The therapeutic application of MDMA: Knowledge and attitudes of psychologists in Aotearoa

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1. ABSTRACT

This exploratory cross-sectional, survey-based pilot study investigated the knowledge and attitudes of psychologists in Aotearoa towards the therapeutic application of MDMA ('3,4-Methylenedioxymethamphetamine', colloquially known as 'Ecstasy'). MDMA-assisted psychotherapy ('MDMA-PT', which involves the adjunctive use of MDMA with psychotherapy) has been designated as a 'breakthrough therapy' by the U.S. Food and Drug Administration for the treatment of post-traumatic stress disorder ('PTSD'), and is on track to become an approved prescription therapy in the U.S. by 2023. Psychologists play a pivotal role in MDMA-PT and PTSD treatment, and as a core pillar of the mental health workforce in Aotearoa, their knowledge and attitudes will significantly impact the support and potential implementation of this treatment locally. Sixty-five psychologists completed an anonymous, online survey which explored their self-reported knowledge and attitudes of MDMA-PT, as well as their personal attitudes towards recreational MDMA and substance use. The results demonstrated that participants had varying levels of knowledge about MDMA-PT research, but were unlikely to be well informed about the treatment. Psychologists had generally favourable attitudes towards MDMA-PT, which was underpinned by a sense of caution and an awareness of the limits of their knowledge of the treatment. The study provides additional evidence to suggest that personal attitudes and stigma are likely to play a role in shaping healthcare workers' attitudes towards MDMA-PT and its acceptance as a legitimate treatment. Increased levels of psychoeducation are needed to ensure psychologists are properly informed of MDMA-PT's evidence base and to reduce stigma. Future research is needed to better understand the attitudes and knowledge of other relevant healthcare professionals towards MDMA-PT, the phenomenon of self-medication, and the implications of these results specifically for psychological practice in Aotearoa.

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4. ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed: _____ Date: 19 December 2021

5. ACKNOWLEDGEMENTS

First and foremost, I would like to thank the participants who generously donated their time to complete the survey for this research. Without their input, we would not have such insightful data to draw upon. Secondly, I would like to thank my supervisor, Dr. Rita Csako, for helping me to build out the focus for this research and her guidance and support throughout the process. I would also like to thank AUT's Biostatistics team, who provided guidance in terms of the data strategy and processing. Lastly, I want to thank my partner, and those family and friends who dedicated their time to proofreading and providing me with social support.

As the current study involves human participants, an ethics application was submitted to the Auckland University of Technology Ethics Committee ('AUTEC'). An ethics approval was granted by AUTEC on the 2nd of June 2021 (Application #21/138).

6. INTRODUCTION

Despite the stigma various psychedelic substances have faced since the 1970's at the hands of the West's 'war on drugs', research supporting the effectiveness of psychedelic-assisted therapy as a treatment for a variety of mental health issues and disorders has re-emerged over the last decade or two. Societal attitudes towards these substances in the West have become increasingly more accepting, influenced by frequent positive portrayals of psychedelics within the media and a cultural curiosity of what was once dangerous and illicit now being medicinal and therapeutic (Davis et al., 2021; Polito & Stevenson, 2019; Studerus et al., 2011). Within this re-emerging field, there is strong evidence based on multiple clinical trials to support the treatment effectiveness of MDMA ('3,4-methylenedioxymethamphetamine', colloquially known as 'ecstasy' or 'molly') as an adjunct to psychotherapy for severe sufferers of post-traumatic stress disorder ('PTSD') (Mitchell et al., 2021; Mithoefer et al., 2019). Results from recent clinical trials led the U.S. Food and Drug Administration ('FDA') to issue a 'Breakthrough Therapy' designation for 'MDMA-assisted psychotherapy' ('MDMA-PT') for PTSD in 2017 (Feduccia et al., 2018). Based on current research progress, MDMA-PT is on track to become an approved prescription therapy in the United States ('U.S.') by 2023 (Multidisciplinary Association for Psychedelic Studies, n.d.) and there is some evidence to suggest its benefit as a treatment for a variety of other issues and mental health disorders.

Mental health issues affect many in New Zealand ('Aotearoa'[1]). One in five New Zealanders will experience mental illness or significant mental distress each year, and 50%-80% will experience mental distress or addiction challenges in their lifetime (Government Inquiry into Mental Health and Addiction, 2018). PTSD can be a particularly debilitating condition and is commonly comorbid with other mental health disorders (Kessler et al., 1995). The last measure of its prevalence specifically in Aotearoa indicated lifetime rates of six per cent and 12-month rates of three per cent (Oakley Browne et al., 2006). Current treatment options for PTSD are lengthy, have variable rates of success and high dropout rates, with many participants failing to respond or continuing to have significant symptoms with these treatments (Bisson et al., 2013; Gutner et al., 2016; Mitchell et al., 2021). Poor treatment

[1] 'Aotearoa' is the Māori name for New Zealand. Māori are the indigenous people, and it is out of respect that we refer to the Māori name for our country. 'Aotearoa' and 'New Zealand' are used interchangeably throughout the remainder of the dissertation.

effectiveness combined with the high cost of PTSD treatment for Aotearoa (Accident Compensation Corporation, 2021) highlights the ongoing burden on New Zealand's health system.

Considering the promising research of MDMA-PT for PTSD and its likelihood of becoming an approved clinical treatment in the U.S. in the coming years, it is imperative to understand more about what psychology professionals in Aotearoa understand and think about it. MDMA-PT is first and foremost a talk therapy in which MDMA is used adjunctively to support and enhance talk therapy treatment, and as such, psychologists are likely to play a critical and resource intensive role in providing this treatment. As one of the core pillars comprising New Zealand's mental health workforce, it is also important for psychologists to express their views as a collective and promote evidence-based discussion amongst healthcare professionals regarding this emerging clinical treatment. There have only been a handful of studies to date which have investigated the knowledge and attitudes of healthcare professionals towards psychedelic-assisted therapies (Barnett et al., 2018; Davis et al., 2021; Reynolds et al., 2021). In the interests of contributing new knowledge to a developing field, the main objective of this research is to understand more about the attitudes and knowledge of psychology professionals in Aotearoa towards MDMA-PT.

7. LITERATURE REVIEW

7.1. Description and history of MDMA

MDMA ('3,4-Methylenedioxymethamphetamine', colloquially known as 'Ecstasy', 'Molly', or 'E') is a compound which causes the release of presynaptic serotonin (5-hydrozytryptamine ('5-HT')), and to a lesser extent, norepinephrine and dopamine (Hysek et al., 2012; Rothman et al., 2001; Simmler et al., 2013; Vizeli & Liechti, 2017). For users, MDMA produces feelings of wellbeing and euphoria, heightened sensory awareness, cognitive disturbances, and depersonalisation (Vollenweider et al., 1998). It also has unique interpersonal effects which include increased prosocial behaviours, heightened affiliative feelings and prosocial moods, and a diminished response to negative social stimuli (e.g., social rejection), which are seen to motivate its recreational and therapeutic use (Kamilar-Britt & Bedi, 2015). MDMA's unique effects in comparison to stimulants (e.g., dextroamphetamine, methamphetamine, and methylphenidate) and hallucinogens (e.g., lysergic acid diethylamide ('LSD') and psilocybin or 'magic mushrooms') have been the argumentative basis of it as a novel 'entactogen' or 'empathogen' pharmacological class (Bershad et al., 2016; Nichols, 1986). Notably, MDMA produces fewer perceptual alterations than hallucinogens (Schmid et al., 2015). MDMA's positive subjective effects are considered to be primarily facilitated by the release of serotonin, which plays a role in the regulation of aggression, mood, sexual activity, sleep, sensitivity to pain, memory, and body temperature (Schloss & Williams, 1998). Usual doses of MDMA range from between 60-80 milligrams ('mg') orally, with effects typically manifesting within 30 to 45 minutes, peaking between 90 to 120 minutes, and gradually tapering off around four hours after ingestion (Freye, 2010).

MDMA was first synthesised and patented in 1912 by the German pharmaceutical company Merck and originally called 'methylsafrylamin' (Shulgin, 1986). A systematic analysis of Merck's historical archives shows a patent was put in place to evade an existing patent by a local competitor, and that MDMA was seen as an 'unimportant precursor' in the development of a new chemical pathway for haemostatic substances (Freudenmann et al., 2006). Freudenmann et al.'s (2006) systematic analysis of Merck's archives has disproved the popular notion that MDMA was originally developed and patented as an appetite suppressor. Between 1912 and 1953, the pharmacological effects of MDMA were of little interest to Merck and featured only twice in the literature during that time (Holland, 2001). In the early 1950's, MDMA was one of a number of substances tested by the U.S. Army as 'truth drugs' for

interrogation and behaviour manipulation, although it is unclear whether it was being used operationally (Passie & Benzenhöfer, 2018). Throughout the 1970's, MDMA began appearing in street samples seized by police and in confiscations made by the U.S. Drug Enforcement Administration ('DEA'). Dealers began selling it as a 'legal alternative' to amphetamines and cocaine, and its prosocial effects made it attractive for recreational use at music festivals (Nutt & de Wit, 2021). Research biochemist Alexander Shulgin resynthesised MDMA in 1976, and in the first study detailing the compound's effects on humans, described it as evoking an easily altered state of consciousness with emotional and sensual overtones (Shulgin & Nichols, 1978). Shulgin's wife, a psychotherapist, believed MDMA had therapeutic potential and its positive effects began to attract the attention of therapists (Passie, 2018). MDMA was used as a legal adjunct to therapy from the mid-70's in the United States, with estimates of its use by over 4,000 therapists. By the late 1980's, MDMA was banned in most Western countries (including New Zealand) and clinical trials were halted (Nutt & de Wit, 2021), driving any therapeutic use underground. More recent clinical trials relating to MDMA after its scheduling, as well as its therapeutic use and applications are discussed further on. Illegal recreational MDMA use trended upward during the 1980's and 1990's (Schuster et al., 1998), and became popular in dance clubs and all-night dance parties across a number of different countries (Holland, 2001).

Today, MDMA is one of the most consumed illicit drugs around the world. The most recent Global Drug Survey (2020a) report highlighted MDMA as the fourth most consumed drug in the past 12 months after alcohol, cannabis, and tobacco. March 2021 wastewater testing in Aotearoa indicates MDMA is the second most commonly consumed illicit substance (4.5 kilograms is the average national consumption per week) after methamphetamine (New Zealand Police, 2021). The New Zealand Customs Service (2021) seized over 181 kilograms of MDMA in the year leading up to 30 June 2021, exceeded only in quantity by methamphetamine (582 kg), opium (413 kg), and a methamphetamine precursor, ephedrine (296 kg). However, despite its popularity, MDMA consumption tends to be recreational rather than something users are dependent on or require daily use of (Measham, 2004; Noller, 2009), and there is little evidence for the long-term dependence or compulsive use of MDMA (Iversen, 2008; Noller, 2009). In Aotearoa, annual data from 2009 to 2015 shows that frequent drug users are far less likely to feel they need any help to reduce their drug use for MDMA (ranging from 4-10%) compared to methamphetamine (39-58%) or other intravenous drugs (51-76%, most commonly methadone and morphine) (Wilkins et al., 2017). MDMA is also almost exclusively consumed in social settings and its use amongst friends is understood to be a key

factor influencing its consumption (McKetin et al., 1999). Wilkins et al.'s (2017) report also highlights 'social pressure to keep using' as the second highest barrier to reducing MDMA use by frequent MDMA users in Aotearoa.

7.2. MDMA safety and risk

In considering MDMA's safety and risk, it is important to distinguish between its therapeutic and recreational use. MDMA's therapeutic use in clinical trials (which involves moderate, infrequent and medically supervised doses of pure MDMA) has demonstrated that it is well tolerated by most individuals and reflects a promising benefit to risk ratio, unlike its recreational use (typically more frequent high doses with risks of adulterants and polydrug use). The most recent data from the Multidisciplinary Association for Psychedelic Studies ('MAPS') phase three clinical trials indicates that MDMA has at least an equivalent, if not better, safety profile in comparison to selective serotonin reuptake inhibitors ('SSRIs') for the treatment of PTSD (Mitchell et al., 2021). The Royal Australian and New Zealand College of Psychiatrists ('RANZCP') (2020) highlights that psychedelic therapies (including MDMA) given at therapeutic doses have a high safety ratio and low risk profile with limited physiological concerns.

As highlighted by the Multidisciplinary Association for Psychedelic Studies (2020) MDMA Investigator's Brochure, MDMA is known to transiently increase heart rate and blood pressure which is typically not problematic for physically healthy individuals, although requires precautions in the case of an underlying cardiovascular disease. It is expected that psychological distress might arise during an MDMA-PT session (e.g., anxiety or other unpleasant psychological reactions) or in the days afterwards (e.g., a depressed mood). These symptoms have been shown to respond well to close engagement with the therapist team who employ a number of risk mitigation strategies (e.g., preparatory sessions, overnight stays, close monitoring). Importantly, there is no evidence to date suggesting that its therapeutic use causes any lasting harm psychologically or physiologically (Doblin et al., 2014). It should be noted that the potential for destabilising psychological distress means those with psychotic disorders or Bipolar Affective Disorder Type 1 have been excluded from the trials. To date, there have been no studies conducted regarding these disorders. Other possible risks are either mitigated (e.g., room temperature guidelines for hyperthermia) or already managed (e.g., consistent, moderate dosing for potential neurotoxicity). Research has found no

evidence of MDMA dependence following its use in MDMA-PT, validating it as low risk for addiction (Sessa & Nutt, 2015). The phase three trials of MDMA-PT for PTSD to date have shown that MDMA does not induce adverse events of abuse potential or suicidality (Mitchell et al., 2021). In addition, only one serious adverse event has ever been reported (relating to tachycardia and increased blood pressure) across the 780 human subjects who have participated in MAPS's MDMA-PT clinical trials (Multidisciplinary Association for Psychedelic Studies, 2021; The Royal Australian and New Zealand College of Psychiatrists, 2020).

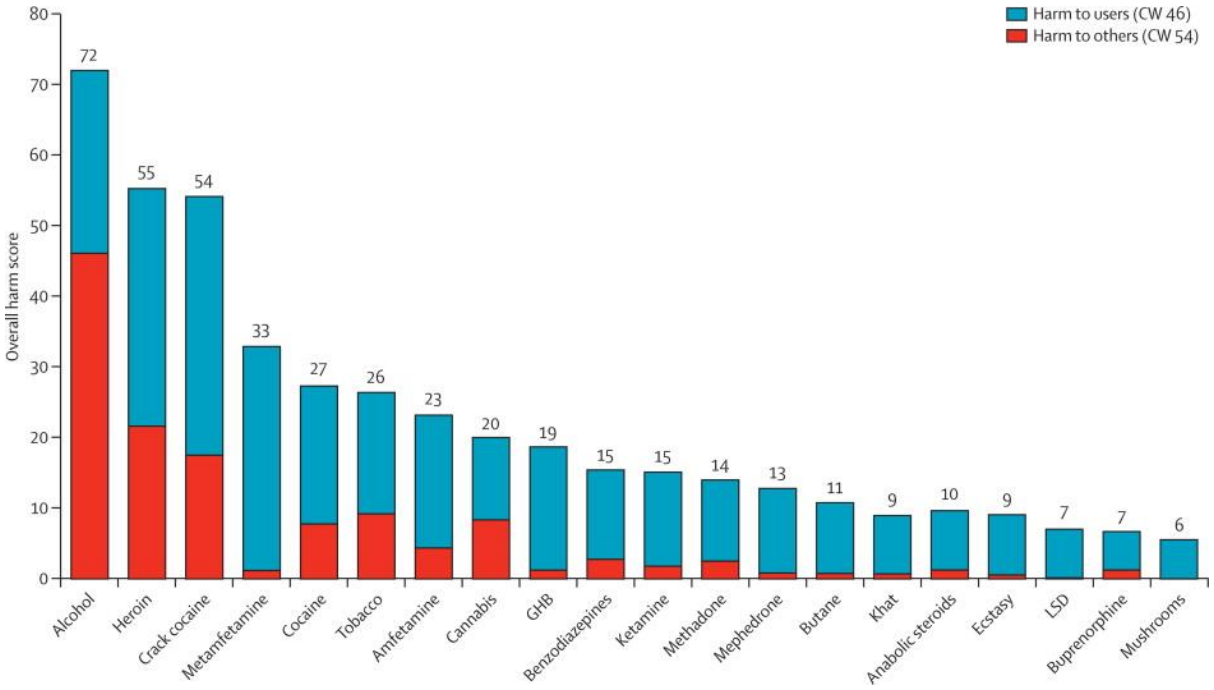
In contrast to the safety profile of MDMA's therapeutic use, its recreational use presents increased levels of risk for users. Procuring any substance illegally means users are unlikely to know precisely what and how much they are consuming. Illegally procured MDMA is commonly laced with other compounds or can be a completely different compound altogether. A report from Know Your Stuff NZ (2021), a New Zealand-based provider of drug-related harm reduction services, showed that 31% of all the substances tested at events over 2020 and 2021 (2,744 samples across 27 events, of which 69% of the samples were MDMA) did not test consistently with what users had expected the substance to be. Eutylone, a synthetic cathinone which has been associated with hospitalisations and deaths in cases of presumed MDMA use (Krotulski et al., 2021), was detected in 20% of all substances, and a third of mixed substances detected were a combination of MDMA and eutylone. Polydrug use is also common recreationally, and MDMA is often consumed with a number of other substances such as alcohol, amphetamine, and cannabis (Cassel et al., 2005). As a result of these risks, reports of harm from recreational MDMA use are likely to be inflated, reflecting greater methodological issues in how its effects are understood and reported on. Concerningly, the risks associated with recreational MDMA have been shown to create confusion about the inherent risks associated with its therapeutic use in the context of MDMA-PT (see Doblin et al. (2014) for an example of this).

A comprehensive assessment of drug harms in the United Kingdom ('U.K.') conducted by members of the Independent Scientific Committee on Drugs highlighted MDMA as one of the least harmful of 20 drugs, the most harmful being alcohol (see Figure 1 below) (Nutt et al., 2010). The assessment applied multicriteria decision analysis modelling based on 16 criteria (weighted to indicate their relative importance), which reflected both harm to users (e.g., drug-specific mortality, damage, and dependence) and harm to others (e.g., injury, economic cost, and crime). Notably, the findings supported previous work in the U.K. and the Netherlands which confirmed that current drug classification systems have little correlation with evidence

of harm, the implications of which Aotearoa is not exempt. Drug policy in Aotearoa is discussed in the next section.

Figure 1

Drugs ordered by their overall harm scores, showing the separate contributions to the overall scores of harm to users and harm to others.



Note. From "Drug harms in the UK: a multicriteria decision analysis," by D. J. Nutt, L. A. King, & L. D. Phillips, 2010, *The Lancet, 376*(9752), https://doi.org/10.1016/S0140-6736(10)61462-6. Copyright 2010 by Elsevier Properties S.A.

