The Symphony Effect: Using Om Chanting to Roll with Esketamine-Induced Dissociation

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Abstract

Objective. Esketamine is a powerful antidepressant that delivers instant relief of depressive mood. However, many found the induced dissociation intolerable in reliving one's trauma. A holistic approach, Om chanting, a sound-frequency meditative practice, is warranted in managing dissociative experience. The research problem is assessing the degree of optimism by using Om chanting during dissociation for adults with major depressive disorder (MDD).

Method. Participants were recruited to practice Om chanting for 8 minutes during Esketamine treatment at an outpatient mental health clinic. Life Orientation Test-Revised (LOT-R) was conducted before, after, and one week after the intervention to evaluate a change in optimism, indicating the likelihood of treatment continuation.

Results. Primary sources were observed with $n = 9$. The descriptive statistics included sex, age, ethnicity, education, and employment. The mean of age was 41.56, with the observed sex and ethnicity category skewed toward female and white. Most participants attended some college and were not currently employed. The repeated measures analysis of variance (ANOVA) result was calculated based on an alpha of .05. The result for the within-groups factor was not significant, indicating the values among groups were all similar. Additionally, with a ρ- value of 0.279, indicating there was a low statistical significance.

Conclusion. The investigator failed to reject the null hypothesis of no association between Om chanting and optimism afterward. Due to the small sample size and time constraints, future studies with a large participant group could better assess this phenomenon. These initial findings could provide an unexplored link to integrating meditative approaches during pharmacological treatments to improve patient outcomes and experiences.

Keywords: Esketamine, Om chanting, dissociation, trauma, sound frequency, depression

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Depression was once described as being lost in a forest in a heavy fog; the sense of emptiness, helplessness, and heaviness... drags a person into an inescapable void. Instead of a physical prison, it is a mental prison, accompanied by guilt and shame for being its prisoner. Major depressive disorder (MDD) is a common psychiatric disorder affecting people from all walks of life; some individuals would be later diagnosed with treatment-resistant depression (TRD) after failing two or more antidepressant trials. Esketamine, an S-enantiomer of Ketamine, is a nasal spray treatment that provides instant antidepressant relief. It has been considered a modern breakthrough in treating TRD in the past decade, a rapid-acting approach before oral antidepressant develops a therapeutic level. However, a wave of premature treatment termination emerges before the individuals enjoy the full therapeutic effect, primarily due to the unavoidable side effect during the treatment – Esketamine-induced dissociation.

Problem Statement

Before exploring Esketamine treatment thoroughly, it is essential to understand the shared experience of depression. MDD is one of the most common mental disorders in the United States, with an estimated 21 million adults reporting having at least one depressive episode with impairments (National Institute of Mental Health [NIMH], 2022). Some impairments include anhedonia, excessive shame/ guilt, insomnia/hypersomnia, or social withdrawal. On a broader scale, approximately 280 million people worldwide are diagnosed with clinical depression (World Health Organization [WHO], 2021). Globally, over 700,000 people have died by suicide due to MDD in recent years (WHO, 2021). Suicide is the fourth leading cause of death despite culture or wealth, putting enormous strain on personal relationships and worsening the socioeconomic burden on society (Derakhshanian et al., 2021; WHO, 2021).

The evidence-based standard of MDD treatment is the combination of oral antidepressants and psychotherapy (Derakhshanian et al., 2021). Most oral antidepressants can take up to two to four weeks to see some effects, and it can take up to six weeks for symptom remission. As a result, the psychiatric medication compliance rate is generally low. Therefore, the rapid-acting antidepressant, Esketamine, innovates the clinical depression treatment in recent psychiatric research (Ballard & Zarate, 2020). However, the induced dissociation can adversely lead to more suicidal thoughts and self-harming behaviors, resulting in premature treatment withdrawal in some cases (Bahr et al., 2019).

Purpose and Rationale

The Food and Drug Administration (FDA) approved Esketamine in 2019 for adults with TRD and MDD presenting with acute suicidal ideation or behavior (Ballard & Zarate, 2020; Derakhshanisn et al., 2021). Some behaviors include self-harming, substance use, or death visualization with a plan. The rapid antidepressant effect of Esketamine treatment has been a giant leap of progress in recent years. Although Esketamine overcame many barriers in providing effective, accessible treatment to the community, some patients find the unavoidable side effect of induced dissociation disconcerting. Some patients with a history of trauma recounted dissociation leads to reliving the events unwillingly and uncontrollably; the unreadiness to process is one reason for ending the treatment before experiencing the benefits. Consequently, the purpose of this paper is to provide a practical, evidence-based practice to turn induced dissociation into a positive experience, preventing premature termination.

