

PSYCHEDELIC ASSISTED THERAPY: A THERAPEUTIC RENAISSANCE



VICTORIAN PARLIAMENTARY INTERNSHIP PROGRAM



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Executive Summary

Recent research into psychedelic assisted therapy has shown extremely promising results, with most research focused on depression, post-traumatic stress disorder, end-of-life anxiety and addiction. Breakthrough approval has been granted by the United States' Food and Drug Administration for MDMA and psilocybin to be used in treating post-traumatic stress disorder and treatment-resistant depression respectively. In Victoria, the recent *Royal Commission into Victoria's Mental Health System* found that the current system is severely underfunded, under resourced and failing to meet both demand and community expectations. Psychedelic therapy may prove to be a crucial treatment in many mental health and addiction disorders, and should be incorporated into the Royal Commission's recommendations regarding innovative research and treatment.

Psychedelic therapy was widely researched starting in the 1950s, until psychedelics were criminalised in the 1970s in a political move by then President Richard Nixon. Recent research has slowly picked up where the original research left off, with improved standards and study designs that overcome the flaws of first generation research.

In clinical settings, psychedelics have demonstrated a high safety profile with zero evidence of addictive properties, often having a better safety profile than current treatments.

Psychedelic therapy is generally done across three sessions; a preparatory session to familiarise the therapist with the patient and their condition, a medication session in which the therapist facilitates a safe environment while the patient is encouraged to self-reflect and an integration session to follow-up and reflect on the medication session. Most current studies involve patients receiving 1-3 medication sessions in total.

Current literature points to psychedelic therapy being extremely promising, with trials consistently seeing statistically significant results in hard to reach patients. Many trials show results that greatly exceed current treatments, though results cannot be generalised yet as more phase 3 trials are required with larger and more diverse sample sizes.

The recommendations from the *Royal Commission into Victoria's Mental Health System* call for an integrated system, innovative treatment, translational research and a first-class trauma care service. These should be incorporated within a framework of psychedelic assisted therapy. This report recommends funding final stage research into clinical trials with an aim to approve clinical practice in line with the evidence.

Glossary

Abbreviations;

MDMA - ±3,4-methylenedioxyamphetamine

LSD – Lysergic acid diethylamide

PTSD – Post Traumatic Stress Disorder

AOD – Alcohol and other drug [treatment]

DALYs – Disability-adjusted life years

RCT – Randomised controlled trial

HAM-D – Hamilton Rating Scale for Depression

OCD – Obsessive compulsive disorder

MSDs – Mental & substance use disorders

Definitions;

Psychedelics – LSD, MDMA, psilocybin, ayahuasca

Meta-analysis – A pooling of results from multiple studies with similar parameters

Pilot study - A study with a very small sample size to initially determine the safety and potential efficacy of treatment

Phase 2 study – Follow up if a pilot study proves to be safe, involves a larger sample size and might involve a control group

Phase 3 study – Next stage once phase 2 is determined to be safe and effective. Generally the final study before approval, involves a much larger and more diverse sample size so that results can be generalised.

“It does not seem to be an exaggeration to say that psychedelics, used responsibly and with proper caution, would be for psychiatry what the microscope is for biology and medicine or the telescope is for astronomy. These tools make it possible to study important processes that under normal circumstances are not available for direct observation”

(Grof, 1980 in Nichols 2016, p.345)

Section 1 – Context & background

1. Introduction

There are currently two converging issues at play that have necessitated this report. The primary issue is the recent renaissance into research involving the clinical use of psychedelics for the treatment of certain mental health conditions, namely depression, addiction, end of life anxiety and post-traumatic stress disorder (PTSD). Separately, a Royal Commission was recently held into Victoria's mental health system that found chronic failures and a need for contemporary treatment. Four of the recommendations could be implemented within a framework of psychedelic assisted therapy. These are; developing an integrated mental health system, establishing the best possible service for people living with trauma, translational research and innovative treatment and care. This has provided an opportunity to combine potentially groundbreaking and breakthrough treatments of mental health disorders through the use of psychedelics while addressing key concerns raised by the recent *Royal Commission into Victoria's Mental Health System*.

Victoria's mental health system has 'catastrophically failed to live up to expectations' and is 'underprepared for current and future challenges' (State of Victoria 2021, p.3). The Commission's report found that governments at all levels have failed to prioritise mental health and wellbeing (p.3), with services being siloed and needing greater integration due to the difficulties faced by those with multiple issues accessing services (p.11).

Given the overlapping nature of mental health and addiction, this is potentially a strength of psychedelic assisted therapy, which has shown promise in treating both of these conditions, among many others (Mind Medicine Australia 2021; Argento et al. 2019, p.787), and therefore removes a point of friction for those seeking integration. For example, a recent meta-analysis examining nine placebo-controlled, randomised clinical trials of psychedelic-assisted therapy for autistic adults suffering from either PTSD, end-of-life-distress or depression found an '80% probability that a randomly selected patient undergoing psychedelic-assisted therapy will have a better outcome than a randomly selected patient receiving a placebo... with minimal adverse effects' (Louma et al. 2020, p.295). It is in this context that psychedelic assisted therapy is worth pursuing.

The Commonwealth Government has already started funding into psychedelic research, with Health Minister Greg Hunt approving a \$15M grant for research (Nichols 2021; Shams 2021) and former

Liberal Party Director Andrew Robb and former Defence Chief Admiral Christopher Barry both becoming advocates for the introduction of psychedelic therapy, through their work on the board of Mind Medicine Australia.

"It seems very likely that regulations are going to change and that these substances are going to be an important part of the future of psychiatry and psychology." Dr Vince Polito, Macquarie University cognitive psychologist (Shams 2021)

This report seeks to answer:

- what does the current literature tell us about the safety of psychedelic assisted therapy?
- is psychedelic assisted therapy worth pursuing as a treatment for addiction, depression, end-of-life distress, and PTSD?

To answer these questions, this report aims to;

- analyse existing literature
- evaluate evidence based on existing clinical trials

To do so, this report analysed the literature in peer reviewed journals, government reports and inquiries, governmental websites, non-governmental organisations websites and newspaper articles. As this was a desk review there was no original research or in person interviews conducted. All sources are referenced and can be found at the end of the report.

1.1 Mental health in Victoria

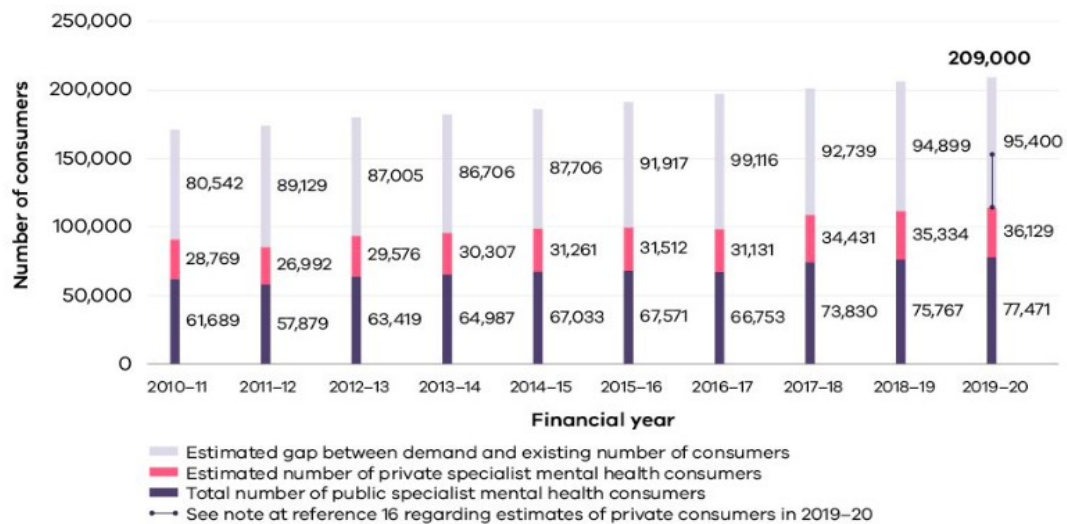
The *Royal Commission into Victoria's Mental Health System* has found that there is a gap between mental health services being demanded and services being supplied by the current system; 94,500 consumers or 329,100 hours (State of Victoria 2021, p.9 Fig.2a&b). This has led to an increasing number of visits to the emergency department for mental health related conditions (State of Victoria 2021, p.10 Fig.3)¹.