7.3. Drug attitudes and policy in Aotearoa

Aotearoa has a strong history of drug use and abuse, both legal and illegal. Alcohol and tobacco were introduced by European colonisers in the late 18th century (Brown, 2014) and remain the drugs that cause the most harm in Aotearoa today, disproportionately impacting Māori (NZ Drug Foundation, n.d.). MDMA was outlawed in New Zealand in 1987 under the Misuse of Drugs Act (1975) ('the Act'), although illegal recreational use has continued since (NZ Drug Foundation, 2012) and is still prevalent today (New Zealand Police, 2021). In the most recent Global Drug Survey (2020b), 21% of New Zealanders indicated that they had microdosed with psilocybin within the last 12 months. However, despite New Zealand's appetite for these substances, drugs are still a stigmatising topic for the New

Zealand public. A failed cannabis legislation referendum conducted during the 2020 general election was one clear indicator of the general population's divided attitudes towards recreational drug use and drug users in Aotearoa today (Hutton, 2021).

In terms of harm, critiques have been made of New Zealand's harm-based classification system under the Act. A 2010 Law Commission[2] review concluded the Act's harm-based classification system does not provide an effective or coherent framework for regulating drugs in Aotearoa. It was determined the Act's current drug classifications may not accurately reflect current knowledge or the current risk profile of the drugs, validating similar conclusions drawn by Nutt et al. (2010) regarding the U.K.'s harm-based classification system. Despite the New Zealand Drug Harm Index also ranking MDMA as the least harmful of 14 drugs (Ministry of Health, 2016), its status as a 'Class B' (high risk) substance has not shifted in Aotearoa. This is indicative that drug policy in Aotearoa is a long way from being evidence-based. MDMA's treatment from a policy standpoint, and New Zealanders attitudes towards MDMA, are likely to present additional challenges for health professionals seeking to engage in evidence-based discussion regarding MDMA-PT as a promising and novel clinical treatment.

7.4. Mental health in Aotearoa

Mental health issues (particularly severe and treatment resistant disorders) are a large burden on New Zealand's health system, and are estimated to effect one in five New Zealanders and cost the country an estimated $12 billion per year (Government Inquiry into Mental Health and Addiction, 2018). The COVID-19 pandemic is also impacting upon New Zealanders' mental health, with the most recent (June 2021) results from the New Zealand Health Survey ('NZHS') highlighting 9.1% of adults experiencing high or very high levels of psychological distress in the past four weeks (Ministry of Health, 2021), compared to 7.4% in 2020 (Ministry of Health, 2020). Widespread concern about mental health and service provision in New Zealand catalysed a Government Inquiry into Mental Health and Addiction in 2018. The Inquiry's final report 'He Ara Oranga' (which translates to 'Pathways to Wellness' in English) highlights an unsustainable mental health and addiction system in Aotearoa,

[2] The Law Commission is an independent Crown entity in New Zealand which undertakes systematic reviews of New Zealand Law.

including escalating demands for specialist services, difficulties recruiting and retaining staff, and limited support for people in the community (Government Inquiry into Mental Health and Addiction, 2018). As such, there is a widely acknowledged need for fresh approaches to mental health treatment and service provision in Aotearoa.

Post-traumatic stress disorder ('PTSD') is a particularly debilitating mental health disorder, which can develop after exposure to a traumatic event. Under the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders ('DSM-5'), the criteria for PTSD includes exposure to actual or threatened death, serious injury or sexual violence (American Psychiatric Association, 2013). This exposure event must then be followed by the presence of at least one intrusion symptom (e.g., recurrent distressing memories of the trauma), one avoidance symptom (e.g., avoidance of internal or external reminders of the trauma), two negative alterations in cognition or mood after the event (e.g., inability to remember aspects of the trauma), and two changes in arousal and reactivity (e.g., hypervigilance or sleep disturbance). These symptoms must last longer than one month (although may not appear for years) and must cause clinically significant impairment in social, occupational, or other important areas of functioning. Biologically, PTSD has been associated with poorer neuropsychological performance (Vasterling & Brailey, 2005) and research suggests that symptom chronicity is linked to hyper-activity in the amygdala (Stevens et al., 2017). A variety of behavioural and cognitive factors have also been linked to the maintenance of PTSD (American Psychiatric Association, 2013; Briere et al., 2005; Keane et al., 1985; Paunovic, 1998).

In Aotearoa, the prevalence of PTSD is difficult to estimate. The Royal Australian and New Zealand College of Psychiatrists (2021) indicate that about four per cent of adults in New Zealand are affected by PTSD. The last comprehensive measure of PTSD in Aotearoa in 2006 indicated the lifetime prevalence of PTSD to be six percent and 12-month prevalence to be three percent, with a particularly heightened 12-month prevalence measured in women (4.2%) compared to men (1.6%) (Oakley Browne et al., 2006). Whilst prevalence rates are lower than other disorders, PTSD is particularly important to focus on because of its chronicity and persistence years after diagnosis (Perkonigg et al., 2016). In one study, more than half of PTSD sufferers were symptomatic for more than three years (Perkonigg et al., 2005). In another, 15% of veterans still had PTSD 19 years after combat exposure (Kulka et al., 1990). In addition, PTSD's impairment in terms of daily functioning is higher than many other psychiatric disorders (Malik et al., 1999). PTSD's high rate of comorbidity with other conditions (Kring & Johnson, 2018), elevated risk of early death (Adams & Boscarino, 2006), and a

likelihood of suicide that is six times greater than the general population (Davidson et al., 1991) emphasise its importance as a disorder worthy of particular focus.

Treatment for PTSD can be long and costly, which Kring and Johnson (2018) highlight is dependent on the trauma's complexity and severity. Currently, options for treating the disorder include psychological treatment in the form of talking therapy (seen as most effective), trauma-focussed cognitive behavioural therapy ('CBT'), eye-movement desensitisation and reprocessing ('EMDR'), often coupled with an antidepressant (The Royal Australian and New Zealand College of Psychiatrists, 2021). Research indicates that on average between 15-20 talk therapy sessions are needed for 50% of patients to recover from PTSD, with more severe sufferers requiring longer (American Psychological Association, 2017). Because of the length of treatment, the cost to New Zealand's health system is high. In the year leading up to 30 June 2019, New Zealand's Accident Compensation Corporation ('ACC') recorded 2,590 sensitive claims (claims specifically related to sexual violence or abuse alone) with a diagnosis of PTSD (Accident Compensation Corporation, 2020a). With 48 hours per year of therapy available for sensitive claims (Accident Compensation Corporation, 2021), at a cost of $171.24 per hour (Accident Compensation Corporation, 2020b), a conservative estimate of the cost impact of PTSD (related to sexual trauma) on New Zealand's health system was $21.3 million in 2019. In addition, the number of new sensitive claims lodged with ACC almost doubled in the five years up to 30 June 2021. These figures signal the sizeable and growing burden of PTSD on New Zealand's health system, and the potential opportunity for new clinical tools such as MDMA-PT to offer efficiencies in terms of time and cost, and treatment options for those dealing with chronic or more severe variations of PTSD.

7.5. The therapeutic applications of MDMA

The treatment model for MDMA-PT is novel and differs in its combined pharmacological and psychotherapeutic format from any other clinical intervention today. MDMA-PT, as it is currently being used, involves administration of two to three doses of MDMA as a part of a broader structured psychotherapy program with two trained therapists (Nutt & de Wit, 2021). In the most recent clinical trials, the MDMA-PT program spanned an 18 week period and involved between 12 and 15 psychotherapy sessions, two or three of which involved the administration of MDMA (Mitchell et al., 2021). The treatment is unique in its use of biological and psychotherapeutic approaches to synergistically facilitate trauma processing

by decreasing or eliminating chronic hyperarousal and stress reactions (Multidisciplinary Association for Psychedelic Studies, 2016).

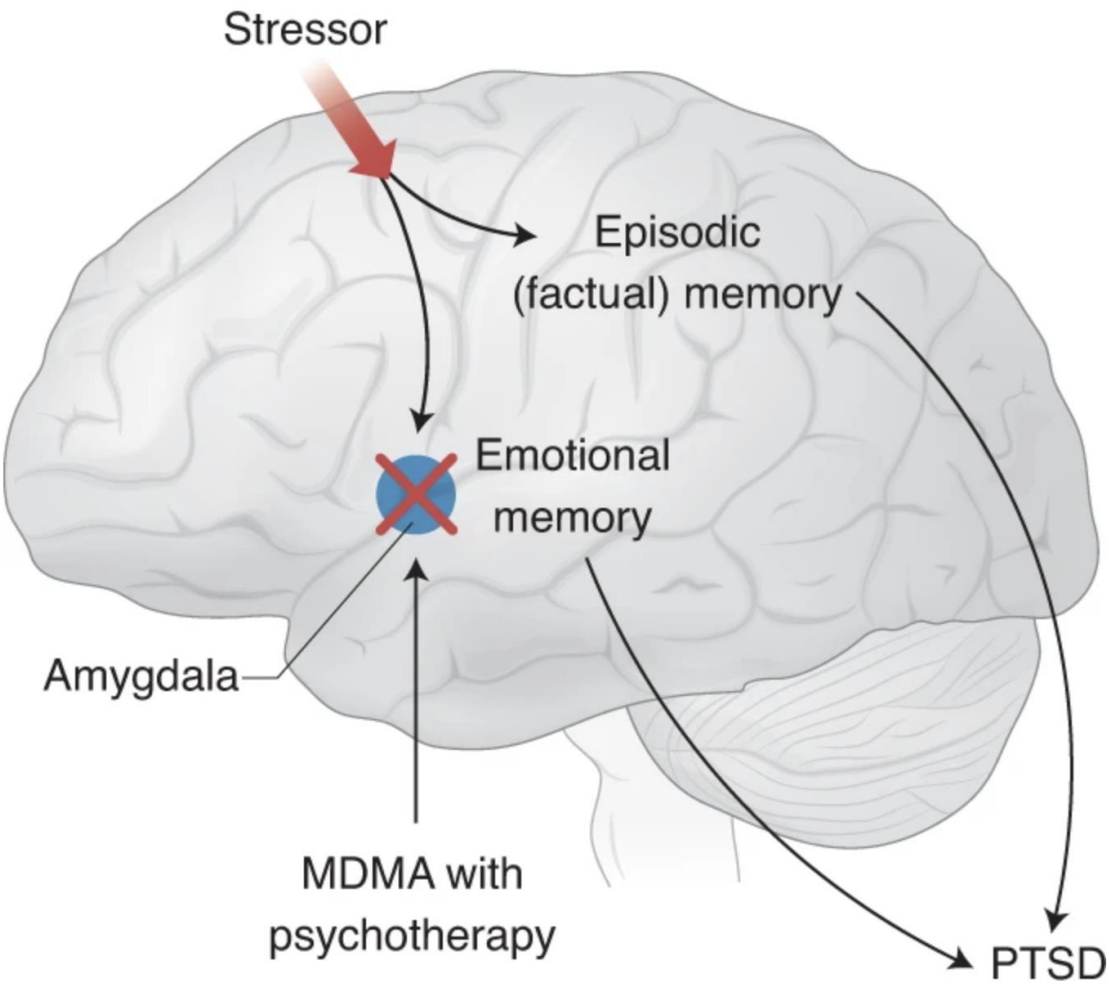
Anecdotal reports suggest up to 4,000 therapists in the U.S. were successfully using MDMA as a part of their therapeutic practice throughout the 1970's until 1985 (Stolaroff, 2004), despite the effects of MDMA on humans only first being recorded in 1978 (Shulgin, 1990). One early study showed MDMA being administered to 29 patients in a therapeutic setting and concluded that its best use was as an adjunct to psychotherapy to facilitate communication and intimacy between individuals in emotional relationships, and to assist those undergoing treatment of alcohol and other drug abuse disorders (Shulgin, 1986). However, despite evidence of its therapeutic value, there was very little research and a lack of any rigorously controlled trials regarding MDMA's therapeutic use before its criminalisation (Noller, 2009). It is now well acknowledged that its outlawing has hindered valuable research into its therapeutic applications, and has resulted in lengthy ethics approvals and complicated access pathways (The Royal Australian and New Zealand College of Psychiatrists, 2020).

Despite these challenges and decades of slowly paced research since 1985, MDMA-PT now has strong evidence to support its safety and efficacy as a potential treatment for individuals with PTSD. There is also early research to support MDMA-PT's potential application for couples or relationship problems (Almond & Allan, 2019; Passie, 2018; Shulgin, 1990), depression (Holland, 2001; Riedlinger & Riedlinger, 1994), premenstrual syndrome (Greer & Tolbert, 1990), autism and accompanying social anxiety symptoms (Danforth et al., 2016; Riedlinger, 1985), substance use disorders (Jerome et al., 2013), and life-threatening illness related anxiety (Wolfson et al., 2020). Results from recent clinical trials led the U.S. FDA to issue a 'Breakthrough Therapy' designation for MDMA-PT for PTSD in 2017 (Feduccia et al., 2018). This designation is a process "designed to expedite the development and review of drugs that are intended to treat a serious condition and [where] preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over available therapy on a clinically significant endpoint(s)" (para. 1) (U.S. Food & Drug Administration , 2018). MDMA-PT has been shown to be highly efficacious, safe, and well tolerated in individuals with severe PTSD (Mitchell et al., 2021; Mithoefer et al., 2019). MDMA's main psychotherapeutic function in relation to PTSD is in facilitating exposure therapy. It does this by suppressing activity in the amygdala, which typically evokes the distressing and sudden emotions that were present during the trauma event(s) (Nutt & de Wit, 2021). MDMA-PT helps to reduce the impact of these emotions by reactivating them (e.g., by remembering the trauma) and then extinguishing

the emotional memories – mechanisms referred to as memory reconsolidation and fear extinction (Feduccia & Mithoefer, 2018). In addition, the reduction in activation of the amygdala is suggested to be enhanced by interaction with the therapists during and after the MDMA experience (Multidisciplinary Association for Psychedelic Studies, 2016). This often results in clients experiencing a clearer perspective of their trauma and a heightened awareness and appreciation for their support and safety mechanisms. An overview of the brain pathways of PTSD and the site of action of MDMA in therapy is provided in Figure 2.

Figure 2

The brain pathways of PTSD and site of action of MDMA in therapy.



Note. From "Putting the MD back into MDMA," by D. J. Nutt & H. de Wit, 2021, *Nature Medicine, 27*(6), https://doi.org/10.1038/s41591-021-01385-8. Copyright 2021 by Springer Nature Limited.

A pooled analysis from six randomised, double-blind, controlled phase two clinical trials showed that participants who were given active-dose MDMA (75-125 mg, n = 72) as an adjunct to psychotherapy experienced a significant reduction in PTSD symptoms, when compared with participants who were given a placebo or low dose MDMA (0-40 mg, n = 31) as an adjunct to psychotherapy (Mithoefer et al., 2019). After treatment, a significantly higher number (54.2%) of participants in the active group (who received MDMA-PT) did not meet the diagnostic criteria for PTSD, compared to the control group (22.6%). In May 2021, the results of MAPS's first phase three clinical trials (n = 90) showed that 67% of participants in the MDMA group no longer met the diagnostic criteria for PTSD, compared to 32% of those in the placebo group (Mitchell et al., 2021) – a promising result and further validation of MDMA-PT's efficacy. Whilst these studies have assessed treatment efficacy using 'gold standard' randomised control trials, it has also been argued effect sizes are likely over-estimated due to de-blinding of participants (i.e., it is often easy to tell whether one was allocated to an active or a control group) and subsequent response expectancy (Muthukumaraswamy et al., 2021). More research also needs to be done to understand MDMA-PT's longer-term benefits and risks, as well as its safety within populations who have historically been excluded from these trials (e.g., those with psychotic disorders).

One unintended outcome, which appears to have resulted from the positive media coverage surrounding MDMA-PT (and other psychedelic-assisted therapies) is individuals engaging in 'self-medication', i.e., obtaining MDMA illegally and consuming it alone or with others for the purposes of addressing mental health disorders or symptoms. The Global Drug Survey (2020b) showed there has been a steadily increasing use of psychedelic substances (including MDMA) over the last six survey years, and that MDMA was the second most common substance used for self-treatment of psychiatric conditions or emotional distress behind LSD. The treatment model for MDMA-PT does not involve any 'self-medication', but despite this, it is understood individuals are seeking to address certain disorders or symptoms by consuming a substance privately. Although a substance might be consumed with a therapeutic intention, self-medication comes with many of the same risks associated with its recreational use. About four percent of Global Drug Survey respondents who used any psychedelic with a therapeutic intent in the last year reported seeking emergency medical treatment.

7.6. Healthcare professionals' attitudes towards psychedelic-assisted therapies

Little is known about the attitudes and knowledge of healthcare professionals towards psychedelic-assisted therapies. Only one recent U.S.-based study has sought to understand the attitudes of psychologists specifically towards psychedelic-assisted therapies (Davis et al., 2021). This study featured the views of 366 psychologists and highlighted 'cautiously favourable' attitudes towards psychedelic-assisted therapies, with some concern over possible psychiatric and neurocognitive risks. Most psychologists indicated lacking a full understanding of psychedelic therapies, and the study identified the need for additional psychoeducation and training to improve this and reduce stigma. Another study conducted by Barnett et al. (2018) amongst 323 American psychiatrists about the use of hallucinogens for the treatment of psychiatric disorders indicated that a 'large minority' (42.5%) expressed optimism about their potential. Intriguingly, only 28.7% of psychiatrists agreed the use of hallucinogens may improve outcomes when used during psychotherapy. A recent small-scale qualitative study by Reynolds et al. (2021) conducted within Aotearoa also illustrated intrigue and openness amongst cancer healthcare workers towards the use of psychedelic-assisted therapy treatments for advanced stage cancer patients. Twelve cancer healthcare professionals (including doctors, nurses, psychologists, and social workers) were interviewed, and whilst they felt psychedelic-assisted therapies could be a transformative approach with potential for real benefit, they were also conscious of the potential risks and their obligations of non-maleficence and keeping vulnerable patients safe.

7.7. Rationale and aims of the current study

A review of existing literature shows there is a gap in our understanding of healthcare professionals' knowledge and attitudes towards MDMA-PT. Only one previous American study has targeted psychologists as a relevant sub-group of healthcare professionals (Davis et al., 2021) and there has been only one Aotearoa-specific study conducted focusing on cancer healthcare workers' attitudes specifically towards psychedelic-assisted therapy (Reynolds et al., 2021). In the interest of contributing new knowledge to a developing field, the main objective of this research is to understand more about the attitudes and knowledge of psychology professionals in Aotearoa towards MDMA-PT.

Psychologists in Aotearoa are important to focus on for multiple reasons. Firstly, it is expected if the research surrounding MDMA-PT continues to replicate positive effiicacy and sustain a good safety profile, MDMA-PT will become an approved clinical treatment for PTSD in the U.S. from 2023 (Multidisciplinary Association for Psychedelic Studies, n.d.). Given the time intensive role qualified therapists play facilitating psychotherapy during treatment (Multidisciplinary Association for Psychedelic Studies, 2016), it is expected psychology professionals in Aotearoa are likely to play a central role working with this treatment if it is implemented here. Psychologists are a core pillar of the mental health workforce in Aotearoa and have direct exposure to individuals experiencing serious mental health issues who are most likely to benefit from MDMA-PT. Psychology professionals' intimacy with severe mental health presentations such as PTSD make their attitudes towards MDMA-PT valuable to understand. Psychologists' views are also valuable to capture because health practitioners' personal attitudes have also been shown to impact upon the treatments they recommend and their effectiveness (Melnikov et al., 2021). Cultural stigma towards psychedelics have been shown to significantly impact the attitudes of psychologists towards psychedelic-assisted therapy in the U.S. (Davis et al., 2021), and it is in the psychology community's interest in Aotearoa to understand whether a similar trend exists locally in relation to MDMA-PT.