Background and Significance

Esketamine has a persistent association with dissociation; most describe it as altered consciousness, self-perception, and reality (Ballard & Zarate, 2020). Dissociation is one of the

most reported side effects of patients with TRD (Mello et al., 2021). In previous studies using Esketamine, dissociation could be severe in some participants, resulting in study withdrawal, which became a safety concern (Mello et al., 2021). Due to the rapid effect of Esketamine, some considered dissociation a traumatic event in losing control of one's thought process and content.

Problem

Despite the impressive progress of Esketamine treatment, the mystery of the link between dissociation and antidepressant effect remains unsolved (Ballard & Zarate, 2020). Some argue the short-term dissociative side effect is required for its anti-depressive effect to undertake its course (Derakhshanian et al., 2021). On the other hand, many scholars find no evidence supporting dissociation is necessary for the antidepressant outcome (Ballard & Zarate, 2020). In other words, the professional opinion on this topic is mixed. Nonetheless, there is one thing most scholars agree upon: Alleviation of depressive symptoms after Esketamine treatment, which has been consistently documented in different sites globally, echoing its likelihood of a robust biological effect (Ballard & Zarate, 2020). Its efficiency overshadows its dissociative side effect, making it a promising treatment for TRD (Nugent et al., 2019).

Although the literature underrates the disadvantages of Esketamine treatment for its potential therapeutic effects, the clinical usage and patients' recounts may form a different narrative. One of the quality metric domains is the patient experience; surveys and in-person feedback help assess patient experience and perception of their care (Goldman et al., 2018). For each Eskatemine treatment, the patients visit their provider before and after for an evaluation; they typically report the therapeutic outcome and intolerance immediately after the session. To better understand their experience, Mello et al. (2021) explained the dissociation trait and the intensity of induced dissociation were positively related. Therefore, there is a higher probability

Esketamine users with TRD have an intensified dissociation due to genetic vulnerability, prompting some scholars to suggest screening for dissociation traits (Mello et al., 2021).

Intervention

The limbic system in the brain serves a significant role in processing emotions, and the overactive amygdala in the limbic system generates fear (Rao et al., 2018; Zhang et al., 2022). The perceptiveness of the dissociation phase in the Esketamine treatments can be amplified if the amygdala is in overdrive. Suppose the dissociation cannot be eliminated from the treatment; in that case, providing an effective coping mechanism is crucial in maximizing the chances of treatment success, incorporating the common idea of rolling with the resistance. This section will briefly explore three potential interventions: Om chanting, butterfly hug technique (BHT), and grounding technique.

Rao et al. (2018) explained Om chanting is a sound frequency meditation technique originated in ancient India; it has been historically practiced in Buddhist temples to restore inner clarity and harmony. Om chanting consists of repetitively chanting 3 syllables (A, U, and Om) out loud, producing a vibration sensation during the audible sounds (Zhang et al., 2022). The meditative effect is generated by stimulating the vagus nerve through the auricular branches, which induces calming effects (Rao et al., 2018). In addition, by passively disregarding external or internal distractions, sound vibration helps to focus the wandering mind without intense concentration, which is beneficial in providing a cue to relaxation for beginners in meditation practices (Zhang et al., 2022).

Dissociation is often linked with post-traumatic stress disorder (PTSD); therefore, nonpharmacological interventions for treating PTSD-induced dissociation could be helpful. BHT is utilized in traumatic stress relief (TSR) training, mainly for the underserved population in war-

torn countries, where time and resources are precious (Pupat et al., 2022). The participants have a lower literacy level with a high need for a simple coping mechanism. BHT is achieved by crossing the arms with the palms of the hands placed on the chest. Then, a person gently taps the chest with alternating hands. It stimulates calmness and the focus on the present during dissociation (Pupat et al., 2022).

Lastly, the grounding technique is a distraction. It is performed by touching an object, focusing on that feeling, and then describing it (Pupat et al., 2022). These techniques created a sense of reality, allowing the person to return from dissociation by focusing on bodily sensations (Pupat et al., 2022). Furthermore, all three interventions mentioned are easy to implement and have wide cultural adaptability.

Comparison/ Current Practice

The current practice combating the adverse emotional reaction to Esketamine treatment is drug titration and adjunctive mood stabilizers or antipsychotics (Mello et al., 2021). Additionally, distractions during treatment, such as listening to music or counting backward, are encouraged (Mello et al., 2021). However, there is insufficient evidence-based research to support any specific strategy for managing the dissociative phase of the treatment. Therefore, the comparison would be the standard of care: Continuous in-person monitoring without interventions.

