

Understanding and application of Psilocybin for healing purposes

Introduction

As Psilocybin (PY) is coming slowly into the awareness of the medical world as the evidence for its healing and helpful effects cannot be ignored any longer, I want to offer a first model of understanding its effects.

I have begun studying PY more than 22 years ago, I have taken PY with hundreds of people and discussed effects with thousands.

Here, I will explain an easy model to understand PY and become able to use it for therapeutic purposes. I'm neither a biologist, nor did I study medicine on a university level. My model shall not explain biochemical processes nor do I claim it to be the ultimate truth. With therapists of all kinds starting to use PY on themselves and their patients, a huge amount of data will be gathered and people will create better models for the scientific understanding of the processes.

Anyway, there is so much deceit and false information, so much chaos, as PY is a forbidden substance, banned by the 1971-UNO convention, which was in turn set in motion by Richard Nixon in an attempt to battle anti-war movements. Many thousands of lives could be saved annually, if PY was clinically available and used in an appropriate way. But, as fresh living sclerotia is legally available (as the UNO-convention just banned the pure substance), health care professionals can start using the beneficial effects of PY, immediately.

Starting with microdosing PY is the best way to start using PY, as microdosing does not need precautions and is shown to be highly effective. Everyone can use it, anywhere. It is 100% vegan, natural, halal, kosher, can be used by Hindi, Moslems, Atheists, Christians, Jews, Asians, Americans... there is no limit by race or belief system. The PY-sclerotia can be grown easily and in a cheap way everywhere, it helps poor people as well as rich people. It is a true universal remedy.

Looking at PY-mushrooms

The organism that produces fruit bodies (mushrooms) and sclerotia (truffles), is called "mycelium". Please refer to mycological sources for exact descriptions.

Spores germinate on some substrate and begin to sprout mycelium. The mycelium is a web of extremely fine strings of cells and grows through the substrate, digesting it as the mycelium spreads. In this stage, no PY is present.

The moment the mycelium starts to produce PY is, when it creates so-called "primordia" - small bubbles that can develop into either fruit bodies, or sclerotia.

These forms of the organism have definite borders and when they are bruised or cut, the PY shows as blue stains.

There are a lot of mushrooms without PY, thus this substance is surely not part of the biochemical processes to form stable shapes or "heal wounds". Anyway, in PY-containing mushrooms we can observe PY to be connected to "forms, wounds and healing", as mentioned above.

Model to understand the effects of PY on humans

This is the central statement:

PY helps to heal mental and physical wounds.

It does this directly, in case that there are no "severe obstacles". And it points to those obstacles in case there are such.

A wound cannot heal, if it is constantly torn open again. To stop that negative process, and start healing the wound, the body must make the mind conscious of it. If your shoes are new and hard and

your heel scoured until it bleeds, the first step for the wound to be healed is to make you understand that you must take off that shoes and/or use a band-aid.

If you use a plaster and microdose PY, the healing of your heel will be finished faster.

But if you were to only microdose PY, the pain might increase! PY will help your body making your consciousness aware that “something MUST be done with the bleeding heel”, by enhancing the signals of the body (pain), in order to bring damage done to the mind's attention.

While a pain-killer simply suppresses the pain, PY acts in a flexible way: If the wound is tended and ready to heal, it heals faster and less pain is produced when PY is applied.

But if the wound is ignored and in its current state cannot heal (e.g. when one decides to stay in the same shoes despite a bleeding heel), the pain level may rise, up to the point when the wound is no longer ignored by the mind and necessary actions for healing are taken.

This principle works for high-dose trip-producing states as well and is commonly mistaken in a fundamental way: a so-called “bad trip” is not at all bad! PY enables the sub-consciousness to make the consciousness aware of strong “mental wounds” that need healing. If “latent mental illnesses break out”, it's not all bad, only a manifestation of hidden problems that were there anyways, doing damage to a person's life in subtle ways - It is the first step to healing! The mental damages are there, obscured, creating a lot of problems and hindrances, just like an untended bleeding heel! S/he is just unaware of it and falsely thinking that “all is OK”, while there is some severe, bleeding mental wound that needs to be taken care of.

Thus, if people have a bad trip and then seek out medical help, that is no “evil side effect” of high dosages of PY, but a very helpful - diagnostic - feature of PY. The faster and earlier the affected person seeks out professional help, the higher is the chance that the wound can heal completely.

Microdosing PY does not produce any “forced” trips, but acts on a persons inner workings and impulses, also manifest to us in DREAMS.

People with subconscious mental damage, when microdosing PY, might experience something akin to their nightmares. These are no unwanted side effects of an otherwise mindlessly entertaining pass-time, but most important for becoming conscious of mental problems that are present and that need awareness in order to heal!

The same is true with other kinds of negative side effects as well: whatever occurs that is unpleasant is a hint to an underlying, obscured problem. Once this hidden problem is revealed, it can be tackled and the mind can heal. I list some examples below.

As PY seems to enhance “solution-oriented thinking”, the answer to newly discovered inner problems can be found more easily. The therapist's task is, to help find the obstacle that prevents healing and start a therapy to remove it, thus to harness the diagnostic potential of PY.

The reason that the beneficial effects of PY stay even after the intake is stopped, can be understood this way: the wound is healed, the obstacle to more wellbeing found and removed.

Microdosing can be started any time – and stopped any time. When the patient is taking MAO-inhibitors the amount of PY to start with should be relatively low.

Generally speaking, if effects occur that hinder normal daily routines, the dose is too high.

Microdosing means: no effects on the perception – and subtle help with healing.

Microdosing PY can help with finding the right therapy

Understanding the model sketched above, “PY helps healing”, when combined with a therapy that the patient perceives as positive, this therapy will be enhanced, it will work better and faster.

When PY is combined with a therapy that the patient's body perceives as obstacle to healing, the therapy will likely create pain and be rejected.

Thus, microdosing the patient can be used to find the right therapy, when the therapist accepts that “the body knows best” how to heal, but cannot do so on its own for some reason.

To find that obstacle to self-healing, remove it and thus apply the best therapy is the noble task of any healer.

Examples for PY-microdosing-application and possible effects during microdosing

Due to the fact that PY enhances inner-body-communication, as explained above, it enhances inter-human communication as well. People become more empathic, anxiety and stress drops – and on the other hand friendliness and understanding for oneself and others rises.

That makes PY microdosing of particular interest for couples therapy, family therapy, as well as sexual therapy.

It is very well possible that during the microdosing, the patients will uncover traumatic memories they have been unaware of. The therapists task is to talk and further help to heal old, open wounds.

PY showed in lots of clinical studies its potential for depression-treatment. One study showed a 42% reduction of suicidal attempts by people using PY as the only psychedelic drug in relation to people who never used any psychedelic drug.

I speculate that PY will show positive effects in connection to sports, improved motor skills and healing micro-wounds faster, enhance concentration and find obstacles for improving capacity.

High dosages of PY have been used for patients with terminal illness to help dealing with fear of death, but generally speaking, according to my understanding, microdosing PY should be especially useful for old people, improving serenity and helping to find health problems in an early stage and giving motivation to live and “enjoy life”.

When headaches occur during microdosing, people find that drinking a given minimum amount of table water stops the headaches: this way PY makes them understand how much water they should drink per day. Again, the initial effect is pain, which is unwanted, but gets resolved pleasantly and to the patient's benefits, when they update their attitude towards how much water their body deserves.

When stomach-problems occur, PY helps with fasting and then testing each food separately, to find out what is bad for the body (independent of how “good it tastes”).

Respiratory difficulties may point to a variety of damaging outside factors, like the place the patient lives in being subject to mold, polluted air, chemicals, and so on.

PY, by itself, does not create any kind of addiction, when it has done its task to help healing the wounds, one can stop and one will WANT to stop microdosing. Sometimes people stop when they understand that “some big wound” needs awareness and time to heal, but their current life situation does not allow for this. But usually people stop as soon as they feel well – and continue to feel well.

In the attachment you find abstracts of a few studies made recently with PY so you can get a small overview about the scientific investigations of possibilities of PY to help human kind to solve many problems.

In case that you have any concrete questions how PY could be applied by you or how specific effects could be interpreted and understood, please do not hesitate to write to me at:

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Studies

The Johns Hopkins Institute

Studies by the Johns Hopkins Institute (<https://hopkinspsychedelic.org/publications>)

Griffiths, R.R., Hurwitz, E.S., Davis, A.K., Johnson, M.W., & Jesse, R. (2019). Survey of subjective “God encounter experiences”: Comparisons among naturally occurring experiences and those occasioned by the classic psychedelics psilocybin, LSD, ayahuasca, or DMT. PLoS ONE, 14(4), e0214377. (<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0214377&type=printable>)

Abstract

Naturally occurring and psychedelic drug–occasioned experiences interpreted as personal encounters with God are well described but have not been systematically compared. In this study, five groups of individuals participated in an online survey with detailed questions characterizing the subjective phenomena, interpretation, and persisting changes attributed to their single most memorable God encounter experience (n = 809 Non-Drug, 1184 psilocybin, 1251 lysergic acid diethylamide (LSD), 435 ayahuasca, and 606 N,N-dimethyltryptamine (DMT)).

Analyses of differences in experiences were adjusted statistically for demographic differences between groups. The Non-Drug Group was most likely to choose "God" as the best descriptor of that which was encountered while the psychedelic groups were most likely to choose "Ultimate Reality."

Although there were some other differences between non-drug and the combined psychedelic group, as well as between the four psychedelic groups, the similarities among these groups were most striking.

Most participants reported vivid memories of the encounter experience, which frequently involved communication with something having the attributes of being conscious, benevolent, intelligent, sacred, eternal, and all-knowing.

The encounter experience fulfilled a priori criteria for being a complete mystical experience in approximately half of the participants.

More than two thirds of those who identified as atheist before the experience no longer identified as atheist afterwards.

These experiences were rated as among the most personally meaningful and spiritually significant lifetime experiences, with moderate to strong persisting positive changes in life satisfaction, purpose, and meaning attributed to these experiences.