Registered psychologists are also important to focus on specifically because their engagement with MDMA-PT as a novel clinical treatment is likely to impact its implementation in Aotearoa. Psychologist is a protected title in Aotearoa and requires practitioners to undergo extensive training to ensure competence to practise before registration, rendering them accountable for their practice under the Health Practitioners Competence Assurance Act 2003 (New Zealand Psychologists Board, n.d.). Registered psychologists have a direct impact and voice regarding psychological practice within Aotearoa, informing and contributing to clinical decisions made by the New Zealand Psychologists Board. The implication of the status psychologists occupy makes their attitudes and knowledge important to capture in terms of psychological practice in Aotearoa today. Non-registered psychology professionals (with a minimum Master's qualification in psychology) were originally included in the study, however their poor total response number (inhibiting inter-group comparison) and lack of direct impact on psychological practice in Aotearoa meant their responses were excluded from the overall results. The scope of this research also excluded other clinical professions also likely to work with MDMA-PT (e.g., psychiatrists, psychotherapists, and counsellors) to ensure direct relevance of the findings to the psychology qualification under which research was conducted.

An Aotearoa-focused study is also important to undertake because of our unique cultural structure. In the 2018 New Zealand Census, Māori, Asian, and Pacific peoples made up 16.5%, 15.1% and 8.1% of the population respectively (Statistics New Zealand, 2019). Aotearoa is regarded as a 'high-prevalence country' amongst other developed countries for most mental health disorders, and Māori are disproportionately represented in prevalence rates leaving them at greater risk for PTSD (Oakley Browne et al., 2006). MDMA-PT provides a unique opportunity for healthcare professionals in Aotearoa to actively consider and integrate the principles of Te Tiriti o Waitangi (the Treaty of Waitangi) and tikanga Māori (customary practices or behaviours of Māori) within a completely new treatment modality. MDMA-PT utilises a non-directive psychotherapy approach which emphasises invitation rather than direction, and can provide access to the exploration of the spiritual aspects of one's life (Multidisciplinary Association for Psychedelic Studies, 2016). This is likely to resonate with Te Ao Māori (the Māori worldview) and Māori health models that emphasise taha wairua (spiritual wellbeing), which modern health services in New Zealand are seen by Māori to be majorly deficient in (Ministry of Health, 2015). A uniquely Aotearoa perspective on such a new clinical tool is important to obtain because of its potential relevance for helping achieve equitable health outcomes for Māori.

With a paucity of research in the field, an Aotearoa-specific study focusing on psychologists' attitudes and knowledge is valuable and complementary to this burgeoning area of research. For sufferers of PTSD, this research will provide a glimpse into how the groundswell of MDMA-PT treatment research is being received by psychology professionals within Aotearoa. It is my hope this research will help inform the local drug policy landscape, shape MDMA-PT treatment and service provision in Aotearoa, and improve the targeting of psychoeducation towards healthcare professionals more broadly. This research will explore and discuss the potential opportunities and challenges for this treatment within an Aotearoa-specific context, begging the question: What are the attitudes and knowledge of psychologists in Aotearoa towards the therapeutic applications of MDMA?

8. METHODOLOGY

8.1. Research design and rationale

The main objective of this research was to understand more about the attitudes and knowledge of psychology professionals in Aotearoa towards MDMA-PT. This pilot study was designed to be exploratory in nature by allowing for a breadth of topics to be covered using an inductive 'bottom up' approach. To best suit this exploration of attitudes and knowledge, a post-positivist paradigm with a mixed methods methodological approach was employed to collect both qualititative and quantitative data. Mixed methods research provides the flexibility to collect quantifiable measures of variables of interest whilst also ascertaining underlying meanings and explanations of phenomena (Johnson & Onwuegbuzie, 2004). The key rationale for the study's mixed methods design was the ability to use qualitative data in conjunction with quantitative data to infer deeper underlying meaning of psychologists' attitudes and knowledge.

This study utilised a concurrent mixed method data strategy, employing a cross-sectional sampling method via an online survey asking participants to respond to quantitative and qualitative items. An online survey method was selected as most appropriate for implementing this because of its speed in terms of time to develop, ability to standardise structure, low cost, ease of user navigation, and scaleability in collecting and analysing large amounts of data. The survey predominantly featured Likert scale items to measure for attitudes and knowlege, as well as opportunities for participants to provide commentary via open-ended text boxes.

8.2. Participants

Participants for this study were psychology professionals in Aotearoa. As MDMA-PT involves multiple psychotherapy sessions, psychology professionals are likely to play a core role working with this treatment. The inclusion criteria incorporated psychologists registered with the New Zealand Psychologists Board as well as non-registered psychology professionals who possessed a minimum Master's level qualification in psychology or higher. Participants had to be living and working in New Zealand.

84 responses were received in total, but only 70 were deemed valid. 14 were invalid as they did not meet the eligibility criteria. 65 responses were from registered psychologists (including two intern psychologists) and five were non-registered psychology professionals. Non-registered psychology professionals were mostly academics and a review of their responses highlighted some knowledge of MDMA-PT and higher levels of optimism regarding its potential efficacy compared to registered psychologists. The demographics and results presented hereonin relate to registered psychologists only (*n* = 65), for the reasons discussed under the 'rationale and aims of the current study' section.

8.3. Survey design

The survey included a qualifying inclusion criteria section, followed by the attitudes and knowledge items, and a final demographics section. Of the 28 attitudes and knowledge items, 24 were quantitative (nominal and ordinal) and four were open-ended text boxes. The attitudes and knowledge items were split into three sections: 1) attitudes and knowledge of therapeutic use of MDMA, 2) attitudes and knowledge of recreational use of MDMA, and 3) attitudes regarding recreational use of illicit drugs. Likert scales ranging from one to seven were used for 15 items, with one being 'strongly disagree', and seven being 'strongly agree'. These were mostly employed due to their well documented ability to assess for and ascertain further information about participants' personal attitudes (Willits et al., 2016). Participants had the option to skip any item, and were able to select 'unsure' on any Likert item. A copy of the full survey can be found in Appendix D, and each quantitative item in the survey was coded as indicated in Appendix E.

8.3.1. Section one: Attitudes and knowledge of therapeutic use of MDMA

Section one contained the two primary outcomes and dependent variables for the study, as well as other questions which were used to further understand psychologists' knowledge and attitudes towards MDMA-PT. The dependent variable of 'knowledge of MDMA-PT' was operationalised using a self-report item to rate one's level of informedness about MDMA-PT (item Q1). Participants had the response options of 'not informed', 'slightly informed', 'somewhat informed', and 'very informed'. The dependent variable of 'attitude towards MDMA-PT' was operationalised as a seven point Likert scale item that enquired about

the participant's personal belief of MDMA-PT's potential efficacy (item Q9). Using single items (rather than aggregating multiple items) to assess for a primary outcome is useful where participants are required to provide an 'overall evaluation' of complex phenomena (Willits et al., 2016). Because MDMA-PT is a complex phenomena, these single items (Q1 and Q9) were used as the 'overall evaluation' for the study's primary outcomes.

At the outset of each section, relevant definitions and instructions were provided for completion. The therapeutic application of MDMA was defined as 'the adjunctive use of MDMA facilitated by a psychologist within the context of a broader therapeutic program, for the purposes of addressing a mental health disorder or issue (sometimes referred to as MDMA-assisted psychotherapy)'. To obtain a broad view of psychologists' knowledge and attitudes and cover adjacent themes of interest, the other independent variables in this section explored perceptions of MDMA-PT research (Q2, Q3 and Q10), risks and safety (Q4 and Q8), knowledge of clients' self-medication (Q5 and Q6), preparedness to answer clients' questions (Q7), and interest in learning more about MDMA-PT (Q11). This section was placed first as it contained the main variables of interest for the research aims of the study. It was also felt that priming participants with items assessing their attitudes towards illicit drugs at the outset (many of which are evidentially more harmful than MDMA and other psychedelics (Nutt et al., 2010)) could have led them to respond more negatively towards items assessing their attitudes towards recreational MDMA use.

Of the four qualitative questions which provided an open-ended text box, two contained questions which directly linked to preceding items exploring justifications of participants' perceptions of risks (for both MDMA-PT and recreational MDMA use). Probing participants' perceptions of MDMA-PT's risks qualitatively was important to explore whether misunderstandings that exist in the field (e.g., exaggerations of MDMA's adverse effects due to referencing studies where illicit, impure MDMA is taken in unsupervised settings) (Doblin et al., 2014) were also present in Aotearoa and to validate the accuracy of psychologists' own knowledge. The two remaining questions were similarly designed and asked participants for commentary on a survey section as a whole (e.g., "Do you have any additional comments you wish to share regarding the therapeutic use of MDMA?").

8.3.2. Section two: Attitudes and knowledge of recreational use of MDMA

Section two was developed to gain a more intimate understanding of participants' knowledge and attitudes around recreational MDMA use. This was important to include because of the evidence suggesting the impact of healthcare practitioners' personal attitudes and stigma towards their perceptions of risk (Davis et al., 2021) and likelihood to recommend and provide effective treatment (Melnikov et al., 2021). The stigma and perceived risks associated with MDMA's illegality and recreational use means psychologists who observe its use in a recreational or substance abuse context may be challenged to properly understand its function in therapy without prejudice.

The recreational use of MDMA was defined as 'the use of MDMA for pleasure or for some other casual purpose'. This section included independent variables specifically assessing participants' personal attitudes towards the acceptability of recreational MDMA use (Q12 and Q18), understanding of MDMA as a substance (Q13 and Q14), perceptions of recreational MDMA risks (Q15), drug policy attitudes (Q16 and Q17), and personal consumption of MDMA (Q19 and Q20).

8.3.3. Section three: Attitudes regarding recreational use of illicit drugs

Section three explored participants' attitudes towards the recreational use of illicit drugs generally. Four independent variables specifically looked at partcipants' attitudes towards New Zealand drug laws (Q21), individual illicit drug use (Q22), illicit drug users (Q23), and collective illicit drug use (Q24). Three of these (Q22, Q23, and Q24) were pulled directly from the 'general drug use' subscale of the Drug Attitudes Scale ('DAS') (Goodstadt et al., 1978). The DAS is reported to have good criterion and discriminant validity and has shown utility in measuring attitudes that moderate the use of substances of abuse (Cordero et al., 2010; Zacny, 2010).

8.4. Procedure

Ethics approval was granted on 2 June 2021 by the Auckland University of Technology Ethics Committee ('AUTEC'). Data collection commenced on 3 June 2021 and finished on 17

September 2021. Participants were recruited via advertising in the New Zealand Psychological Society's monthly member e-newsletter (between June and August 2021), the 'Psychologists in New Zealand' Facebook group, and during the New Zealand Psychological Society's annual conference (5-7 September 2021) (see Appendix B for a copy of the advertisement). Participants clicked on the advertisement's URL link which took them to Qualtrics, the platform that hosted the anonymous survey. Participants were then presented with the participant information sheet (see Appendix C), before clicking through to complete screening questions based on the study's inclusion criteria. No identifiable information was collected from participants. Participants had the right to skip any question or withdraw from the study at any time.

8.5. Data analysis

Following the completion of data collection, the data was extracted directly from Qualtrics and transferred into Microsoft Excel. Descriptive statistics and inferential statistics (Chi-square test for independence and Cramer's V) were used to analyse the study's quantitative data. A thematic analysis using a general inductive method was used for the qualitative data, conducted manually by reading each response.

The quantitative data featured a combination of nominal and ordinal variables. The data was preliminarily explored using descriptive statistics to measure for frequency in Excel. IBM Statistical Package for Social Sciences (IBM SPSS, version 27) analytical software was used to identify relationships between the variables. A non-parametric Chi-Square test for independence (a Fisher's exact test with an associated 'Cramer's V' correlation test) was administered to explore the relationship between the dependent variables ('knowledge of MDMA-PT' and 'attitude towards MDMA-PT') and each other independent variable in the survey (see Appendix F for a summary of the dependent and indepdent variables used for data analysis). The survey's exploratory design meant it was important for all of the survey's independent variables to be tested against the study's primary outcomes, focusing on the differing dimensions of partipants' attitudes and knowledge towards therapeutic and recreational MDMA use, and illicit drug use. Those who selected 'unsure' or skipped an item in the survey were excluded from this particular analysis, given their responses were not logically ordinal. These tests were selected given that the data was predominantly ordinal and did not meet the normal distribution assumptions and the requirements for interval or ratio data

of parametric tests (Altman & Bland, 2009; Cohen et al., 2002). A Fisher's exact test was used instead of a traditional Chi-square because more than 20% of the expected cell counts were less than five in the calculation's cross-tabulations, and the test has proven validity in testing for associations with smaller sample numbers (Warner, 2013). For the analysis, the significance level was set at P≤0.05. An ordered logistic regressional model was also considered given its appropriateness for working with ordinal data (Fullerton, 2009), however participants' responses to questions were unable to be easily collapsed into two dichotomous categories, rendering this testing unsuitable.

A Cramer's V was selected because of its suitability in measuring the strength of the association between variables, and its applicability in working with a combination of nominal and ordinal data (Frey, 2018). Cramer's V has also been shown to be appropriate when the size of a Chi-square cross-tabulation is large (Marchant-Shapiro, 2015), a possibility in this study given that participants could select up to seven response options. Although there is debate about the strength of the effect size for the Cramer's V (*V*), this study uses Frey's (2018) general guidance in Table 1 to interpret the data as it is more conservative than other guidelines from Marchant-Shapiro (2015) and Cohen (1988), and contains more nuanced categories for indicating correlative strength.

Table 1

Cramer's V effect size and corresponding guidance on correlation strength.

Cramer's V effect size	Strength of correlation
0 – 0.19	No correlation or a negligible correlation
0.20 – 0.29	Weak correlation
0.30 – 0.50	Moderate correlation
0.50 – 0.69	Strong correlation
0.70 – 1	Very strong correlation

Note. Reprinted from *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (p 417) by B. Frey, 2018, SAGE Publications. Copyright 2018 by Bruce Frey.

The qualitative data from four open-ended text boxes were reviewed line-by-line. Two text boxes asked participants' about the main reasons they perceived the rating of therapeutic and recreational use of MDMA, allowing for categorisation of emergent themes using a general inductive method. The remaining two text boxes were reviewed and relevant commentary highlighted to add further detail to the findings in the results section, however the breadth of

the questions inhibited the ability to conduct a meaningful thematic analysis (e.g., “Do you have any additional comments you wish to share regarding the therapeutic use of MDMA?”).

9. RESULTS

9.1. Participant demographics

The demographic information of participants involved in the study is presented below in Table 2. Three items were included to examine demographics, which included participants' age group, gender identity, and ethnicity. 'Years of clinical experience' featured as a qualifying question for participants who indicated they were registered psychologists ("Approximately how many years of clinical experience do you have?"), and was included in the below table in terms of its relevance in elucidating relevant information about the sample. Because participants could select more than one ethnicity in the survey, prioritised ethnicity data protocols from the Ministry of Health (2017) were used for reporting on a single ethnicity. At least four (6.15%) participants chose to leave the entire demographic section blank.

Table 2

Demographics of participants (N=65).

Characteristic	*n*	%	*M* ± *SD*
Gender identity			
Female	51	78.46	
Male	10	15.38	
Blank/did not respond	4	6.15	
Age group (years)			
20-30	10	15.38	
31-50	38	58.46	
51+	13	20.00	
Blank/did not respond	4	6.15	
Ethnicity			
Asian	1	1.54	
European	50	76.92	
Māori	5	7.69	
Other ethnicity	5	7.69	
Blank/did not respond	4	6.15	
Years of clinical experience[†]			11.0 ± 8.1

Note. [†]Five individuals (7.69%) chose not to indicate years of clinical experience.

A large proportion of survey participants were female (78.46%), between 31 and 50 years of age (58.46%), and European (76.92%). Participants had a mean of 10.96 years of clinical experience as a psychologist, reflecting a range of practicing experience across the sample. Because there are no published statistics about the demographics of New Zealand's psychologist workforce beyond high-level statistics (e.g., total number of registered psychologists), comments about the generalisability of the study's results to the wider psychologist population cannot be made.

9.2. Knowledge of MDMA-PT

Psychologists' knowledge of MDMA-PT was one of the study's primary outcomes. There was a spread of responses to this question, indicating that psychologists had varying levels of knowledge about MDMA-PT. Only 6.15% of psychologists were very informed about the current research relating to MDMA-PT. The results are presented in Table 3.

Table 3

Frequency and proportion of participants' responses to item Q1: 'knowledge of MDMA-PT'.

Response	*n*	%
Not informed	22	33.85
Slightly informed	22	33.85
Somewhat informed	17	26.15
Very informed	4	6.15

Other items were also included in the survey to understand more about psychologists knowledge of MDMA-PT. Participants were asked about their perceptions of the promise of MDMA-PT research, the results of which are provided in Table 4. The responses showed that 58.46% agreed total that the research surrounding the therapeutic use of MDMA shows promise in the treatment of mental health disorders. Exactly one fifth (20%) of participants indicated that they were 'unsure', and only two participants (3.08%) disagreed.

Table 4

Frequency and proportion of participants' responses to item Q2: 'promise of MDMA-PT research'.

Response	*n*	%
Strongly agree	13	20.00
Agree	17	26.15
Somewhat agree	8	12.31
Neither agree nor disagree	12	18.46
Somewhat disagree	1	1.54
Disagree	1	1.54
Strongly disagree	0	0.00
Unsure	13	20.00

Participants were also asked two items in the survey about whether they were aware of clients' illegal use of MDMA or other psychedelics (e.g., LSD, 'magic mushrooms' / psilocybin, DMT, etc.) to treat mental health disorders of symptoms. The majority (55.93%) of participants were aware of clients using MDMA, and a larger majority (66.67%) were aware of clients using psychedelic substances for these purposes. Less than a quarter of participants outrightly disagreed with these items (23.73% and 18.33% for MDMA and psychedelics respectively). The results of this are provided in Table 5.

Table 5

Frequency and proportion of participants' responses to items Q5 and Q6: 'awareness of client MDMA or psychedelic use'.

	Q5. Awareness of client MDMA use		Q6. Awareness of client psychedelic use	
Response	*n*	%	*n*	%
Strongly agree	9	15.25	17	28.33
Agree	16	27.12	14	23.33
Somewhat agree	8	13.56	9	15.00
Neither agree nor disagree	6	10.17	5	8.33
Somewhat disagree	0	0.00	2	3.33
Disagree	8	13.56	5	8.33
Strongly disagree	6	10.17	4	6.67
Unsure	6	10.17	4	6.67

Note. Five participants were not shown these items, and one chose to skip item Q5.