Outcome

The rapid and supportive result of Esketamine treatment provides an innovative approach that inspires many to search for an effective antidepressant. However, the relapse rate was reported to be between 55-89% for patients with an incomplete treatment plan (Sial et al., 2020).

Instead of attempting to control or eliminate the side effect, there are other approaches to turning a negative experience into something positive, creating a synergic effect.

Harne et al. (2019) suggested the remarkable calming effect of Om chanting could ease the patients into processing the negative stimuli, assisting individuals in regaining control of their minds. High levels of stress and fear can negatively impact concentration and comprehension, affecting one's cognitive ability in decision-making. Persistent practice in Om chanting can lead to profound body-mind relaxation, decreasing the fight-or-flight response (Harne et al., 2019). By providing Om chanting as a practical, cost-effective method to manage negative emotions in the dissociation phase, the desired outcome is to prevent premature termination of the Esketamine treatment before it demonstrates the full therapeutic effect.

Internal Data

In a growing psychiatric organization with six outpatient clinics in the Phoenix Metropolitan area, their providers include Doctors of Medicine (MDs), Doctors of Osteopathic Medicine (DOs), and Nurse Practitioners (NPs), who manage mental health problems, specializing in substance use disorders (SUD). Its mission is to provide a safe harbor for anyone to regain control of their mental well-being, focusing on all aspects of health. For the increasing rate of patient-initiated premature termination of the Esketamine treatment, some data were provided by the patients' narratives, such as the unwanted thoughts and rumination accompanied by the treatment. In addition, the providers explained patients who are in remission of SUD or suffer from a history of trauma tend to terminate the treatment before seeing its full effect, concerned about the alternating consciousness.

This is significant to the organization's stakeholders for many reasons, including the loss of revenue. Each patient has an individualized nasal spray for Esketamine medication; the

unused unit cannot be reused and will be wasted. Secondly, the providers require more time for follow-up appointments and formulating an alternative treatment plan, occupying the providers' availability to accept new patients. It may also impact the workflow of registered nurses (RNs) or medical assistants (MAs) in scheduling more frequent care calls due to the higher risk of suicidality. Additionally, it may increase the labor cost of additional time for other office staff to work on insurance approval for alternatives.

Besides the mental strain of another unsuccessful treatment, it also increases the patients' out-of-pocket cost in revisiting the provider for an alternative treatment or more follow-up appointments for close monitoring. Some patients with TRD might be out-of-work or on short-term disability, and the additional financial stress may exacerbate already worsening mental health, making their recovery more challenging. Succinctly, this problem affects all parties, clinical flow, and earnings, which calls for a simple solution to ease the dissociation phase into a more tolerable experience.

PICOT Question

In preventing the premature termination of Esketamine treatment, how does Om chanting compared to standard interventions affect the induced-dissociative experience?

Search Strategy

In the search process, the following scholarly databases were utilized: PsycINFO, CINAHL, and PubMed. These databases are used to perform a thorough search because it provides the most relevant and fruitful pieces of literature. It aims to explore the current knowledge of Om chanting and Esketamine-induced dissociation. The student only employs primary studies because the researchers obtained the original data, which are current and highly

specific to this research question. The search strategies are clearly described in the following sections for each database.

PsycINFO

PsycINFO is a scholarly database of literature relating to psychology, and it is provided by American Psychological Association (APA). The current literature is studied by using concepts or keywords, such as *Ketamine, Spravato, Om sound, chanting, dissociation, or detachment*. The inclusion criteria were included within the past five years and were peer-reviewed; the exclusion criteria included case studies and scientific opinions. The initial search yielded 98; the final search was 16 after using different keyword combinations. Naveen et al. (2022), a quasi-experimental study, and Azmoodeh et al. (2022) et al., a phenomenological study, were selected.

CINAHL

CINAHL is a scholarly database of international journals in nursing and global healthcare. The current literature is explored using concepts or keywords such as *mood disorder, depression, rapid antidepressant, meditation, chanting, Om singing, dissociate, trauma, or altered reality*. The inclusion criteria were limited to the past five years and were peer-reviewed; the exclusion criteria included case studies and scientific opinions. The initial search yielded 108; the final search was 28 after using different keyword combinations. Additional inclusion criteria of the randomized controlled trial (RCT) were applied, yielding only 7 studies. Among these results, two RCTs by Dakwar et al. (2019) and Zhang et al. (2022), one correlational study by Sachdev and Sittiprapaporn (2020), and one experimental study by Hotho et al. (2022) were selected.