Among the four groups of psychedelic users, the psilocybin and LSD groups were most similar and the ayahuasca group tended to have the highest rates of endorsing positive features and enduring consequences of the experience.

Future exploration of predisposing factors and phenomenological and neural correlates of such experiences may provide new insights into religious and spiritual beliefs that have been integral to shaping human culture since time immemorial.

Johnson, M.W., Hendricks, P.S., Barrett, F.S., Griffiths, R.R. (2018). Classic Psychedelics: An integrative review of epidemiology, mystical experience, brain network function, and therapeutics. Journal of Pharmacology & Therapeutics. In Press, Accepted Manuscript.

(<https://www.sciencedirect.com/science/article/pii/S0163725818302158>)

Abstract

The purpose of this paper is to provide an integrative review and offer novel insights regarding human research with classic [psychedelics](#) (classic hallucinogens), which are [serotonin 2A receptor](#) (5-HT_{2A}R) agonists such as [lysergic acid diethylamide](#) (LSD), [mescaline](#), and [psilocybin](#). Classic psychedelics have been administered as sacraments since ancient times.

They were of prominent interest within psychiatry and neuroscience in the 1950s to 1960s, and during this time contributed to the emergence of the field of molecular neuroscience. Promising results were reported for treatment of both end-of-life psychological distress and addiction, and classic psychedelics served as tools for studying the neurobiological bases of psychological disorders.

Moreover, classic psychedelics were shown to occasion mystical experiences, which are subjective experiences reported throughout different cultures and religions involving a strong sense of unity, among other characteristics.

However, the recreational use of classic psychedelics and their association with the counterculture prompted an end to human research with classic psychedelics in the early 1970s.

We provide the most comprehensive review of epidemiological studies of classic psychedelics to date. Notable among these are a number of studies that have suggested the possibility that nonmedical naturalistic (non-laboratory) use of classic psychedelics is associated with positive mental health and prosocial outcomes, although it is clear that some individuals are harmed by classic psychedelics in non-supervised settings.

We then review recent therapeutic studies suggesting efficacy in treating psychological distress associated with life-threatening diseases, treating depression, and treating [nicotine and alcohol addictions](#).

We also describe the construct of mystical experience, and provide a comprehensive review of modern studies investigating classic psychedelic-occasioned mystical experiences and their consequences. These studies have shown classic psychedelics to fairly reliably occasion mystical experiences.

Moreover, classic-psychedelic-occasioned mystical experiences are associated with improved psychological outcomes in both [healthy volunteer and patient](#) populations. Finally, we review neuroimaging studies that suggest neurobiological mechanisms of classic psychedelics.

These studies have also broadened our understanding of the brain, the [serotonin](#) system, and the neurobiological basis of consciousness. Overall, these various lines of research suggest that classic psychedelics might hold strong potential as therapeutics, and as tools for experimentally investigating mystical experiences and behavioral-brain function more generally.

Johnson, M.W. (2018). Psychiatry might need some psychedelic therapy. *International Review of Psychiatry*. *International Review of Psychiatry*, 30(4), 285-290.

(<https://www.tandfonline.com/doi/full/10.1080/09540261.2018.1509544>)

Abstract

In historical and modern-day studies, psychedelic drugs have shown promise in managing a variety of psychiatric disorders, but their medical use has often raised controversies. The controversies have related to social, political, and legal challenges.

History

Although anthropological evidence suggests that classic psychedelic drugs (hereafter, 'psychedelics') have been used by various indigenous peoples as sacraments and healing agents before recorded history, in the mid-twentieth century they came to occupy a place at the cutting edge of psychiatric research (Johnson, Richards, & Griffiths, 2008Johnson, M. W., Richards, W. A., & Griffiths, R. R. (2008). Human hallucinogen research: Guidelines for safety. *Journal of Psychopharmacology*, 22, 603–620. doi:10.1177/0269881108093587[Crossref], [PubMed], [Web of Science ®], , [Google Scholar]).

Although some psychiatrists and researchers might be under the impression that this interest was a fad, this is far from the case. Over 1000 papers were published describing the treatment of over 40,000 patients with psychedelics (Grinspoon, 1981Grinspoon, L. (1981). LSD Reconsidered. *The Sciences*, 21, 20–23. doi:10.1002/j.2326-1951.1981.tb01901.x[Crossref], , [Google Scholar]). The discovery of lysergic acid diethylamide (LSD), with its extremely powerful subjective effects caused by infinitesimal doses, and with its structural similarity to the newly-discovered neurotransmitter serotonin, was a strong contributor to the emerging neuroscientific model that took hold in the 1950s and 1960s. In large part this new biobehavioural understanding of brain function came to replace psychodynamic models as the predominant paradigm in psychiatry.

In addition to the role of psychedelics as tools for investigating the biological substrates of the mind and behaviour (considered two sides of the same coin by the present author), promising therapeutic applications were investigated, with particularly promising findings in the treatment of both addiction and cancer-related psychiatric existential distress (Johnson & Griffiths, 2017Johnson, M. W., & Griffiths, R. R. (2017).

Potential therapeutic effects of psilocybin. *Neurotherapeutics*, 14, 734–740. doi:10.1007/s13311-017-0542-y[Crossref], [PubMed], [Web of Science ®], , [Google Scholar]).

However, despite initial excitement, research on these drugs became increasingly marginalized due to their growing use outside of clinical research settings, and their resulting association with the counter-culture movement in the late 1960s and early 1970s.

These compounds are powerful tools. Like all powerful tools, use by the incautious and unwise can (and did) lead to demonstrable harms (Carbonaro et al., 2016Carbonaro, T. M., Bradstreet, M. P., Barrett, F. S., MacLean, K. A., Jesse, R., Johnson, M. W., & Griffiths, R. R. (2016).

Survey study of challenging experiences after ingesting psilocybin mushrooms: Acute and enduring positive and negative consequences. *Journal of Psychopharmacology*, 30, 1268–1278.

doi:10.1177/0269881116662634[\[Crossref\]](#), [\[PubMed\]](#), [\[Web of Science ®\]](#), , [\[Google Scholar\]](#);
Johnson et al., 2008Johnson, M. W., Richards, W. A., & Griffiths, R. R. (2008). Human
hallucinogen research: Guidelines for safety. *Journal of Psychopharmacology*, 22, 603–620.
doi:10.1177/0269881108093587[\[Crossref\]](#), [\[PubMed\]](#), [\[Web of Science ®\]](#), , [\[Google Scholar\]](#)).

Although a few investigators who abandoned a scientific approach became ‘poster children’ for why these tools could not be trusted to scientists for human research, psychiatric pioneers such as Humphry Osmond, Abram Hoffer, Walter Pahnke, and Sidney Cohen, who are scientific heroes to the present author, were more representative of the many scientists who conducted ethical and responsible human research with psychedelics, and who knew that addressing the very real risks of these compounds was essential to making scientific and therapeutic progress.

Unfortunately for investigators like these, and for patients who might have benefitted from the fruits of cautious human psychedelic research decades ago, the early promising scientific threads of psychedelic research remained dangling for decades (Tupper, Wood, Yensen, & Johnson, 2015Tupper, K. W., Wood, E., Yensen, R., & Johnson, M. W. (2015).

Psychedelic medicine: a re-emerging therapeutic paradigm. *Canadian Medical Association Journal*, 187, 1054–1059. doi:10.1503/cmaj.141124[\[Crossref\]](#), [\[Web of Science ®\]](#), , [\[Google Scholar\]](#)).

Garcia-Romeu, A.G., & Richards, W.A. (2018). Current perspectives on psychedelic therapy: use of serotonergic hallucinogens in clinical interventions. *International Review of Psychiatry*, 30(4), 291-316.

(<https://www.tandfonline.com/doi/full/10.1080/09540261.2018.1486289>)

Abstract

Humans have used serotonergic hallucinogens (i.e. psychedelics) for spiritual, ceremonial, and recreational purposes for thousands of years, but their administration as part of a structured therapeutic intervention is still a relatively novel practice within Western medical and psychological frameworks. In the mid-20th century, considerable advances were made in developing therapeutic approaches integrating administration of low (*psycholytic*) and high (*psychedelic*) doses of serotonergic hallucinogens for treatment of a variety of conditions, often incorporating psychoanalytic concepts prevalent at that time. This work contributed seminal insights regarding how these substances may be employed with efficacy and safety in targeted therapeutic interventions, including the importance of optimizing set (frame of mind) and setting (therapeutic environment). More recently, clinical and pharmacological research has revisited the effects and therapeutic potential of psychedelics utilizing a variety of approaches. The current article provides an overview of past and present models of psychedelic therapy, and discusses important considerations for future interventions incorporating the use of psychedelics in research and clinical practice.

Barrett, F.S., Preller, K.H., & Kaelen, M. (2018). Psychedelics and music: neuroscience and therapeutic implications. *International Review of Psychiatry*, 30(4), 350-362.

(<https://www.tandfonline.com/doi/full/10.1080/09540261.2018.1484342>)

Abstract

From the beginning of therapeutic research with psychedelics, music listening has been consistently used as a method to guide or support therapeutic experiences during the acute effects of psychedelic drugs. Recent findings point to the potential of music to support meaning-making, emotionality, and mental imagery after the administration of psychedelics, and suggest that music plays an important role in facilitating positive clinical outcomes of psychedelic therapy.

This review explores the history of, contemporary research on, and future directions regarding the use of music in psychedelic research and therapy, and argues for more detailed and rigorous investigation of the contribution of music to the treatment of psychiatric disorders within the novel framework of psychedelic therapy.

Noorani, T., Garcia-Romeu, A., Swift, T.C., Griffiths, R.R., & Johnson, M.W. (2018). Psychedelic therapy for smoking cessation: Qualitative analysis of participant accounts. Journal of Psychopharmacology, 32(7), 756-769.

