy, subjects experience life-changing emotional and perceptual changes and significant reintegration of neuronal networks responsible for our daily affective states.

While the serotonin region has received the bulk of interest regarding psilocybin’s therapeutic potential, the Default Mode Network (DMN) provides another avenue of exploration into the drug by highlighting the role the self plays in application of these psychedelic-assisted therapies. The areas operating with the DMN to control much of our cognition are the Medial Temporal Lobe (MTL) and the posterior cingulate, where the DMN is suspected to be housed. The MTL acts as the relay center between the hemispheric networks of the posterior cingulate, conferring messages to the DMN while also producing visual hallucinations in its own right when stimulated (Lebedev et al., 2015). Relating neural mechanisms to the actual cognitive changes that occur, researchers suspect when an individual undergoes an ego-dissolution experience that the associated default network influencing that subjective perception erodes, leaving reality in its truest form, or realest form as a philosophical realist may say. In decreasing signaling to the DMN region through psilocybin’s modulation of the MTL, the subject is freed from notions of self and is then able to observe life in a way that is ego-less or what some may call boundless. Reflecting on how psilocybin affects neural networks in a diverse number of ways adds evidence to the hypothesis that psychedelic-assisted therapy may be applicable for a variety of clinically affected patients.
Section 2: Use of Psychedelics in Practice in the New Millennium: The Clinical Setting

Chapter 4. Psilocybin Assisted Therapy for Treatment-Resistant Depression and Death

Anxiety in Cancer Patients

Comparing Psilocybin-Assisted Therapy and ECT for Treatment-Resistant Depression

As previously discussed, psilocybin and psilocin are the active compounds in psychedelic mushrooms that produce the perspective-shifting and euphoric states associated with most classical psychedelics. The chemical structure of these compounds in mushrooms mimics similar tryptamine structures found in other psychedelics such as LSD and Ayahuasca. Neurotransmission of these compounds emulates that similar to serotonin and thus produces effects primarily upon serotonin receptors in the brain, classifying these substances as serotonergic psychedelics. Given the neurochemical makeup of these drugs and early results of clinical trials conducted between 1950-1970, psychedelics are poised to re-enter the current landscape as a viable treatment for a variety of mental health disorders.

The potential use of psilocybin for mental health treatment spans a variety of realms, from treatment for OCD, death-related anxiety, substance abuse disorders, depression and more. As depression is becoming increasingly rampant in society today, it is vital to explore how the use of psilocybin for treatment-resistant depression (TRD) compares to other methods of clinical treatment; current therapies include SSRIs, MAOIs, and Electro-Convulsive Therapy (ECT), one of the most formidable, last-line treatments for TRD. Specifically, practitioners must evaluate if psilocybin-assisted psychotherapy is safer and more effective than ECT as an employed therapy for TRD.

ECT is a form of treatment for TRD used since its inception in the early-mid 1900s. ECT involves using electric shock to the brain to induce convulsive states, which in theory and
therapeutic application for most patients help to decrease depressive symptoms. From its beginnings, ECT has been marked as extremely effective in reducing depressive symptoms. While there have been obvious successes in using this therapy, questions regarding the use of this treatment in regard to ethics, side effects and impact of this form of therapy – both during treatment and in long-term follow ups – on the patient have arisen. Ethically, ECT stirred much controversy in the past due to its attempted use for conversion therapy when homosexuality was deemed a mental illness. Additionally, ECT has received some negative publicity regarding patient consent and whether all mentally ill patients can consent to this potentially traumatic form of therapy. While there are important historical and ethical considerations regarding ECT, the most questionable concern is related to ECT’s effects on cognitive function. Investigations into the acute effects of ECT on TRD patients have found decreases in cognitive function, specifically in frontal cortex regions responsible for critical thinking, coupled with issues associated with short-term memory impairment (Rami-González et al., 2003). Additionally, longitudinal studies examining the effects of this treatment and harmful side effects found these acute symptoms persist beyond the retrograde amnesia occurring following treatment and continue to produce short-term memory impairment up to 20 years following treatment (Macqueen et al., 2007).

While ECT may be effective, its questionable harm to benefit ratio leaves room for further improvement concerning effective treatments for TRD. In light of the need for less invasive and more effective treatments for TRD, researchers have begun evaluating the possible effectiveness of psilocybin-assisted psychotherapy to treat this disorder. This form of therapy requires an extensive interview process to prepare both the clinician and the patient for medical administration, followed by various health checks. The clinician uses both the idiographic and
physical health information garnered from this interview to produce a composite of the patient’s mindset (often referred to as “set”) in consideration to the intentions desired from the session of psilocybin-assisted therapy. The patient and practitioner then proceed to craft an ideal treatment setting, intended to induce comfort and relaxation and allow for a safe environment for the individual processing. The medicine is then administered orally in solution. The clinician sits with the patient, often under the supervision of another clinician, as the patient undergoes the transformative process associated with these forms of drugs. The clinician may use information from the interview to help the patient interpret their feelings and visuals and guide the patient to dive deeper into traumatic events that may trigger TRD-related symptoms. The ego dissolution and empathogenic properties of the administered drug produce a state of openness that allows the patient to delve deeper into their understanding of these traumatic events, while also increasing therapeutic alliance between patient and practitioner to promote more positive treatment outcomes.