PubMed

PubMed is a scholarly database with collections of medicine, life science, and biomedical journals. The current literature is analyzed using concepts or keywords such as *intranasal antidepressant, psychedelic, TRD, MDD, dysphoric, mindfulness, Ohm chanting, sound frequency, flashbacks, dissociative disorder, or PTSD*. The inclusion criteria consisted of articles within the past 5 years and peer-reviewed; the exclusion criteria included case studies and scientific opinions. The initial search yielded 138; the final search resulted in 32 articles by combining different keywords. Among these results, one quasi-experimental study by Inbaraj et al. (2022), one RCT study by Nugent et al. (2019), one cross-sectional study by Simonsson and Goldberg (2022), and one phenomenological study by Mollaahmetoglu et al. (2021) were selected.

Critical Appraisal and Synthesis of Evidence

After multiple attempts in exhaustive searching of the current literature, a critical analysis was performed to scrutinize the evidence comprehensively. For each study, a prescreening checklist is conducted to evaluate the appropriateness for future usage. Then, the student utilizes evaluation tables to dissect the information further (See Table A1 & Table A2). Lastly, a synthesis table is operated for the ten highest levels of studies to examine the collected data thoroughly (See Table A3). The overall quality of the chosen studies is level II in the hierarchy of levels of evidence, a single quantitative or qualitative research with primary data.

The content of this group of studies is similar in exploring the compatibility between drug-induced dissociation and the meditative states, in addition to the outcome of this practice (See Table A3). Most studies examine the evidence of health benefits of practicing Om chanting. On the contrary, a few studies investigate the use of Ketamine in treating MDD and SUD. A

fundamental difference among these studies is the country of origin and its cultural implication of the available sample, making the degree of sampling toward homogeneity (See Table A3).

Besides looking at the similarities and differences at first glance, comparing the relevant study characteristics is essential for in-depth analysis. Most studies are primarily quantitative research; the study designs are evenly distributed into randomized-controlled trials (RCTs), experimental, two-group pretest-posttest, correlational, and cross-sectional studies (See Table A3). The only two primary qualitative studies are phenomenological, and they utilized online surveys to generate a larger sample size. Most studies do not explicitly state the theoretical framework; however, it is implied as the Health Promotional Model. It describes the multidimensional nature of a person as they interact with internal factors and the external environment to pursue health (Reed & Shearer, 2018).

Furthermore, the study participants are healthy, young to middle-aged adults ranging from 19 to 49 years old, with exceptions in two studies that recruited participants with MDD and SUD (See Table A3). All studies are conducted on the university or medical campus. The IBM SPSS statistical software is mainly used for quantitative analyses with descriptive statistics for demography (See Table A1). Some studies also used inferential statistics to draw correlations in the data. All statistical tools mentioned have high validity and reliability in healthcare and social science (Keller & Kelvin, 2013).

On the other hand, both qualitative studies employ Reflexive Thematic Analysis (RTA) as the statistical tool to general code for themes and subthemes (See Table A2). RTA is an interpretive method in the qualitative paradigm with broad applicability in the health research design; the current literature and evidence support its high validity and reliability in qualitative research (Keller & Kelvin, 2013).

Among the current literature, the unique themes studied are the positive enhancement of using meditation during dissociation, including fast-tracking ego dissolution and the favorable impact on mood (See Table A3). Some outcomes include intense connection during mind-body practices, better spiritual alignment, parasympathetic nervous system (PNS) activation, and a lower symptom remission rate. Although most of the findings align with the future direction of this project, there is some negative feedback among the studies regarding intolerability and unreadiness despite the meditative aid (See Table A3).

Ultimately, the overall strength of these studies is the accuracy in collecting data in a small group or individualized settings, the lack of monetary compensation, and the uncomplicated applicability of most studies. Except for the two qualitative studies employing an online survey to generate a large sample size, the major weaknesses of most are small sample sizes because they are pilot studies. Another weakness is the lack of randomization since most studies are conducted in one region or setting. Some potential bias includes funding, as some scholars received financial support from the institution where they conducted the research. Another significant bias is sample bias; many studies recruited participants by posting flier across the campus, which only recruited individuals who were already interested in the topic.

Discussion

Although there are no previous studies linking Om chanting to the management of dissociative symptoms, the evidence suggests Om chanting has a direct meditative effect in activating the PNS. Besides inducing psychological benefits in calmness and concentration, sound frequency from practicing Om chanting triggers the vagal nerve, generating measurable physical manifestations, such as boosting brainwaves, lowering heart/ respiration rate, and increasing spatial memory/ reaction time.