(<https://www.ncbi.nlm.nih.gov/pubmed/29938565>)

Abstract

BACKGROUND:

Recent pilot trials suggest feasibility and potential efficacy of psychedelic-facilitated addiction treatment interventions. Fifteen participants completed a psilocybin-facilitated smoking cessation pilot study between 2009 and 2015.

AIMS:

The aims of this study were as follows: (1) to identify perceived mechanisms of change leading to smoking cessation in the pilot study; (2) to identify key themes in participant experiences and long-term outcomes to better understand the therapeutic process.

METHODS:

Participants were invited to a retrospective follow-up interview an average of 30 months after initial psilocybin sessions. Semi-structured interviews were conducted with 12 of the 15 participants. Data were analysed using thematic analysis.

RESULTS:

Participants reported gaining vivid insights into self-identity and reasons for smoking from their psilocybin sessions. Experiences of interconnectedness, awe, and curiosity persisted beyond the duration of acute drug effects. Participants emphasised that the content of psilocybin experiences overshadowed any short-term withdrawal symptoms. Preparatory counselling, strong rapport with the study team, and a sense of momentum once engaged in the study treatment were perceived as vital additional factors in achieving abstinence. In addition, participants reported a range of persisting positive changes beyond smoking cessation, including increased aesthetic appreciation, altruism, and pro-social behaviour.

CONCLUSIONS:

The findings highlight the value of qualitative research in the psychopharmacological investigation of psychedelics.

They describe perceived connections between drug- and non-drug factors, and provide suggestions for future research trial design and clinical applications.

Griffiths, R.R., Johnson, M.W., Richards, W.A., Richards, B.D., Jesse, R., MacLean, K.A., Barrett, F.S., Cosimano, M.P., & Klinedinst, M.A. (2018). Psilocybin-occasioned mystical-type experience in combination with meditation and other spiritual practices produces enduring positive changes in psychological functioning and in trait measures of prosocial attitudes and behaviors. *Journal of Psychopharmacology*, 32(1), 49-69.

(<https://journals.sagepub.com/doi/pdf/10.1177/0269881117731279>)

Abstract

Psilocybin can occasion mystical-type experiences with participant-attributed increases in well-being. However, little research has examined enduring changes in traits. This study administered psilocybin to participants who undertook a program of meditation/spiritual practices.

Healthy participants were randomized to three groups (25 each): (1) very low-dose (1 mg/70 kg on sessions 1 and 2) with moderate-level (“standard”) support for spiritual-practice (LD-SS); (2) high-dose (20 and 30 mg/70 kg on sessions 1 and 2, respectively) with standard support (HD-SS); and (3) high-dose (20 and 30 mg/70kg on sessions 1 and 2, respectively) with high support for spiritual practice (HD-HS). Psilocybin was administered double-blind and instructions to participants/ staff minimized expectancy confounds. Psilocybin was administered 1 and 2 months after spiritual-practice initiation.

Outcomes at 6 months included rates of spiritual practice and persisting effects of psilocybin. Compared with low-dose, high-dose psilocybin produced greater acute and persisting effects.

At 6 months, compared with LD-SS, both high-dose groups showed large significant positive changes on longitudinal measures of interpersonal closeness, gratitude, life meaning/purpose, forgiveness, death transcendence, daily spiritual experiences, religious faith and coping, and community observer ratings.

Determinants of enduring effects were psilocybin-occasioned mystical-type experience and rates of meditation/spiritual practices.

Psilocybin can occasion enduring trait-level increases in prosocial attitudes/behaviors and in healthy psychological functioning.

Trial Registration

ClinicalTrials.gov Identifier NCT00802282

Johnson, M.J., Garcia-Romeu, A., Johnson, P.S. & Griffiths, R.R. (2017). An online survey of tobacco smoking cessation associated with naturalistic psychedelic use. Journal of Psychopharmacology, 31(7), 841-850.

(<https://files.csp.org/Psilocybin/Johnson2017SmokingSurvey.pdf>)

Abstract

Data suggest psychedelics such as psilocybin and lysergic acid diethylamide (LSD) may hold therapeutic potential in the treatment of addictions, including tobacco dependence. This retrospective cross-sectional anonymous online survey characterized 358 individuals (52 females) who reported having quit or reduced smoking after ingesting a psychedelic in a non-laboratory setting ≥ 1 year ago.

On average, participants smoked 14 cigarettes/ day for 8 years, and had five previous quit attempts before their psychedelic experience. Of the 358 participants, 38% reported continuous smoking cessation after psychedelic use (quitters). Among quitters, 74% reported >2 years' abstinence. Of the 358 participants, 28% reported a persisting reduction in smoking (reducers), from a mode of 300 cigarettes/month before, to a mode of 1 cigarette/month after the experience. Among reducers, 62% reported >2 years of reduced smoking. Finally, 34% of the 358 participants (relapsers) reported a temporary smoking reduction before returning to baseline smoking levels, with a mode time range to relapse of 3–6 months.

Relapsers rated their psychedelic experience significantly lower in personal meaning and spiritual significance than both other groups. Participants across all groups reported less severe affective withdrawal symptoms (e.g. depression, craving) after psychedelic use compared with previous quit attempts, suggesting a potential mechanism of action for psychedelic-associated smoking cessation/reduction.

Changes in life priorities/values were endorsed as the most important psychological factor associated with smoking cessation/reduction. Results suggest psychedelics may hold promise in treating tobacco addiction as potentially mediated by spiritual experience, changed priorities/values, and improved emotional regulation.

Barrett, F.S., Johnson, M.W., & Griffiths, R.R. (2017). Neuroticism is associated with challenging experiences with psilocybin mushrooms. *Personality and Individual Differences*, 117, 155-160.

(<https://files.csp.org/Psilocybin/Barrett2017Neuroticism.pdf>)

Abstract

Objectives:

Classic hallucinogens (e.g. psilocybin and LSD) have substantial effects on perception, cognition, and emotion that can often be psychologically challenging, however we know very little regarding the source of significant individual variability that has been observed in the frequency and intensity of challenging experiences (i.e. “bad trips”) with psychedelics. Previous clinical and observational literature suggests that there may be an association between neuroticism and challenging psychedelic experiences.

Methods:

Data from two online surveys of challenging experiences with psilocybin were analyzed. Multivariate analysis was used to estimate the associations between total score and scores from seven sub-factors (fear, grief, physical distress, insanity, isolation, death, and paranoia) of the Challenging Experience Questionnaire (CEQ), and scale scores from the Ten Item Personality Inventory (TIPI) in Study 1 (N = 1993) and the Big Five Inventory (BFI) in Study 2 (N = 981).

Results:

CEQ scores were negatively associated with emotional stability scores (the inverse of neuroticism) in Study 1 and positively associated with neuroticism scores in Study 2.

Conclusions:

Neuroticism may contribute to the strength of challenging experiences with psychedelics in uncontrolled settings

Barrett, F.S., Robbin, H., Smooke, D., Brown, J.L., & Griffiths, R.R. (2017). Qualitative and Quantitative Features of Music Reported to Support Peak Mystical Experiences during Psychedelic Therapy Sessions. *Frontiers in Psychology*, 8, 1-12.

(<https://files.csp.org/Psilocybin/Barrett2017Music.pdf>)

Abstract

Psilocybin is a classic (serotonergic) hallucinogen (“psychedelic” drug) that may occasion mystical experiences (characterized by a profound feeling of oneness or unity) during acute effects. Such experiences may have therapeutic value. Research and clinical applications of psychedelics usually include music listening during acute drug effects, based on the expectation that music will provide psychological support during the acute effects of psychedelic drugs, and may even facilitate the occurrence of mystical experiences. However, the features of music chosen to support the different phases of drug effects are not well-specified.

As a result, there is currently neither real guidance for the selection of music nor standardization of the music used to support clinical trials with psychedelic drugs across various research groups or therapists. A description of the features of music found to be supportive of mystical experience will allow for the standardization and optimization of the delivery of psychedelic drugs in both research trials and therapeutic contexts. To this end, we conducted an anonymous survey of individuals with extensive experience administering psilocybin or psilocybin-containing mushrooms under research or therapeutic conditions, in order to identify the features of commonly used musical selections that have been found by therapists and research staff to be supportive of mystical experiences within a psilocybin session.

Ten respondents yielded 24 unique recommendations of musical stimuli supportive of peak effects with psilocybin, and 24 unique recommendations of musical stimuli supportive of the period leading up to a peak experience. Qualitative analysis (expert rating of musical and music-theoretic features of the recommended stimuli) and quantitative analysis (using signal processing and music-information retrieval methods) of 22 of these stimuli yielded a description of peak period music that was characterized by regular, predictable, formulaic phrase structure and orchestration, a feeling of continuous movement and forward motion that slowly builds over time, and lower perceptual brightness when compared to pre peak music.

These results provide a description of music that may be optimally supportive of peak psychedelic experiences. This description can be used to guide the selection and composition of music for future psychedelic research and therapy sessions.

Barrett F.S. & Griffiths, R.R. (2017). Classic Hallucinogens and Mystical Experiences: Phenomenology and Neural Correlates in AL Halberstadt, FX Vollenweider, and DE Nichols (Eds.) Behavioral Neurobiology of Psychedelic Drugs, Curr Top Behav Neurosci. Epub Ahead of Print: 2017 Mar 26. DOI: 10.1007/7854_2017_474

(<https://files.csp.org/Psilocybin/Barrett2017Phenomenology.pdf>)

Abstract

This chapter begins with a brief review of descriptions and definitions of mystical-type experiences and the historical connection between classic hallucinogens and mystical experiences. The chapter then explores the empirical literature on experiences with classic hallucinogens in which claims about mystical or religious experiences have been made.

A psychometrically validated questionnaire is described for the reliable measurement of mystical-type experiences occasioned by classic hallucinogens. Controlled laboratory studies show that under double-blind conditions that provide significant controls for expectancy bias, psilocybin can occasion complete mystical experiences in the majority of people studied.