1 See Appendix 1 for information on prevalence of mental health and substance disorders

Research has shown that the leading cause of years lived with disability and disability-adjusted life years (DALYs) in Australia are mental & substance use disorders (MSDs), with DALY rates being unchanged between 1990 and 2015. In the same time period drug use disorders were responsible for a significant increase in years of life lost (Ciobanu et al 2018, p.489). The burden of disease is higher in Victoria than most of Australia, with a DALY estimate of 26.5 years per 1000 people (State of Victoria 2021, p.11). Poor mental health is estimated to cost Victoria \$14.2 billion per year. For all the extra research and policy attention MSDs have received in recent years, there has not been a noticeable decrease in the burden of disease (Ciobanu et al 2018, p.489).

Figure 2: The difference between the actual number of people receiving specialist mental health services/actual consumer-related community service hours delivered and estimated demand, all ages, Victoria, 2010–11 to 2019–20¹⁶

A. Consumers



B. Service hours

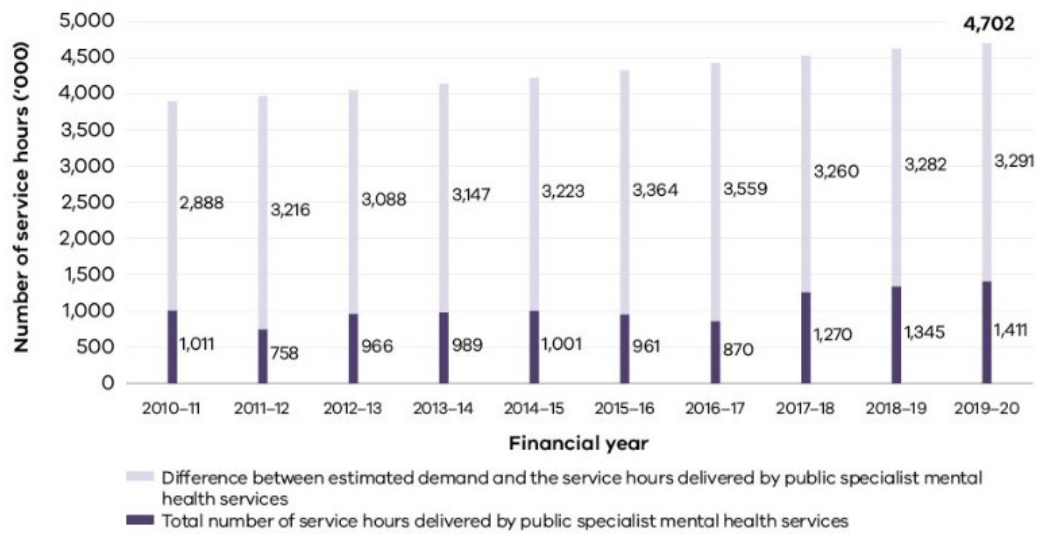
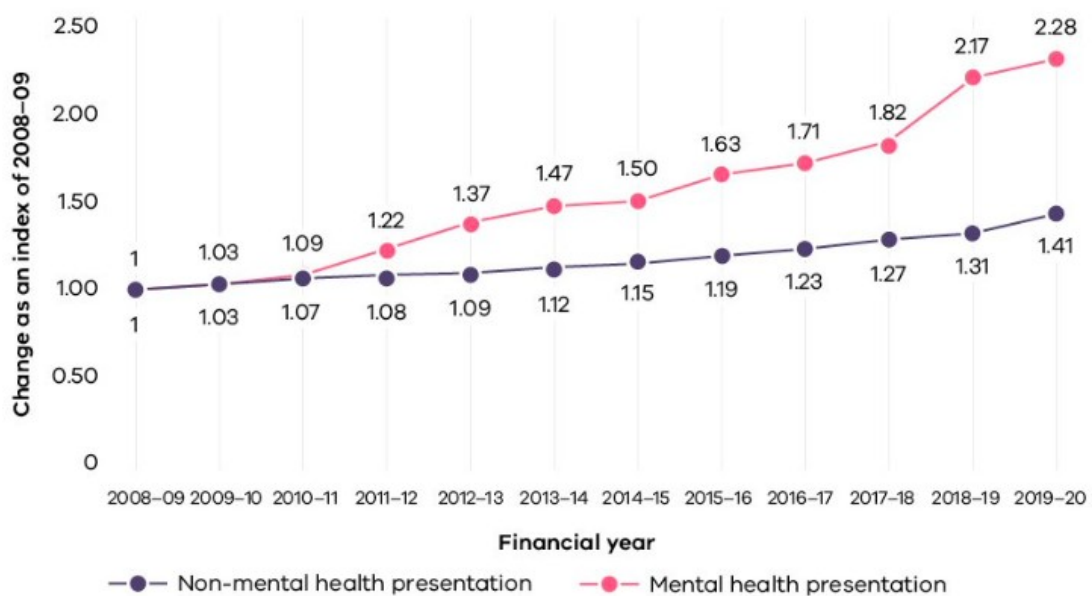


Figure 3: Change in the number of emergency department presentations, by mental health status, Victoria, 2008-09 to 2019-20¹⁷



2. Psychedelics

Psychedelics can be found in plant sources (psilocybin, ayahuasca) or manufactured in a lab (lysergic acid diethylamide (LSD), \pm 3,4-methylenedioxymethamphetamine (MDMA)) (Drug Law Reform, Road and Community Safety Committee 2018, p.21) and are generally divided into two groups; classic psychedelics and entactogens. Classic psychedelics are understood to act as agonists at the 5-HT_{2A} receptor and include psilocybin, LSD and ayahuasca amongst others. Entactogens are serotonin releasing agents which have overlapping but distinct effects, with MDMA being the primary example (Tupper et al. 2015, p.1054; Griffiths et al. 2016, p.1181; Argento et al. 2017, p.2).

Psychedelics have a history of use amongst Indigenous people, who have long been aware of their properties for both spiritual experiences but also healing abilities (Sarris et al. 2021, p.2; Reiff et al 2020, p.392). Psilocybin is found in a variety of mushroom species and has a centuries old tradition of use for spiritual experiences amongst Indigenous peoples of Central and South America (Reiff et al 2020, p.392). Ayahuasca is an Amazonian brew utilising plants native to the amazon basin, *Psychotria viridis* and *Banisteriopsis caapi*, with Indigenous cultures embracing it as a central pillar in traditional healing (Reiff et al 2020, p.397; Sarris et al. 2021, p.2; Tupper et al. 2015, p.1054).

Though there are differences in duration and effects amongst psychedelics, generally they elicit similar responses. These include hallucinations (both auditory and visual), euphoria, distortions of sensory perception (including sight and smell), enhanced empathy, enhanced closeness to others, impaired fear recognition, mystical experiences, promoting novel thought processes, reduced ego (or 'self') perception, modifying understanding of relationships, extraversion, increased interpersonal trust and feelings of authenticity and compassion for oneself and others (Reiff et al 2020, p.393-398; Drug Law Reform, Road and Community Safety Committee 2018, p.21).