Producing shifts in perspectives around how these events affect one’s livelihood, the idea is individuals can integrate their newfound understanding of past trauma in a healthy way that promotes hope for a happier future. The reduction of symptoms following this treatment is astonishing and extremely promising, with a remission rate of up to 70% of patients included in studies, with minimal reported acute side effects and no substantial long-term side effects. In fact, in longitudinal studies examining long-term outcomes of this treatment, patients have marked their experiences with psilocybin assisted psychotherapy as life-changing and transformative in the treatment of their depressive symptoms. Most of the persisting adversity regarding this treatment can be dated back to drug propaganda pushed throughout drug reform efforts initiated by the Nixon and Reagan administrations following both the counterculture
movement and crack epidemic. Throughout legitimate clinical studies run to date, the object of most concern is anxiety during treatment and increases of sympathomimetic symptoms, which can be greatly mitigated by the presence and care of the practicing clinician administering the treatment.

The cognitive effects of this drug-assisted treatment are some of the most fascinating and prospective in regard to treating TRD. Rather than blocking the reuptake of serotonin as the class of SSRIs do, or shocking brain regions to decrease regional brain neuronal reactivity as ECT does, these drugs increase brain entropy, thereby producing more extensive and integrated neuronal networks of reactivity. This increase in brain entropy can best be understood as a web of connectivity that becomes denser with drug administration, producing the shifts in neuronal activity marked by psychedelic compounds (Carhart-Harris et al., 2014). These transitions in neuronal activity are evidence for the basis for shifts in mindsets and changes to an individual’s ego throughout a session. Going deeper into the mechanisms of action, it appears psilocybin works to mitigate cognitive dysfunctions implicated in depressive symptoms such as over-arousal of the hippocampal and amygdala regions. During a treatment, psilocybin has been shown to decrease amygdala activation while increasing prefrontal reactivity, thus downregulating unconscious responses while enabling more responsivity related to critical thinking regions. Most impressively, follow-up readings examining these same regions show increased connectivity between prefrontal and amygdala regions, reinforcing the possibility that the psilocybin therapeutic experience may re-integrate and re-formulate emotional reactivity (Mertens et al., 2020).

Comparing the therapeutic benefits with the potential negative side effects of psilocybin-assisted treatment vs. those of ECT, it seems the benefit:risk ratio is in favor of
psilocybin therapy for the treatment of TRD. ECT works by stimulating neurons, essentially resetting the nervous system; however, this is at the cost of dampening neuronal activity following treatment and may result in serious adverse consequences on cognitive function such as loss in short-term memory. In contrast, psilocybin promotes more connectivity among brain regions while only decreasing reactivity in brain regions related to the negative depressive symptoms such as rumination. Additionally, current trials examining psilocybin have reported no significant side effects following the administration of therapy. While there has been more work done in the field of ECT and thus extensive studies to pull from, the reemerging psychedelic movement gives hope to a more representative and larger sample pool from which specific determinations about the therapeutic index and possibilities of this drug can be ascertained.

**Clinical Trials: Hope and Future Forecasting in Treatment-Resistant Depression Populations**

Lyons and Carhart-Harris conducted a clinical study in 2018 that investigated whether classical psychedelics can positively affect symptoms associated with depression. This research examined three elements considered to comprise the cognitive triad of depression: negative attitude towards self, environment, and the future. These aspects are fundamental in supporting the reasoning behind the use of psychedelics to enhance therapy. The medicinal properties of psilocybin counteract each part of the cognitive triad as they promote increased optimism, psychological well-being, trait openness, and life satisfaction in an enduring way (Lyons & Carhart-Harris, 2018). Therefore, given the well-known associated effects of psilocybin therapy, researchers suggest dosing individuals experiencing TRD to mitigate the cognitive triad of depression in each category, thus promoting healthier mental states and future outlooks (Watts et al., 2017).
To investigate this hypothesis, Lyons and Carhart-Harris developed a methodology to explore the effects of psilocybin on depression by pinpointing a specific part of the cognitive triad, depressive future outlook, and observing the perception of this before and after undergoing psilocybin treatment. The design included 15 patients experiencing symptoms of TRD and 15 control individuals with normal mental states. The patients were asked to complete a Beck Depression Inventory (BDI) survey for depressive symptoms and a Prediction of Future Life Events (POFLE) for cognitive biases before dosing. In developing a POFLE test baseline, patients and controls were tasked with completing the survey and reporting back 30 days later on the true occurrence of life events in the time period following the predictions made before dosing. This methodology provided a pre-treatment variable of the patients’ and controls’ predictive states, and through these tests, researchers formulated the experiment basis by showing that depressed individuals maintain a pessimistic bias on future life of events which is actually inaccurate insofar as predicting is concerned. Therefore, researchers were hoping to manipulate this variable through the use of psilocybin, shifting the negative bias via positive substance integration; this was intended to enhance positive future thinking and promote a more accurate forecast of life events. After the initial self-report period, including the BDI and POFLE, patients were dosed during two sessions spread out over two weeks. After each session, BDI assessments were made, and upon culmination of the second dosing, POFLE surveys were given with the same 30-day response of true activity period following.