These effects are dose-dependent, specific to psilocybin compared to placebo or a psychoactive control substance, and have enduring impact on the moods, attitudes, and behaviors of participants as assessed by self-report of participants and ratings by community observers.

Other studies suggest that enduring personal meaning in healthy volunteers and therapeutic outcomes in patients, including reduction and cessation of substance abuse behaviors and reduction of anxiety and depression in patients with a life-threatening cancer diagnosis, are related to the occurrence of mystical experiences during drug sessions.

The final sections of the chapter draw parallels in human neuroscience research between the neural bases of experiences with classic hallucinogens and the neural bases of meditative practices for which claims of mystical-type experience are sometimes made.

From these parallels, a functional neural model of mystical experience is proposed, based on changes in the default mode network of the brain that have been observed after the administration of classic hallucinogens and during meditation practices for which mystical-type claims have been made.

Johnson, M.W. & Griffiths, R.R. (2017). Potential therapeutic effects of psilocybin. *Neurotherapeutics*, 14(3), 734-740.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5509636/>)

Abstract

Psilocybin and other 5-hydroxytryptamine_{2A} agonist classic psychedelics have been used for centuries as sacraments within indigenous cultures.

In the mid-twentieth century they were a focus within psychiatry as both probes of brain function and experimental therapeutics.

By the late 1960s and early 1970s these scientific inquiries fell out of favor because classic psychedelics were being used outside of medical research and in association with the emerging counter culture.

However, in the twenty-first century, scientific interest in classic psychedelics has returned and grown as a result of several promising studies, validating earlier research. Here, we review therapeutic research on psilocybin, the classic psychedelic that has been the focus of most recent research. For mood and anxiety disorders, three controlled trials have suggested that psilocybin may decrease symptoms of depression and anxiety in the context of cancer-related psychiatric distress for at least 6 months following a single acute administration.

A small, open-label study in patients with treatment-resistant depression showed reductions in depression and anxiety symptoms 3 months after two acute doses. For addiction, small, open-label pilot studies have shown promising success rates for both tobacco and alcohol addiction.

Safety data from these various trials, which involve careful screening, preparation, monitoring, and follow-up, indicate the absence of severe drug-related adverse reactions.

Modest drug-related adverse effects at the time of medication administration are readily managed.

US federal funding has yet to support therapeutic psilocybin research, although such support will be important to thoroughly investigate efficacy, safety, and therapeutic mechanisms.

Johnson, M.W., Garcia-Romeu, A., & Griffiths, R.R. (2017). Long-term follow-up of psilocybin-facilitated smoking cessation. *The American Journal of Drug and Alcohol Abuse*, 43(1), 55-60.

(<https://files.csp.org/Psilocybin/Johnson2017Smoking.pdf>)

Abstract

Background:

A recent open-label pilot study (N = 15) found that two to three moderate to high doses (20 and 30 mg/70 kg) of the serotonin 2A receptor agonist, psilocybin, in combination with cognitive behavioral therapy (CBT) for smoking cessation, resulted in substantially higher 6-month smoking abstinence rates than are typically observed with other medications or CBT alone.

Objectives:

To assess long-term effects of a psilocybin-facilitated smoking cessation program at ≥ 12 months after psilocybin administration.

Methods:

The present report describes biologically verified smoking abstinence outcomes of the previous pilot study at ≥ 12 months, and related data on subjective effects of psilocybin.

Results:

All 15 participants completed a 12-month follow-up, and 12 (80%) returned for a long-term (≥ 16 months) follow-up, with a mean interval of 30 months (range = 16–57 months) between target-quit date (i.e., first psilocybin session) and long-term follow-up. At 12-month follow-up, 10 participants (67%) were confirmed as smoking abstinent. At long-term follow-up, nine participants (60%) were confirmed as smoking abstinent. At 12-month follow-up 13 participants (86.7%) rated their psilocybin experiences among the five most personally meaningful and spiritually significant experiences of their lives.

Conclusion:

These results suggest that in the context of a structured treatment program, psilocybin holds considerable promise in promoting long-term smoking abstinence. The present study adds to recent and historical evidence suggesting high success rates when using classic psychedelics in the treatment of addiction. Further research investigating psilocybin-facilitated treatment of substance use disorders is warranted.

Nichols, D.E., Johnson, M.W., Nichols, C.D. (2017). Psychedelics as medicines: An emerging new paradigm. *Clinical Pharmacology & Therapeutics*, 101 (2), 209-219.

(<https://www.ncbi.nlm.nih.gov/pubmed/28019026>)

Abstract

Scientific interest in serotonergic psychedelics (e.g., psilocybin and LSD; 5-HT_{2A} receptor agonists) has dramatically increased within the last decade.

Clinical studies administering psychedelics with psychotherapy have shown preliminary evidence of robust efficacy in treating anxiety and depression, as well as addiction to tobacco and alcohol. Moreover, recent research has suggested that these compounds have potential efficacy against inflammatory diseases through novel mechanisms, with potential advantages over existing antiinflammatory agents.

We propose that psychedelics exert therapeutic effects for psychiatric disorders by acutely destabilizing local brain network hubs and global network connectivity via amplification of neuronal avalanches, providing the occasion for brain network "resetting" after the acute effects have resolved.

Antiinflammatory effects may hold promise for efficacy in treatment of inflammation-related nonpsychiatric as well as potentially for psychiatric disorders.

Serotonergic psychedelics operate through unique mechanisms that show promising effects for a variety of intractable, debilitating, and lethal disorders, and should be rigorously researched.

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Griffiths, R.R., Johnson, M.W., Carducci, M.A., Umbricht, A., Richards, W.A., Richards, B.D., Cosimano, M.P., & Klinedinst, M.A. (2016). Psilocybin produces substantial and sustained decreases in depression and anxiety in patients with life-threatening cancer: A randomized double-blind trial. *Journal of Psychopharmacology*, 30(12), 1181-1197.

(<https://journals.sagepub.com/doi/pdf/10.1177/0269881116675513>)

Abstract

Cancer patients often develop chronic, clinically significant symptoms of depression and anxiety. Previous studies suggest that psilocybin may decrease depression and anxiety in cancer patients. The effects of psilocybin were studied in 51 cancer patients with life-threatening diagnoses and symptoms of depression and/or anxiety.

This randomized, double-blind, cross-over trial investigated the effects of a very low (placebo-like) dose (1 or 3 mg/70 kg) vs. a high dose (22 or 30 mg/70 kg) of psilocybin administered in counterbalanced sequence with 5 weeks between sessions and a 6-month follow-up.

Instructions to participants and staff minimized expectancy effects. Participants, staff, and community observers rated participant moods, attitudes, and behaviors throughout the study. High-dose psilocybin produced large decreases in clinician- and self-rated measures of depressed mood and anxiety, along with increases in quality of life, life meaning, and optimism, and decreases in death anxiety.

At 6-month follow-up, these changes were sustained, with about 80% of participants continuing to show clinically significant decreases in depressed mood and anxiety. Participants attributed improvements in attitudes about life/self, mood, relationships, and spirituality to the high-dose experience, with >80% endorsing moderately or greater increased well-being/life satisfaction.

Community observer ratings showed corresponding changes.

Mystical-type psilocybin experience on session day mediated the effect of psilocybin dose on therapeutic outcomes.

Trial Registration ClinicalTrials.gov identifier: NCT00465595

Garcia-Romeu, A., Kersgaard, B., & Addy, P.H. (2016) Clinical applications of hallucinogens: A review. *Experimental Clinical Psychopharmacology*, 24(4), 229-268.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5001686/>)

Abstract

Hallucinogens fall into several different classes, as broadly defined by pharmacological mechanism of action, and chemical structure.

These include psychedelics, entactogens, dissociatives, and other atypical hallucinogens. Although these classes do not share a common primary mechanism of action, they do exhibit important similarities in their ability to occasion temporary but profound alterations of consciousness, involving acute changes in somatic, perceptual, cognitive, and affective processes.

Such effects likely contribute to their recreational use. However, a growing body of evidence indicates that these drugs may have therapeutic applications beyond their potential for abuse.

This review will present data on several classes of hallucinogens with a particular focus on psychedelics, entactogens, and dissociatives, for which clinical utility has been most extensively documented.

Information on each class is presented in turn, tracing relevant historical insights, highlighting similarities and differences between the classes from the molecular to the behavioral level, and presenting the most up-to-date information on clinically oriented research with these substances, with important ramifications for their potential therapeutic value.

Barrett, F.S., Bradstreet, M.P., Leoutsakos, J-M.S., Johnson, M.W. & Griffiths, R.R. (2016). The Challenging Experience Questionnaire: Characterization of challenging experiences with psilocybin mushrooms. Journal of Psychopharmacology, 30(12), 1279-1295.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5549781/pdf/nihms884881.pdf>)

Abstract

Acute adverse psychological reactions to classic hallucinogens (“bad trips”, or “challenging experiences”), while usually benign with proper screening, preparation, and support in controlled settings, remain a safety concern in uncontrolled settings (such as illicit use contexts).

Anecdotal and case reports suggest potential adverse acute symptoms including affective (panic, depressed mood), cognitive (confusion, feelings of losing sanity), and somatic (nausea, heart palpitation) symptoms. Responses to items from several hallucinogen-sensitive questionnaires (Hallucinogen Rating Scale, the States of Consciousness Questionnaire, and the 5-Dimensional Altered States of Consciousness questionnaire) in an internet survey of challenging experiences with the classic hallucinogen psilocybin were used to construct and validate a Challenging Experience Questionnaire (CEQ).

The stand-alone CEQ was then validated in a separate sample. Seven CEQ factors (grief, fear, death, insanity, isolation, physical distress, and paranoia) provide a phenomenological profile of challenging aspects of experiences with psilocybin.

Factor scores were associated with the difficulty, meaningfulness, spiritual significance, and change in wellbeing attributed to the challenging experiences. The factor structure did not differ based on gender or prior struggle with anxiety or depression.