“MDMA was associated with feelings of emotional well-being and was described as “penicillin for the soul”” (Reiff et al 2020, p.398)

2.1 Background

Clinical research into psychedelics (primarily LSD and psilocybin) was once widespread across North America and Europe, with trials in the 1950's and 1960's showing extreme promise for the treatment of addictions, mood disorders, anxiety disorders and end of life distress (Tupper et al. 2015, p.1056; Luoma et al. 2020, p.289; Hendricks et al. 2014, p.62; Gardner et al. 2019, p.95). It is estimated that tens of thousands of people were treated across a 15 year span using some variation of psychedelic therapy, with this becoming the standard treatment for alcoholism in Saskatchewan, Canada (Gardner et al. 2019, p.95). Clinical research effectively ended in 1970 when the *Controlled Substances Act* was passed, with over 1000 published articles discussing 40,000 patients (Nichols 2016, p.323). In 1985 when MDMA was banned, there was some evidence that it had psychotherapeutic benefits, and was widely used therapeutically (Luoma et al. 2020, p.289). Religious practices and traditional healing have made use of plant-derived psychedelics for millennia (Gardner et al. 2019, p.95).

2.2 Criminalisation and safety

The current status of psychedelics as criminalised might seem contradictory, given the success of early treatment with psychedelics. However criminalising psychedelics was not a decision made by medical experts. Rather it was a political decision made by President Richard Nixon, which has since been confirmed by his domestic-policy advisor John Ehrlichman (Baum 2016).

“The Nixon White House... had two enemies: the antiwar left and black people... by getting the public to associate the hippies with marijuana and blacks with heroin, and then criminalising both heavily, we could disrupt those communities... Did we know we were lying about the drugs? Of course we did” - John Ehrlichman, domestic-policy advisor to President Nixon (Baum 2016).

This is in direct contrast to Nixon's public explanation, which framed the war on drugs as a response to the rising use of cannabis and hallucinogens by students (LoBianco 2016). This resulted in Nixon classifying LSD and psilocybin as Schedule 1 drugs, the most prohibitive class, preventing any medical use despite there being no evidence that they exhibited addictive properties (Gardner et al. 2019, p.95).

There is no further evidence today that hallucinogens are harmful or addictive. An evaluation of the harms of various drugs by 25 experts from across Australia scored hallucinogens as the least harmful substances, with scores ranging from 5-7 out of 100 compared to alcohol (77) and crystal methamphetamine (66) (Bonomo et al. 2019, p.762; figure 2 p.764).

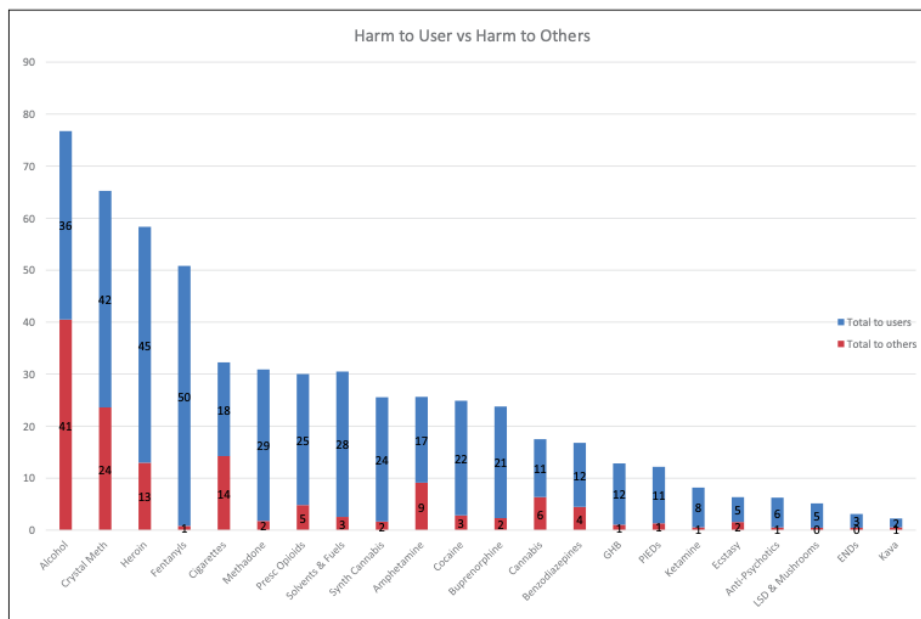


Figure 2. Contribution of harm to user and harm to others to overall harm.

This is borne out in the clinical trials, with all clinical trials in this report showing minimal adverse effects and no addictive properties. In clinical settings, adverse effects tend to be transient in nature, usually resolving during the session and resulting in reactions such as headache, increased heart rate, increased blood pressure, nausea and anxiety, with no long term harms reported; even at high doses there is no evidence of organ damage or neuropsychological deficits, with low levels of physiological toxicity (Tupper et al. 2015, p.1058; Griffiths et al. 2016, p.1187; Penn et al. 2021, p.37; Bogenschutz & Johnson 2016, p.256; Reiff et al 2020, p.395; Mithoefer et al. 2019, p.2743; Schmid et al. 2015, p.550; Johnson et al. 2014, p.990; Carhart-Harris 2018, p.403; Ross et al. 2016, p.1176; Mitchell et al. 2021, p.1032; Davis et al. 2021, p.486; Carhart-Harris et al. 2021, p.1403; Schindler et al. 2021, p.534; Sessa et al. 2021, p.375).

This is not to say that psychedelics are risk free. There is some evidence of risk that those who have a predisposition to, or existing, psychotic disorder may have this condition ‘revealed’ rather than ‘created’ (Tupper et al. 2015, p.1057; Reiff et al 2020, p.395), however it appears that the reputation for psychological or mental health issues being caused by or related to psychedelics is largely

unfounded, with potential risks almost exclusively being in non-clinical use if at all (Bogenschutz & Johnson 2016, p.256; Tupper et al. 2015, p.1057). Those that do report a challenging experience overwhelmingly (85%) claim to have benefited from it (Hendricks et al. 2018, p.46).

Further to this, studies of 130,000 and 190,000 people in the USA did not find any link between the use of psychedelics as an independent risk factor for psychological distress (Hendricks et al. 2015, p.280; Johansen & Krebs 2015, p.270).

This actually compares favourably in safety profile to many current treatments for mental health and addiction, with MDMA having a better, or at least equal, safety profile in comparison to many selective serotonin reuptake inhibitors used in treating PTSD (Mitchell et al. 2021, p.1032) and general side-effects to psychedelics being favourable to those caused by daily medications used to treat smoking addiction (Johnson et al. 2014, p.990). Johns Hopkins University evaluated medically administered psilocybin and determined it would be on par with treatments with a relatively low risk profile such as benzodiazepines (Reiff et al 2020, p.403).

"Psilocybin has almost a fail-safe built into it, to make it relatively safe as a drug — provided it's done within the right setting, given the extreme state of consciousness that it produces." Edith Cowan University's School of Medical and Health Sciences psychologist, Dr Stephen Bright (Nichols 2021)

3. The Renaissance and modern-day psychedelic assisted therapy

Over the last decade or so, the medical community has rekindled the research into psychedelics. Reputable institutions such as Johns Hopkins School of Medicine, Imperial College London, University of California, Los Angeles (UCLA), University of Basel, University of Zurich and New York University have all done studies into psychedelics, with Imperial College London and Johns Hopkins University setting up psychedelic research centres (Reiff et al 2020, p.392; Strauss et al. 2016, p.1036). This has been a result of the current need for psychiatry to find more effective treatments, with most new drugs considered to be minor tweaks of existing ones and a lack of recent breakthroughs (Luoma et al. 2020, p.290; Gardner et al. 2019, p.95).