The null hypothesis of this study is that participants undergoing treatment for depression through use of psilocybin will have the same negative bias and inaccurate future forecast as they did before treatment. The research hypothesis suggests there will be differences in the accuracy and bias associated with the future forecasting as measured by the POFLE in patients pre-dosing
of psilocybin and post. It is interesting to note analyses were conducted on a predominately white and male population, without much racial or gender variation.

Analyses of each of the six sections provide evidence supporting psilocybin treatment by covering different measures of the treatments’ effectiveness, thus allowing for well-rounded statistical analysis and strong support of the research hypothesis. These analyses contribute as puzzle pieces to answer the larger question of whether or not psilocybin is effective in treating the pessimistic outlook on life associated with TRD.

Dependent sample tests for POFLE post-psilocybin treatment provide the first piece of evidence supporting the research hypothesis, as paired samples test for patients undergoing treatment were significant at a .05 alpha level, thus allowing for a rejection of the null that psilocybin has no effect on decreasing negative forecasting. The independent T-test showed the pessimism bias of patients experiencing TRD decreased, as their forecasting post-treatment shared no significant difference from the control group in predictive behavior; this finding suggests that after undergoing psilocybin treatment, individuals with TRD have the same predictive aptitude and selection of mentally healthy individuals represented by the control group. While preceding analyses suggested the bias was seemingly reversed, researchers still needed support for the hypothesis that TRD-affected individuals would have decreased negative, more accurate future forecasting. Dependent sample tests were conducted comparing pre- and post-treatment accuracy of future forecasts in TRD patients. The results were statistically significant at a .05 alpha level, showing that post-treatment forecasts in treated individuals were much more accurate than forecasting before treatment. In a final point on negative bias elimination, researchers analyzed negative bias based on a self-report of a quantitative negative one to positive one scale. In comparing baselines reports of TDR bias with post-treatment
reports, the dependent samples T-test found significant differences in negative biases, as they were much lower in the post-treatment group. Supporting further evidence of negative bias being eliminated, results were compared to the control group via an independent sample test and no significant difference between groups was demonstrated. The final section of correlation rounds out the analyses by providing insight into possible treatment effects specific to depressive symptoms. In comparing the BDI and bias scores, there was a strong correlation of the variables suggesting that a drop in BDI reflects a similar drop in pessimism bias. Therefore, though not explicitly stated, the way these analyses were conducted and ordered suggests that psilocybin decreases depression-related symptoms (BDI metric), thus eliminating roots of what may be causing negative bias and allowing for more accurate future forecasting. Specific inferences drawn from the research included, “psilocybin with psychological support treatment model may alleviate pessimism bias in depression, giving them a clearer and more accurate outlook on the future” (Lyons & Carhart-Harris, 2018). This inference appears to be well-justified and validated given significant findings in the data, and while not stated in conclusion, this study provided important insight into underlying depressive mechanisms relieved as a result of the psilocybin treatment applications.

Psilocybin Treatment for Anxiety and Demoralization in Advanced-Stage Cancer Patients

The overlap between anxiety and depression presents a potential opportunity for efficacy in treating anxiety, especially in novel investigations related to psychedelics. With TRD patients, the argument presented for the application of psychedelics stemmed largely from the fact that this was a last-ditch effort of sorts; essentially, many other forms of treatment for TRD had been exhausted, leading up to exploring trials with psilocybin. Notably, treatment with psilocybin for this disorder defined by its treatment-resistant nature was extremely effective in acute and
long-term settings, providing remission of depressive symptoms months after administration (Carhart-Harris et al., 2016). Similar to how TRD researchers are working to explore any potential therapeutic practices that may alleviate depressive symptomatology, late-stage cancer clinicians have reached a similar point in the treatment of anxiety around the prospect of death, with recent evaluation of psychedelic-assisted therapy.

Death anxiety in cancer patients is detrimental to treatment outcomes and coping with physical and mental side effects associated with cancer. Current research into anxiety faced by these patients points to demoralization as a critical factor behind why they experience existential crises (Bovero et al., 2019). While demoralization may provide insight into the mechanisms behind this form of anxiety, it also presents a potential avenue for promoting spiritual well-being in subjects. In leveraging broader healing modalities beyond common medical prescriptions, practices such as mindfulness and psychedelic-assisted therapy to provide a unique means of treatment may be feasible through deconstructing thoughts that accentuate states of demoralization such as death-related fears and existential crises.

The Ross et al. 2016 study examined processes surrounding administering psychedelic treatment to cancer patients and its efficacy in this population. The researchers behind this study conducted due diligence to provide repeated measures of both primary and secondary outcomes, employing similar testing periods to observe changes in BDI like the Lyons & Carhart-Harris experiment. The repeated measures provided data over several important time periods before and after administration, as well as from long-term follow-ups almost six weeks later. These measurements offer relevant primary and secondary results that could prove beneficial in differentiating between acute and long-term benefits stemming from this treatment. Examples of primary measures included inventories assessing depression and anxiety in cancer patients.
throughout the trials, while secondary measures involved more subjective criteria such as quality of life, and spirituality (Ross et al., 2016). Information from these assessments help evaluate if this treatment effectively decreases death anxiety, and the variety of measurements utilized identify which components of this treatment act specifically on processes related to the initiation and perpetuation of anxiety.