The CEQ provides a basis for future investigation of predictors and outcomes of challenging experiences with psilocybin, and should be explored as a measure of challenging experiences with the broad class of classic hallucinogens.

Carbonaro, T.M., Bradstreet, M.P., Barrett, F.S., MacLean, K.A., Jesse, R., Johnson, M.W., & Griffiths, R.R. (2016). Survey study of challenging experiences after ingesting psilocybin mushrooms: Acute and enduring positive and negative consequences. *Journal of Psychopharmacology*, 30(12). 1268-1278.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5551678/>)

Abstract

Acute and enduring adverse effects of psilocybin have been reported anecdotally, but have not been well characterized. For this study, 1993 individuals (mean age 30 yrs; 78% male) completed an online survey about their single most psychologically difficult or challenging experience (worst “bad trip”) after consuming psilocybin mushrooms.

Thirty-nine percent rated it among the top five most challenging experiences of his/her lifetime. Eleven percent put self or others at risk of physical harm; factors increasing the likelihood of risk included estimated dose, duration and difficulty of the experience, and absence of physical comfort and social support.

Of the respondents, 2.6% behaved in a physically aggressive or violent manner and 2.7% received medical help.

Of those whose experience occurred >1 year before, 7.6% sought treatment for enduring psychological symptoms.

Three cases appeared associated with onset of enduring psychotic symptoms and three cases with attempted suicide.

Multiple regression analysis showed degree of difficulty was positively associated, and duration was negatively associated, with enduring increases in well-being.

Difficulty of experience was positively associated with dose. Despite difficulties, 84% endorsed benefiting from the experience.

The incidence of risky behavior or enduring psychological distress is extremely low when psilocybin is given in laboratory studies to screened, prepared, and supported participants.

Bogenschutz, M.P & Johnson, M.W. (2016). Classic hallucinogens in the treatment of addictions. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 64, 250-258.

(http://www.centerforintegrativepsychology.org/Bogenschutz_16%20Psychedelics%20as%20aids%20for%20addiction%20therapy_Review.pdf)

Abstract

Addictive disorders are very common and have devastating individual and social consequences. Currently available treatment is moderately effective at best.

After many years of neglect, there is renewed interest in potential clinical uses for classic hallucinogens in the treatment of addictions and other behavioral health conditions. In this paper we provide a comprehensive review of both historical and recent clinical research on the use of classic hallucinogens in the treatment of addiction, selectively review other relevant research concerning hallucinogens, and suggest directions for future research.

Clinical trial data are very limited except for the use of LSD in the treatment of alcoholism, where a meta-analysis of controlled trials has demonstrated a consistent and clinically significant beneficial effect of high-dose LSD.

Recent pilot studies of psilocybin-assisted treatment of nicotine and alcohol dependence had strikingly positive outcomes, but controlled trials will be necessary to evaluate the efficacy of these treatments.

Although plausible biological mechanisms have been proposed, currently the strongest evidence is for the role of mystical or other meaningful experiences as mediators of therapeutic effects.

Classic hallucinogens have an excellent record of safety in the context of clinical research.

Given our limited understanding of the clinically relevant effects of classic hallucinogens, there is a wealth of opportunities for research that could contribute important new knowledge and potentially lead to valuable new treatments for addiction.

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Barrett, F.S., Johnson, M.W., & Griffiths, R.R. (2015). Validation of the revised Mystical Experience Questionnaire in experimental session with psilocybin. *Journal of Psychopharmacology*, 29(11), 1182-1190.

(<https://files.csp.org/Psilocybin/Barrett2015MysticalExperience.pdf>)

Abstract

The 30-item revised Mystical Experience Questionnaire (MEQ30) was previously developed within an online survey of mystical-type experiences occasioned by psilocybin-containing mushrooms.

The rated experiences occurred on average eight years before completion of the questionnaire. The current paper validates the MEQ30 using data from experimental studies with controlled doses of psilocybin. Data were pooled and analyzed from five laboratory experiments in which participants (n=184) received a moderate to high oral dose of psilocybin (at least 20 mg/70 kg).

Results of confirmatory factor analysis demonstrate the reliability and internal validity of the MEQ30. Structural equation models demonstrate the external and convergent validity of the MEQ30 by showing that latent variable scores on the MEQ30 positively predict persisting change in attitudes, behavior, and well-being attributed to experiences with psilocybin while controlling for the contribution of the participant-rated intensity of drug effects.

These findings support the use of the MEQ30 as an efficient measure of individual mystical experiences. A method to score a “complete mystical experience” that was used in previous versions of the mystical experience questionnaire is validated in the MEQ30, and a stand-alone version of the MEQ30 is provided for use in future research.

Sessa, B. & Johnson, M.W. (2015). Can psychedelic compounds play a part in drug dependence therapy? *The British Journal of Psychiatry*, 206(1), 1-3.

(<https://pdfs.semanticscholar.org/49ba/b450f1f2b7f760f79ee8d08b70eb1799f312.pdf>)

Abstract

After a 40-year hiatus there is now a revisiting of psychedelic drug therapy throughout psychiatry, with studies examining the drugs psilocybin, ketamine, ibogaine and ayahuasca in the treatment of drug dependence.

Limitations to these therapies are both clinical and legal, but the possibility of improving outcomes for patients with substance dependency imposes an obligation to research this area.

Hendricks, P.S., Johnson, M.W., & Griffiths, R.R. (2015). Psilocybin, psychological distress, and suicidality. *Journal of Psychopharmacology* 29(9), 1041-1043.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4721603/>)

Abstract

[Hendricks et al. \(2015\)](#) found that having ever used any classic psychedelic substance—namely, dimethyltryptamine (DMT), ayahuasca, lysergic acid diethylamide (LSD), mescaline, peyote or San Pedro, or psilocybin—was associated with a significantly reduced likelihood of past month psychological distress (weighted OR = .81 (.72–.91)), past year suicidal thinking (weighted OR = .86 (.78–.94)), past year suicidal planning (weighted OR = .71 (.54–.94)), and past year suicide attempt (weighted OR = .64 (.46–.89)) in the United States adult population.

Although these findings comport with an emerging literature suggesting classic psychedelics may be effective in the treatment of mental health conditions and prevention of self-harm, they do not speak to the potential risk profile or therapeutic applications of psilocybin in particular, which is the most commonly examined classic psychedelic in contemporary clinical research.

Considering that psilocybin may be a candidate for future approved medical use in the United States, the United Kingdom, and other nations ([Bogenschutz et al., 2015](#); [Grob et al., 2011](#); [Johnson et al., 2014](#); see also [Nutt et al., 2013](#)), an analysis of the specific relationships of psilocybin use with psychological distress and suicidality may help inform decisions by the United States Food and Drug Administration and regulatory bodies of other nations.

The objectives of the current research, therefore, were to extend the analysis of [Hendricks et al. \(2015\)](#) by evaluating the associations of lifetime psilocybin use, per se, with past month psychological distress, past year suicidal thinking, past year suicidal planning, and past year suicide attempt in the United States adult population. Methods and data analysis were similar to those of [Hendricks et al. \(2015\)](#).

Participants in the current study were adult (≥ 18 years old) respondents of the National Survey on Drug Use and Health pooled across years 2008 through 2012 with valid data on the variables of interest.

To isolate unique associations with psilocybin use, four mutually exclusive groups of respondents were examined:

1. Psilocybin Only (those reporting lifetime use of psilocybin but no other classic psychedelic);
2. Psilocybin & Other Psychedelics (those reporting lifetime use of psilocybin in addition to other classic psychedelics);
3. Non-Psilocybin Psychedelics Only (those reporting lifetime use of any classic psychedelic with the exception of psilocybin); and
4. No Psychedelics (those reporting no lifetime use of any classic psychedelic substance).

The primary outcome variables were past month psychological distress (yes = 1 or no = 0), past year suicidal thinking (yes = 1 or no = 0), past year suicidal planning (yes = 1 or no = 0), and past year suicide attempt (yes = 1 or no = 0).

Multivariate logistic regression tested the relationships of group membership with the outcome variables while controlling for age, gender, ethnoracial identity, educational attainment, annual household income, marital status, self-reported engagement in risky behavior, and lifetime illicit use of cocaine, other stimulants, sedatives, tranquilizers, heroin, pain relievers, marijuana, 3, 4-methylenedioxymethamphetamine (MDMA)/ecstasy, phencyclidine (PCP), and inhalants.

For each regression model, six planned contrasts were conducted:

- 1) Psilocybin Only vs. No Psychedelics;
- 2) Psilocybin Only vs. Psilocybin & Other Psychedelics;
- 3) Psilocybin Only vs. Non-Psilocybin Psychedelics Only;
- 4) Psilocybin Only and Psilocybin & Other Psychedelics (i.e. all respondents reporting lifetime use of psilocybin) vs. No Psychedelics;
- 5) Psilocybin Only and Psilocybin & Other Psychedelics vs. Non-Psilocybin Psychedelics Only; and
- 6) Psilocybin Only and Psilocybin & Other Psychedelics vs. No Psychedelics and Non-Psilocybin Psychedelics Only.

In a recently published study, [Johansen and Krebs \(2015\)](#) investigated the relationships between psychedelic use and mental health problems. [Nesvåg et al. \(2015\)](#) suggest the analyses by [Johansen and Krebs \(2015\)](#) introduced overadjustment bias by controlling for lifetime other illicit substance use.

Although overadjustment typically biases results toward the null ([Schisterman et al., 2009](#)), this critique also could apply to the prior study showing positive rather than null effects ([Hendricks et al., 2015](#)) as well as to the present analyses. Overadjustment bias can be defined as “control for an intermediate variable (or a descending proxy for an intermediate variable) on a causal path from exposure to outcome” ([Schisterman et al., 2009](#): 488).

From this perspective, controlling for lifetime other illicit substance use would represent overadjustment as described by [Nesvåg et al. \(2015\)](#) in our analyses if lifetime other illicit substance use were a *consequence* of lifetime classic psychedelic or psilocybin use.