Participants were also tested about their knowledge of the applications of MDMA-PT, and were asked to select as many mental health disorders or issues they understood to be applicable. 54 psychologists (83.08%) were aware of the research surrounding the use of MDMA-PT for PTSD, but there was much less awareness of research for other disorders. 10 (15.38%) did not respond to the item, indicating no knowledge of MDMA's specific therapeutic applications. These results are presented in Table 6.

Table 6

Frequency and proportion of participants' responses to item Q3: 'applications of MDMA-PT'.

Response	*n*	%
Post-traumatic stress disorder	54	83.08
Life-threatening illness related anxiety	22	33.85
Social anxiety in autistic adults	9	13.85
Couples therapy	10	15.38
Alcohol use disorder	13	20.00
Other (please specify) †	8	12.31

Note. 10 (15.38%) participants left the item blank. †Four (6.15%) participants specified depression under 'other'. Other disorders specified only once included anxiety, substance use disorder, complex developmental trauma, and eating disorders.

Participants were asked about what they understood the level of risk of MDMA-PT to be. 60% of participants understood the risk of MDMA-PT to be either low or medium, and 32.31% were unsure. These results are presented in Table 7.

Table 7

Frequency and proportion of participants' responses to item Q4: 'risk of MDMA-PT'.

Response	*n*	%
Low risk	26	40.00
Moderate risk	13	20.00
High risk	2	3.08
Very high risk	3	4.62
Unsure	21	32.31

In a follow-up question participants were asked about the key reasons they had rated the risk that way. Three common reasons emerged from the commentary which illustrated some participants' familiarity with MDMA-PT as a treatment. The first reason highlighted by the most participants was that MDMA-PT was undertaken in a monitored clinical setting, with the controlled environment and therapeutic and medical support mitigating many of the inherent risks of the therapy. The second reason referenced was the low dose and potency of the MDMA used for MDMA-PT. The third reason that was referenced related to known biophysical harms associated with MDMA, including participants referencing contra-indicated conditions such as those with existing heart conditions or dissociative disorders. Other less frequently reasons cited included psychological risks (e.g., psychotic episodes), low rates of adverse events in trials, the risk of 'normalising' MDMA's use, managing the 'come down' effects for those with mental health issues, and the lack of established research on MDMA-PT and MDMA's long-term effects.

Participants were also asked how prepared they would feel about answering questions from clients about the therapeutic use of MDMA. Almost half (47.69%) of participants were 'not at all prepared'. Only a small proportion (9.23%) of psychologists felt very prepared to answer questions from clients. These results are presented in Table 8.

Table 8

Frequency and proportion of participants' responses to item Q7: 'Preparedness answering clients' MDMA-PT questions'.

Response	*n*	%
Not at all prepared	31	47.69
Slightly prepared	15	23.08
Somewhat prepared	8	12.31
Very prepared	6	9.23

Note. Five participants were not shown these items.

The final item in section one explored if psychologists would be interested in learning more about the therapeutic applications of MDMA. Most participants (92.31%) indicated being interested, 4.62% reported being unsure, and only 3.08% indicated no interest in improving their understanding of MDMA-PT.

9.3. Attitudes towards MDMA-PT

Psychologists' attitudes towards MDMA-PT were measured by three seven point Likert scale items, assessing psychologists' personal perceptions of safety (Q8), treatment legitimacy (Q10), and the potential for the treatment to improve outcomes (Q9). The large majority (62.5%) of participants agreed that MDMA could improve outcomes if used adjunctively with psychotherapy, and only a small minority (7.82%) disagreed. Over half (53.13%) of participants also disagreed that the therapeutic use of MDMA was unsafe, and 56.25% of participants believed that the therapeutic use of MDMA was a legitimate treatment. A full breakdown of the results are presented below in Table 9.

Table 9

Frequency and proportion of participants' responses to items Q8-Q10: 'attitudes towards MDMA-PT'.

	Q8. Attitude towards MDMA-PT safety		Q9. Attitude towards MDMA-PT		Q10. Attitude towards legitimacy of MDMA-PT	
Response	***n***	**%**	***n***	**%**	***n***	**%**
Strongly agree	2	3.13	13	20.31	12	18.75
Agree	2	3.13	15	23.44	12	18.75
Somewhat agree	11	17.19	12	18.75	12	18.75
Neither agree nor disagree	7	10.94	10	15.63	10	15.63
Somewhat disagree	10	15.63	3	4.69	3	4.69
Disagree	15	23.44	0	0.00	3	4.69
Strongly disagree	9	14.06	2	3.13	3	4.69
Unsure	8	12.50	9	14.06	9	14.06

Note. One participant skipped all three of these items.

9.4. Inferential statistics

The two primary outcomes ('knowledge of MDMA-PT' and 'attitude towards MDMA-PT') were tested against each of the study's independent variables using a Fisher's exact test and Cramer's V, as outlined in Table 10. Significant results on the Fisher's exact tests ($p \leq 0.050$) have been marked with a single asterisk (*), and strong correlations ($V > 0.500$) on the Cramer's V have been marked with a double asterisk (**).

The Fisher's exact test results indicated that there was a significant and moderately strong correlation between knowledge of MDMA-PT with attitudes towards MDMA-PT (p = 0.001, V = 0.481), as well as with attitudes towards MDMA-PT safety (p = 0.004, V = 0.429) and legitimacy of MDMA-PT (p = 0.029, V = 0.420). The results showed statistical significance between knowledge of MDMA-PT and age group (p = 0.041) with moderate correlative strength (V = 0.338), although no other significant differences were observed in relation to participants' demographics. Promise of MDMA-PT research had a strong correlation with knowledge (p = 0.001, V = 0.536), as did preparedness answering clients' MDMA-PT questions (p = 0.001, V = 0.613). Knowledge of MDMA-PT showed minimal associations with variables relating to attitudes towards recreational MDMA and illicit drugs. Although, the results indicated that knowledge was moderately correlated with beliefs of pro-social MDMA effects (p = 0.027, V = 0.407), as well as attitudes towards shifting MDMA from a Class B to a Class C substance in Aotearoa (p = 0.001, V = 0.360). A number of other independent variables showed moderate correlations with knowledge of MDMA-PT, although without any statistical significance using the Fisher's exact test.

Attitudes towards MDMA-PT demonstrated many more associations with variables across the survey compared to knowledge of MDMA-PT. Although attitudes towards MDMA-PT did not demonstrate a relationship with any demographics, strong correlations and statistical significance was observed with perceptions of the promise of MDMA-PT research (p = 0.001, V = 0.737), the risk of MDMA-PT (p = 0.001, V = 0.566), and an interest in learning more about MDMA-PT (p = 0.019, V = 0.534). Statistical significance and strong correlations were also observed with other attitude-focused questions, such as with attitudes towards MDMA-PT safety (p = 0.001, V = 0.605) and attitudes towards the legitimacy of MDMA-PT (p = 0.001, V = 0.776). Every item (except for 'risk of recreational MDMA use') in section two demonstrated a statistical significance with attitudes towards MDMA-PT, most with either moderate or strong correlations. This included attitudes towards any MDMA consumption (p = 0.001, V = 0.544), the acceptability of recreational MDMA use (p = 0.019, V = 0.451), attitudes towards MDMA laws in New Zealand (p = 0.033, V = 0.467) and shifting MDMA from a Class B to a Class C drug (p = 0.016, V = 0.406). This also included beliefs of MDMA's pro-social effects (p = 0.006, V = 0.485), the psychiatric risks of MDMA (p = 0.007, V = 0.472), the participants' personal consumption of MDMA (p = 0.024, V = 0.477), and the quality of that personal consumption experience (p = 0.003, V = 0.602). The test results also indicated that attitudes towards MDMA-PT had a moderate to strong correlation with attitudes towards New Zealand drug law (p = 0.009, V = 0.441) and attitudes towards illicit drug users (p = 0.002, V

= 0.596). No relationship was observed with attitudes towards individual (p = 0.508, V = 0.317) and collective illicit drug use (p = 0.147, V = 0.404).

Table 10

Fisher's exact test and Cramer's V results for 'knowledge of MDMA-PT' and 'attitude towards MDMA-PT'.

Survey item	Q1. Knowledge of MDMA-PT		Q9. Attitude towards MDMA-PT	
	p	*V*	*p*	*V*
Demographics				
Gender	0.406	0.188	0.819	0.243
Age group	**0.041***	0.338	0.169	0.357
Ethnicity	0.580	0.203	0.116	0.346
Section one: Attitudes and knowledge of therapeutic use of MDMA				
Knowledge of MDMA-PT	-	-	**0.001***	0.481
Promise of MDMA-PT research	**0.001***	**0.536****	**0.001***	**0.737****
Risk of MDMA-PT	0.356	0.270	**0.001***	**0.566****
Awareness of client MDMA use	0.696	0.294	0.205	0.356
Awareness of client psychedelic use	0.580	0.322	0.483	0.372
Preparedness answering clients' MDMA-PT questions	**0.001***	**0.613****	**0.010***	0.434
Attitude towards MDMA-PT safety	**0.004***	0.429	**0.001***	**0.605****
Attitude towards MDMA-PT	**0.001***	0.481	-	-
Attitude towards legitimacy of MDMA-PT	**0.029***	0.420	**0.001***	**0.776****
Interest in learning about MDMA-PT	0.298	0.265	**0.019***	**0.534****
Section two: Attitudes and knowledge of recreational use of MDMA				
Acceptability of recreational MDMA use	0.338	0.316	**0.019***	0.451
Belief of pro-social MDMA effects	**0.027***	0.407	**0.006***	0.485
Psychiatric risk of MDMA	0.356	0.353	**0.007***	0.472
Risk of recreational MDMA use	0.515	0.210	0.089	**0.535****
Attitude towards MDMA NZ laws	0.486	0.340	**0.033***	0.467
Attitude towards MDMA shift from Class B to Class C	**0.001***	0.360	**0.016***	0.406
Attitude towards any MDMA consumption	0.300	0.341	**0.001***	**0.544****
Personal consumption of MDMA	0.149	0.272	**0.024***	0.477
Quality of experience of MDMA personal consumption	0.399	0.367	**0.003***	**0.602****
Section three: Attitudes regarding recreational use of illicit drugs				
Attitude towards NZ drug law	0.146	0.378	**0.009***	0.441

Attitude towards individual illicit drug use	0.434	0.255	0.508	0.317
Attitude towards illicit drug users	0.098	0.375	**0.002***	**0.596****
Attitude towards collective illicit drug use	0.197	0.354	0.147	0.404

Note. *Statistical significance ($p \leq 0.050$) for Fisher's exact test result; **Strong correlation ($V > 0.50$) for Cramer's V test result.

10. DISCUSSION

The main objective and primary outcome of this study was to understand more about and contribute to the literature on the attitudes and knowledge of psychology professionals in Aotearoa towards MDMA-assisted psychotherapy ('MDMA-PT'). The results from this study were broadly congruent with findings in similar studies looking at healthcare workers' attitudes towards psychedelic-assisted therapies (Barnett et al., 2018; Davis et al., 2021; Reynolds et al., 2021), while providing new insights into psychologists' attitudes and knowledge around MDMA-PT. In this section, the significance of the findings and their implications for the field are discussed, along with the study's limitations, and recommendations for psychological practice and future research. It should be noted that given the exploratory nature of the research, the small sample size, and the specific inferential statistics which have been applied, any significance detected in the results should only be considered as indicative.

10.1. Knowledge of MDMA-assisted psychotherapy

The results from this study demonstrate that psychologists in Aotearoa have varying levels of knowledge about MDMA-PT, but are frequently not well informed. When asked to self-report their level of knowledge relating to the current research regarding MDMA-PT, the majority of participants were either only slightly informed (33.85%) or not informed at all (33.85%). This is consistent with a study by Davis et al. (2021) where almost two thirds (64.9%) of American psychologists disagreed they had a very clear understanding of psychedelic assisted treatment. Only a small proportion (6.15%) of New Zealand psychologists felt 'very informed', highlighting a somewhat mixed yet predominantly poor knowledge base regarding MDMA-PT. Interestingly, in this study, approximately 83% were aware of the research surrounding the use of MDMA-PT for PTSD, indicating a high-level awareness of its applications which have likely been influenced by portrayals of clinical trial results in popular media (Gearin & Devenot, 2021). Given the recency of publishing for the phase two and three clinical trial results of MDMA-PT for PTSD specifically since 2019, this variation in knowledge levels of MDMA-PT is not particularly surprising. Whilst there was no strong demographic correlation in response to knowledge of MDMA-PT, there was a statistically significant relationship with participants' age groups. Defying the general assumption that younger individuals might have more interest in novel emerging therapies such as MDMA-PT, participants in older age groups were more likely to be well informed. One possible explanation

for this is that older psychologists have had numerous years of professional development and an established knowledge base in the field, allowing them to easily integrate this emerging research. In the current study, older psychologists had more practicing clinical experience on average than younger psychologists (i.e., those in the '51+' year old age group had a mean of 21.08 years of clinical experience, compared to a mean of 2.21 years in the '20-30' year old age group). Overall, the knowledge of MDMA-PT amongst psychologists in Aotearoa is relatively varied, and psychologists are frequently not well informed about the treatment. The variability in these results reflects the need for increased levels of psychoeducation for psychologists.

In addition to participants' knowledge of MDMA-PT, 58.46% agreed that MDMA-PT research shows promise in the treatment of mental health disorders, and 20% were unsure. This reflects a greater degree of optimism about the promise of MDMA-PT research in New Zealand when compared to results regarding psychedelic-assisted therapy in similar studies conducted outside New Zealand. Less than half (43-47%) of participants in both studies by Barnett et al. (2018) and Davis et al. (2021) agreed that psychedelic-assisted interventions 'show promise in treating psychiatric disorders'. It is possible that because this study was undertaken around the period when the initial phase three clinical trial results for MDMA-PT were published (Mitchell et al., 2021), that this helped to uplift participants' optimism towards MDMA-PT. Unsurprisingly, participants' knowledge of MDMA-PT was strongly correlated with the promise of MDMA-PT research (p = 0.001, V = 0.536), indicating that participants who were informed about MDMA-PT research were much more likely to be favourable about its potential as a treatment. The use of 'gold standard' randomised control trials ('RCTs') in clinical trials taking place today and the large effect sizes recorded for MDMA-PT as a breakthrough therapy (Mitchell et al., 2021; Mithoefer et al., 2019) undoubtedly will affect participants perceptions of therapeutic potential as they become more familiar with the evidence base for the therapy.

The qualitative data indicated that there was little concern amongst participants about the quality of the MDMA-PT research itself. Only one participant expressed a specific concern regarding the evidence base for MDMA-PT relating to the "problems with blinding psychoactive substances in order to get properly placebo controlled RCTs". The inherent challenges in blinding substances such as MDMA is a well known critique of current RCTs and steps have been suggested to ensure that confounding variables associated with blinding minimally impact RCT results within the field (Muthukumaraswamy et al., 2021). Participants

who indicated they were somewhat or very informed about MDMA-PT did not share any notable critique regarding its evidence base. On a more general level, three participants (4.62%) shared a concern in their commentary about the limited research base in the area. Undoubtedly, the quantity of research to draw upon will become greater as phase three trials progress and increasing numbers of jurisdictions authorise MDMA-PT.

Participants were asked about their knowledge of the risks associated MDMA-PT. 60% of the participants understood the risk of MDMA-PT to be either low or medium, an accurate assessment based on the low rate of adverse events and the careful management of risks during MDMA-PT (Multidisciplinary Association for Psychedelic Studies, 2020). 32.31% of participants selected ‘unsure’, a similar figure to the number of those who selected ‘not informed at all’ when asked about their knowledge regarding MDMA-PT. Importantly, participants’ willingness to select ‘unsure’ on this and other survey items is illustrative of their cognisance as to the limits of their knowledge on the topic. These results suggest participants have varied levels of understanding of the risks associated with MDMA-PT. The qualitative data further validated this with the risks described by participants varying widely in their level of detail and understanding. For example, one participant indicated their lack of familiarity with the treatment by referring to the “risk of misuse of the drug” as a risk, which is highly unlikely to occur under the close medical supervision under which MDMA-PT occurs. Participants who rated the risk of MDMA-PT as high were more likely in their commentary to demonstrate a lack of familiarity with the therapeutic structure and types of controls used to mitigate the risks associated with MDMA-PT (e.g., taking a controlled dose in a safe environment with available medical and psychological support). Consequently, 23.44% of participants agreed with the statement that the therapeutic use of MDMA is unsafe. This result is comparable with studies by Barnett et al. (2018) and Davis et al. (2021), both of which identified that 25% of psychiatrists and 17% of psychologists respectively reported beliefs about psychedelics being unsafe even when under medical supervision. Closer to home, cancer healthcare professionals in Aotearoa have also expressed the sentiment that psychedelic-assisted therapies may potentially be risky endeavours (Reynolds et al., 2021). The varied nature of the responses to these items illustrates psychologists’ cautiousness regarding MDMA-PT, and the need for psychoeducation to improve practitioners’ understanding of the therapy, its risks, and the various controls which are used to mitigate these.

Participants’ knowledge of MDMA-PT was strongly correlated with their preparedness to answer questions from clients about the therapeutic use of MDMA (p = 0.001, V = 0.613).

These results suggest that participants with a higher self-rating of knowledge of MDMA-PT may be significantly more likely to feel prepared to received and respond to clients' questions about the treatment. Unsurprisingly, almost half (47.96%) of participants selected that they were 'not at all prepared' to answer questions, reflecting a large gap in knowledge when compared to 9.23% who felt 'very prepared'. Whilst having the requisite knowledge to answer questions is a significant factor in preparedness, MDMA's legal status creates a complex and problematic ethical territory and likely also inhibits psychologists sense of preparedness. Within the qualitative data, some reflected the ethical challenges of taking a professional stance on the topic. One participant wrote: "I feel it would be unsafe professionally for me to answer client questions around the therapeutic use of MDMA from anything other than a harm reduction perspective, i.e. I cannot professionally recommend people do something that is illegal". Under the New Zealand Psychological Society (2002) Code of Ethics, the principle of responsible caring and the promotion of wellbeing is pertinent, and psychologists are ethically bound to ensure their activities benefit members of society, or at a bare minimum do no harm. This ethical challenge of 'do no harm' was also raised by cancer healthcare workers in regards to non-maleficence and ensuring that vulnerable patients are kept safe in the context of psychedelic-assisted therapy for cancer patients in Aotearoa (Reynolds et al., 2021). These sentiments are reflective of the challenging ethical territory for psychologists when speaking with clients about the therapeutic use of MDMA and other psychedelics. One participant calls for psychologists to "have a working knowledge around integration and also harm reduction" so as to better serve clients who "have rightly or wrongly taken a DIY ['do it yourself'] approach" with these modalities. Over 50% of participants agreed that they had knowledge of clients using MDMA or other psychedelic substances illegally to treat mental health disorders or symptoms. Given the significance of the implications of these results, they are discussed separately under the 'self-medication' section.

Knowledge of MDMA-PT also demonstrated statistical significance with participants' beliefs of pro-social MDMA effects and attitudes towards shifting MDMA from a Class B to a Class C substance in New Zealand, indicating a possible relationship. It is not unexpected that those who were more informed about MDMA-PT correctly identified MDMA as a substance with well known pro-social effects and abilities to improve inter-personal relations (Kamilar-Britt & Bedi, 2015). However, the relationship with support for shifting MDMA to a Class C drug is less straightforward. One possibility could be that as one comes to learn about the evidence to support MDMA's safety and low risk profile, that they become more supportive of drug policy changes which are more reflective of that risk profile. However, it is worth

interpreting this result with caution as it is not clear what participants' understandings of New Zealand's drug classification system are, and thus challenging to accurately assess the logic behind this support.