Modern research methods have overcome the flaws associated with early research in the field, with blinded, randomised, placebo-controlled trials allowing for more robust research and results to be produced and replicated (Strauss et al. 2016, p.1036; Luoma et al. 2020, p.289; Tupper et al. 2015, p.1057).

Several organisations have developed trials that could see MDMA and psilocybin being granted approval for medical use across Europe and the USA, with the FDA already granting breakthrough approval for MDMA in 2017 and psilocybin in 2018 for PTSD and treatment-resistant depression respectively (Reiff et al 2020, p.395,399; Luoma et al. 2020, p.290).

Psychedelic research in Australia has lagged behind the rest of the world for a few reasons; there is little incentive for pharmaceutical companies to invest or lobby for changes given the nature of psychedelic therapy (1-3 treatments compared to daily medications). In addition, research institutions rely on public funding and are often therefore conservative so as to avoid controversy and psychedelic therapy is a very different type of treatment to that with which current psychiatry is familiar (Gardner et al. 2019, p.96; Strauss et al. 2016, p.1037; Perkins et al. 2021, p.7).

"What I'm trying to say is, I don't think we need to set up another one of those [drugs] just yet. So we really need to be really careful," Dr John Allan [Royal Australian and New Zealand College of Psychiatrists college president] has said.

Former Liberal Party Director and current board member for Mind Medicine Australia Andrew Robb's response is undiplomatic: *"They're a lot of old fogies who are so deeply conservative. I think they've been bitten a few times when they've backed other treatments that haven't worked out."* (Vincent 2021)

3.1 Psychedelic assisted therapy

Psychedelic assisted therapy is largely delineated between two prominent approaches, psycholytic therapy and psychedelic therapy, which evolved out of Europe and the United States simultaneously in the 1950s-1970s (Reiff et al 2020, p.402). Psycholytic therapy involves taking a small to moderate dose of psychedelics over several therapy sessions, with the goal of allowing the patient greater access to the unconscious while talking with a therapist. Psychedelic therapy usually involves one to three sessions taking a much larger dose after a preparatory session, with the goal of eliciting a mystical response which is then processed at a follow-up session, which aims to gain an understanding of the patient's condition that would otherwise not be accessible.

Generally, current trials have focused on psychedelic therapy, especially those involving the classic psychedelics, though MDMA assisted therapy may use both methods (Reiff et al 2020, p.402).

Typically there are three sessions which make up psychedelic assisted therapy; a preparatory session, medication session and an integration session (Reiff et al 2020, p.402).

1. The preparatory session involves a therapist (or co-therapy team) exploring the patient's history, condition and symptoms, as well as preparing the patient for what to expect during the medication session (Reiff et al 2020, p.402).

2. The medication session has three key focuses; set (psychological expectations), setting (environment) and therapeutic relationship (Tupper et al. 2015, p.1054). The session itself is generally done in a health care facility, in a comfortable room with a recliner or bed that is designed to look like a living-room and not a medical facility, with a curated playlist delivering music via headphones while a co-therapist team facilitates a sense of trust and safety, encouraging the patient to

self-reflect and keep interaction to a minimum (Tupper et al. 2015, p.1058; Gardner et al. 2019, p.96; Reiff et al 2020, p.402).

3. The integration session is then used to facilitate the processing of thoughts, feelings and emotions that arose during the medication session, into long-term change (Reiff et al 2020, p.402).

3.1.1 How it works

Increased binding of the 5-HT_{2A} serotonin receptors is associated with suicide and depression; it has been proposed that psychedelics alter the neurobiological process that down-regulates these receptors, resulting in a reduction in symptoms (Argento et al. 2017, p.6). Though long-term neuroplasticity and cortical network changes are still being researched to establish the enduring effects, it is thought that these changes enhance the ability of the patient to recall autobiographical memories, allowing for trauma to then be reprocessed in a positive way (Griffiths et al. 2016, p.1195; Argento et al. 2017, p.6; Hendricks et al. 2014, p.63).

Establishing a comfortable set and setting, along with an open therapeutic relationship between therapist and patient, are key to psychedelic assisted therapy. With the effects of psychedelics allowing for increased feelings of closeness and trust, amongst other things, trauma-associated anxiety is reduced, allowing for it to be examined and discussed in ways not available without psychedelics. The ability of the patient to process new modes of thinking while in a state of relaxation and reduced hyper-vigilance makes adverse outcomes less likely, even when the patient is being challenged by traumatic memories (Penn et al. 2021, p.37; Strauss et al. 2016, p.1037; Reiff et al 2020, p.402).

There is a correlation in the literature between long-term improvements in behaviours/reduction in symptoms and the mystical experience reported by the patient, independent of the size of the dose or overall intensity of the drug effect (Nichols 2016, p.344; Hendricks et al. 2014, p.63; Griffiths et al. 2016, p.1195). It has been hypothesised that this may be due to providing the patient with a deeper sense of meaning and purpose, including enhancing one's connection to nature and others (Argento et al. 2019, p.787).

This may be key to providing assistance to Indigenous peoples, who are often over-represented in populations suffering from addiction, PTSD and depression (State of Victoria 2021, p.13). The

interconnectedness of people and nature is a core belief amongst Indigenous peoples the world over, which seemingly leads to a connection-focused approach being effective, something especially relevant given the nature of therapeutic psychedelic experiences (Argento et al. 2019, p.787).

While using psychedelics was a turning point for Kevani, she says it isn't a "miracle cure".

"It's been a long, slow and, at times, very confronting process that has been absolutely worth it,"

Kevani says.

"What's available currently is just not cutting it — there needs to be alternatives for those who the current pharmaceutical pathway hasn't been successful."

John is in his 11th year of treatment, which has included holotropic breathwork and regular psychoanalysis.

"When I started I was on the brink of suicide...It stems from sexual, physical and emotional abuse when I was two to three years old." With the aid of psychedelics, John says he can access memories quicker than with regular therapy (Marozzi 2021).

Section 2 – Psychedelic assisted therapy; the current literature & clinical trials

4. Studies

There are currently over 100 clinical trials underway involving psychedelic therapy for various conditions (Dalzell 2021). It is beyond the scope of this report to provide a thorough account of the full extent of the literature. This report has selected a range of studies that are representative of the general literature and will guide a path towards similar research being done in Victoria. These studies include pilot studies, phase 2, phase 3, meta-analyses and other studies that may be relevant (observational etc).

4.1 Depression

In 2012, globally the second leading cause of death in those aged 15-29 was suicide, with 80-90% of these estimated to have been due to MSDs (Argento et al. 2017, p1). In Australia, one in every seven people experience depression throughout their life (Beyond Blue 2021), with 718 people in Victoria losing their life to suicide in 2019 (State of Victoria 2021, p.16).

Clinical trials using psychedelic assisted therapy to treat depression have seen extremely promising results. This is especially impressive given that many trials use patients that have been diagnosed with severe depression and/or treatment-resistant depression, often trying multiple treatments without success. It is because of this that psilocybin has been given priority consideration by the FDA after being granted a 'breakthrough therapy' for treatment-resistant depression (Reiff et al 2020, p.395; Perkins et al. 2021, p.2).

4.1.1 Psychedelic assisted therapy results

In a study into marginalised women, bivariate analysis showed that psychedelics were the only illicit substance associated with a decreased risk of suicidal behaviour. Psychedelics were shown to be an independent predictor for a 60% reduction in suicidality in a multivariable analysis (Argento et al. 2017, p.4-6).

In a replication of a pilot study (by the same researchers) into ayahuasca, 17 participants with clinically diagnosed moderate depression (Hamilton Rating Scale for Depression (HAM-D) score of 19.4) had symptoms measured both during the treatment session and 21 days after. Results showed a highly statistically significant reduction in symptoms (HAM-D score of 7.56). The positive results of the initial pilot study were replicated (Reiff et al 2020, p.398).