Yet, we are unaware of any data indicating that classic psychedelic or psilocybin use is a *cause* of other illicit substance use.

Indeed, the accumulated evidence suggests common factors underlie substance use behavior (e.g. impulsivity and disagreeableness; [Iacono et al., 2008](#); [Kotov et al., 2010](#); [Morrall et al., 2002](#); [Vanyukov et al., 2012](#); [Verdejo-García et al., 2008](#)), and as stated in [Hendricks et al. \(2015\)](#), several lines of research indicate that classic psychedelics including psilocybin have anti-addictive effects.

In our estimation, failure to control for lifetime other illicit substance use would represent a failure to account for suicide risk factors (i.e. substance misuse and impulsive-aggressive personality characteristics; see [Hendricks et al., 2015](#)) that overlap with, but do not appear to be caused by, classic psychedelic or psilocybin use. We therefore hold that inclusion of the aforementioned

covariates is appropriate and likely does not introduce overadjustment bias.

Of the 191,832 respondents, 7550 (2.47% weighted) fell into the Psilocybin Only group, 12,724 (6.49% weighted) fell into the Psilocybin & Other Psychedelics group, 6963 (4.59% weighted) fell into the Non-Psilocybin Psychedelics Only group, and 164,595 (86.42% weighted) fell into the No Psychedelics group.

In multi-variate logistic regression models group membership was significantly associated with past month psychological distress (Wald chi-square = 24.41, $p < .0001$), past year suicidal thinking (Wald chi-square = 17.85, $p = .0005$), past year suicidal planning (Wald chi-square = 26.13, $p < .0001$), and past year suicide attempt (Wald chi-square = 10.95, $p = .01$).

Results of planned comparisons are presented in [Table 1](#). As shown in this table, the odds of all four outcomes were reduced in the Psilocybin Only group relative to the No Psychedelics group, the odds of past year suicidal thinking and past year suicidal planning were decreased in the Psilocybin Only group relative to the Psilocybin & Other Psychedelics group, and the odds of past month psychological distress were reduced in the Psilocybin Only group relative to the Non-Psilocybin Psychedelics Only group.

Furthermore, the odds of all outcomes except for past year suicidal planning were reduced in the Psilocybin Only and Psilocybin & Other Psychedelics groups relative to the No Psychedelics group, and the odds of past month psychological distress was decreased in the Psilocybin Only and Psilocybin & Other Psychedelics groups relative to both the Non-Psilocybin Psychedelics Only group and the No Psychedelics and Non-Psilocybin Psychedelics Only groups.

In sum, the contrasts showing multiple significantly improved outcomes in the Psilocybin Only group and among those who have ever used psilocybin suggest that even among the broader class of classic psychedelics, psilocybin may be associated with the greatest therapeutic potential.

The current findings demonstrate that the potentially beneficial effects of classic psychedelic use reported by [Hendricks et al. \(2015\)](#) extend to psilocybin use per se.

Furthermore, these findings suggest that lifetime use of psilocybin but no other classic psychedelic may be especially protective with regard to psychological distress and suicidality.

This finding is consistent with data indicating that psilocybin may have the most favorable safety profile of all classic psychedelic substances ([Gable 1993, 2004](#)).

Psilocybin in particular may thus hold promise as an innovative mental health intervention and suicide prophylaxis.

For other indications for which psilocybin is currently being studied (cancer-related anxiety/depression and addictions; [Bogenschutz et al., 2015](#); [Grob et al., 2011](#); [Johnson et al., 2014](#)), the present results also address a safety concern.

That is, based on the highly sensationalized cultural history of classic psychedelics, some in the public may be concerned that controlled clinical prescription application of psilocybin may increase the risk of suicide.

The present data do not provide support for this concern and are consistent with recently renewed clinical research suggesting possible therapeutic applications of psilocybin.

Hendricks, P.S., Thorne, C.B., Clark, C.B., Coombs, D.W., & Johnson, M.W. (2015) Classic psychedelic use is associated with reduced psychological distress and suicidality in the United States adult population. *Journal of Psychopharmacology*, 29(3), 280-288.

(<https://www.ncbi.nlm.nih.gov/pubmed/25586402>)

Abstract

Mental health problems are endemic across the globe, and suicide, a strong corollary of poor mental health, is a leading cause of death.

Classic psychedelic use may occasion lasting improvements in mental health, but the effects of classic psychedelic use on suicidality are unknown.

We evaluated the relationships of classic psychedelic use with psychological distress and suicidality among over 190,000 USA adult respondents pooled from the last five available years of the National Survey on Drug Use and Health (2008-2012) while controlling for a range of covariates.

Lifetime classic psychedelic use was associated with a significantly reduced odds of past month psychological distress (weighted odds ratio (OR)=0.81 (0.72-0.91)), past year suicidal thinking (weighted OR=0.86 (0.78-0.94)), past year suicidal planning (weighted OR=0.71 (0.54-0.94)), and past year suicide attempt (weighted OR=0.64 (0.46-0.89)), whereas lifetime illicit use of other drugs was largely associated with an increased likelihood of these outcomes.

These findings indicate that classic psychedelics may hold promise in the prevention of suicide, supporting the view that classic psychedelics' most highly restricted legal status should be reconsidered to facilitate scientific study, and suggesting that more extensive clinical research with classic psychedelics is warranted.

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Sessa B, Johnson MW. From addiction to recovery using altered states of consciousness. In: Dickins R., ed. *Psychedelic Press UK Volume 1*; Cornwall, UK: Psychedelic Press; 2015;71-80.

(<http://psypressuk.com/2015/02/17/psychedelic-press-uk-journal-2015-volume-1-now/>)

Abstract

Solve et coagula – to come apart and then reform – is a long-standing alchemical motto, a chemistry of mind and material, and arguably the most apparent philosophy in the practice and study of psychedelic efficacy. It is also an important theme that runs through our newly published Psychedelic Press UK journal: 2015 Volume 1, which is available from our new publisher website [here](#).

Chaos magician Dave Lee's article, which bears the motto as its title, describes the potential collapse in one's everyday identity through the use of psychoactive substances, and the ability to, not only heal, but provide ritualised extraordinary states of experience for workings.

The profound importance of a framework for undergoing such trips, in Dave's case the Chaos Magick model, implies the vital role that carefully mediated intentions provide when embarking on such an adventure. In *From Addiction to Recovery using Altered States of Consciousness*, Drs. Ben Sessa and Matthew Johnson recount the research by which medical science employs a similar philosophy in order to combat substance addiction; thereby taking the intention, in this case healing, and understanding it through a Medical model.

While the language differs in the models, the mechanism of *solve et coagula* remains vital in the overcoming of the identity of addiction, as it does for magickal workings. Moreover, the element of transformation that is present in psychedelic experiences, can also be seen at work in Near-Death Experiences and Out of Body Experiences: Sam Gandy examines the transformative similarities in his exploration of research *Dying to Live*.

Of course, in understanding the experience of psychedelic efficacy, it is important to be able to come to terms with the apparent warping of one's place in space-time. Serena Roney-Dougal's article *Altered States of Time: The Faery Reality* explores the folktales of people who have visited, and partied, with the fey, only to return to their own time and find that all has aged disproportionately from themselves. Living a different reality, whether that be by a little faery-cake or an invite from a friendly elf, has an effect on one's perception—an element intrinsically tied to identity.

Yet, having entered into these magickal working spaces, it is the reformation of identity and intention afterwards, as one returns to breathing the air of the everyday, where the act of healing takes shape. In *Magick and Psychedelics: It's the Drugs Talking*, Julian Vayne and Nikki Wyrd discuss the importance of returning, along with the models with which we, as a culture, use to come to terms with the nature of new psychoactive substances: MDMA's emergence in the 1980s being a case in point. And at the root of self-transformation, therefore, lies the possibility of social and cultural transformation through the manner in which understandings and uses are formed.

The cultural (re)integration and management of psychoactive plants and their cultures has been at the centre of an on-going debate between the Ethnobotanical Stewardship Council (ESC) and a group of leading academics and ayahuasca researchers: seemingly a battle between a Western, corporatised, non-profit organisation and the hallowed, white towers of academia. Centred on

whether or not the ESC is going about its business in a constructive and viable manner, Devin Van Dyck's *Reflections on ESC & the Psychedelic Renaissance* provides a detailed, thorough, and oftentimes humorous, analysis of the situation.

By the time institutions and organizations begin their battles, we have perhaps already gone too far away from the realms of, in this case, ayahuasca, for us to understand just what and whose identity is being played with: *the culture game*, as Timothy Leary might have said. Scott Halperin's article, *Arne Naess and the Archaic Revival: Sacred Plants and Environmental Consciousness*, seeks to explore the manner through which the psychedelic experience itself can provide an identity for society at large—a reawakening of the awareness of ourselves as beings intrinsically linked with our surroundings.

In 2015, I hope that the psychedelic process of *solve et coagula* can further cement magickal reawakening throughout all the ritual spaces – the spheres, the laboratories, the fields – and out into society-at-large. Pick up your copy

here: <http://psychedelicpress.co.uk/collections/books/products/psychedelic-press-uk-journal-2015-volume-1>

Garcia-Romeu, A., Griffiths, R. R., & Johnson, M. W. (2015). Psilocybin-occasioned mystical experiences in the treatment of tobacco addiction. *Current Drug Abuse Reviews*, 7(3), 157-164.

(<https://files.csp.org/Psilocybin/Garcia-Romeu2014Smoking.pdf>)

Abstract

Psilocybin-occasioned mystical experiences have been linked to persisting effects in healthy volunteers including positive changes in behavior, attitudes, and values, and increases in the personality domain of openness.

In an open-label pilot-study of psilocybin-facilitated smoking addiction treatment, 15 smokers received 2 or 3 doses of psilocybin in the context of cognitive behavioral therapy (CBT) for smoking cessation.

Twelve of 15 participants (80%) demonstrated biologically verified smoking abstinence at 6-month follow-up.