Unlike MDMA-PT attitudes, participants' self-reported knowledge of MDMA-PT did not demonstrate statistical significance with any of the remaining items in the survey where one might expect. For example, the analysis did not provide evidence of a potential relationship between knowledge of MDMA-PT and the perceptions of its risk level ('risk of MDMA-PT'), despite the expectation that perceptions of risk should be predicated upon one's knowledge. Instead, participants' attitudes towards MDMA-PT showed a strong correlation and statistical significance with perceptions of its risk levels ($p = 0.001$, $V = 0.566$). The implications of this are discussed further in the attitudes section. Importantly, more favourable attitudes towards recreational MDMA use (which may make one more inclined to learn about MDMA-PT) did not demonstrate statistical significantce in relation to knowledge of MDMA-PT. This provides one point of evidence to suggest that psychologists in New Zealand are appropriately maintaining professional boundaries in accordance with their obligations under the New Zealand Psychological Society (2002) Code of Ethics.

The results from this study demonstrated that participants had varying levels of knowledge about MDMA-PT research, but were unlikely to be well informed. Almost half were not at all prepared to respond to questions from their clients. Participants had a strong appetite for further psychoeducation around the treatment with 92.31% expressing an interest in learning more. Over half of participants were optimistic about the current clinical trials, with some calling out in the qualitative data for additional evidence to support treatment efficacy. Comparative to similar U.S.-based studies (e.g., Barnett et al. (2018) and Davis et al. (2021)), psychologists in Aotearoa were slightly more optimistic about MDMA-PT research than their American counterparts. Interestingly, the results from the inferential statistics highlight that participants' knowledge of MDMA-PT may have less of an impact on their perceptions compared to their attitudes, the implications of which are explored in the next section. Increased levels of psychoeducation around MDMA-PT's evidence base and efficacy are needed to ensure psychologists are properly informed of the science regarding the treatment and its risks (a recommendation also put forward by Davis et al. (2021)), and also feel prepared to navigate and respond to clients' self-medication.

10.2. Attitudes towards MDMA-assisted psychotherapy

The results from this study illustrated that participants had generally favourable attitudes towards MDMA-PT, which was underpinned by a sense of caution and an awareness of the limits of one's knowledge on the topic. These results were broadly in line with similar studies which indicated cautiously favourable attitudes towards psychedelic-assisted therapies (Barnett et al., 2018; Davis et al., 2021; Reynolds et al., 2021). The majority of participants (61.54%) agreed that the use of MDMA could improve outcomes if used adjunctively with psychotherapy, the dependent variable for the assessment of 'attitudes towards MDMA-PT'. Interestingly, only five (7.7%) participants outrightly disagreed with this statement, and almost one third (30.76%) either skipped, selected 'unsure', or remained neutral ('neither agree nor disagree'). Unsurprisingly, participants with more knowledge about MDMA-PT had more positive attitudes towards it. Inferential statistics indicated there was a moderately strong correlation between participants' knowledge of MDMA-PT and attitudes, as well as statistical significance indicating the possibility of a relationship. Strong correlations and statistical significance was also detected between participants' knowledge and the other items assessing MDMA-PT attitudes, providing further evidence of a potential knowledge-attitudes relationship. These results indicated that well-informed participants were significantly less likely to believe MDMA-PT is unsafe and were more likely to endorse it as a legitimate treatment. One possible explanation for this relationship is that as psychologists become familiar with MDMA-PT's promising evidence base, that they subsequently adjust their attitudes towards it. Whilst our statistical analyses inhibit the ability to infer causation between variables, the discussion below illustrates how other variables (e.g., personal attitudes towards MDMA and illicit drugs generally) may play a greater role in shaping MDMA-PT attitudes.

Participants' attitudes towards MDMA-PT demonstrated statistical significance and strong correlations with a large number of the independent variables across the survey, unlike knowledge of MDMA-PT. As an example, participants' perceptions of MDMA-PT's risks were strongly correlated with their attitudes (p = 0.001, V = 0.566) and only weakly correlated with knowledge (p = 0.356, V = 0.270). The implications of this are a potential cause for concern, where one would expect psychologists' perceptions of risk to be related to their knowledge of a treatment rather than their attitude towards it. In addition to this, participants with more optimistic attitudes towards MDMA-PT more likely to to find recreational MDMA use acceptable (p = 0.019, V = 0.451), have personally used MDMA themselves (p = 0.024, V =

0.477), and demonstrate more liberal attitudes towards recreational illicit drug users (p = 0.002, V = 0.596). Without being able to infer causation between variables, the evidence could suggest that these variables potentially have a relationship with psychologists' MDMA-PT attitudes. This provides some supporting evidence to suggest that psychologists might be influenced (in either direction) by their personal attitudes towards MDMA (or other illicit substances) rather than being 'evidence-based' and informed by research in their knowledge of MDMA-PT and its risks.

These results are consistent with similar research. An experimental study by Davis et al. (2021) with American psychologists showed that participants were twice as likely to warn clients about the potential risks associated with psilocybin compared to a meditation retreat, despite evidence suggesting a similar prevalence of adverse events between the two (Carhart-Harris & Nutt, 2010; Farias et al., 2020; Johansen & Krebs, 2015; Van Dam et al., 2018). The authors highlighted this to be a result of the likely stigma faced by psychedelic substances. The study's results also support the conclusion drawn by Melnikov et al. (2021) in a study with medicinal cannabis that appropriate and effective treatment was compromised by healthcare workers' attitudes and stigma towards stigmatised substances. Comparatively, one can imagine that a negative or positive personal attitude towards MDMA is likely to impact how practitioners engage with clients on the subject of MDMA-PT. If MDMA-PT is made legal, it is possible that these attitudes and stigma could affect the likelihood of recommending such a treatment. Considering the outcomes of these studies, the results here provide further evidence that attitudes and stigma do play a role in psychologists' perceptions of treatments such as MDMA-PT and their risks. The implication of this for psychologists is the emphasis on approaching this treatment from an evidence-based perspective, and developing self-awareness through critical reflexivity about the potential impact of one's biases, whichever way they lean. Under the New Zealand Psychological Society (2002) Code of Ethics, the principle of 'personal values' is valuable to consider as it requires psychologists to be aware of their personal values and beliefs and how these may affect their work. It is on this basis that some psychologists in their commentary expressed caution and tentativeness and impressed upon the need for the profession to "respond to the science" and "to see how the science goes", to which this research also calls for. Thus, it is psychologists' responsiblity to follow the research and ensure the impact of their biases on their psychological practice are actively managed.

Psychologists' attitudes towards MDMA-PT should also be considered in relation to a study conducted with American psychiatrists, where 28.7% of participants agreed that 'the use of hallucinogens may improve outcomes when used during psychotherapy' (Barnett et al., 2018). The current study's result, whereby 61.54% of psychologists agreed that MDMA could improve outcomes if used adjunctively with psychotherapy, contrasts significantly against this. Although Barnett et al. (2018) were examining psychiatrists attitudes towards hallucinogens generally and worded the Likert item slightly differently, this difference in sentiment is worthy of further investigation. One potential explanatory factor for this are the differing orientations between psychiatrists and psychologists towards mental health disorders and psychopathology. Psychiatrists tend to lean towards more biomedically-oriented modes of treatment and are primarily trained to look for somatic aspects of their client's wellbeing, whereas psychologists are more inclined to take a psychosocial orientation and thus consider cognitive-emotional aspects (Forkmann et al., 2011; Kingsbury, 1987). As such, psychiatrists and psychologists are likely to take different views towards the aetiology and treatment of mental health issues. One psychologist exemplified this well in their commentary, stating: "I do not believe that mental health issues are biochemical issues and I am very dubious about the potential expansion of a biomedical narrative of these complaints". It is possible that psychologists, who are likely to have a much deeper working knowledge of psychotherapy than psychiatrists, can more readily see the therapeutic potential of MDMA in relation to this treatment. In light of this finding, differing views amongst healthcare professionals in relation to MDMA-PT should be explored further.

An interesting theme that emerged from the data was the large proportion of psychologists who had had a personal experience with MDMA before. Over two fifths (43.08%) of psychologists surveyed had used MDMA at some point in their life. Of those who had used it before, 85.71% reported having a positive experience with it. In a study with American psychologists, only 29.4% reported having a personal experience with psychedelics in the past, with 80.2% of them rating it as a positive experience (Davis et al., 2021). The randomised nature of Davis et al.'s (2021) quasi-experimental study and larger sample size is possibly indicative of results that are more representative of the overall population. Given the self-selecting recruitment method for this study, it is possible that this provides some evidence of a sampling bias weighted towards those with pro-MDMA attitudes and experiences. Alternatively, it is entirely possible that psychologists in Aotearoa may also possess more open attitudes towards substance use in general compared to their American counterparts, making it more likely that they have consumed it themselves. As highlighted above, participants with

more optimistic attitudes towards MDMA-PT were also significantly more likely to have personally used MDMA themselves, and to have had a positive experience when using it. Therapists who are currently being trained in MDMA-PT by MAPS are not explicitly required to have had an MDMA experience themselves (Mithoefer, 2017). However, it has been suggested that "it is impossible for the future ... [psychedelic] therapist to acquire deeper understanding of the process without first-hand exposure" (Grof, 1980, p. 101), and if a therapist "has had a psychedelic reaction he will understand a similar reaction in his patients" (Hoffer & Osmond, 2013, p. 109). There have been examples where national-level health or therapeutic goods authorities have either allowed therapists to be trained (e.g., the FDA approved therapists to be participants in the phase one trials for MDMA-PT (Multidisciplinary Association for Psychedelic Studies, 2009)) or mandated it (e.g., Strassman (1995) highlights how Swiss and German health authorities have required principal investigators to first take the psychedelic compounds they study). It is expected that psychologists (including those in Aotearoa) who have had a positive experience with MDMA before will have a better comprehension of its potential therapeutic properties and thus more positive attitudes towards MDMA-PT. As the literature on the desirable traits of psychedelic therapists continues to build, the requirement for personal consumption as a part of a therapist's training is a theme worthy of continued exploration.

Gender did not demonstrate a significant relationship with the dependent variables of this study, likely due to the small male sample size of 10. However, the descriptive statistics provided some support for the gendered outcomes from Barnett et al.'s (2018) study which highlighted that male participants reported less concerns about the risks associated with hallucinogens and were more optimistic about their therapeutic potential than females. Males in Barnett et al.'s (2018) study were also more likely to have used a hallucinogen themselves. In the current study, 80% of males compared to 52.94% of females agreed that 'the research surrounding the therapeutic use of MDMA shows promise in the treatment of mental health disorders'. 80% of males also identified MDMA-PT to be either low or medium risk, compared to 54.9% of females. In addition, 70% of the males in the study had used MDMA before, compared to 41.18% of females. Although the number of male participants was small (n = 10), this study provides some evidence to support Barnett et al.'s (2018) observations regarding gendered differences in attitudes.

The results from this study highlight that psychologists have generally favourable attitudes towards MDMA-PT, although these tend to be underpinned by a sense of caution

and an awareness of the limits of one's knowledge on the topic. These results provide further evidence to support existing research on healthcare workers' favourability in this space (Barnett et al., 2018; Davis et al., 2021; Reynolds et al., 2021), but provide a unique perspective in the context of psychological practice in Aotearoa. Psychologists in Aotearoa are slightly more optimistic about MDMA-PT as a potential treatment and are more likely to have consumed MDMA themselves before, compared to their professional counterparts in the United States. Psychologists' attitudes towards MDMA-PT also demonstrated statistical significance with many of the independent variables in the study. This highlighted the potential role that personal biases and stigma are likely to play in MDMA-PT attitudes and the acceptance of MDMA-PT as a legitimate treatment, concerns raised specifically by Davis et al. (2021) and Barnett et al. (2018). The implications of this for psychological practice in Aotearoa is the emphasis on psychologists' responsiblity to be cognisant of the impacts their personal attitudes have on their professional practice, and to draw evidence-based conclusions on MDMA-PT as they would expect to for other therapies.

10.3. Self-medication

A theme that emerged tangentially to the primary outcomes of interest was the commonplace reporting of clients self-medicating using MDMA and other psychedelic substances. More than half of the surveyed psychologists reported that clients of theirs that had used MDMA (55.93%) and/or psychedelic substances (66.67%) illegally to treat mental health disorders or symptoms. This is broadly consistent with Davis et al.'s (2021) study with American psychologists which found that 68.5% had worked with a client who had experiences with psychedelics, although this statistic did not specify whether the client's psychedelic use was explicitly therapeutic. To provide further evidence of the prevalence of self-medication, the Global Drug Survey (2020a) highlighted that 21% of New Zealand participants had said they had microdosed with psilocybin within the last 12 months. The prevalence of self-medication in these studies highlights this as a theme deserving of greater attention within the field and has implications for psychological practice in Aotearoa.

Research on psychedelic-assisted therapies and psychedelic medicine has been widely publicised in mass media over the previous five to ten years (Gearin & Devenot, 2021) as the results of psychedelic-assisted therapy research has emerged. Gardner et al. (2019) discuss the potential negative impacts of 'hype' and the over-optimistic portrayals of

psychedelics in the media of this research. The authors highlight how privately operated 'health resorts' in countries where various psychedelics are legal capitalise on those messages surrounding psychedelics and advertise expensive and unproven therapies (Carter & Hall, 2011). However, the authors fail to cover in depth the shifting awareness this hype has created amongst the general population's perceptions of psychedelics (including MDMA). In the current study, one psychologist expressed their concern about the impacts of media hype which they believed resulted in "plenty of commentaries doing the rounds that almost certainly overstate the efficacy [in research findings]". It is possible that the prominence of the media and public discourse surrounding psychedelic therapy is shifting public perceptions around psychedelics and increasing peoples' willingness to self-medicate, as evidenced by the commonplace nature of clients self-medicating with MDMA and other psychedelics in the current study. Furthermore, it is possible that over-optimistic media portrayals surrounding psychedelic therapy are likely to influence peoples' willingness to self-medicate in ways which pose greater risk (e.g., procuring MDMA illegally and not being sure as to the contents of the MDMA). The results from this study provide further evidence to support the relevance of self-medication as an important topic within the context of psychological practice in Aotearoa.

The emphasis of popular media on the role of the MDMA itself has the potential to lead the general population to believe that consuming MDMA alone in the absence of a therapeutic program is a key driver of treatment efficacy, despite MDMA-PT trials illustrating its efficacy only when combined with psychotherapy. Media articles are typically limited in the length and breadth of their information and are tailored to the general population. As such, detailed explanations of MDMA-PT's risks, its therapeutic procedures, and mechanisms of action are not likely to make prominent features. A tendency to focus on the MDMA rather than MDMA-PT was noticeable amongst comments in the qualitative data from psychologists when explaining the rationale for their ratings of MDMA-PT's risk. Psychologists would often emphasise the risk of the MDMA itself, rather than the therapy as a whole and how the MDMA assists the therapist to work with the client. This is despite evidence which suggests that the prevalence of adverse events between the naturalistic use of psychedelics and psychotherapy separately are roughly equivalent and can range between 8-11% (Carhart-Harris & Nutt, 2010; Crawford et al., 2016; Johansen & Krebs, 2015; Schermuly-Haupt et al., 2018). As one participant pointed out, "therapy is not benign and can absolutely cause harm". The implications of this for the psychology field is that psychoeducation should emphasise the adjunctive nature of MDMA's role in the therapeutic process of MDMA-PT as a whole.

Unfortunately, self-medication (specifically 'macro' or large doses, rather than 'microdosing') of MDMA for therapeutic purposes in the absence of a clinical context presents an increased level of risk for many of the same reasons that taking an illegal drug recreationally does. Despite its therapeutic intention, there are issues relating to drug content and quality, setting, and the management of adverse reactions. Given the illegal nature of the substance, self-medication is likely to occur in the context of self-research, and with the risk of insufficient or inaccurate medical and therapeutic guidance. There is the potential for people to expect that despite not being able to replicate the MDMA-PT treatment procedure, that they can alleviate mental health symptoms or work through certain problems by consuming the substance themselves. As highlighted in the literature review, MDMA was the second most common psychedelic used for self-treatment of psychiatric conditions or emotional distress within the Global Drug Survey (2020a), and 4.2% of respondents who used any psychedelic with a therapeutic intent in the last year reported seeking emergency medical treatment following consumption. It is promising that clients are disclosing substance use with a therapeutic intention to psychologists, as it provides them an opportunity to work together to ensure harms are minimised. However, this has implications for psychologists. As highlighted earlier, one participant writes that "psychologists should have a working knowledge around integration and also harm reduction." Considering nearly half of psychologists in this study felt 'not prepared at all' to answer questions about MDMA-PT, practising psychologists are clearly in need of guidance and support to work with clients who are self-medicating or planning to.

There was limited additional commentary on self-medication specifically, highlighting the need for further research in this space. One participant highlighted in the commentary that "a lot of my trauma clients rely on substances to alleviate PTSD symptoms prior to therapeutic engagement", reaffirming the widespread nature of substance use in the context of trauma specifically in Aotearoa. A small number of psychologists expressed concern that psychedelic therapy research is playing a role in promoting the normalisation of substance use. One participant provided an extensive comment on this point: "Working with adolescents I often see a reliance on substance use as a way of coping with mental health disorders. This is concerning as it exposes them to risky behavior and further substance use. I also find discourse around MDMA use in mental health has permeated the culture and is often used as a justification by clients for their substance use". This comment reflects one of the most skeptical views regarding self-medication and is illustrative of the challenge that some psychologists face navigating clients' substance use within the context of therapy whilst

substances such as MDMA remain illegal. Those psychologists who are most skeptical will have the most to benefit from further psychoeducation and support.

Until very recently, there has not been any published and peer-reviewed guidance to support clinicians working with clients who are using psychedelics. Considering the suspected prevalence of MDMA and psychedelic use amongst those with mental health symptoms in Aotearoa, tools for clinicians working with this are needed. A clinical approach for working with clients who are using psychedelics has recently been proposed, titled 'Psychedelic Harm Reduction and Integration' ('PHRI') (Gorman et al., 2021). PHRI is a framework for clinicians providing psychotherapy and working with clients either in the decision-making process before psychedelic use or afterwards. It incorporates aspects of harm reduction psychotherapy, which is a non-judgmental and non-stigmatising stance towards substance use. As Gorman et al. (2021) highlight, the approach is a diversion from abstinence-based models of working with clients who use psychedelics and avoids models of addiction which have been shown to contribute to shame and stigma. At the same time, the authors emphasise the importance of working within the professional scope of one's practice (e.g., talking about the dangers of using certain substances in the context of harm reduction). It is recommended that clinical approaches such as PHRI should be considered as a potential framework for practicing psychologists in Aotearoa.