An open-label feasibility study involving two doses of psilocybin one week apart studied 20 participants with treatment-resistant depression. Participants had at least moderate depression and had previously tried two courses of antidepressant medications, without improvement, for a minimum six week period. 18 participants met the criteria for severe or very severe depression, with the other two being diagnosed with moderate depression. The median number of medications that failed over a patient's lifetime was four, with a mean illness duration of 17.7 years. All 19 participants that completed the trial saw a reduction in baseline score at one week with maximal

results at five weeks. No patients sought antidepressant medication in the five weeks following psilocybin. Results remained positive at three and six months but due to patients acting outside the trial parameters, results after the five week mark cannot be generalised. (Carhart-Harris 2018, p.399-405).

Johns Hopkins University ran a trial with 27 participants who had a diagnosis of major depressive disorder and were screened to ensure no past history of psychotic disorders, suicide attempts or current antidepressant medications. Of the 24 who completed the trial, 17 (71%) participants at week one and week four showed a reduction in symptoms that was clinically significant. At week one and week four there were 14 (58%) participants that met the criteria for remission (Davis et al. 2021, p.481-486).

A meta-analysis looking at 12 double-blind randomised controlled trials (RCTs) totalling 257 participants compared psychedelics (LSD = 3, psilocybin = 8 and ayahuasca = 1) to placebo, in both healthy participants and those diagnosed with depressive symptoms, for up to 60 days after treatment. This analysis revealed significant reduction in symptoms for the participants with depressive symptoms in acute, medium and long term outcomes. A moderate effect size in mood state for healthy patients in both acute and long term outcomes was also found (Galvão-Coelho et al. 2021, p.341).

A 2021 paper focusing on data collected across 2017-2020 of people who consumed ayahuasca had 11,912 respondents, with the paper focusing on the subset which reported a diagnoses of depression (n = 1571) or anxiety (n = 1125) when they consumed ayahuasca. In the population with depression, 46% reported their symptoms 'very much' improved with a further 32% declaring they were no longer suffering from depression (78% total). Of those with anxiety, 54% declared their anxiety to be 'very much' improved with 16% saying it was 'completely resolved (70% total). A strength of this study was that it was culturally diverse and with a large sample size (Sarris et al. 2021, p.1-7).

Finally, a meta-analysis with 117 participants across three placebo-controlled studies found psilocybin resulted in significant reductions in symptoms associated with depression (Perkins et al. 2021, p.2).

4.1.2 Summary

Trials consistently show a significant and lasting reduction in symptoms, including remission, in patients after the use of psychedelic therapy, with minimal if any adverse effects.

4.2 Addiction

Both licit and illicit substance addiction place a huge burden on the Australian populace, with millions of people having some form of addiction, whether to tobacco, alcohol, pharmaceuticals or illicit substances. This places an enormous burden on society, both financially and emotionally. The processes that underlie different addictive behaviours are thought to be treatable through similar mechanisms with psychedelics².

“We think [different addictions can be treated in the same way]. There are core features which all addictions share...The brain processes underpinning [addictive traits] we think can be disrupted... we think we can potentially therefore target both behavioural addictions and also drug addictions and alcohol addictions” - Professor David Nutt (Mackenzie 2021)

4.2.1 Psychedelic assisted therapy results

10 participants with clinically diagnosed alcohol dependence were treated with psilocybin. Of those that completed the study, the mean percent drinking days and percent of heavy drinking days were halved. An observational study of regular ayahuasca drinkers in Brazil showed lower substance use disorders compared to a control group (Tupper et al. 2015, p.1056).

A population-based study showed a decreased risk of opioid abuse in people that had ever used classic psychedelics (Hendricks et al. 2018, p.38).

12 first nations peoples in British Columbia were given ayahuasca assisted treatment for alcohol and cocaine addiction. At six month follow up significant reductions in self-reported use and improvements in mental health were found, with no long term negative effects. Mean reported positive impact on the participants lives saw a score of 7.95 out of 10 (Argento et al. 2019, p.782-783).

A culturally and gender diverse study of 10 participants administered two psilocybin sessions after four and eight weeks of psychosocial treatment. The first four weeks saw no significant change, with clinically significant reductions in drinking days and heavy drinking days being recorded after the

² See Appendix 2 for further details of rates and cost of addiction in Victoria and Australia

first psilocybin session. Results were largely maintained at 36 week follow up (Bogenschutz et al. 2015, p.289-297).

A study from Johns Hopkins University measured the results when 15 smokers who had previously failed attempts at quitting, and smoked at least 10 cigarettes daily, were given psilocybin at weeks five, seven and 13, along with cognitive behavioural therapy. Six months after treatment 12 of the 15 (80%) were biologically verified to be abstinent from tobacco (Johnson et al. 2014, p.984-990).

14 patients were given an eight week course therapy to treat alcohol use disorder, with two sessions of MDMA therapy. At nine months follow up, mean alcohol consumption had fallen from 130.6 weekly units to 18.7. This compares favourably to a separate but similar study done by the same researchers which did not include MDMA therapy, which saw 75% of participants drinking >14 weekly units compared to 21% in the MDMA study. This is an important study as many people may not be willing for the full effects of psychedelics, while MDMA allows for a less intense experience (Sessa et al. 2021, p.375-382).

4.2.2 Summary

Studies show a strong positive result for treating substance addiction with psychedelic therapy with no evidence that psychedelics are addictive.

4.3 End-of-life distress

Victoria saw 35,924 cancer diagnoses in 2019, and 11,329 cancer deaths. Current five year survival rate is 69%. By 2030-34 it is projected that cancer diagnoses will exceed 50,000 annually while deaths will exceed 13,000 (Victorian Cancer Registry 2020, p.10).

Up to 40% of cancer patients suffer from a mood disorder. Cancer patients suffering from depression and anxiety suffer adverse health outcomes, with depression being an independent risk factor of early morbidity. Alongside this there is a reduction in quality of life, increased risk of suicide, longer hospital stays and reduced adherence to treatment (Griffiths et al. 2016, p.1181).

When LSD was first being used for therapeutic purposes in the 1960s, treatment of depression and anxiety in patients that were acutely ill became one of the most well documented areas of psychedelic research, with studies showing approximately 66% of those treated with LSD having a reduction in anxiety and fear of death and improvements in mood (Nichols 2016, p.323).

4.3.1 Psychedelic assisted therapy results

A 2008 study involving 12 participants enrolled those with end-stage cancer and administered psilocybin along with psychotherapy. Results showed that participants had reduced levels of anxiety and improved mood (Tupper et al. 2015, p.1056).

A Johns Hopkins University study of 51 cancer patients with both a life-threatening diagnosis and depression and/or anxiety conducted a randomised, double-blind, cross-over trial in which two groups were given either a low dose or a high dose of psilocybin at a first session, followed by the opposite dose at the second session five weeks later. At six month follow up, clinical rates of response to clinician-rated measures of depression and anxiety were 78% and 83% respectively, with 65% and 57% rate of overall symptom remission. This measured responses to quality of life, death acceptance, life meaning and optimism (Griffiths et al. 2016, p.1181-1195).

Two trials, one of LSD and one of psilocybin of 12 participants each, ran a double-blind, randomised controlled trial that found a significant decrease in anxiety at 12 month follow up with no significant adverse effects (Gardner et al. 2019, p.95).

LSD was given to 12 participants in a double-blind, active placebo-controlled, randomised phase 2 clinical trial. Results measuring state (day to day) and trait (proneness) anxiety were measured and saw a significant reduction in the group receiving LSD. Results were maintained for 12 month follow-up. Results showed the strongest reduction after the second LSD session, and most participants, despite having no prior LSD experience, expressed a preference for at least two LSD sessions (Gasser et al. 2014, p.514-519).