Participants who were abstinent at 6 months (n=12) were compared to participants still smoking at 6 months (n=3) on measures of subjective effects of psilocybin.

Abstainers scored significantly higher on a measure of psilocybin-occasioned mystical experience.

No significant differences in general intensity of drug effects were found between groups, suggesting that mystical-type subjective effects, rather than overall intensity of drug effects, were responsible for smoking cessation.

Nine of 15 participants (60%) met criteria for “complete” mystical experience.

Smoking cessation outcomes were significantly correlated with measures of mystical experience on session days, as well as retrospective ratings of personal meaning and spiritual significance of psilocybin sessions.

These results suggest a mediating role of mystical experience in psychedelic-facilitated addiction treatment

Hendricks, P., Clark, C., Johnson, M.W. (2014) Hallucinogen use predicts reduced recidivism among substance-involved offenders under community corrections supervision. *Journal of Psychopharmacology*, 28(1), 62-66.

(<https://www.ncbi.nlm.nih.gov/pubmed/24399338>)

Abstract

Hallucinogen-based interventions may benefit substance use populations, but contemporary data informing the impact of hallucinogens on addictive behavior are scarce. Given that many individuals in the criminal justice system engage in problematic patterns of substance use, hallucinogen treatments also may benefit criminal justice populations.

However, the relationship between hallucinogen use and criminal recidivism is unknown. In this longitudinal study, we examined the relationship between naturalistic hallucinogen use and recidivism among individuals under community corrections supervision with a history of substance involvement (n=25,622).

We found that hallucinogen use predicted a reduced likelihood of supervision failure (e.g. noncompliance with legal requirements including alcohol and other drug use) while controlling for an array of potential confounding factors (odds ratio (OR)=0.60 (0.46, 0.79)).

Our results suggest that hallucinogens may promote alcohol and other drug abstinence and prosocial behavior in a population with high rates of recidivism.

Jesse, R. and Griffiths, R.R. (2014) Psilocybin research at Johns Hopkins: A 2014 report. In: J.H. Ellens (Ed.). Seeking the Sacred with Psychoactive Substances (Volume 2) (pp 29-43). Praeger, Santa Barbara, CA

(<https://www.amazon.com/Seeking-Sacred-Psychoactive-Substances-volumes/dp/1440830878>)

Summary

Can drugs be used intelligently and responsibly to expand human consciousness and heighten spirituality? This two-volume work presents objective scientific information and personal stories aiming to answer the question.

- Includes coverage of a variety of drugs, most of which are currently illegal in the United States, accompanied by scientific explanations of how they spur spiritual experiences
- Offers compelling narratives from individuals—both laypeople and professionals—who found new dimensions within their lives and heightened their spirituality by the use of entheogens
- Supplies information about medical experiments and new treatment modes that provide definitive breakthrough methods for caring for suffering people

Grob, C.S., Bossis, A.P. & Griffiths, R.R. (2013). Use of the Classic Hallucinogen Psilocybin for Treatment of Existential Distress Associated with Cancer. In B.I. Carr and J.L. Steel (Eds), Psychological Aspects of Cancer, (pp. 291-308) Springer Science and Business Media LLC, New York.

(https://link.springer.com/chapter/10.1007/978-1-4614-4866-2_17)

Abstract

This chapter reviews the potential of a treatment approach that uses psilocybin, a novel psychoactive drug, to ameliorate the psychospiritual distress and demoralization that often accompany a life-threatening cancer diagnosis.

The focus of cutting-edge research beginning in the 1950s, the investigation of classic hallucinogens had a major impact on the evolving field of psychiatry, contributing to early discoveries of basic neurotransmitter systems and to significant developments in clinical psychopharmacology.

While published reports of therapeutic breakthroughs with difficult-to-treat and refractory patient populations were initially met with mainstream professional enthusiasm, by the late 1960s and early 1970s the growing association of hallucinogens with widespread indiscriminate use led to the temporary abandonment of this promising psychiatric treatment model.

After a hiatus lasting several decades, however, regulatory and scientific support has grown for the resumption of clinical research investigations exploring the safety and efficacy of a treatment model utilizing the classic hallucinogen, psilocybin, in a subject population that had previously demonstrated positive therapeutic response, patients with existential anxiety due to a life-threatening cancer diagnosis.

MacLean, K.A., Leoutsakos, J-M.S., Johnson, M.W., & Griffiths, R.R. (2012) Factor analysis of the Mystical Experience Questionnaire: A study of experiences occasioned by the hallucinogen psilocybin. Journal for the Scientific Study of Religion, 51(4), 721-737.

(<https://files.csp.org/Psilocybin/Psilocybin-FactorAnalysis2012.pdf>)

Abstract

A large body of historical evidence describes the use of hallucinogenic compounds, such as psilocybin mushrooms, for religious purposes.

But few scientific studies have attempted to measure or characterize hallucinogenoccasioned spiritual experiences.

The present study examined the factor structure of the Mystical Experience Questionnaire (MEQ), a self-report measure that has been used to assess the effects of hallucinogens in laboratory studies. Participants (N = 1,602) completed the 43-item MEQ in reference to a mystical or profound experience they had had after ingesting psilocybin.

Exploratory factor analysis of the MEQ retained 30 items and revealed a four-factor structure covering the dimensions of classic mystical experience: unity, noetic quality, sacredness (F1); positive mood (F2); transcendence of time/space (F3); and ineffability (F4).

MEQ factor scores showed good internal reliability and correlated with the Hood Mysticism Scale, indicating convergent validity. Participants who endorsed having had a mystical experience on psilocybin, compared to those who did not, had significantly higher factor scores, indicating construct validity.

The four-factor structure was confirmed in a second sample (N = 440) and demonstrated superior fit compared to alternative models.

The results provide initial evidence of the validity, reliability, and factor structure of a 30-item scale for measuring single, hallucinogen-occasioned mystical experiences, which may be a useful tool in the scientific study of mysticism.

Johnson, M.W., Sewell, R.A, & Griffiths, R.R. (2012). Psilocybin dose-dependently causes delayed, transient headaches in healthy volunteers. *Drug and Alcohol Dependence*, 123, 132-140.

(<https://www.ncbi.nlm.nih.gov/pubmed?term=Psilocybin%20dose-dependently%20causes%20delayed%20transient%20headaches%20in%20healthy%20volunteers>)

Abstract

BACKGROUND:

Psilocybin is a well-characterized classic hallucinogen (psychedelic) with a long history of religious use by indigenous cultures, and nonmedical use in modern societies. Although psilocybin is structurally related to migraine medications, and case studies suggest that psilocybin may be efficacious in treatment of cluster headache, little is known about the relationship between psilocybin and headache.

METHODS:

This double-blind study examined a broad range of psilocybin doses (0, 5, 10, 20, and 30 mg/70 kg) on headache in 18 healthy participants.

RESULTS:

Psilocybin frequently caused headache, the incidence, duration, and severity of which increased in a dose-dependent manner. All headaches had delayed onset, were transient, and lasted no more than a day after psilocybin administration.

CONCLUSIONS:

Possible mechanisms for these observations are discussed, and include induction of delayed headache through nitric oxide release. These data suggest that headache is an adverse event to be expected with the nonmedical use of psilocybin-containing mushrooms as well as the administration of psilocybin in human research. Headaches were neither severe nor disabling, and should not present a barrier to future psilocybin research.

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MacLean, K.A., Johnson, M.W., & Griffiths, R.R. (2011). Mystical experiences occasioned by the hallucinogen psilocybin lead to increases in the personality domain of openness. *Journal of Psychopharmacology*, 25(11), 1453-1461.

(<https://files.csp.org/Psilocybin/Psilocybin-Openness2011.pdf>)

Abstract

A large body of evidence, including longitudinal analyses of personality change, suggests that core personality traits are predominantly stable after age 30.

To our knowledge, no study has demonstrated changes in personality in healthy adults after an experimentally manipulated discrete event.

Intriguingly, double-blind controlled studies have shown that the classic hallucinogen psilocybin occasions personally and spiritually significant mystical experiences that predict long-term changes in behaviors, attitudes and values.

In the present report we assessed the effect of psilocybin on changes in the five broad domains of personality – Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness.

Consistent with participant claims of hallucinogen-occasioned increases in aesthetic appreciation, imagination, and creativity, we found significant increases in Openness following a high-dose psilocybin session.

In participants who had mystical experiences during their psilocybin session, Openness remained significantly higher than baseline more than 1 year after the session.

The findings suggest a specific role for psilocybin and mystical-type experiences in adult personality change.

Griffiths, R.R., Johnson, M.W., Richards, W.A., Richards, B.D., McCann, U., & Jesse, R. (2011). Psilocybin occasioned mystical-type experiences: Immediate and persisting dose-related effects. *Psychopharmacology*, 218(4), 649-665.

(<https://link.springer.com/article/10.1007%2Fs00213-011-2358-5>)

Abstract

Rationale

This dose-effect study extends previous observations showing that psilocybin can occasion mystical-type experiences having persisting positive effects on attitudes, mood, and behavior.

Objectives

This double-blind study evaluated psilocybin (0, 5, 10, 20, 30 mg/70 kg, p.o.) administered under supportive conditions.

Methods

Participants were 18 adults (17 hallucinogen-naïve). Five 8-h sessions were conducted individually for each participant at 1-month intervals. Participants were randomized to receive the four active doses in either ascending or descending order (nine participants each). Placebo was scheduled quasi-randomly. During sessions, volunteers used eyeshades and were instructed to direct their attention inward. Volunteers completed questionnaires assessing effects immediately after and 1 month after each session, and at 14 months follow-up.

Results

Psilocybin produced acute perceptual and subjective effects including, at 20 and/or 30 mg/70 kg, extreme anxiety/fear (39% of volunteers) and/or mystical-type experience (72% of volunteers). One month after sessions at the two highest doses, volunteers rated the psilocybin experience as having substantial personal and spiritual significance, and attributed to the experience sustained positive changes in attitudes, mood, and behavior, with the ascending dose sequence showing greater positive effects. At 14 months, ratings were undiminished and were consistent with changes rated by community observers. Both the acute and persisting effects of psilocybin were generally a monotonically increasing function of dose, with the lowest dose showing significant effects.