Evidently, the results of this study emphasise that there is some appetite amongst those seeking psychological services in Aotearoa for forms of therapy that are not currently legally available. The prevalence of client reports of self-medication to participants in this study highlights this as a theme deserving of greater investigation within the field, and has implications for psychological practice in Aotearoa. Psychologists are most in need of psychoeducation in this space so they can navigate the ethical challenges that self-medication presents and actively work with clients who they know are self-medicating or planning to. The PHRI model is recommended as one possible tool to assist psychologists in Aotearoa working with these clients.

10.4. Limitations

This study features a number of limitations pertinent to the findings and discussion. One noteworthy limitation of the study is that because there are no published statistics about

the demographics of New Zealand's psychologist workforce beyond high-level statistics (e.g., total number of registered psychologists), comments about the generalisability of the study's results and inferences about potential sampling bias cannot be made. The lack of available demographic data about the population (e.g., gender identity, ethnicity) means that the sample is unable to be weighted in order to account for any imbalances in demographic representation. However, during the New Zealand Psychological Society's Annual Conference 2021, it was confirmed that there were 3,826 registered psychologists as at 23 March 2021, 206 (5.38%) of which were Māori practitioners (Bushnell, 2021). In our sample, the responses of sixty-five registered psychologists (1.7% of the population) were captured, five (7.69%) of which were Māori. This data point provides some support for the potential ethnic representativeness of the sample. However, because recruitment was not targeted and outreach occurred via forums (e.g., Facebook) where younger individuals are more likely to frequent, it is expected that there may be some sampling bias and that the demographics of the sample may be slightly younger or more technologically competent than the broader psychologist population. The 'average years of clinical experience' (which are expected to correlate with age) offers one point of comparison, with psychologists in this study reporting a mean of 10.96 years of experience compared to 17.4 years reported by Davis et al.'s (2021) study with American psychologists. However, the lack of reliable external demographic data on New Zealand psychologists means that the effect of a potential sampling bias cannot be measured. Therefore, the unweighted results of the study alone cannot be assumed to be generalisable or possess strong external validity in relationship to to the broader psychologist population.

Another possible limitation was the risk of selection bias with the use of a non-targeted recruitment method that may have attracted participants who identified strongly with either a positive or negative view of MDMA-PT rather than a more neutral view, subsequently skewing the results. Although it is possible that such a bias impacted the results, it would also be reasonable to expect that these views would even each other out in a larger, more representative sample. Participants were also not indiscriminately positive or negative about MDMA-PT and most presented some nuance in their perspectives. This was demonstrated by the differences in the response patterns for various items. For example, participants who expressed positive attitudes towards MDMA-PT also demonstrated a candidness in sharing their concerns about the risks of MDMA-PT in the commentary, highlighting that they were not trying to downplay those risks.

Another limitation of the study's concurrent mixed methods research design is that it limits follow-up on interesting or confusing responses (Driscoll et al., 2007). The main benefit of running the study anonymously (promoting candidness thereby encouraging survey completion) however far outweighed any potential benefits and additional resourcing required to follow-up on participants. Participants may have had varying degrees of discomfort expressing their knowledge and attitudes in relation to a substance which is currently illegal in New Zealand, and/or the illegal behaviour(s) of themselves or their clients. With protection as an important principle for this research, no individually identifiable information was collected as a part of the process and participants were given the option to skip any item they desired in the survey. The survey's anonymity was reiterated during recruitment, on the information sheet, as well as within the survey.

10.5. Implications and clinical application

The results from this study have several implications for psychological practice in Aotearoa. The main implication for clinical practice is that increased levels of psychoeducation are needed for psychologists to better understand MDMA-PT as a treatment model, its current evidence base, safety profile, and how to effectively engage with clients who are self-medicating with MDMA (or other psychedelic substances). This is firmly aligned with research conducted by Davis et al. (2021) which highlighted the need to increase education and training about psychedelics for psychologists. It is a reality that there is promising scientific evidence to support MDMA-PT's efficacy, demonstrated regulatory support for psychedelic-assisted therapies, and more widespread cultural awareness amongst the general population about MDMA's potential therapeutic benefits. In addition, the current study has shown that psychologists in Aotearoa are likely to encounter clients who are self-medicating with MDMA (or other psychedelic substances). As such, psychologists in Aotearoa stand to benefit from having a minimum level of education about MDMA-PT. Whilst the use of MDMA remains illegal in Aotearoa, psychoeducation will help psychologists to better support clients who are self-medicating and protect them by providing information on harm reduction practices. A clinical approach ('Psychedelic Harm Reduction and Integration' by Gorman et al. (2021)) for working with clients who are self-medicating is suggested and discussed under the 'self-medication' section. Psychoeducation will also help to support psychologists within their clinical practice in navigating their obligations under the New Zealand Psychological Society (2002) Code of Ethics, and the duty of care they have for their clients. Furthermore, should MDMA-PT become

an approved treatment in Aotearoa, even the most sceptical of practitioners who have no desire to provide the treatment will need to at least have a base level of knowledge of it as a potential treatment option, to be confident in referring clients on. For those practitioners who have a greater level of interest in MDMA-PT, psychoeducation could provide a starting point for further professional training and development as a treatment provider. The other benefit of psychoeducation is that it is likely to reduce practitioners' stigma regarding MDMA-PT. With a large proportion of psychologists in Aotearoa not likely to be well informed about MDMA-PT, psychoeducation will provide an opportunity to build an evidence-based understanding of MDMA and its role in MDMA-PT treatment, thereby challenging practitioners' assumptions and biases.

The other main implication of these results for psychological practice in Aotearoa is that MDMA-PT is a novel clinical treatment that has the potential to not just offer real benefit for those suffering from PTSD, but also to reduce the burden of PTSD on New Zealand's healthcare system. MDMA-PT offers a significantly higher degree of efficacy and within a much shorter timeframe compared to talk therapy treatments (Mitchell et al., 2021), and would make a marked impact on the increasing cost of PTSD on New Zealand's health system (Accident Compensation Corporation, 2021). In addition, MDMA-PT can offer the exploration of spiritual as well as psychological phenomena (Multidisciplinary Association for Psychedelic Studies, 2016) and is likely to find a greater degree of compatibility with Te Ao Māori and Māori conceptualisations of health. Therefore, offering a culturally adapted MDMA-PT treatment has the potential to reduce the numbers of Māori suffering from PTSD, and disproportionately high proportion of Māori represented in New Zealand's health system (Oakley Browne et al., 2006). The results of this study highlight that psychologists in Aotearoa who work with clients with PTSD are optimistic about the potential of MDMA-PT in helping them to more effectively work with clients to address trauma in an Aotearoa-specific context.

10.6. Recommendations for future research

The current study was exploratory and although the results are only indicative, they have provided insights into areas valuable for future research. With studies already conducted investigating the attitudes and knowledge of psychiatrists (Barnett et al., 2018), psychologists (Davis et al., 2021), and a selection of cancer healthcare workers (Reynolds et al., 2021), a continued exploration and comparison of the differing views between professions likely to be

involved in MDMA-PT and across different geographies will be valuable. Psychiatrists' instrumental role as a medical doctor managing the overall MDMA-PT treatment program (including the administration of the MDMA) makes their attitudes particularly valuable to understand. The views of healthcare professionals who are also likely to be suitably qualified to provide talk therapy (e.g., psychotherapists, mental health nurses, and counsellors) are also worthwhile researching further.

Further Aotearoa-specific research regarding MDMA-PT is also needed. Because Aotearoa has a unique and diverse cultural structure, any research regarding MDMA-PT's relevance locally is valuable. Further research is needed regarding MDMA-PT's potential applicability for Māori and Pasifika peoples (ethnicities disproportionately represented in New Zealand's mental health statistics (Oakley Browne et al., 2006)) and within the context of their respective cultural worldviews and models of health. In addition, the more clinical trials that are conducted locally in relation to MDMA-PT (and psychedelic-assisted therapy more broadly), the more comfort can be provided as to its relevance and potential implementation for New Zealand's unique population.

Self-medication emerged as a phenomenon facing psychologists in Aotearoa, and further research is also needed to understand the nature of this trend amongst New Zealanders. The prevalence of psychedelic substance use has increased globally over the last six years, with some people reporting use for the purposes of enhancing general wellbeing or self-medicating for pre-existing mental health conditions (Global Drug Survey, 2020b). Research investigating local prevalence is needed, and more needs to be done to understand the role that harm reduction healthcare workers should be playing, the navigation of profession-specific ethical challenges, and the effectiveness of new clinical approaches for working with those who do choose to self-medicate (e.g., the Psychedelic Harm Reduction and Integration framework by Gorman et al. (2021)).

11. CONCLUSION

The current study was the first to assess the attitudes and knowledge of psychology professionals towards the therapeutic application of MDMA in Aotearoa. The results of the study show that psychologists in Aotearoa self-report having varying levels of knowledge about MDMA-assisted psychotherapy ('MDMA-PT') research, but are unlikely to be well informed about MDMA-PT as a treatment. Psychologists had generally favourable attitudes towards MDMA-PT, which was underpinned by a sense of caution and an awareness of the limits of their knowledge of the treatment. The study also provides evidence highlighting that personal attitudes and stigma towards MDMA and recreational MDMA use are likely to play a role in shaping psychologists attitudes towards MDMA-PT as a treatment in Aotearoa. These results validated trends of optimism towards psychedelic-assisted therapies observed in similar studies with healthcare professionals, as well as the negative impacts that stigma and personal attitudes towards psychedelic substances can play (Barnett et al., 2018; Davis et al., 2021; Reynolds et al., 2021).

Similarly to Davis et al. (2021), the current study suggests that increased levels of psychoeducation are needed to ensure psychologists are properly informed of the evidence base for MDMA-PT as a new potential clinical treatment. This will contribute to enhanced psychological practice in Aotearoa by reducing psychologists' stigma towards MDMA use, and through the provision of harm reduction and ethical guidance for psychologists working with clients who are self-medicating with MDMA. Should MDMA-PT be introduced in Aotearoa, psychoeducation will also help to prepare psychologists with an appropriate base level of practical knowledge. For those with an interest in providing MDMA-PT to clients, it would provide an opportunity to engage in further professional training and development. Future research is needed to better understand the attitudes and knowledge of other relevant healthcare professionals towards MDMA-PT, the phenomenon of self-medication, and the implications of these results specifically for psychological practice in Aotearoa.

There is strong evidence to support MDMA-PT's effectiveness for post-traumatic stress disorder, it's subsequent regulatory endorsement from the U.S. Food and Drug Administration, and a growing awareness of MDMA's therapeutic applications amongst the general population in many Western countries, including Aotearoa. In addition, MDMA-PT reflects a radically new treatment model for PTSD and mental health as a symbiotic blending of biological and psychotherapeutic approaches. Thus, it is important for psychologists in

Aotearoa to be cognisant of MDMA-PT as an emerging clinical treatment, as well as the wider culture of (predominantly illegal) MDMA and psychedelic use for the purposes of 'self-medication' or 'wellbeing enhancement'. Given psychologists' pivotal roles working with mental health in Aotearoa, they are uniquely qualified to be interacting with their clients on these issues, and to be involved in shaping what MDMA-PT treatment and service provision might look like. This is a field that is still emerging and although there is not widespread acceptance of MDMA-PT as a legitimate treatment in Aotearoa, the current study sets the foundation for this work.

12. REFERENCES

Accident Compensation Corporation. (2020a). *Official Information Act request, reference: GOV-004837 and GOV-004838*. https://catalogue.data.govt.nz/dataset/b8adae05-e2ee-4d77-9b27-0873df74a8ef/resource/40106bc8-d442-4533-b324-66e9ca2895fa/download/gov-004837-and-gov-004838-response.pdf

Accident Compensation Corporation. (2020b). *Service schedule for integrated service sensitive claims*. https://www.acc.co.nz/assets/contracts/issc-schedule.pdf

Accident Compensation Corporation. (2021). *Official Information Act request, reference: GOV-013704*. https://www.acc.co.nz/assets/oia-responses/GOV-013704-Sensitive-claim-statistics.pdf

Adams, R. E., & Boscarino, J. A. (2006). Predictors of PTSD and delayed PTSD after disaster: The impact of exposure and psychosocial resources. *The Journal of nervous and mental disease, 194*(7), 485.

Almond, K., & Allan, R. (2019). Incorporating MDMA as an adjunct in Emotionally Focused Couples Therapy with clients impacted by trauma or PTSD. *The Family Journal, 27*(3), 293-299.

Altman, D. G., & Bland, J. M. (2009). Parametric v non-parametric methods for data analysis. *BMJ, 338*, a3167. https://doi.org/10.1136/bmj.a3167

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

American Psychological Association. (2017). *Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder: How Long Will It Take for Treatment to Work?* https://www.apa.org/ptsd-guideline/patients-and-families/length-treatment

Barnett, B. S., Siu, W. O., & Pope Jr, H. G. (2018). A survey of American psychiatrists' attitudes toward classic hallucinogens. *The Journal of nervous and mental disease, 206*(6), 476-480.

Bershad, A. K., Miller, M. A., Baggott, M. J., & de Wit, H. (2016). The effects of MDMA on socio-emotional processing: Does MDMA differ from other stimulants? *The Journal of Psychopharmacology, 30*(12), 1248-1258. https://doi.org/10.1177/0269881116663120

Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013). Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults. *Cochrane database of systematic reviews, 12*.

Briere, J., Scott, C., & Weathers, F. (2005). Peritraumatic and persistent dissociation in the presumed etiology of PTSD. *American Journal of Psychiatry, 162*(12), 2295-2301.

Brown, R. (2014). History never repeats: New Zealand's history of drugs and the laws to control them. *Matters of Substance, 25*(3), 6-15.

Bushnell, J. (2021, 6 September). The Psychologists Board Q&A [Conference session]. New Zealand Psychological Society Annual Conference 2021, Auckland, New Zealand.

Carhart-Harris, R. L., & Nutt, D. (2010). User perceptions of the benefits and harms of hallucinogenic drug use: A web-based questionnaire study. *Journal of Substance Use, 15*(4), 283-300.

Carter, A., & Hall, W. (2011). *Addiction neuroethics: The promises and perils of neuroscience research on addiction*. Cambridge University Press.

Cassel, J.-C., Riegert, C., Rutz, S., Koenig, J., Rothmaier, K., Cosquer, B., Lazarus, C., Birthelmer, A., Jeltsch, H., & Jones, B. C. (2005). Ethanol, 3, 4-methylenedioxymethamphetamine (ecstasy) and their combination: long-term behavioral, neurochemical and neuropharmacological effects in the rat. *Neuropsychopharmacology, 30*(10), 1870-1882.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Lawrence Erlbaum.

Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. Routledge.

Cordero, E. D., Israel, T., White, S., & Park, Y. S. (2010). Impact of Instructor and Course Characteristics on the Effectiveness of Curriculum Infusion. *Journal of American College Health, 59*(2), 75-81. https://doi.org/10.1080/07448481003705917

Crawford, M. J., Thana, L., Farquharson, L., Palmer, L., Hancock, E., Bassett, P., Clarke, J., & Parry, G. D. (2016). Patient experience of negative effects of psychological treatment: results of a national survey. *The British Journal of Psychiatry, 208*(3), 260-265.

Danforth, A. L., Struble, C. M., Yazar-Klosinski, B., & Grob, C. S. (2016). MDMA-assisted therapy: A new treatment model for social anxiety in autistic adults. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 64*, 237-249. https://doi.org/https://doi.org/10.1016/j.pnpbp.2015.03.011

Davidson, J. R., Hughes, D., Blazer, D. G., & George, L. K. (1991). Post-traumatic stress disorder in the community: an epidemiological study. *Psychological medicine, 21*(3), 713-721.

Davis, A. K., Agin-Liebes, G., España, M., Pilecki, B., & Luoma, J. (2021). Attitudes and Beliefs about the Therapeutic Use of Psychedelic Drugs among Psychologists in the United States. *Journal of psychoactive drugs*, 1-10.

Doblin, R., Greer, G., Holland, J., Jerome, L., Mithoefer, M. C., & Sessa, B. (2014). A reconsideration and response to Parrott AC (2013) "Human psychobiology of MDMA or 'Ecstasy': an overview of 25 years of empirical research". *Human Psychopharmacology: Clinical and Experimental, 29*(2), 105-108.

Driscoll, D. L., Appiah-Yeboah, A., Salib, P., & Rupert, D. J. (2007). Merging qualitative and quantitative data in mixed methods research: How to and why not. *Ecological and Environmental Anthropology, 3*(1), 19-28.

Farias, M., Maraldi, E., Wallenkampf, K., & Lucchetti, G. (2020). Adverse events in meditation practices and meditation-based therapies: a systematic review. *Acta Psychiatrica Scandinavica, 142*(5), 374-393.

Feduccia, A. A., Holland, J., & Mithoefer, M. C. (2018, Feb). Progress and promise for the MDMA drug development program. *Psychopharmacology, 235*(2), 561-571. https://doi.org/10.1007/s00213-017-4779-2

Feduccia, A. A., & Mithoefer, M. C. (2018). MDMA-assisted psychotherapy for PTSD: Are memory reconsolidation and fear extinction underlying mechanisms? *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 84*, 221-228. https://doi.org/https://doi.org/10.1016/j.pnpbp.2018.03.003

Forkmann, T., Eberle, N., Boecker, M., Wirtz, M., Norra, C., & Gauggel, S. (2011). Does clinical experience or professional training have an impact on what symptoms are thought to be important features of depression? *International journal of social psychiatry, 57*(3), 312-321.

Freudenmann, R. W., Öxler, F., & Bernschneider-Reif, S. (2006). The origin of MDMA (ecstasy) revisited: the true story reconstructed from the original documents*. *Addiction, 101*(9), 1241-1245. https://doi.org/https://doi.org/10.1111/j.1360-0443.2006.01511.x

Frey, B. (2018). *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*. SAGE Publications. https://doi.org/10.4135/9781506326139

Freye, E. (2010). *Pharmacology and Abuse of Cocaine, Amphetamines, Ecstasy and Related Designer Drugs: A comprehensive review on their mode of action, treatment of abuse and intoxication*. Springer Netherlands. https://doi.org/10.1007/978-90-481-2448-0_24

Fullerton, A. S. (2009). A conceptual framework for ordered logistic regression models. *Sociological methods & research, 38*(2), 306-347.

Gardner, J., Carter, A., O'Brien, K., & Seear, K. (2019). Psychedelic-assisted therapies: The past, and the need to move forward responsibly. *International Journal of Drug Policy, 70*, 94-98.

Gearin, A. K., & Devenot, N. (2021). Psychedelic medicalization, public discourse, and the morality of ego dissolution. *International Journal of Cultural Studies, 24*(6), 917-935.

Global Drug Survey. (2020a). *GDS2020 Key Findings Report Executive Summary*. https://www.globaldrugsurvey.com/wp-content/uploads/2021/01/GDS2020-Executive-Summary.pdf

Global Drug Survey. (2020b). *GDS2020 Psychedelic Key Findings Report*. https://www.globaldrugsurvey.com/wp-content/uploads/2021/03/GDS2020-Psychedelics-report.pdf

Goodstadt, M. S., Cook, G., Magid, S., & Gruson, V. (1978). The Drug Attitudes Scale (DAS): its development and evaluation. *International Journal of the Addictions, 13*(8), 1307-1317.