29 patients with a diagnosis for cancer-related anxiety were recruited for a double-blind, placebo-controlled, crossover trial involving a single session of psilocybin assisted psychotherapy. 59% of participants had previously attempted medication of anti-depressants. At six month follow-up, psilocybin was associated with clinically significant reductions in anxiety (80%). Participants reported sustained improvements in quality of life, attitude toward death and existential distress (Ross et al. 2016, p1165-1176).

A follow up of the 15 surviving patients of the previous study was conducted twice, at an average of 3.2 and 4.5 years after the parent study. At the second follow up (4.5 years) clinically significant antidepressant responses were found in approximately 60-80% of participants, independent of the participant's cancer status. The psilocybin experience was rated in the top five most personally meaningful experiences of the lives of 71% of participants and 96% in the top five most spiritually significant experiences. 86% said it helped increase life satisfaction and 100% attributed positive behavioural change to the psilocybin experience (Agin-Liebes et al. 2020, p.155-161).

4.3.2 Summary

Psychedelics have been shown to facilitate lasting reductions of anxiety and depression in terminally ill patients without serious adverse effects.

4.4 PTSD

PTSD can be experienced by anyone in the general community, whether civilians, first responders or military personnel, who have been subject to trauma. In the general community approximately 5-10% will develop PTSD throughout their lifetime, with up to 20% of military veterans experiencing PTSD, including 8% annually (Department of Veterans Affairs 2019).

PTSD has been associated with substance abuse disorders, suicide, depression and dissociation (Mitchell et al. 2021, p.1025).

This prevalence in the community, along with the extremely promising results from MDMA therapy, saw the FDA approve MDMA as a 'breakthrough therapy' in 2017 for the treatment of PTSD (Reiff et al 2020, p.399).

4.4.1 Psychedelic assisted therapy results

A pilot study of 12 people treated patients with three MDMA sessions, along with therapy before and after MDMA sessions in a low-dose placebo, crossover trial. Although clinical reduction in PTSD symptoms was not statistically significant, patients had significant reductions in self-assessed PTSD symptoms, with no serious adverse affects (Tupper et al. 2015, p.1057).

A follow up of a phase 2 study pilot study found that the benefits associated with MDMA therapy were still noticeable an average of 3.75 years later (Penn et al. 2021, p.37).

Data from six phase 2 trials were pooled to design phase 3 trials in conjunction with the FDA. 72 participants were given two MDMA sessions along with psychotherapy while 31 were given a placebo. Only two participants had never received psychotherapy before, with over half undergoing first-line trauma-focused psychotherapy. Clinically significant reductions in PTSD symptoms were recorded in the MDMA group, with 54.2% no longer meeting the diagnosis for PTSD, compared to 22.6% of the control group. The MDMA group also had a greater reduction in depressive symptoms, with results being strengthened after a third session. MDMA trials had a much lower dropout rate (7.6%) when compared to other treatments (17-36%) (Mithoefer et al. 2019, p2736-2743).

90 participants with severe PTSD were randomised into an MDMA or placebo group with three dosing sessions. Participants in this group were considered treatment resistant due to comorbidities, which is especially relevant given that up to 80% of those suffering PTSD have at least one comorbidity. At two month follow-up, statistically significant reductions in symptoms were found with no evidence of substance abuse or suicidality. Patients suffering from dissociative PTSD are typically unable to be treated reliably. The current study found no statistical difference between dissociative and non-dissociative PTSD however. This could be an important breakthrough given the inconsistent results of current treatments for dissociative PTSD (Mitchell et al. 2021, p.1025-1032).

20 patients with treatment resistant chronic PTSD were assigned to an MDMA or placebo group and given two sessions of therapy with drug-free sessions before and after. At two months follow-up 83% of the MDMA group showed a clinical response to treatment, compared to 25% of the placebo group. Several patients were no longer considered to have PTSD and three subjects returned to work who had previously been unable to (Mithoefer et al. 2011, p.439-449).

26 veterans and first responders with chronic PTSD that had failed previous treatment were selected for a randomised, double-blind, phase 2 trial in which a low, medium or high dose of MDMA was administered over two sessions combined with psychotherapy. At one month follow-up 86% of the medium dose and 58% of the high dose group no longer met the criteria for PTSD, compared to 29% of the low dose group. At 12 month follow-up statistically significant reductions in PTSD symptoms were recorded. When the low dose group was given access to high dose MDMA, Clinician-Administered PTSD Scale scores were significantly reduced, indicating that psychotherapy alone was insufficient unless combined with MDMA (Mithoefer et al. 2018, p.486-494).

4.4.2 Summary

Psychedelics, specifically MDMA, have shown to be incredibly effective at symptom reduction and remission of PTSD, with zero evidence of substance abuse.

"The evidence is that those psychedelics are much more effective than any of the pills you might be prescribed... Some experts who are working in the field have told me the only way we'll ever get a cure for post-traumatic stress disorder is by the use of psychedelics." - Admiral Christopher Barrie, former Australian Defence Chief and board member for Mind Medicine Australia (Kim & Stephen 2021)

4.5 Recidivism

Recidivism has not been widely studied in relation to psychedelic assisted therapy. However, given the well established links between criminal behaviour, mental health and substance abuse, especially intravenous drug use (Drug Law Reform, Road and Community Safety Committee 2018, p.331), it would seem that psychedelic therapy could have a role to play in reducing recidivism, especially as there is the potential for psychedelics to assist in treating both behavioural patterns and mental health disorders (Hendricks et al. 2014, p.63-65). This is especially true in Victoria, with sufferers of mental illness making up a disproportionate population in the criminal justice system.

Early trials with LSD in the 1960s showed some promise with recidivism, with nine (90%) treatment-resistant sex-offenders showing improved behaviours including empathy, insight, communication and treatment engagement, and 14 out of 21 'criminal psychopaths' showing similar improvements (Hendricks et al. 2018, p.38).

4.5.1 Psychedelic assisted therapy results

A 2014 observational study noted that use of hallucinogens was correlated with a decreased risk of recidivism, in a large sample (25,000) with a history of drug use. Though observational, the study controlled for confounding influences such as sociodemographic and psychosocial variables, minimising the prospect that use of hallucinogens and lower recidivism may have a common predisposition. This is in direct contrast to the well established positive correlation between substance use and criminal behaviour (Hendricks et al. 2014, p.65-66).

A study pooling data of 480,000 respondents from 2002 to 2014 looked at correlations between classic psychedelic use and past year criminal behaviour, controlling for numerous covariates (age, income, education etc.). Results showed that use of classic psychedelics at some point in an individuals life resulted in decreased odds of past year larceny/theft (27%), assault (12%), property crime (22%) and violent crime (18%). These results were aligned with self-reported behaviour and arrest, indicating that reductions were genuine and not the result of evading arrest (Hendricks et al. 2018, p.37-43).

4.5.2 Summary

The results from the two above observational studies indicate that it would be worth investigating further, through the use of RCTs, the relationship between psychedelic assisted therapy and recidivism (Hendricks et al. 2014; Hendricks et al. 2018).

5. Comparisons to current treatments

In general terms, current treatments for disorders such as depression, PTSD and anxiety disorders produce mixed results. Often they are only effective for roughly 50% of people, though that number is estimated to be as low as 20% for PTSD, with varying severity of side effects, potentially high drop out rates and some studies and meta-analyses finding a minimal difference when compared to a placebo, though others find a moderate response to ‘gold-standard’ treatments (Luoma et al. 2020, p.295; Ross et al. 2016, p.1176; Galvão-Coelho et al. 2021, p.350; Griffiths et al. 2016, p.1181; Andrews et al. 2004, p.531; Mind Medicine Australia; Mitchell et al. 2021, p.1025-1026; Davis et al. 2021, p.482).