In this trial, subjects were screened for general criteria to assess cancer patients under the DSM-IV based diagnostic Structured Clinical Interview (SCID) examination. In addition to initial screenings, cardiovascular measures including blood pressure and heart rate were taken throughout the study to assess physiological factors of treatment. This double-blind study involved groups that received either psilocybin or niacin as a control depending on random assignment. Dosing occurred on two separate dates, with each subject receiving synthetic psilocybin (.3mg/kg) or niacin (250mg) in each session (Ross et al., 2016).

A simple equation is utilized to convert the dosing of synthetic psilocybin to that comparable for naturally occurring psilocybin. First, it’s important to note psilocybin mushrooms are predominantly composed of water; given this, on average, every 1g of dried mushrooms results in approximately 5mg of psilocybin. For most psilocybin-containing mushrooms, potency ranges from .4-.6% psilocybin in each mushroom. Therefore, for 1g at .5% potency, samples will generate approximately 5mg of psilocybin per gram of mushroom. For reference, an individual in the study weighing approximately 150 lb., or 66kg, would be given a dose of 20-25mg psilocybin. This is equivalent to around five grams of dried mushroom, a significant dose most clinicians would define as “heroic,” guaranteed to impart perspective shifts on even the strongest of egos.
Upon administration, participants become immersed in various emotions that stem from the mystical experiences promoted by psychedelic drugs. In these engaging and sometimes difficult experiences, subjects are reassured by clinicians to trust the safe environment procured and surrender control, or let go. A strong element of this form of therapy is the dissolution of ego and shifts of ingrained perception that result from the medicine. For example, a patient experiencing death anxiety may be inundated with thoughts relating to their own existence, impact on others, financials related to their looming death, etc. Psilocybin-assisted therapy often forces a user to face these fears by removing themselves from future associations and becoming grounded in the present. For someone dealing with debilitating anxiety stemming from fear of the future, this therapy allows the individual to break ruminative patterns that may cloud perception to form a more realistic perception of life.

While it may seem contradictory to suggest a mind-altering drug can assist in clearing someone’s head, this contradiction is rooted in the stark contrast between the social perception of these drugs with how they are utilized in a therapeutic space. For an individual entrenched in their existing perspectives on life, a drug with the ability to eliminate – or even re-write – those routes of thinking provides a possible path to rehabilitation not common to other psychiatric pharmaceuticals. While other forms of treatment often focus on returning patients to “normalcy” by merely treating symptoms, psychedelic-assisted therapy offers a rounded approach to rehabilitation; this goes beyond eliminating symptomology via rewiring existing neural pathways, thus providing hope through actualization. Through perceptive and emotional insights induced by this medicine, subjects can transfer their demoralization into an understanding of the self in a larger context that often promotes a sense of spirituality and connectedness. Psychedelics offer a literal trip, and it is in this departure from thinking that the healing journey
begins. It doesn't require a daily prescription or weekly sessions with a clinician. This form of therapy strictly requires the patient to be open to change, as therapeutic outcomes are significantly correlated with how the patient receives shifts in perception and integrates them into their ways of thinking accordingly (Grob et al., 2011).

The focus of this study draws significance from decreases in the primary measures associated with anxiety and depression, and secondary shifts in metrics relating to demoralization and spirituality. Before and after each dosing session, subjects were assessed using both primary and secondary measures. The results provided insight throughout the therapeutic process to highlight when certain changes occurred and when effects related to residual outcomes either digressed or disappeared entirely. In the Ross et al. 2016 study, significant effects on both primary and secondary endpoints regarding psilocybin treatment were observed. In the primary measures, clear reductions in depressive and anxious symptoms for most participants – in both the acute administration of the drug and period following – were exhibited with anti-depressant effects lasting up to the 26-week mark post-assessment. Secondary outcomes found more gradual changes yet progressive, with spirituality and connectedness significantly increasing and demoralization steadily decreasing throughout the trials. Regardless of whether patients received the psilocybin dose in session number one or two, each subject noted significant shifts in symptoms related to their death anxiety. In regards to primary measures, 60-80% of all participants experienced a substantial reduction in symptoms. Additionally, an astonishing 87% of patients noted greater life satisfaction on secondary measures (Ross et al, 2016).

With significant results from these studies and many others, it becomes clear why the FDA has recently granted psilocybin therapy with breakout therapy status (Saplakoglu, 2019).
Most psilocybin research is currently being conducted within phase 2 clinical trials, meaning most studies to date are to the point of providing this medicine to clinically affected populations. Pending positive results, phase 3 trials to follow will work not only with clinical populations but also larger representative samples. At this point, the future of psilocybin-assisted therapy rests on the edge of further medicalization or regression into further clinical testing. Only time will tell whether psilocybin will become a formidable therapeutic tool within the realm of treating mental health.