Gorman, I., Nielson, E. M., Molinar, A., Cassidy, K., & Sabbagh, J. (2021). Psychedelic harm reduction and integration: A transtheoretical model for clinical practice. *Frontiers in psychology, 12*, 710.

Government Inquiry into Mental Health and Addiction. (2018). *He Ara Oranga: Report of the Government Inquiry into Mental Health and Addiction*. https://mentalhealth.inquiry.govt.nz/assets/Summary-reports/He-Ara-Oranga.pdf

Greer, G. R., & Tolbert, R. (1990). The therapeutic use of MDMA. In *Ecstasy: The clinical, pharmacological and neurotoxicological effects of the drug MDMA* (pp. 21-35). Springer.

Grof, S. (1980). *LSD psychotherapy*. Hunter House.

Gutner, C. A., Gallagher, M. W., Baker, A. S., Sloan, D. M., & Resick, P. A. (2016). Time course of treatment dropout in cognitive–behavioral therapies for posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*(1), 115.

Hoffer, A., & Osmond, H. (2013). *The hallucinogens*. Elsevier.

Holland, J. (2001). *Ecstasy: The Complete Guide: A Comprehensive Look at the Risks and Benefits of MDMA.* Park Street Press.

Hutton, F. (2021). *Drug reform's glimmer of hope*. Newsroom. https://www.newsroom.co.nz/drug-reforms-glimmer-of-hope

Hysek, C. M., Simmler, L. D., Nicola, V. G., Vischer, N., Donzelli, M., Krähenbühl, S., Grouzmann, E., Huwyler, J., Hoener, M. C., & Liechti, M. E. (2012). Duloxetine Inhibits Effects of MDMA ("Ecstasy") In Vitro and in Humans in a Randomized Placebo-Controlled Laboratory Study. *PLOS ONE, 7*(5), 1-15. https://doi.org/10.1371/journal.pone.0036476

Iversen, L. (2008). *Speed, ecstasy, ritalin: the science of amphetamines*. Oxford University Press.

Jerome, L., Schuster, S., & Klosinski, B. (2013). Can MDMA play a role in the treatment of substance abuse? *Current drug abuse reviews, 6*(1), 54-62.

Johansen, P.-Ø., & Krebs, T. S. (2015). Psychedelics not linked to mental health problems or suicidal behavior: A population study. *Journal of Psychopharmacology, 29*(3), 270-279.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher, 33*(7), 14-26.

Kamilar-Britt, P., & Bedi, G. (2015). The prosocial effects of 3,4-methylenedioxymethamphetamine (MDMA): Controlled studies in humans and laboratory animals. *Neuroscience & Biobehavioral Reviews, 57*, 433-446. https://doi.org/https://doi.org/10.1016/j.neubiorev.2015.08.016

Keane, T. M., Zimering, R. T., & Caddell, J. M. (1985). A behavioral formulation of posttraumatic stress disorder in Vietnam veterans. *Behavior Therapist, 8*(1), 9-12.

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of general psychiatry, 52*(12), 1048-1060.

Kingsbury, S. J. (1987). Cognitive differences between clinical psychologists and psychiatrists. *American Psychologist, 42*(2), 152.

Know Your Stuff NZ. (2021). *2020 - 2021 Testing report*. https://knowyourstuff.nz/our-results-2/testing-results/testing-reports/2020-2021-testing-report/

Kring, A. M., & Johnson, S. L. (2018). *Abnormal psychology: The science and treatment of psychological disorders*. John Wiley & Sons.

Krotulski, A. J., Papsun, D. M., Chronister, C. W., Homan, J., Crosby, M. M., Hoyer, J., Goldberger, B. A., & Logan, B. K. (2021). Eutylone Intoxications-An Emerging Synthetic Stimulant in Forensic Investigations. *Journal of Analytical Toxicology, 45*(1), 8-20. https://doi.org/10.1093/jat/bkaa113

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report*

of findings from the National Vietnam Veterans Readjustment Study. Brunner/Mazel.

Law Commission. (2010). *Controlling and regulating drugs*. https://www.lawcom.govt.nz/sites/default/files/projectAvailableFormats/NZLC%20IP16.pdf

Malik, M. L., Connor, K. M., Sutherland, S. M., Smith, R. D., Davison, R. M., & Davidson, J. R. (1999). Quality of life and posttraumatic stress disorder: A pilot study assessing changes in SF-36 scores before and after treatment in a placebo-controlled trial of fluoxetine. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 12*(2), 387-393.

Marchant-Shapiro, T. (2015). *Statistics for Political Analysis: Understanding the Numbers*. SAGE Publications. https://doi.org/10.4135/9781483395418

McKetin, R., Darke, S., Hayes, A., & Rumbold, G. (1999). *Drug Trends 1998. A Comparison of Drug Use and Trends in Three Australian States: Findings from the Illicit Drug Reporting System*. National Drug and Alcohol Research Centre.

Measham, F. (2004). The decline of ecstasy, the rise of 'binge'drinking and the persistence of pleasure. *Probation Journal, 51*(4), 309-326.

Melnikov, S., Aboav, A., Shalom, E., Phriedman, S., & Khalaila, K. (2021). The effect of attitudes, subjective norms and stigma on health-care providers' intention to recommend medicinal cannabis to patients. *International journal of nursing practice, 27*(1), 1-10.

Ministry of Health. (2015). *Māori health models*. https://www.health.govt.nz/our-work/populations/maori-health/maori-health-models

Ministry of Health. (2016). *Research Report: The New Zealand Drug Harm Index*. https://www.health.govt.nz/publication/research-report-new-zealand-drug-harm-index-2016

Ministry of Health. (2017). *Ethnicity Data Protocols*. https://www.health.govt.nz/system/files/documents/publications/hiso_10001-2017_ethnicity_data_protocols_may-21.pdf

Ministry of Health. (2020). *National Health Survey Data Explorer 2019/20*. https://minhealthnz.shinyapps.io/nz-health-survey-2019-20-annual-data-explorer/_w_88da1e83/#!/explore-indicators

Ministry of Health. (2021). *Provisional monthly results on COVID-19 impacts: 2020/21 New Zealand Health Survey*. https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/new-zealand-health-

survey/provisional-monthly-results-covid-19-impacts-2020-21-new-zealand-health-survey

Mitchell, J. M., Bogenschutz, M., Lilienstein, A., Harrison, C., Kleiman, S., Parker-Guilbert, K., Ot'alora G, M., Garas, W., Paleos, C., Gorman, I., Nicholas, C., Mithoefer, M., Carlin, S., Poulter, B., Mithoefer, A., Quevedo, S., Wells, G., Klaire, S. S., van der Kolk, B., Tzarfaty, K., Amiaz, R., Worthy, R., Shannon, S., Woolley, J. D., Marta, C., Gelfand, Y., Hapke, E., Amar, S., Wallach, Y., Brown, R., Hamilton, S., Wang, J. B., Coker, A., Matthews, R., de Boer, A., Yazar-Klosinski, B., Emerson, A., & Doblin, R. (2021). MDMA-assisted therapy for severe PTSD: a randomized, double-blind, placebo-controlled phase 3 study. *Nature Medicine, 27*(6), 1025-1033. https://doi.org/10.1038/s41591-021-01336-3

Mithoefer, M. C. (2017). *A Manual for MDMA-Assisted Psychotherapy in the Treatment of Posttraumatic Stress Disorder*. MAPS. https://s3-us-west-1.amazonaws.com/mapscontent/research-archive/mdma/TreatmentManual_MDMAAssistedPsychotherapyVersion+8.1_22+Aug2017.pdf

Mithoefer, M. C., Feduccia, A. A., Jerome, L., Mithoefer, A., Wagner, M., Walsh, Z., Hamilton, S., Yazar-Klosinski, B., Emerson, A., & Doblin, R. (2019). MDMA-assisted psychotherapy for treatment of PTSD: study design and rationale for phase 3 trials based on pooled analysis of six phase 2 randomized controlled trials. *Psychopharmacology, 236*(9), 2735-2745. https://doi.org/10.1007/s00213-019-05249-5

Multidisciplinary Association for Psychedelic Studies. (2009). *A Phase 1 placebo-controlled, double-blind crossover study to assess psychological effects of MDMA when administered to healthy volunteers.* https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjMkpmPuuDTAhVDK48KHQSGDwEQFggIMAA&url=http%3A%2F%2Fwww.maps.org%2Fmdma%2Fmt1_docs%2Fmt1_amend2_protocol_dec_2_09_final.pdf&usg=AFQjCNFVRSIzmlCvehQODDlO0gMkb2fuJA&sig2=T4DsnFI70wYRbjyQzWVkdg

Multidisciplinary Association for Psychedelic Studies. (2016). *MDMA-Assisted Psychotherapy Treatment Manual (version 8).* https://s3-us-west-1.amazonaws.com/mapscontent/research-archive/mdma/TreatmentManual_MDMAAssistedPsychotherapyVersion+8.1_22+Aug2017.pdf

Multidisciplinary Association for Psychedelic Studies. (2020). *MAPS Investigator's Brochure 12th Ed.* https://mapscontent.s3-us-west-1.amazonaws.com/research-archive/MDMA+IB+12th+Edition+Final+17AUG2020.pdf

Multidisciplinary Association for Psychedelic Studies. (2021). *MDMA-Assisted Psychotherapy Study Protocols Infographic [Infographic]*. https://s3-us-west-

1.amazonaws.com/mapscontent/research-archive/mdma/PTSDandMDMA.png

Multidisciplinary Association for Psychedelic Studies. (n.d.). *MDMA-assisted therapy*. https://maps.org/research/mdma

Muthukumaraswamy, S. D., Forsyth, A., & Lumley, T. (2021). Blinding and expectancy confounds in psychedelic randomized controlled trials. *Expert Review of Clinical Pharmacology, 14*(9), 1133-1152. https://doi.org/10.1080/17512433.2021.1933434

New Zealand Customs Service. (2021). *Drug seizures*. https://www.customs.govt.nz/about-us/statistics/drug-interceptions/drug-seizures/

New Zealand Police. (2021). Wastewater Drug Testing in New Zealand: National Overview. Quarter One 2021. https://www.police.govt.nz/sites/default/files/publications/wastewater-results-quarter-1-2021.pdf

New Zealand Psychological Society. (2002). *Code of Ethics For Psychologists Working in Aotearoa/New Zealand*. https://www.psychology.org.nz/journal-archive/code-of-ethics.pdf

New Zealand Psychologists Board. (n.d.). *The New Zealand Psychologists Register*. https://psychologistsboard.org.nz/for-the-public/about-psychologists/the-new-zealand-psychologists-register/

Nichols, D. E. (1986). Differences between the mechanism of action of MDMA, MBDB, and the classic hallucinogens. Identification of a new therapeutic class: entactogens. *Journal of psychoactive drugs, 18*(4), 305-313.

Noller, G. (2009). *Literature review and assessment report on MDMA/Ecstasy.* Ministry of Health. https://www.moh.govt.nz/notebook/nbbooks.nsf/0/EE5BDDAA39721D6ACC257B8000708A11/$file/July2010Literature-Review-Assessment-Report-MDMA-Ecstasy.pdf

Nutt, D. J., & de Wit, H. (2021). Putting the MD back into MDMA. *Nature Medicine, 27*(6), 950-951. https://doi.org/10.1038/s41591-021-01385-8

Nutt, D. J., King, L. A., & Phillips, L. D. (2010). Drug harms in the UK: a multicriteria decision analysis. *The Lancet, 376*(9752), 1558-1565. https://doi.org/ https://doi.org/10.1016/S0140-6736(10)61462-6

NZ Drug Foundation. (2012). *About a drug: MDMA*. https://www.drugfoundation.org.nz/matters-of-substance/august-2012/about-a-drug-mdma/

NZ Drug Foundation. (n.d.). *Drugs in NZ - an overview*. https://www.drugfoundation.org.nz/policy-and-advocacy/drugs-in-nz-an-overview/

Oakley Browne, M. A., Wells, J. E., & Scott, K. M. (2006). *Te Rau Hinengaro: The New Zealand Mental Health Survey.* Ministry of Health. https://www.health.govt.nz/system/files/documents/publications/mental-health-survey.pdf

Passie, T. (2018). The early use of MDMA ('Ecstasy') in psychotherapy (1977–1985). *Drug Science, Policy and Law, 4*, 1-19.

Passie, T., & Benzenhöfer, U. (2018). MDA, MDMA, and other "mescaline-like" substances in the US military's search for a truth drug (1940s to 1960s). *Drug Testing and Analysis, 10*(1), 72-80. https://doi.org/https://doi.org/10.1002/dta.2292

Paunovic, N. (1998). Cognitive factors in the maintenance of PTSD. *Behaviour Therapy, 27*(4), 167-178.

Perkonigg, A., Höfler, M., Cloitre, M., Wittchen, H.-U., Trautmann, S., & Maercker, A. (2016). Evidence for two different ICD-11 posttraumatic stress disorders in a community sample of adolescents and young adults. *European archives of psychiatry and clinical neuroscience, 266*(4), 317-328.

Perkonigg, A., Pfister, H., Stein, M. B., Höfler, M., Lieb, R., Maercker, A., & Wittchen, H.-U. (2005). Longitudinal course of posttraumatic stress disorder and posttraumatic stress disorder symptoms in a community sample of adolescents and young adults. *American Journal of Psychiatry, 162*(7), 1320-1327.

Polito, V., & Stevenson, R. J. (2019). A systematic study of microdosing psychedelics. *PLOS ONE, 14*(2), 1-26.

Reynolds, L. M., Akroyd, A., Sundram, F., Stack, A., Muthukumaraswamy, S., & Evans, W. J. (2021). Cancer Healthcare Workers' Perceptions toward Psychedelic-Assisted Therapy: A Preliminary Investigation. *International Journal of Environmental Research and Public Health, 18*(15), 8160.

Riedlinger, J. E. (1985). The scheduling of MDMA: A pharmacist's perspective. *Journal of psychoactive drugs, 17*(3), 167-171.

Riedlinger, T. J., & Riedlinger, J. E. (1994). Psychedelic and entactogenic drugs in the treatment of depression. *Journal of psychoactive drugs, 26*(1), 41-55.

Rothman, R. B., Baumann, M. H., Dersch, C. M., Romero, D. V., Rice, K. C., Carroll, F. I., & Partilla, J. S. (2001). Amphetamine-type central nervous system stimulants release norepinephrine more potently than they release dopamine and serotonin. *Synapse, 39*(1), 32-41.

Schermuly-Haupt, M.-L., Linden, M., & Rush, A. J. (2018). Unwanted events and side effects in cognitive behavior therapy. *Cognitive Therapy and Research, 42*(3), 219-229.

Schloss, P., & Williams, D. C. (1998). The serotonin transporter: a primary target for antidepressant drugs. *Journal of Psychopharmacology, 12*(2), 115-121.

Schmid, Y., Enzler, F., Gasser, P., Grouzmann, E., Preller, K. H., Vollenweider, F. X., Brenneisen, R., Müller, F., Borgwardt, S., & Liechti, M. E. (2015). Acute Effects of Lysergic Acid Diethylamide in Healthy Subjects. *Biological Psychiatry, 78*(8), 544-553. https://doi.org/https://doi.org/10.1016/j.biopsych.2014.11.015

Schuster, P., Lieb, R., Lamertz, C., & Wittchen, H.-U. (1998). Is the use of ecstasy and hallucinogens increasing? *European addiction research, 4*(1-2), 75-82.

Sessa, B., & Nutt, D. (2015). Making a medicine out of MDMA. *The British Journal of Psychiatry, 206*(1), 4-6.

Shulgin, A. T. (1986). The background and chemistry of MDMA. *Journal of psychoactive drugs, 18*(4), 291-304.

Shulgin, A. T. (1990). *Ecstasy: The clinical, pharmacological and neurotoxicological effects of the drug MDMA*. Springer.

Shulgin, A. T., & Nichols, D. (1978). Characterization of Three New Psychotomimetics. In R. Stillman & R. Willette (Eds.), *The Psychopharmacology of Hallucinogens* (pp. 74-83). Pergamon Press.

Simmler, L., Buser, T., Donzelli, M., Schramm, Y., Dieu, L.-H., Huwyler, J., Chaboz, S., Hoener, M., & Liechti, M. (2013). Pharmacological characterization of designer cathinones in vitro. *British Journal of Pharmacology, 168*(2), 458-470. https://doi.org/https://doi.org/10.1111/j.1476-5381.2012.02145.x

Statistics New Zealand. (2019). *New Zealand's population reflects growing diversity*. https://www.stats.govt.nz/news/new-zealands-population-reflects-growing-diversity

Stevens, J. S., Kim, Y. J., Galatzer-Levy, I. R., Reddy, R., Ely, T. D., Nemeroff, C. B., Hudak, L. A., Jovanovic, T., Rothbaum, B. O., & Ressler, K. J. (2017). Amygdala reactivity and anterior cingulate habituation predict PTSD symptom maintenance after acute civilian trauma. *Biological Psychiatry, 81*(12), 1023.

Stolaroff, M. (2004). The secret chief revealed: Conversations with Leo Zeff. *Florida, FL: MAPS*.

Strassman, R. J. (1995). Hallucinogenic drugs in psychiatric research and treatment: Perspectives and prospects. *Journal of Nervous and Mental Disease, 183*(3), 127-138.

Studerus, E., Kometer, M., Hasler, F., & Vollenweider, F. X. (2011). Acute, subacute and long-term subjective effects of psilocybin in healthy humans: a pooled analysis of experimental studies. *Journal of Psychopharmacology, 25*(11), 1434-1452.

The Royal Australian and New Zealand College of Psychiatrists. (2020). *Clinical Memorandum: Therapeutic use of psychedelic substances*. https://www.ranzcp.org/files/resources/college_statements/clinical_memoranda/cm-therapeutic-use-of-psychedelics.aspx

The Royal Australian and New Zealand College of Psychiatrists. (2021). *Post-traumatic stress disorder*. https://www.yourhealthinmind.org/mental-illnesses-disorders/ptsd

U.S. Food and Drug Administration. (2018). *Breakthrough Therapy*. https://www.fda.gov/patients/fast-track-breakthrough-therapy-accelerated-approval-priority-review/breakthrough-therapy

Van Dam, N. T., Van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., Meissner, T., Lazar, S. W., Kerr, C. E., & Gorchov, J. (2018). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on psychological science, 13*(1), 36-61.

Vasterling, J. J., & Brailey, K. (2005). *Neuropsychology of PTSD: Biological, cognitive, and clinical perspectives.* The Guilford Press.

Vizeli, P., & Liechti, M. E. (2017). Safety pharmacology of acute MDMA administration in healthy subjects. *Journal of Psychopharmacology, 31*(5), 576-588. https://doi.org/10.1177/0269881117691569

Vollenweider, F. X., Gamma, A., Liechti, M., & Huber, T. (1998). Psychological and cardiovascular effects and short-term sequelae of MDMA ("ecstasy") in MDMA-naıve healthy volunteers. *Neuropsychopharmacology, 19*(4), 241-251.

Warner, P. (2013). Testing association with Fisher's Exact test. *Journal of Family Planning and Reproductive Health Care, 39*(4), 281-284.