Smoking cessation treatments typically work for anywhere between 20-35% of people (Johnson et al. 2014, p.990; Mind Medicine Australia). This is considerably less than the pilot study³ of 15 participants which saw 80% cessation at six month follow up (Johnson et al. 2014, p.984-990).

In the only known study involving a direct comparison between psychedelics and a standard medication for depression, there was no significant difference in primary outcomes, though secondary outcomes favoured psychedelics. However, patients were not treatment resistant and had ‘only’ moderate depression. While much more evidence is needed to draw conclusions, this may imply that conventional treatments and psychedelics are comparable for the ‘average’ patient, but psychedelics are more effective for hard to treat patients or those suffering from more severe conditions (Carhart-Harris et al. 2021, p.1402-1410).

This aligns with a Johns Hopkins University study into major depressive disorder which saw reductions approximately 2.5 times those found in psychotherapy and four times those in psychopharmacological treatments (Davis et al. 2021, p.487).

"What we've seen is over 150 clinical trials take place. In the last 20 years, we've seen over 3,000 people, patients, involved in these trials, and the results are spectacular...They're getting up to 60 to 80 per cent remission. This is not relief, this is remission...Now, those sort of results are not possible [with current medications] ... At best, 30 per cent of people in Australia will respond to the antidepressants. So you get 70 per cent who are not responding. And we need to have alternatives." - Andrew Robb, Mind Medicine Australia, former Liberal Party Director (Vincent 2021)

3 Mentioned in section 4.2.1

Section 3 – Discussion and implications

6. Discussion

According to the Royal Commission, the current mental health system in Victoria is failing. Despite the overlapping nature of MSDs, the system is siloed and does not effectively treat those with multiple conditions. At the same time, evidence is pointing to a potentially breakthrough treatment for people with MSDs (and potentially many other conditions) that may produce significantly better outcomes, much less adverse effects, minimal or zero long term effects and generally requiring only a few doses.

Before psychedelic therapy can be widely practiced, more phase 3 trials with larger and more diverse sample sizes are required. Covid-19 has meant many that were scheduled to be undertaken were delayed or run at a reduced capacity, but future trials need to be expanded before definitive conclusions can be drawn (Griffiths et al. 2016, p.1195; Luoma et al.2020, p.296; Mithoefer et al. 2019, p.2743; Bogenschutz et al. 2015, p.294; Mitchell et al. 2021, p.1032; Davis et al. 2021, p.487; Carhart-Harris et al. 2021, p.1410; Schindler et al. 2021, p.541; Sessa et al. 2021, p.382; Mithoefer et al. 2018, p.496; Mithoefer et al. 2011, p.449). As such, results from current trials cannot be generalised to apply to the wider population. This is the final hurdle before clinical practice can begin, and should be the focus of future trials.

In Victoria, Indigenous peoples are over-represented in MSD statistics, which is largely related to historical traumatic events and the flow-on effect these have through generations. Psychedelic assisted therapy could prove to be a culturally appropriate treatment, whether ayahuasca specifically or classic psychedelics, that allow for the individual to feel a spiritual connection to nature and those around them. This has proven to be a key feature in psychedelic assisted therapy combined with being an important element of the Indigenous experience.

The hesitancy of some members of the medical community to embrace the current evidence around psychedelics likely stems from the outdated legacy, and associated stigma, of the ‘War on Drugs’; a political move aimed to disenfranchise those that opposed former President Richard Nixon. The legacy of Nixon’s politically motivated war on drugs has cost decades of research and understanding of the healing potential of psychedelics. It is often assumed that substances are criminalised due to their danger, not realising that it is rarely a medical decision, as highlighted by Figure 2 (p.764) in the *Australian Drug Harm Study* published earlier in this report.

Though clinical trials have largely focused on the conditions covered in this report, the potential uses of psychedelic therapy go much further. Given the behavioural and mood changes seen after psychedelic sessions, there is plausible reason (and emerging clinical evidence) that psychedelics could also play a key role in the treatment of obsessive compulsive disorder (OCD) (Jacobs 2020 pp.77–87), migraines (Schindler et al. 2021, p.534-540), cluster headaches (Sewell et al. 2006, pp.1920-22; Schindler et al. 2015 pp.372–381; Organisation for the Prevention of Intense Suffering 2020 pp.1-25), anorexia nervosa (Foldi et al. 2020, pp.1-5), gambling addiction, recidivism and numerous other disorders.

Research into psychedelics has support across the political spectrum, with retired Admiral Christopher Barrie, a former Chief of the Defence Force and former Liberal Party Director and Minister of Trade Andrew Robb, both taking up positions on the board of Mind Medicine Australia, a charity advocating for the use of psychedelic therapy. Recently, the Commonwealth Government has invested \$15M in grants with the support of Health Minister Greg Hunt, who has recognised the current evidence is extremely promising (Dalzell 2021).

Psychiatry and psychology rarely see large effect sizes, with current evidence showing that psychedelic assisted therapy may provide an encouraging new path forward (Luoma et al. 2020, p.297). In the aftermath of Covid-19, funding and treatment of mental health and substance abuse will be more critical than ever.

“The early results of trials in Australia and internationally are extremely encouraging... But more research is desperately needed before these approaches can be used by psychiatrists outside of controlled clinical trials... This [\$15M] grant opportunity... offers hope to all those suffering from mental illness, including our veterans and emergency service personnel dealing with the devastating effects of PTSD.” - Greg Hunt, Minister for Health (Dalzell 2021)

7. Policy implications

“The system has not fostered innovation, does not reflect contemporary evidence about effective forms of treatment, care and support, and has failed to keep up to date with the latest advances in digital technology, which could improve peoples’ experiences and outcomes” - Royal Commission into Victoria’s Mental Health System (State of Victoria 2021, p.18).

The primary policy considerations stem from the four key recommendations from the *Royal Commission into Victoria’s Mental Health System* that could be introduced within a framework of psychedelic assisted therapy (State of Victoria 2021). These are;

- Recommendation 3: Establishing a responsive and integrated mental health and wellbeing system (p.39). Psychedelic therapy allows for patients with multiple disorders to be treated holistically and receive treatment for multiple disorders if suffering from comorbidities. Addiction, mental health and trauma are closely related and psychedelic therapy allows for treatment of all three.
- Recommendation 23: Establishing a new Statewide Trauma Service (p.59). Given the success of psychedelics in the treatment of PTSD, a Statewide Trauma Service should incorporate the best and most relevant treatments as per the current literature.
- Recommendation 63: Facilitating translational research and its dissemination (p.99). Research into psychedelics should be embraced and incorporated as part of the translational research required by the mental health system.
- Recommendation 64: Driving innovation in mental health treatment, care and support (p.100); Psychedelic therapy is innovative and a potential breakthrough treatment, and should be included in any research being done into mental health treatments.
- Policy needs to evolve when the science warrants it: This is especially true as the public becomes more aware of the prevalence and underlying trauma often leading to mental illness and addiction, along with the economic, human and social costs stemming from the failure of current systems to adequately address these issues (Tupper et al. 2015, p.1058).
- Culturally diverse patients need to be catered for: Further consideration needs to be given to whether the current set and setting used in trials is ‘western-centric’ and appropriate for a multicultural society as in Victoria. This may be addressed by broadening the cultural diversity of

future trials, but should be noted by policy makers (Gardner et al. 2019, p.96). Cultural appropriateness of treatment should be paramount, especially amongst the Indigenous population who may specifically benefit from access to treatments such as ayahuasca.