Section 3: Lessons from Indigenous Psychedelic Practice

Chapter 5. Reverence to Ritual: How Set and Setting Reduce Negative Outcomes

One of the most significant concerns surrounding the use of psychedelics stems from the idea that these substances have the potential to induce psychosis. Years of propaganda following the Reagan administration convinced people hallucinogens could cause people to lose their minds. This perception has since been perpetuated and is highlighted in social and media portrayals surrounding psychedelic drugs, with exaggerated portrayals showing subjects under the influence jumping out of windows, becoming constrained to psychiatric institutions, and even harming others. While fear of psychosis has significantly affected how people generally perceive psychedelics, studies examining adverse reactions to these drugs have reported that, in reality, they rarely impart lasting negative side effects – with acute effects only being mildly adverse (Van Amsterdamn et al., 2011). In the therapeutic setting, a general acute symptom that often arises is anxiety, which often can be reduced and even mitigated with the assistance of a therapist (Roseman, Nutt, Carhart-Harris et al. 2018).

In the clinical setting, research has shown that though anxiety may result from the intensity of the psychedelic experience, controlling for set and setting can work to control
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anxiety and other negative symptomatology (Hartogsohn, 2017). The focus on set and setting relative to drug use is not a new idea but was popularized by Timothy Leary in the 1960’s as he sought to label subjects’ mind states and the environments in which a psychedelic experience occurs. The idea of set refers to the individual’s mindset as they approach the experience, encompassing aspects such as personality, expectations, and intentions going into and throughout the therapeutic process. The setting has to do with the environment surrounding the individual throughout the experience, which often includes the physical and social space as well as cultural aspects. With the two variables of set and setting operating as major controls within the subjects’ experiences, it becomes necessary to distinguish how these objects may be controlled within the clinical testing space.

Set is defined by qualities affecting the subject’s mental state going into the experience and throughout the experience. By solidifying the subject’s set before the experience, practitioners can develop a sense of alignment with the subject’s perspective going into the treatment. Set preparation may include interviewing the patient weeks before the actual dosing, assessing aspects of personality, and identifying intentions and expectations going into the experience. During this preparation process, subjects are able to openly express fears and anxieties regarding the upcoming therapeutic experience while receiving reassurance from clinicians on safety. In addition, clarifications around any unwarranted expectations regarding the therapy are provided. This process helps to decrease negative experiences, not necessarily by eliminating these experiences themselves, but rather by preparing for and understanding them. By allowing practitioners to assess fears before dosing, clinicians are better equipped to assess anxiety-related reactions throughout treatment and apply remedies to decrease negative feelings of anxiety accordingly. On the flip side, subjects can more comfortably express their previously
mentioned fears if they arise in the session. Rather than being unprepared, therapists can use this pre-built therapeutic alliance to provide care specific to each patient.

Specific to conditioning the set, it is important to consider how cultural differences might explain differences in outcomes among patients undergoing this therapy. Anthony Wallace, a cultural anthropologist studying differences in psychedelic experiences, explored this phenomenon in his study, “Cultural determinants of response to hallucinatory experience” (Hartogsohn, 2017). In this study, Wallace investigated the positive and negative experiences of Whites and Native Americans consuming peyote, which generated interesting results. Wallace found that White peyote users had less inhibition of sexual and aggressive behaviors, coupled with mood swings ranging from anxiety, depression to euphoria, culminating in an exhibition of psychiatric disorders ranging from paranoia to schizophrenia (Wallace, 1959). Native American participants exhibited a much different reaction, maintaining more stable mental states throughout the experience, religious awe regarding the hallucinatory experience, and better integrating the experience into communal life (Wallace, 1959). An explanation for differences in each experience seems to correlate to differences in racial background and the cultural context from which the subjects originated. In White culture, hallucinations are often perceived as signs of psychosis and are highly stigmatized, whereas in Native American culture, visionary experiences are characterized as blessings beneficial for both the individual and the community (Hartogsohn, 2017).

As we consider set relative to culture, it seems relevant to consider how culture, in turn, affects aspects of set when preparing for a psychedelic experience. While expectations and fears are accounted for in the initial screening process, how might aspects of culture be integrated into study methodology to ensure that BIPOC individuals outside of the typical white sample
populations have an equally therapeutic experience? The answer to this discrepancy requires the integration of idiographic content within the experience while also composing culturally aligned social support groups throughout the therapy session. By taking into mind fears and anxieties that may stem from culturally relevant issues such as discrimination, personal trauma, and generational trauma, it may be easier to pair clinicians with similar subjects. For example, rather than pairing a Hispanic patient with a white clinician, who may not intimately understand the relevant generational and social trauma associated with mental health, we may choose to pair this subject with a culturally aware Black or Hispanic clinician (Asnaani and Hofmann, 2012).

Providing an array of clinicians from marginalized or minority groups for subjects from the same groups, in turn, includes room for shared experiences that may offer higher levels of therapeutic alliance.