Wilkins, C., Prasad, J., Parker, K., Wong, K., & Rychert, M. (2017). *Recent trends in illegal drug use in New Zealand, 2006-2015*. https://static1.squarespace.com/static/59152c88b8a79bdb0e644f2a/t/59951575bf629a163fbbd2a9/1502942598078/IDMS+2015+Final+Report+Jul+2017.pdf

Willits, F. K., Theodori, G. L., & Luloff, A. (2016). Another look at Likert scales. *Journal of Rural Social Sciences, 31*(3), 6.

Wolfson, P. E., Andries, J., Feduccia, A. A., Jerome, L., Wang, J. B., Williams, E., Carlin, S. C., Sola, E., Hamilton, S., & Yazar-Klosinski, B. (2020). MDMA-assisted psychotherapy for treatment of anxiety and other psychological

distress related to life-threatening illnesses: a randomized pilot study. *Scientific reports, 10*(1), 1-15.

Zacny, J. P. (2010). A possible link between sensation-seeking status and positive subjective effects of oxycodone in healthy volunteers. *Pharmacology Biochemistry and Behavior, 95*(1), 113-120.

13. APPENDICES

Appendix A: Ethics approval

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

2 June 2021

Rita Csako
Faculty of Health and Environmental Sciences

Dear Rita

Re Ethics Application: **21/138 The therapeutic application of MDMA: knowledge and attitudes of psychologists in Aotearoa**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 2 June 2024.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: rxh2343@autuni.ac.nz

Appendix B: Participant recruitment advertisement

Subject: Share your views on the therapeutic application of MDMA

Study title: *The therapeutic application of MDMA: knowledge and attitudes of psychologists in Aotearoa.*
Researcher: *David Cullen, Auckland University of Technology*

A study is currently underway, and we are looking for qualified psychology professionals (who possess a minimum Master's degree in psychology) based permanently in New Zealand to share their knowledge and attitudes in relation to the therapeutic use of MDMA (otherwise known as 'ecstasy'). This refers to the use of MDMA facilitated by a psychology professional in therapy, and within the context of a broader therapeutic program for the purposes of addressing a mental health disorder or issue (sometimes referred to as 'MDMA-assisted psychotherapy'). No prior knowledge of MDMA-assisted psychotherapy is required.

This anonymous, online survey will take approximately 15 minutes to complete. Your participation is entirely voluntary and no personally identifiable information will be collected.

To find out more about the study, please click here.

Appendix C: Participant information sheet

Information sheet

Date information sheet produced: 7 May 2021
Project title: The therapeutic application of MDMA: knowledge and attitudes of psychologists in Aotearoa

Tēnā koutou,

Thank you for expressing interest in participating in this study. I am conducting this research as part of an Honours degree in psychology at AUT (Auckland University of Technology). I sincerely want to thank you for taking the time to participate.

What is the purpose of this research?
This study is looking to understand more about the knowledge and attitudes that psychology professionals in Aotearoa have towards the therapeutic application of MDMA ('3,4-methylenedioxymethamphetamine', colloquially known as 'ecstasy'). The 'therapeutic application of MDMA' (sometimes referred to as 'MDMA-assisted psychotherapy') refers to the adjunctive use of MDMA facilitated by a psychologist within the context of a broader therapeutic program, for the purposes of addressing a mental health disorder or issue. There are currently a number of overseas studies investigating the therapeutic applications of MDMA. Within these current clinical trials, an MDMA-assisted psychotherapy program typically lasts around three months and consists mainly of non-MDMA talk therapy sessions. Up to three of these sessions involve the administration of MDMA in therapy, and are typically undertaken at the mid-point of this program. Your participation in this survey will help us to understand more about local knowledge and attitudes of this therapy, explore potential opportunities and challenges, and inform policy and education within the Aotearoa-specific context.

This research will contribute to the completion of my dissertation as a part of my Bachelor of Health Science Honours qualification in psychology, and the findings of this research may be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?
Participants for this research are recruited through general advertising via the New Zealand Psychological Society monthly member e-newsletter and via the 'New Zealand Psychological Society' Facebook group. To be eligible to participate, you should have a Master's degree in psychology as a minimum, and be permanently living in New Zealand. Knowledge of the therapeutic application of MDMA is not a pre-requisite for participation.

How do I agree to participate in this research?
By selecting the 'Yes, I consent' box below and completing this survey, you indicate your consent to be included in this research. Your participation in this research is voluntary (it is your

choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to stop taking the survey at any time and not submit your responses. All of these records containing partially completed responses will be deleted. However, given the anonymous nature of the survey, once you have submitted your responses it will not be possible to identify and remove your data.

What will happen in this research?
This research will be conducted via an anonymous, online survey. The survey will provide you with an opportunity to share what you understand about this emerging therapy, the risks involved, and the personal attitudes you have towards recreational and therapeutic MDMA use. In part one, you will be asked a set of qualifying criteria to ensure that you are eligible to participate in the study. In parts two and three, you will be asked a series of questions in relation to your knowledge and attitudes regarding the therapeutic use of MDMA. In parts four and five, you will be asked questions regarding your attitudes and knowledge in relation to the recreational use of MDMA and illicit drugs in general. In part six, you will be asked to respond to some basic demographics.

What are the discomforts and risks?
No major risks or discomforts are anticipated by participating in the survey. You may feel uncomfortable responding to questions around MDMA and illicit substances generally given their current illegal status in New Zealand, and in respect of any employment-related or ethical boundaries. You may also not feel comfortable responding to questions about personal or client use of these substances.

How will these discomforts and risks be alleviated?
This study is being conducted anonymously, meaning that no individually identifiable data will be collected as a part of the process and that as the researcher, I have no way of identifying you as a participant. You will also have the option to skip any item you desire in the survey.

What are the benefits to you as a participant?
This research offers you the opportunity to have your voice heard in a novel study that has not yet been conducted within New Zealand, and to understand more about other professionals' knowledge and attitudes in relation to the therapeutic application of MDMA. Whilst completing the study, you may also learn something new about this emerging therapy. This research may also serve as a basis for better targeted education towards psychologists and other health professionals in New Zealand in future, as well as the development of policy. It may also be of interest to the general public, and particularly those who suffer from certain mental health disorders for which the therapeutic application of MDMA is showing promise. As a researcher, this research will contribute to the completion of my dissertation as a part of my Honours qualification in psychology.

How much time will this survey take to complete?
This survey will take approximately 15 minutes to complete.

How long will the survey remain open until?
The survey will remain open to participants until 15 August 2021.

Will I receive feedback on the results of this research?
Yes. A high-level one to two page summary of the results will be available via a URL and distributed via the same communication channels that were used for recruitment, i.e. via the New Zealand Psychological Society e-newsletter and the New Zealand Psychological Society Facebook group.

What do I do if I have concerns about this research?
Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Rita Csako, rita.csako@aut.ac.nz, +64 27 250 5656.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?
Please keep the above Information Sheet for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details: David Cullen - rxh2343@autuni.ac.nz
Project Supervisor Contact Details: Rita Csako - rita.csako@aut.ac.nz

By checking the box below I affirm that I understand the information provided in the Participant Information Sheet above and give my informed consent. I understand that I can stop taking the survey at any time and decide not to submit my responses. In doing so, there will be no record of my responses.

○ Yes, I consent

Appendix D: Survey questionnaire

Part one – Qualifying criteria

Are you a registered psychologist in New Zealand?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Are you a registered psychologist in New Zealand? = Yes

Are you currently involved in clinical work? (i.e., practicing currently with clients)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Are you currently involved in clinical work? (i.e., practicing currently with clients) = Yes

Approximately how many years of clinical experience do you have?

_____

Display This Question:

If Are you currently involved in clinical work? (i.e., practicing currently with clients) = Yes

What are your main areas of focus in your clinical practice? (e.g. schizophrenia, ADHD, etc.). *Please list up to three.*

_____

Display This Question:

If Are you a registered psychologist in New Zealand? = No

Do you have a Master's level degree in psychology?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Do you have a Master's level degree in psychology? = Yes

Are you currently living and working in New Zealand?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Are you currently living and working in New Zealand? = Yes

Scope in field How do you identify in the field in terms of scope?

- ○ Academic (1)
- ○ Practicing certificate on hold (2)
- ○ Other (please specify) (3) _____

Part two – Attitudes and knowledge towards the therapeutic application of MDMA

The following section will ask about your knowledge and attitudes in relation to a series of statements and questions regarding the **therapeutic application of MDMA**, i.e. the adjunctive use of MDMA facilitated by a psychologist within the context of a broader therapeutic program, for the purposes of addressing a mental health disorder or issue (sometimes referred to as 'MDMA-assisted psychotherapy').

Please indicate your response against the following statements and questions. If you feel you are unable to answer a question, please select 'unsure'.

2.1 - To what degree are you informed about the current research relating to the therapeutic application of MDMA?

- ○ Not informed (1)
- ○ Slightly informed (2)
- ○ Somewhat informed (3)
- ○ Very informed (4)

2.2 - The research surrounding the therapeutic use of MDMA shows promise in the treatment of mental health disorders.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)
- ○ Unsure (8)

2.3 - What mental health disorders or issues do you understand MDMA is possibly able to be used for therapeutically? *Select as many as you understand to be applicable.*

- ☐ Post-traumatic stress disorder (1)
- ☐ Life-threatening illness related anxiety (2)
- ☐ Social anxiety in autistic adults (3)
- ☐ Couples therapy (4)
- ☐ Alcohol use disorder (5)
- ☐ Other (please specify) (6) _____

2.4 - What do you understand the degree of risk associated with the ***therapeutic*** application of MDMA to be for the client?

- ○ No risk (1)
- ○ Low risk (2)
- ○ Moderate risk (3)
- ○ High risk (4)
- ○ Very high risk (5)
- ○ Unsure (6)

2.4 - Can you please highlight the key reason(s) why you rated the risk of the therapeutic application of MDMA this way?

_____

_____

_____

_____

_____

Display This Question:

If Are you currently involved in clinical work? (i.e., practicing currently with clients) = Yes

2.5 - I am aware that clients of mine may have used MDMA illegally to treat mental health disorders or symptoms.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

Display This Question:

If Are you currently involved in clinical work? (i.e., practicing currently with clients) = Yes

2.6 - I am aware that clients of mine may have used psychedelic substances (e.g. LSD, 'magic mushrooms' / psilocybin, DMT, etc.) illegally to treat mental health disorders or symptoms.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

Display This Question:

If Are you currently involved in clinical work? (i.e., practicing currently with clients) = Yes

2.7 - How prepared would you feel answering questions from clients about the therapeutic use of MDMA?

- Not at all prepared (1)
- Slightly prepared (2)
- Somewhat prepared (3)
- Very prepared (4)

2.8 - I feel the therapeutic use of MDMA is unsafe.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

2.9 - I believe the use of MDMA could improve outcomes if used adjunctively with psychotherapy.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

2.10 - I believe the therapeutic use of MDMA is a legitimate treatment.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

2.11 - Are you interested in learning more about the therapeutic applications of MDMA?

- Yes (1)
- No (2)
- Unsure (3)

2.12 - Do you have any additional comments you wish to share regarding the therapeutic use of MDMA?

_____

_____

_____

_____

_____

Part three – Attitudes and knowledge towards the recreational use of MDMA and other illicit drugs

The following section will ask about your **attitudes and knowledge** in relation to the **recreational use of MDMA**, i.e. the use of MDMA for pleasure or for some other casual purpose.

Please indicate your response against the following statements and questions. If you feel you are unable to answer a question, please select 'unsure'.

3.1 - I believe that the occasional recreational use of MDMA is acceptable.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)
- ○ Unsure (8)

3.2 - I believe that MDMA can help improve relations among people.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.3 - The use of MDMA increases the risk for subsequent psychiatric disorders.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.4 - What do you understand the degree of risk associated with the ***recreational*** use of MDMA to be?

- ○ No risk (1)
- ○ Low risk (2)
- ○ Moderate risk (3)
- ○ High risk (4)
- ○ Very high risk (5)
- ○ Unsure (6)

3.4 - Can you please highlight the key reason(s) why you rated the risk associated with the recreational use of MDMA this way?

_____

_____

_____

_____

_____

3.5 - The laws against MDMA in New Zealand should be made more lenient.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)
- ○ Unsure (8)

3.6 - Would you support the shifting of MDMA as a Class B drug (i.e. one that poses a *high* risk of harm) to a Class C drug (i.e. one that poses a *moderate* risk of harm) in New Zealand?

- ○ Yes (1)
- ○ No (2)
- ○ Undecided (3)
- ○ Can't say without more information (4)

3.7 - A person should never take MDMA for any reason.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.8 - Have you ever used MDMA at any point in your life (including therapeutically or recreationally)?

- Yes (1)
- No (2)
- Prefer not to answer (3)

Display This Question:

If Have you ever used MDMA at any point in your life (including therapeutically or recreationally)? = Yes

3.8.1 - How have your experience(s) been when you have used it? If used multiple times, please select what your *general or overall* experience with MDMA has been.

- ○ Extremely positive (1)
- ○ Moderately positive (2)
- ○ Slightly positive (3)
- ○ Neither positive nor negative (4)
- ○ Slightly negative (5)
- ○ Moderately negative (6)
- ○ Extremely negative (7)

3.9 - Do you have any additional comments you wish to share regarding the recreational use of MDMA?

_____

_____

_____

_____

_____

Part 3.2: The following section will ask about your **attitudes** in relation to a series of statements regarding the **recreational use of illicit drugs**, i.e. the use of illicit drugs for pleasure or for some other casual purpose.

Please indicate your level of agreement with the following statements. If you feel you are unable to answer a question, please select 'unsure'.

3.10 - The laws against illicit drugs in New Zealand should be made more lenient.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.11 - There is nothing wrong with using illicit drugs if they make you feel good.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.12 - People who use illicit drugs are a burden to society.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

3.13 - Something is wrong with the world when illicit drug taking becomes an accepted way of life.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)
- Unsure (8)

Part four – Demographics

Gender - What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Another gender (please specify) (3) _____
- ○ Prefer not to say (4)

Age - What is your age?

- ○ 20-30 (1)
- ○ 31-50 (2)
- ○ 51-64 (3)
- ○ 65+ (4)

Ethnicity - What is your ethnicity? Select all that apply.

- [ ] European (1)
- [ ] Māori (2)
- [ ] Pacific peoples (3)
- [ ] Asian (4)
- [ ] Other ethnicity (5)

Appendix E: Quantitative survey items and corresponding codes

Item	Code
Section one: Attitudes and knowledge of therapeutic use of MDMA	
Q1. To what degree are you informed about the current research relating to the therapeutic application of MDMA?	Knowledge of MDMA-PT
Q2. The research surrounding the therapeutic use of MDMA shows promise in the treatment of mental health disorders.	Promise of MDMA-PT research
Q3. What mental health disorders or issues do you understand MDMA is possibly able to be used for therapeutically? Select as many as you understand to be applicable.	Applications of MDMA-PT
Q4. What do you understand the degree of risk associated with the therapeutic application of MDMA to be for the client?	Risk of MDMA-PT
Q5. I am aware that clients of mine may have used MDMA illegally to treat mental health disorders or symptoms.	Awareness of client MDMA use
Q6. I am aware that clients of mine may have used psychedelic substances (e.g., LSD, 'magic mushrooms' / psilocybin, DMT, etc.) illegally to treat mental health disorders or symptoms.	Awareness of client psychedelic use
Q7. How prepared would you feel answering questions from clients about the therapeutic use of MDMA?	Preparedness answering clients' MDMA-PT questions
Q8. I feel the therapeutic use of MDMA is unsafe.	Attitude towards MDMA-PT safety
Q9. I believe the use of MDMA could improve outcomes if used adjunctively with psychotherapy.	Attitude towards MDMA-PT
Q10. I believe the therapeutic use of MDMA is a legitimate treatment.	Attitude towards legitimacy of MDMA-PT
Q11. Are you interested in learning more about the therapeutic applications of MDMA?	Interest in learning about MDMA-PT
Section two: Attitudes and knowledge of recreational use of MDMA	
Q12. I believe that the occasional recreational use of MDMA is acceptable.	Acceptability of recreational MDMA use
Q13. I believe that MDMA can help improve relations among people.	Belief of pro-social MDMA effects
Q14. The use of MDMA increases the risk for subsequent psychiatric disorders.	Psychiatric risk of MDMA
Q15. What do you understand the degree of risk associated with the recreational use of MDMA to be?	Risk of recreational MDMA use

Q16 The laws against MDMA in New Zealand should be made more lenient.	Attitude towards MDMA NZ laws
Q17. Would you support the shifting of MDMA as a Class B drug (i.e., one that poses a high risk of harm) to a Class C drug (i.e., one that poses a moderate risk of harm) in New Zealand?	Attitude towards MDMA shift from Class B to Class C
Q18. A person should never take MDMA for any reason.	Attitude towards any MDMA consumption
Q19. Have you ever used MDMA at any point in your life (including therapeutically or recreationally)?	Personal consumption of MDMA
Q20. How have your experience(s) been when you have used it? If used multiple times, please select what your general or overall experience with MDMA has been.	Quality of experience of MDMA personal consumption
Section three: Attitudes regarding recreational use of illicit drugs	
Q21. The laws against illicit drugs in New Zealand should be made more lenient.	Attitude towards NZ drug law
Q22. There is nothing wrong with using illicit drugs if they make you feel good.	Attitude towards individual illicit drug use
Q23. People who use illicit drugs are a burden to society.	Attitude towards illicit drug users
Q24. Something is wrong with the world when illicit drug taking becomes an accepted way of life.	Attitude towards collective illicit drug use
Demographics	
What is your gender?	Gender
What is your age?	Age
What is your ethnicity?	Ethnicity
Approximately how many years of clinical experience do you have?	Years of clinical experience

Appendix F: Summary of dependent and independent variables for data analysis

Below is a summary of the dependent and independent variables tested, where X indicates that data analysis has been performed between two variables.

		Dependent variables	
		Q1. Knowledge of MDMA-PT	**Q9. Attitude towards MDMA-PT**
Independent variables	Q2. Promise of MDMA-PT research	X	X
	Q3. Applications of MDMA-PT	X	X
	Q4. Risk of MDMA-PT	X	X
	Q5. Awareness of client MDMA use	X	X
	Q6. Awareness of client psychedelic use	X	X
	Q7. Preparedness answering clients' MDMA-PT questions	X	X
	Q8. Attitude towards MDMA-PT safety	X	X
	Q10. Attitude towards legitimacy of MDMA-PT	X	X
	Q11. Interest in learning about MDMA-PT	X	X
	Q12. Acceptability of recreational MDMA use	X	X
	Q13. Belief of pro-social MDMA effects	X	X
	Q14. Psychiatric risk of MDMA	X	X
	Q15. Risk of recreational MDMA use	X	X
	Q16. Attitude towards MDMA NZ laws	X	X
	Q17. Attitude towards MDMA shift from Class B to Class C	X	X
	Q18. Attitude towards any MDMA consumption	X	X
	Q19. Personal consumption of MDMA	X	X
	Q20. Quality of experience of MDMA personal consumption	X	X
	Q21. Attitude towards NZ drug law	X	X
	Q22. Attitude towards individual illicit drug use	X	X
	Q23. Attitude towards illicit drug users	X	X
	Q24. Attitude towards collective illicit drug use	X	X