- Supply will need to be adequately controlled: Policy makers will need to put appropriate regulations in place regarding supply. This may be modelled on Victoria's medicinal cannabis program or follow the lead of international organisations such as the FDA (Gardner et al. 2019, p.96-97).

- Communicating the science will be important for a potentially controversial issue: Communication with the public will be crucial given the stigma associated with currently illicit substances (Gardner et al. 2019, p.97). The increasing body of evidence in favour of psychedelics has already started to change the conversation, however it may take some time for people's preconceived notions of psychedelics to be overcome.

- The knowledge and experience of existing psychedelic therapy organisations should be utilised: Undertaking trials in Victoria may be boosted by working with Australian organisations that are advocates of psychedelic therapy research, such as Mind Medicine Australia, The Psycae Institute and Psychedelic Research in Science & Medicine (PRISM). Multidisciplinary Association for Psychedelic Studies (MAPS) have been influential internationally in designing clinical trials also.

7.1 Recommendations

- Fund research of phase 3 clinical trials into psychedelic assisted therapy with the aim to establish safety and efficacy for the general population, ahead of legalising the clinical practice of psychedelic assisted therapy.

- Implement recommendations of *Royal Commission into Victoria's Mental Health System* within a framework of psychedelic assisted therapy.

- Work with existing organisations such as PRISM, Mind Medicine Australia, Psycae Institute and MAPS to design trials and facilitate research.

- Communicate strength of evidence and safety openly and honestly with the public

"The psychedelic sphere is where I see promise for the future... The more that the Australian population reads stories about trials in other parts of the world, the more they'll get frustrated at the lack of access," - Dr Prashanth Puspanathan, medical doctor and neuropsychiatry fellow at The Alfred Hospital, Melbourne (Valentish 2018)

8. Conclusion

The Victorian mental health system is failing and calling out for new treatments, research and innovation. Treatments for addiction and mental health need to be integrated. Alongside this, psychedelic assisted therapy has shown extremely promising results in treating a range of mental health conditions and addiction.

Clinical trials, largely from North America, have consistently shown that psychedelic assisted therapy provides statistically significant results in treating mental health and addiction, with minimal to no serious adverse effects. While the literature largely focuses on PTSD, end of life anxiety, depression and addiction, it is plausible that psychedelics could be used to treat a myriad of psychiatric conditions, from OCD to anorexia nervosa to migraines.

Psychedelics induce a spiritual experience, frequently regarded as one of the top five spiritual experiences of a persons' life. This is extremely promising for assisting the Indigenous population of Victoria, which is over-represented in MSD statistics, with psychedelics potentially offering a more culturally appropriate treatment than conventional treatments do.

While there are limitations to the current studies, this largely stems from the current stage of research into psychedelics, which is still relatively new and not fully legalised. As more research is done, sample sizes in clinical trials will need to be more diverse and larger in size.

For now, while it is too early to use psychedelic therapy outside clinical trials, the overwhelming evidence is that psychedelics offer a promising future in MSD treatment that should be explored thoroughly.

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APPENDIX 1 – Burden of mental health and substance abuse in Victoria

State of Victoria 2021;

Mental illness is a common occurrence for Victorians, with almost every second person experiencing some form of mental illness throughout their life. Approximately 20% of Victorians will suffer through a mental health disorder annually. Thus, we are almost guaranteed to be affected by mental health either directly or indirectly at some point. Further to this, 3% of Victorians are classified as having severe mental illness (p.3).

Australian Institute of Health and Welfare 2020;

Those diagnosed with a mental health condition in the previous 12 months are twice as likely to be daily smokers (p.69)

Drug Law Reform, Road and Community Safety Committee 2018;

There is a strong and increasing trend in the connection between mental health and substance abuse;

- In 2016 26.5% of those diagnosed with mental illness had used an illicit substance in the prior 12 months, up from 18.7% in 2010 (p.141)
- Those who used illicit substances in the prior 12 months are more likely to report high or very high psychological distress, increasing from 16.9% in 2010 to 22.2% in 2016 (p.141)
- Illicit drug users have significantly higher mental health conditions than non-illicit drug users (21% vs 13%) (p.141)
- Up to 60% of those who use intravenous drugs also suffer from anxiety and/or depression, compared to 17% of the general population (p.316)

For each dollar spent on alcohol and other drug (AOD) treatment there is an \$8 return. This also leads to reductions in hospital visits and ambulance demand, reducing overall demand on the health system. Residential treatment that sees Indigenous Australians kept out of the prison system saves more than \$200,000 per person (p.83).

Across 2015-16, there were 31,714 Victorians that received AOD treatment at an average of 1.9 sessions per person, for a total of 61,158 total treatments. 15.9% of these had also received AOD treatment in 2014-15 with 6.9% receiving treatment in all of 2013-14, 2014-15 and 2015-16. Across

Australia there are a minimum of 200,000 people who merit treatment but are unable to access services. This is troubling due to the likely increase in substance abuse and violent crime that results from untreated substance abuse (p.288-9).

APPENDIX 2 – Addiction

Australian Institute of Health and Welfare 2020;

Societal cost estimates using different methodologies have put alcohol at \$14.35 billion (in 2010), methamphetamine at over \$5 billion (in 2013-14), opioids at \$15.76 billion (in 2015-16) and tobacco at \$136.7 billion (in 2015-16) (p.1).

The impact that addiction has on people's lives is far greater than just the economic cost. Tobacco is responsible for 9.3% of the total disease burden in Australia and is the leading cause of death and disease, with 20,933 deaths. This is compared to 6,355 for alcohol (4.5% of total disease burden) and 2,486 for illicit substances (2.7% of disease burden). This makes tobacco more deadly than both alcohol and illicit substances combined. Smoking was also estimated to be responsible for 1.7 million hospital separations, with alcohol and other drugs responsible for approximately 136,000 (p.1-12).

In Victoria, 10.6% of the population aged over 14 are daily smokers. Of these, more than 6 in 10 (63%) have expressed a desire to quit, and in 2019 31% tried unsuccessfully (p.5-12).

The percentage of Australians who drink regularly (daily average of two drinks) has fallen slightly, by 0.4 percentage points from 2016 to 2019, but due to the increasing population the overall number continues to increase, from 3.4 million to 3.5 million. Approximately 22% of Australians aged over 14 use alcohol in a harmful way, with a further 7.5% that suffer from alcohol dependence and may benefit from specialist assistance (p.18-22).

There was a decline from 2016 to 2019 in the non-medical use of pharmaceuticals, from 4.8% to 4.2%. However this only saw an absolute decline of approximately 100k people, for a total of 900,000 Australians. 31% of people who used pharmaceuticals this way in the previous 12 months wanted, or have attempted, to stop but were unsuccessful (p.44-46).

Many overdose deaths in 2018 were due to pharmaceuticals (60%), this has made them a priority in Australia's National Drug Strategy (p.44)

For every overdose death, there are an estimated 20-25 non-fatal overdoses, which put enormous social and economic cost on society, the healthcare system, as well as the individuals themselves. This has been estimated to cost billions of dollars annually (p.457).

Australian Institute of Health and Welfare 2021;

The rates of Australians with an illicit substance abuse disorder are not readily available. However, of the 139,300 clients who received AOD treatment; 28% were for amphetamines, 18% for cannabis and 5.1% for heroin. Alcohol was the primary drug of concern at 34%.

Drug Law Reform, Road and Community Safety Committee 2018;

Estimates, based on healthcare costs, lost productivity, crime and road accidents placed a cost of \$56.1 billion on tobacco (\$31.5 billion), alcohol (\$15.3 billion) and illicit substances (\$8.2 billion) in 2004-5 (p.30).

Drug overdoses have seen a steady increase since declining in 2009-2010, with 492 recorded in 2016, exceeding deaths from car crashes (p.35).