Additionally, a few studies involving large-scale online surveys reveal individuals with at least one psychedelic use in their lifetime reported an enhancement of meditation, prompting ego dissolution and objectivity in a third-person's perspective of one's past trauma. The impression of this body of evidence is the high probability Om chanting is a practical and effective meditative practice in guiding Esketamine-induced dissociation. The proposed intervention has diverse applicability across cultures, backgrounds, and literacy levels. Individuals can effortlessly learn this meditation skill and have the capability to explore the different layers of depth in this meditative experience, serving the ultimate intent of teaching the man how to fish instead of giving the man a fish.

In essence, the synergy of pharmacological properties of Esketamine and Om chanting creates a positive, meaningful state of mind in the dissociative phase. Based on the evidence presented, a study is warranted to assess the efficiency of practicing Om chanting in enhancing the experience of Eskatemine-induced dissociation to prevent premature treatment termination. The compelling evidence from the current literature alludes to fruitful new findings and promising results.

Theory/Theoretical Framework Application

Existentialism is the theory that a person has the power and freedom to attach meaning to one's suffering (Nassir Ghaemi, 2001). Ludwig Binswanger, a Swiss psychiatrist and the founder of this school of thought, primarily focused on the perspective of the mind-body problem in exploring "subjective vs. objective realms of existence" (Nassir Ghaemi, 2001, p.53). In his existential phenomenology, there are four domains: Umwelt, mitwelt, überwelt, and eigenwelt (See Figure B1). Umwelt, which translates to "surrounding world," relates to the physical dimension, such as bodily sensation (Nassir Ghaemi, 2001, p.61). Mitwelt, the "with world,"

represents the social dimension and interpersonal relationships (Nassir Ghaemi, 2001, p.61). Überwelt is the spiritual realm, which explores one's meaning and purpose, and lastly, eigenwelt, "own world," the subjective domain purely based on personal experience (Nassir Ghaemi, 2001, p.61). All four components interact infinitely to create the fundamental existential structure of one's unique life experience and perspective (Nassir Ghaemi, 2001).

Based on this theory and its interrelated concepts, the propositions illustrate relationships among the previously mentioned variables in the literature of Esketamine-induced dissociation and Om chanting. Esketamine exerts an altered state on the physical domain of the umwelt and psychological dimensions of the eigenwelt. Riding on the influence of this biological mechanism in Esketamine treatment, a person who practices Om chanting can enhance the transcendental domain of überwelt in search of the unique meaning of one's suffering. Ideally speaking, this synergy can regenerate a different perspective. Hence, the possibility of transforming one's interaction with the world, connecting to the mitwelt domain. These interrelating concepts of existentialism guide the application of the evidence and propose explanations of the underlying influences of observed phenomena.

Implementation Framework

The evidence-based practice (EBP) model for change by Rosswurm and Larrabee fits the application of the proposed project. Pipe (2007) explains Rosswurm and Larrabee's EBP model is simple and linear in six stages: Assess, link, synthesize, design, implement/ evaluate, and integrate/ maintain (See Figure B2). It targets practice-level changes in nursing and healthcare, particularly for less-defined pilot-like studies, such as the proposed project.

The first two stages of assess and link were completed in previous semesters; this project is currently at the synthesizing stage, during which an exhaustive review of current literature and

the best evidence was conducted. This phase also solidifies this topic's feasibility, benefits, and risk (Pipe, 2007). A brief plan of design will be discussed in the next section, and the remaining stages, implement/ evaluate and integrate/ maintain, will be performed in the near future.

Although this project involves different disciplines of the healthcare organization, the emphasis on change is on the local level of care delivery and direct patient experience. The proposed implementation is practical; to elaborate, it is about performing Om chanting with the patient during the Eskatemine-induced dissociation phase and assessing their dissociative experience afterward. Even though the early termination of Eskatemine treatment affects the care team on many different levels, the changes occur locally, which generates a ripple effect in other disciplines. Therefore, the purpose of optimizing patient outcomes aligns with the process of this EBP model for change.

Implications for Practice Change

According to the synthesized evidence, Om chanting is a low-risk yet effective and implementable intervention to turn Eskatamine-induced dissociation into a more positive experience. The evidence leads to investigating the practicality of utilizing Om chanting during Eskatemine treatment. For the presentation to the partner organization, it is vital to consider the stakeholders: Patients, providers, stockholders, and supporting staff of the organization. On a broader scale, scholars of evidence-based research are also stakeholders in the potential efficiency of using Om chanting to manage medication-induced or pathological dissociation.