In considering the set, we are also prompted to question how cultural differences may arise in a controlled treatment environment or setting. In developing the second control of setting for this form of therapy, it seems reasonable to suggest culture may help inform personalized settings relative to the cultural makeup of the subject. For setting, the most essential aspects to consider are the physical and social spaces the therapy occurs within. Physical aspects may include elements such as the music played, art and statues within the room, and more specific characteristics including lighting and couch layout. On the other hand, social aspects may involve people present beyond the clinician that may serve to offer support and provide a secluded environment free of interruption from random individuals. The way culture may help to influence these physical and social components is by altering the composition of items and individuals present in the therapeutic environment. For example, music and art that may add a sense of welcome and comfortability for a white subject may differ for a Black patient. By
providing culturally tasteful music, art, the comfort level of subjects with their environments will likely increase, thereby opening the space to a deeper dive into the psychedelic experience through an enhanced trust in setting. In respect to modifying social settings, it may be appropriate, for example, for a Hispanic subject to have at least one BIPOC (Black, Indigenous and people of color) individual present among the available members for social support. For example, in considering Black usage of psychedelics, the literature explains:

_African Americans who participate in broader psychedelic culture may not be free of negative setting influences. Being a minority in a hyper-White space could exacerbate feelings of double-consciousness, limit opportunities to confirm their identities, and increase instances of identity disconfirmation (Neitzke-Spruill, 2020)._  

In a psychedelic-induced therapeutic experience, it is not uncommon for subjects to unlock years of intergenerational trauma, which may be an experience that outgroup clinicians may have increased difficulty relating to as well as assisting with. By providing a supportive social setting composed of individuals who may be able to relate with shared experiences, the subject can express themselves in a heard and better understood way.

**Chapter 6. The Role of the Healer: Comparing Indigenous Healers to Clinicians**

“Over 70% of all western drugs have come from isolating the active ingredients in plants and animals that the world’s Indigenous people had already been using for medicinal purposes for centuries...”

_A. Ross_

While the above quote was stated in 1966 by researcher A. Ross, its relevancy is still as applicable today as ever before. Examining set and setting only mark the beginning of the need to evaluate extra-drug effects encompassed within psychedelic therapy. By controlling for set and
setting, clinicians can assist subjects directly while also manipulating the environment to ensure a better setting for the therapeutic process; therefore, the role of these clinicians must be greatly examined as well. In considering the clinician’s influence in providing a profound therapeutic experience, it sounds oddly similar to the perception we have of indigenous healers’ role in traditional hallucinogenic ceremonies. However, in comparing clinical treatment to the indigenous ceremony, there is one key difference: clinicians are working to produce a replicable test environment. In contrast, healers work dynamically within a ritual framework to guide and protect subjects within a manipulated setting.

Comparing traditional mushroom ceremonies to the clinical setting, there are also apparent differences in how the user’s set is established. In the clinical environment, set is framed through an intense interviewing process to develop a composite for the clinician to use throughout treatment. In a traditional setting, healers are tasked with using their experience and thorough understanding of the sacred mushroom to provide appropriate dosing, in addition to providing discernment of whether or not the subject may participate in ceremony. In both situations, it seems crucial for the individual in charge to screen participants for personality attributes that may not be congruent with the goals of this form of therapy.

The traditional healer must rely on experience and cues, whereas a clinician has their schooling accompanied with batteries of personality tests. Though traditional healers may lack the professional resources therapeutically-approved assessments clinicians have at their disposal, they often have more expertise identifying appropriate candidates for psilocybin therapy because of their extensive experience performing the therapeutic rituals. Given the novel nature of clinical trials for this type of therapy, it is reasonable to suggest that most clinicians working within these studies have conducted fewer psychedelic ceremonies than traditional healers.
Indigenous healers spend their entire lives specializing in the administration and refinement of this form of therapy, engaging in training from as early as teenage years, if not earlier, to pass down tradition and continue this calling from the sacred mushroom for the rest of their lives (Lane, 2018). In an average year, it is common for these healers to be engaged in psychedelic ceremonies 50-100 times a year (Lane, 2018), with roles ranging from serving as an active guide partaking in the medicine to acting as additional support for the individuals in the space. In comparing methods for discerning candidacy between clinicians and healers, clinicians may have more thorough processes and tools at their disposal. In reality, the experience of a healer serves an equally beneficial role as any personality test. In considering a traditional healer’s experience as a viable tool for discernment, the importance of traditional ecological knowledge (TEK) becomes apparent:

“More than a body of knowledge, TEK also encompasses such aspects as spiritual experience and relationships with the land. It is a way of life, rather than being just the knowledge of how to live, it is the actual living of that life” (McGregor, 2004).

Since clinicians in the US most commonly serve subjects in office, they are often able to remove themselves from the test environment relatively easily. Meanwhile, traditional healers live within their treatment environment, acting as active participants within the community while also maintaining a relationship with nature and the medicine it provides. Lastly, in comparing the establishment of the set following each unique treatment methodology, it is vital to recognize differences in the integration of challenging experiences while on psychedelics, or ‘the bad trip.’

For clinicians, a subject's bad trip, often coupled with anxiety, may be quickly chalked up to the presentation of adverse symptomatology, with remission of symptoms following the acute state. The clinician may work with the subject to help them work through the negative
symptomatology, yet usually to mitigate feelings rather than use them as points for reflection. In contrast, healers often designate these distressing experiences as insightful posits or the psychedelic journey that serve as lessons about oneself. It is these same experiences that, in turn, provide avenues towards growth by addressing stuck points within the participant.