Conclusions

Under supportive conditions, 20 and 30 mg/70 kg psilocybin occasioned mystical-type experiences having persisting positive effects on attitudes, mood, and behavior. Implications for therapeutic trials are discussed.

Griffiths, R.R. & Grob, C.S. (2010). Hallucinogens as medicine. Scientific American, 303, 77-79.

(<https://files.csp.org/Psilocybin/SciAmHallucinogens201012.pdf>)

Pdf contains a scanned print-version and cannot be copied here. Please check the link!

Griffiths, R.R., Johnson, M.W., Richards, W.A., McCann, U., & Richards, B.D. (2008). Mystical-type experiences occasioned by psilocybin mediate the attribution of personal meaning and spiritual significance 14 months later. *Journal of Psychopharmacology*, 22(6), 621-632.

(<https://files.csp.org/Psilocybin/Hopkins-CSP-Psilocybin2008.pdf>)

Abstract

Psilocybin has been used for centuries for religious purposes; however, little is known scientifically about its long-term effects.

We previously reported the effects of a double-blind study evaluating the psychological effects of a high psilocybin dose.

This report presents the 14-month follow-up and examines the relationship of the follow-up results to data obtained at screening and on drug session days.

Participants were 36 hallucinogen-naïve adults reporting regular participation in religious/ spiritual activities. Oral psilocybin (30 mg/70 kg) was administered on one of two or three sessions, with methylphenidate (40 mg/70 kg) administered on the other session(s).

During sessions, volunteers were encouraged to close their eyes and direct their attention inward.

At the 14-month follow-up, 58% and 67%, respectively, of volunteers rated the psilocybin-occasioned experience as being among the five most personally meaningful and among the five most spiritually significant experiences of their lives;

64% indicated that the experience increased well-being or life satisfaction;

58% met criteria for having had a 'complete' mystical experience.

Correlation and regression analyses indicated a central role of the mystical experience assessed on the session day in the high ratings of personal meaning and spiritual significance at follow-up.

Of the measures of personality, affect, quality of life and spirituality assessed across the study, only a scale measuring mystical experience showed a difference from screening.

When administered under supportive conditions, psilocybin occasioned experiences similar to spontaneously occurring mystical experiences that, at 14-month follow-up, were considered by volunteers to be among the most personally meaningful and spiritually significant of their lives.

Griffiths, R.R., Richards, W.A., McCann, U., & Jesse, R. (2006). [Psilocybin can occasion mystical experiences having substantial and sustained personal meaning and spiritual significance.](#) *Psychopharmacology*, 187, 268-283.

(<https://files.csp.org/Psilocybin/Hopkins-CSP-Psilocybin2006.pdf>)

Abstract

Rationale

Although psilocybin has been used for centuries for religious purposes, little is known scientifically about its acute and persisting effects.

Objectives

This double-blind study evaluated the acute and longer-term psychological effects of a high dose of psilocybin relative to a comparison compound administered under comfortable, supportive conditions.

Materials and methods

The participants were hallucinogen-naïve adults reporting regular participation in religious or spiritual activities. Two or three sessions were conducted at 2-month intervals. Thirty volunteers received orally administered psilocybin (30 mg/70 kg) and methylphenidate hydrochloride (40 mg/70 kg) in counterbalanced order. To obscure the study design, six additional volunteers received methylphenidate in the first two sessions and unblinded psilocybin in a third session. The 8-h sessions were conducted individually. Volunteers were encouraged to close their eyes and direct their attention inward. Study monitors rated volunteers' behavior during sessions. Volunteers completed questionnaires assessing drug effects and mystical experience immediately after and 2 months after sessions. Community observers rated changes in the volunteer's attitudes and behavior.

Results

Psilocybin produced a range of acute perceptual changes, subjective experiences, and labile moods including anxiety. Psilocybin also increased measures of mystical experience. At 2 months, the volunteers rated the psilocybin experience as having substantial personal meaning and spiritual significance and attributed to the experience sustained positive changes in attitudes and behavior consistent with changes rated by community observers.

Conclusions

When administered under supportive conditions, psilocybin occasioned experiences similar to spontaneously occurring mystical experiences. The ability to occasion such experiences prospectively will allow rigorous scientific investigations of their causes and consequences

The Centre for Affective Disorders

The Centre for Affective Disorders is currently running 2 randomised, controlled trials of psilocybin. We are also likely to be starting a further study in March 2019. More information can be found below.

<https://www.kcl.ac.uk/ioppn/depts/pm/research/cfad/psilocybin-trials>

General Information

The Centre for Affective Disorders has recently been awarded a large grant from the National Institute for Health Research (NIHR) to investigate the safety, feasibility and efficacy of psilocybin as a treatment for clinical depression that has not improved with standard treatments, using the gold standard design of a randomised, placebo-controlled trial. This study will be led by Dr James Rucker and, subject to trial approvals, will recruit up to 60 participants with current depression unresponsive to the usual treatments.

The aim of the research is to determine whether psilocybin delivered with psychological support and medical supervision is a safe treatment for people with difficult to treat depression. To determine this, the trial will collect detailed data on adverse events as well as comparing participant's ratings of their depression symptoms before and after treatment and between different doses of psilocybin. We will also investigate which form of psychological support best meets the needs of those receiving psilocybin and whether we can use cognitive tests, blood tests and brain scans to understand how psilocybin works in the brain and who it might suit best.

The Centre has also been awarded funding from a commercial life sciences company, COMPASS Pathways Ltd., to undertake a study of the effects of psilocybin on cognitive and emotional processing in healthy volunteers. The Centre is also participating in COMPASS' international randomised controlled trial of psilocybin for difficult-to-treat depression that is taking place in multiple centres throughout Europe. Recruitment will start in Summer 2018. Both studies will be led by Prof. Allan Young.

The need for new directions in depression therapies

Difficult-to-treat, or 'treatment resistant' depression is clinical depression that does not respond to standard treatments. It is a major health concern for patients, carers, society and governments, but historically has been under-researched relative to other less common conditions. It is associated with high rates of suicide and worsens outcomes in a wide variety of other health problems.

Two safe and effective treatments for depression - selective serotonergic antidepressants (e.g. Prozac (fluoxetine)) and cognitive behavioural therapy - were introduced over 30 years ago, but there have been no new breakthrough treatments since then. Up to 50% of patients find they achieve little or no benefit from established treatments, suggesting an urgent need to develop alternative paradigms of therapy.

The history of psychedelics in treating depression

Prior to 1970, and the UN Conventions on Drugs, the classical psychedelics psilocybin, mescaline and d-lysergic acid diethylamide (LSD) were used as treatments in psychiatry for resistant forms of depression, anxiety and addictions. Research at that time, which was suboptimal by modern standards, suggested that they may help some people who were psychologically 'stuck' in the process of therapy to attain new perspectives on their difficulties within a safe and supportive context. This, in turn, could lead to enduring, positive behavioural change. Delivered within a medically controlled environment and with a trusted therapist, the risk of serious adverse events was thought to be relatively low. However, the classical psychedelics were thought not to be safe for people with psychotic disorders such as schizophrenia, or for people who were predisposed to developing these conditions.

After 1970, and caught up in the US-led 'war on drugs', LSD, psilocybin and mescaline were designated 'Schedule 1' substances in the UN Conventions on Drugs, meaning that they could not be prescribed by medical doctors outside of an authorised research study. Funding for such studies

dried up in the wake of hardening socio-political attitudes towards psychoactive substances. As a consequence, this area of clinical research in psychiatry came to a standstill without a clear view about whether the drugs were safe and effective when compared to placebo or other treatments. After a 30 year pause there has been a slow but steady resurgence of clinical research interest into psilocybin, which is the active component of so-called 'magic mushrooms'. An open label pilot study of psilocybin delivered with psychological support to 20 patients with difficult-to-treat depression suggested that this paradigm of treatment was feasible when delivered in a medically controlled setting. This is now being investigated further through the current trials at the Centre for Affective Disorders.

The Effects of Psilocybin on Cognitive Function in Healthy Participants

We are looking for healthy males and females aged between 18 to 65 years to take part in a study to test the effects of Psilocybin on cognitive function. Cognitive function is the way the brain processes knowledge, memory, judgement and problem solving. Psilocybin is a controlled drug and one of the ingredients of so-called 'magic mushrooms'. The most recent studies have indicated that psilocybin might facilitate improvement on cognitive function; however, these effects have not been fully evaluated and we are investigating this further. There are 7 visits in total to the Clinical Research Facility, but 3 of these would be remotely via telephone. You will be reimbursed for your time and reasonable travel expenses. For information contact: psilocybin@kcl.ac.uk

The Safety and Efficacy of Psilocybin in Participants with Treatment-Resistant Depression (P-TRD)

We are looking for people over the age of 18 with current depression that has not responded to the usual antidepressant treatments. Psilocybin is a controlled drug and one of the ingredients of so-called 'magic mushrooms'. Recent research has suggested that psilocybin may help in treating depression and we wish to investigate this further.

For more information contact psilocybin@kcl.ac.uk

Psilocybin in Depression Resistant to Standard Treatments (PsiDeR)

This study does not yet have regulatory approval, however we are anticipating a start date of around March 2019.

This study has a dedicated webpage at <http://psider.info>.

The Effects of Psilocybin on Cognitive Function in Healthy Participants

We have recently completed a study to test the effects of Psilocybin on cognitive function. Cognitive function is the way the brain processes knowledge, memory, judgement and problem solving. The most recent studies have indicated that psilocybin might facilitate improvement on cognitive function; however, these effects have not been fully evaluated and we are investigating this further. We are no longer recruiting for this study, but to register interest in any future studies with healthy participants, please email psilocybin@kcl.ac.uk