Conclusion/ Potential Outcome

Although Esketamine generates a promising anti-depressive result, there is a noticeable gap regarding tolerability in research settings and clinical applications. Instead of attempting to

eradicate a typically assumed undesirable side effect, there is a calling to see it from a different angle, such as coexisting with it to create a harmonious synergism.

Methods

Participants and Recruitment

The participants were adults who receive Esketamine treatment, including the vulnerable population who were economically or educationally disadvantaged. This inclusion parameter was in place because it was the intended population. This project excluded minors, adults who could not consent, adults who were not fluent in English, and prisoners. Minors were not approved to receive Esketamine treatment, and being cognitively disabled was a contraindication for Esketamine treatment.

Thirdly, adults who were not fluent in English were not recruited for this project due to the lack of evidence in the psychometric testing of the instrument, LOT-R, for any other languages besides English. Lastly, there were no clients at the site who were imprisoned. Therefore, they were automatically excluded by default. The procedure used to determine those who are economically or educationally disadvantaged would be the demographic survey, which asked potential participants about their education level and employment status.

The participants were recruited at the project site, an outpatient mental health clinic setting. Before the treatment, they were introduced to the project after visiting the provider and registered nurse (RN). Additionally, a handout was used to describe the health benefits of Om chanting and how it would enhance the dissociative phase during the treatment (See Appendix C).

Intervention

After project implementation, did the rate of patient-initiated termination of Esketamine treatment decrease as opposed to standard intervention? Although this long-term goal might not be evaluated due to the time constraints of this project, assessing the participants' dispositional optimism would be the best indicator of treatment continuation. Therefore, the LOT-R, a diagnostic tool for evaluating one's psychological and physical well-being optimism, was conducted to assess the intervention. The implementation phase began in the Fall 2023 semester after Institutional Review Board (IRB) approval from Arizona State University (ASU).

At the beginning of the recruitment process, the investigator provided a handout and brief elevator speech to encourage participation; the introduction consisted of the facts on Esketamine-induced dissociation and Om chanting. After receiving consent from the participants, LOT-R and basic demographic information, such as sex, age, and ethnicity, was collected. A potential barrier would be disinterest due to a lack of knowledge of this meditative practice. Thus, a tutorial on Om chanting was completed beforehand. The tutorial included practicing chanting the 3 syllables (A, U, and Om) out loud with a tempo produced by a woodblock. Each syllable chanted every 8th beat. This tutorial was, at most, 5 minutes, depending on the participants' needs.

After the participants settled on a recliner, guided Om chanting began 8 minutes after administering Esketamine. This intervention was conducted in a group setting for more than one participant. As in the tutorial, the participants followed the investigator's lead and chanted the 3 syllables (A, U, and Om) out loud with a tempo produced by a woodblock. Each syllable chanted every 8th beat. Using a woodblock, the investigator sat on the floor with legs crossed to create a tempo. The Om chanting continued for 8 minutes. The participants continued their Esketamine treatment until the provider's clearance. The post-LOT-R was conducted before the patient leaves

the clinic. An electronic version of the LOT-R was sent to the participants' email one week post-intervention. Another barrier would be the lack of participants for the LOT-R at the one-week mark. A $10 electronic gift card was emailed afterward to encourage participation in completing the last LOT-R. Encryption was utilized when sending information over the Internet or via emails to ensure confidentiality.

Ethical Considerations

Four ethical principles guided this project: Autonomy, justice, beneficence, and non-maleficence. Autonomy is accepting the patient as they regard the difference in values and beliefs (Yildiz, 2019). The project adhered to this principle by showing compassion for one's best interests and well-being. This ethical principle was applied in this project by an honest presentation of the intervention and the realistic outcome. Secondly, justice is the principle and the ultimate display of fairness (Yildiz, 2019). The project adhered to this principle by an equal distribution of benefits. This ethical principle was applied in this project by providing the same education and intervention.

Thirdly, beneficence is the intentional act of doing good to others (Yildiz, 2019). The project adhered to this principle with a solid foundational moral obligation to do right. This ethical principle was applied in this project by constructing an intervention that will only benefit or cause no harm to the participants. Lastly, non-maleficence is the value of not depriving others of the goods of life, minimizing harm and suffering (Yildiz, 2019). The project adhered to this principle by conducting exhaustive literature to ensure the intervention would not likely harm the participants. This ethical principle was applied in this project by monitoring any unfavorable reaction to this meditative practice and terminating the intervention if it harms the participants' mental health.