Often, sickness accompanies high doses of psilocybin, leading to bouts of vomiting and purging, which may be reported as a negative physiological outcome in the clinical setting. Again, contrasting with a clinician’s response, a traditional healer may symbolically attach meaning to this experience by labeling it as purging evil toxins and spirits within the participant, thus considering this experience to be beneficial. In comparing the methodology of both groups, we must ask whether a trained clinician may employ traditional indigenous tactics and perspectives to potentially enhance a user’s experience. Considering how healers deal with what we perceive as adverse symptomatology, there is an opportunity to inform western science with traditional ecological knowledge (TEK). Suppose clinicians could learn to perform tactics similar to that of healers allowing for better integration of tough experiences. In that case, it may be possible to solidify the cost-benefit ratio behind this form of therapy. The most significant deterrent of psychedelic therapy’s progress stems from the stigmatization that perpetuated these drugs’ danger, mainly based on bad trip experiences. Through adherence to insights from TEK and controlling set and setting, it may be possible to decrease negative experiences associated with these drugs by turning these experiences into opportunities through proper integration.

Since integration is an integral mechanism in psychedelic healing, it is essential to reflect on how these experiences may be interpreted across different cultures by both the subject and therapeutic leader. Bringing back to mind Wallace’s assessment of white and Native American use of peyote presents an opportunity to compare how messages may face different forms of
integration depending on the culture. Wallace found that white peyote users had a much higher presentation of negative symptoms and increased issues with integration when compared to Native Americans who experienced better therapeutic outcomes (Wallace, 1959). Wallace explained that these differences stemmed from the fact that negative experiences such as hallucinations and disembodiment in the respective cultures are starkly different. White culture often classifies such an experience as bordering on psychosis, whereas Native Americans cherished these aspects of a psychedelic journey with reverence, marking them as instances of prophetic insight for the self and the larger community. In light of the cultural differences that give way to differences in perception and experience, it seems necessary to conduct therapy to represent cultural upbringing for appropriate, beneficial integration of experience. By providing information regarding the true nature of the therapy, possibly coupling this information with presentations from individuals who are well-versed in this form of medicine, we may produce more open mindsets that may provide better outcomes for all.

**Section 4: Prospects Regarding the Integration of Psychedelic Therapy into Mainstream Practice**


While psychedelic medicine provides some wonderful prospects regarding therapeutic benefits, the question of who will be able to afford this form of therapy remains in question. Using MDMA and Ketamine clinics as a projectable model for the cost associated with psychedelic-assisted therapy, we can highlight who realistically will be able to afford this form of treatment. The total cost for a 12 week MDMA treatment ranges from 5,000-10,000 dollars per dosing session, out-of-pocket (Stone, 2019). It is currently unclear whether or not insurance policies will cover the costs of this form of treatment. Therefore the glaring cost for treatment
poses a possible barrier for lower socioeconomic populations. This concern of access has already been highlighted in phase 1 and 2 trials surrounding this medicine, even though costs to participate in clinical trials are often non-existent, with most subjects receiving compensation for their participation instead.

In assessing the racial diversity sampled within study populations, there lies an apparent discrepancy among the different racial populations sampled in the studies. In a meta-analysis of 18 psychedelic studies from 1993-2017, researchers found that among 282 participants, 82.3% of the participants were non-Hispanic white (Michaels, 2018). Considering recent census data that has reported white individuals only comprise 60% of the population (Ghosh, 2021), this sample exhibits the lack of comparability to the makeup of the US. Recognizing differences in those tested begs the question, are current psychedelic trials accounting for variability in cultural experience that may affect therapeutic outcomes? Furthermore, if access to this treatment is limited to only those that can afford one thousand dollar treatments, will this highly efficacious form of therapy ever reach the marginalized communities that need better mental health treatment?

Despite recent advancements in psychedelic research and associated therapeutic applications, work still needs to be done in future clinical studies to diversify sample populations selected for future study. If psilocybin progresses past phase 3 into medicalization, it seems necessary to consider how this form of treatment could become fully accessible throughout the socio-economic and racial spectrum. Whether through scholarships, expanded clinical trials, or stronger recruiting efforts, there is a clear need to decrease the gap in the availability of this treatment. In doing so, psychedelic researchers will be able to provide more realistic projections on the differences in therapeutic outcomes across different populations. Beyond test data,
considering the breakthrough status of this drug, it is only equitable that this treatment is made available for affluent white subjects and any individual meeting requirements for treatment. By providing this novel form of therapy to a larger audience, psychedelic treatment may serve to help unpack years of trauma and discrimination that weighs heavy on the minds of many marginalized groups.

Chapter 8. Bridging the Gap: Using Psychedelic Medicine to Promote Cultural Inclusiveness and Diverse Clinicians to Counteract Racial Disparities in Mental Health

Though there are clear differences in the racial groups receiving this treatment, the development of more culturally reflective forms of therapy provides an avenue toward equitable healthcare across racial categories. In order to develop a more culturally inclusive space, three essential dynamics must be addressed in the formulation of future psychedelic healing modalities; these considerations are culturally inclusive settings, diverse clinicians, and implementation of different social dynamics that should encompass the future standards of this practice.

While culturally inclusive settings have been extensively discussed in this review, this aspect of effective treatment ranges beyond the clinical environment into our social settings. Considering that 80% of the individuals sampled in studies have been white, it's almost as if safe spaces for the consumption of psychedelic substances have been exclusively procured for this group to date. Through the safety of the medical setting, participants are absolved from repercussions that may stem from local officials if one were to consume these drugs in a public setting. Minority groups, not prevalently privy to such studies and thus left to resort to taking these substances in their own social spaces, may not have the same protections as those in the clinic – thus furthering the concerns regarding safety and support for these minority groups.
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(Neitzke-Spruill, 2020). In an effort to relinquish inequities, further work should be done to provide safe spaces for consuming these substances for different racial groups with idiographic components that align with the participant’s associated culture. Rather than ascribing to novel ideas regarding the development of these settings, it may be possible to draw from indigenous knowledge regarding these ceremonies.

Considering the role traditional ceremonies could play in informing clinical practice on the development of safe spaces, the individuals responsible for conducting the ceremonies, the curandero/as, may be beneficial in guiding clinicians. In reflecting on the root of traditional practices in indigenous communities, the mechanisms for development of these practices seem to stem from the following:

“The stories and testimonies of Indigenous peoples are usually related to a home place or territory. TEK embodies both remembered sensory information built upon repeated observation, and formal understandings that are usually transmitted orally in story form or ceremonial form with abstract principles and important information encapsulated in metaphor” (Cruikshank, 1991).

In the development of idiographic settings, it seems necessary to include culturally relevant themes and components of setting that provide a sense of home and solidarity within the space. It is also essential to include diverse clinicians, if possible native healers, to aid in integrating processes in a culturally reflective manner. In doing so, it seems possible to detach psychedelic-assisted therapy from the air of institutionalization to a more relatable setting of traditional ceremony that may even be in greater cultural alignment for Hispanic and more comfortable for other BIPOC participants.
Though we may be able to produce a diverse and thus more open space for therapy, it doesn't change the fact that mental health treatment, in general, is a financial burden not all can afford. Group therapy provides a two-punch approach to the issue of accessibility as well as cultural inclusivity. Allowing clinicians to treat more than one individual at a time while also including multiple individuals in the treatment space serves to produce a diversity of experiences that may be shared among participants. For example, a group therapy study conducted in 2020 on demoralized long-term AIDS survivors (11 White, 3 Black, and 2 Hispanic) found “several participants reported they were able to connect quickly with the other group members and that this peer support was helpful in tolerating and making use of the intervention” (Anderson et al., 2020, Pg. 7). The ability of group members to build rapport among one another, independently of alliances with clinicians, therein lies the potential for the development of group retreat settings that mimic this study to provide reciprocal support systems for a diverse array of participants.

Although group therapy is a step in the right direction to decrease costs associated with psychedelic-assisted therapy, access must extend to communities that can hardly afford current forms of mental health treatment. On a meta-scale, by performing group therapy with fewer clinicians than would be required for individualized sessions, additional therapists will be available to treat other new patients (Rosner, 2020). Also, success rates of psychedelic-assisted therapies serve to mitigate the need for future continuous mental health treatment, thus decreasing the accumulating cost of treatment for the individual while equally decreasing strain on the mental health system. Projections from studies on MDMA reported, “for every 1,000 patients treated, we estimate 30-year savings to the medical care system of $103 million, while averting 42.9 deaths. The finding of net savings holds across a wide range of plausible assumptions and input values” (Marseille et al., 2020, Pg. 10). These future projections in
regards to MDMA-assisted therapy alleviating financial stress on the mental healthcare system allow us to consider the potential impact of concurrently run studies utilizing MDMA, Ketamine, and Psilocybin; as such, these therapies may together work to decrease financial costs within the institution that can be reallocated to less fortunate groups in need of treatment.

**Conclusion**

While there is much work to be done across various realms within psychedelic science, the future remains bright, full of possibility, and ripe with opportunities for healing. Only time will tell if these treatments have the potential to spread among different racial and socioeconomic demographics effectively, but for now, the medical psychedelic space in the United States is dominated by the experiences of white clinicians and participants. With the legalization of psychedelic-assisted therapy in Oregon, we see another spark of hope regarding the diversifying of clinicians, given the reasonably low barrier for entry in regard to receiving certification to perform therapy. Specifically, the omission of requiring higher education demonstrates inclusivity and mindfulness that some of the most experienced practitioners in this realm may not be accredited with Ph.D.s or M.D.s but rather have decades of experience serving as indigenous healers conducting ceremonial healings with magic mushrooms. Decriminalization efforts help add protections for individuals who may not be able to afford the set, setting, and safety provided by a clinical setting. These considerations around therapeutic accessibility and applicability between white and minority individuals, in addition to decriminalization efforts, serve to eliminate fears of repercussions from local officials that may affect the setting for these individuals' experience. Only through further efforts to actively rewrite the surrounding narrative psychedelics and associated treatments may we enter into a future in which psychedelic ceremony is no longer a stigmatized experience but rather a recognized therapy – for those in
need in of healing, in search of creative expansion, or even suburban parents curious about exploring the depths of human consciousness and existence.
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