The written consent was available for the participants to sign after the investigator introduced this project. Some potential risks of participation included intrusive thoughts, irritability, and flashbacks. The participants had the right to withdraw from this project at any stage. The participants' human rights would be protected by keeping their personal information confidential, allowing the participants to remain anonymous, and safeguarding their privacy.

Data Collection and Measurements

Optimism is often associated with physical and mental health outcomes due to the productive life adjustment to stressors (Glaesmer et al., 2012). It has also been used as an independent predictor of depressive/ anxious symptoms and suicidality (Glaesmer et al., 2012). The data collected by LOT-R is related to the theoretical framework by evaluating a change of mindset from being a reactor of one's trauma to being an observer. It is aligned with existentialism by exploring the four domains of one's existential structure. Dispositional optimism would be the natural by-product of reattaching meaning to the experience, empowering the individual to build a balanced mindset (See Appendix D). Consequently, the measurable outcome, the total score, represents the subject's optimism despite known stressors by using the optimistic and pessimistic subscales.

Above all, the data collection plan involves using LOT-R to assess the measurable outcomes of dispositional optimism, the generalized outlook of "good things will happen," before, after, and one week post-intervention (Glaesmer et al., 2012, p. 433). The LOT-R has 10 items: 3 statements assess optimism, 3 statements evaluate pessimism, and 4 statements are neutral fillers (Glaesmer et al., 2012). The scale is from 0-4, with 0 indicating strongly disagree and 4 indicating strongly agree (See Appendix E). The scale ranges from 0-12 for the optimism

and inverted pessimism scales, generating 0-24 for the total scale. The higher the total score, the higher the subject's reported optimism (Glaesmer et al., 2012).

For the psychometric testing of LOT-R, the representative samples consisted of 2,372 adults aged 18 to 93 (Glaesmer et al., 2012). All were analyzed using the same statistical methodology to assess this tool's reliability and validity. The Cronbach's alpha coefficients for reliability were $\alpha = 0.68$, $\alpha = 0.70$, and $\alpha = 0.74$ for the total score, optimism, and pessimism, respectively. It suggested acceptable internal consistency of the items in the scale. The scales measured the same underlying construct but not to the extent that creates redundancy. Additionally, the Pearson correlation between the sub-scales optimism and pessimism of the total sample was $\rho = -0.20$; the correlation between optimism to the total score of LOT-R was $\rho = 0.73$, and pessimism to the total score was $\rho = -0.82$. All correlations were relatively significant (Glaesmer et al., 2012).

In evaluating the construct validity of LOT-R, Glaesmer et al. (2012) utilized Pearson correlations to assess the relations between the subscales and the total score to several other scales; a few mentioned were the Patient Health Questionnaire (PHQ-9), Pain Disability Index (PDI), and General Level of Life Satisfaction (FLZ). By comparison, the optimism score showed a stronger correlation with other scales than the score of pessimism. The strongest association was the optimism score, which was $\rho = 0.44$, or the total score of LOT-R, and the FLZ, which was $\rho = 0.45$. Both suggested a moderate positive correlation. The same was true for all eight domains on the FLZ (satisfaction with friends, hobbies, health, finance, work, living conditions, family, and partner relationships), which were moderately correlated with optimism. On the other hand, optimism had nearly no correlation with physician consultations, which was $\rho = -0.06$ (Glaesmer et al., 2012).

The demographics, age, gender, race, marital status, education, and employment were collected with the pre-LOT-R. These demographic questionnaires were placed at the top of the page. Privacy was protected by de-identifying the participants and maintaining their anonymity. Their confidentiality was preserved by securing the record in a password-protected hard drive and locked drawers for hard copies of data. Encryption was utilized when sending information over the Internet or via emails. The data was stored and retained until the final presentation at the DNP symposium.

Budget

No external funding was provided for this project. The total cost for operation was $250, funded by the investigator (See Appendix F). Participants did not receive additional compensation except the $10 gift card after completing one week post-LOT-R.

Results

Descriptive Statistics

The data below was analyzed using Intellectus Statistics (2022), a statistical package. Descriptive statistics were used to describe the demographics and outcomes of the variables. The basic demographic information included age, sex, ethnicity, education level, and employment status.

The average age of participants was 41.56 (*SD* = 13.69, Min = 23.00, Max = 61.00, Median = 44, Mode = 31). The observed sex category was heavily skewed toward females (*n* = 7, 77.78%). More than half of the participants fell in into the white of the ethnicity category (*n* = 5, 55.56%). Most participants had some college education (*n* = 3, 33.33%). Less than high school, associate degree, and bachelor's degree categories were evenly distributed (each mentioned category is *n* = 2, 22.22%). The most frequently observed employment category was

not employed (n = 4, 44.44%). The second observed employment category was disabled (n = 3, 33.33%). Lastly, the least observed employment categories were full-time and part-time (n = 1, 11.11%). Frequencies and percentages are presented in Tables 1 and 2.

Table 1

Frequency Table for Nominal and Ordinal Variables

Variable	*n*	*%*
Ethnicity		
Asian	1	11.11
Hispanic	2	22.22
Two or more races	1	11.11
White	5	55.56
Sex		
Female	7	77.78
Male	2	22.22
Education		
Less than HS	2	22.22
Some college	3	33.33
Associate	2	22.22
Bachelor	2	22.22
Employment		
Disabled	3	33.33
Employed, full time	1	11.11
Employed, part time	1	11.11
Not employed	4	44.44

Note. Due to rounding errors, percentages may not equal 100%.

Table 2

Summary Statistics Table for Interval and Ratio Variables

Variable	*M*	*SD*	*n*	Min	Max	Median	Mode
Age	41.56	13.69	9	23.00	61.00	44	31

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

Statistical Analysis

The total number of enrolled participants for this project was $n = 13$. However, the total number of participants who completed the program was $n = 9$. The remaining 4 participants did not complete the one-week post-LOT-R.

The data below was analyzed using Intellectus Statistics (2022), a statistical package. A repeated measures analysis of variance (ANOVA) was conducted to determine whether significant differences exist among pre-, post, and one-week post scores of the LOT-R. Additionally, the ρ- value was also calculated.

The results showed the variances of difference scores between repeated measurements were similar based on an alpha of .05. The result for the within-groups factor was not significant, F (2, 16) = 1.38, ρ = .279, indicating the values of pre-LOT-R, post-LOT-R, and one-week post-LOT-R were all similar. The degrees of freedom (*df*), *F*-ratio, and ρ- value from the ANOVA result are presented in Table 3 and 4.

The ρ- value represents the probability of obtaining the observed result if the null hypothesis is true. A result is usually considered significant if the ρ- value is < .05. For this project, the ρ- value was .279, indicating it was not statistically significant, failing to reject the null hypothesis.

Table 3

Repeated Measures ANOVA Results

Source	*df*	*F*	*p*
Within-Subjects			
Within Factor	2	1.38	.279
Residuals	16		

Table 4

Means Table for Within-Subject Variables

Variable	*M*	*SD*
Pre LOT-R	11.67	4.87
Post LOT-R	12.44	3.75
One Week Post LOT-R	13.56	3.36

Note. $n = 9$.

Impact of the Project and Sustainability

The impact of this project is versatile and broad. Although more time is needed to assess the clinical significance better, there is an impact on the local level of the clinical settings. Regressing to a nonpharmacological intervention gives another perspective on side effects are not innately good or bad until we label them. On the system level, the local demands determine the system's flow. By generating a movement at the local level, the tide of the system could transform to reveal a different landscape in policy.

Furthermore, upon project completion, participants were exposed to some basic knowledge of meditative practices, expanding their ability to continue, or forming curiosity to explore further skills. Sustainability is represented by directing the attention to advocating for creative and cost-effective approaches to challenges, translating evidence-based research into clinical practice. The overall betterment of mental health sustains the long-term outcome after processing trauma memories, developing sensible optimism in treatment completion.

Discussion

The prominent finding of this study is the curiosity and likelihood of patients exploring an alternative method to manage the unfavorable side of the induced dissociation. Although this project failed to reveal a generalized significance of the benefits in using Om chanting during the dissociative phase, this project had a relevant positive impact the LOT-R cannot measure, such

as exposure to meditative practices, inspiration of a wholesome perspective of the world, and initiation of inner peace.

The findings are in sync with other studies, such as Azmoodeh et al. (2022) and Mollaahmetogula et al. (2022), using meditative practices to enhance the dissociative experience for self-reflection and potentially reaching ego dissolution. The attempted measure of this outcome is increasing sensible optimism. In other words, a different perspective would lead to different actions, with more optimism in treatment plans, leading to a lower rate of premature Esketamine treatment termination.

Yet, these long-term benefits are unrevealed. The major limitation of this study was the smaller sample size and the time constraints; the differences in scores over time cannot be sufficiently detected and assessed. It also reduced the statistical power of this project by increasing the error margin and limiting the generalizability of the findings. In addition, a change of perspective is a slow, gradual process. To investigate thoroughly, a LOT-R score in a more remote time of the future might be necessary to produce more relevant results within a population.

In essence, the ideal outcome is to generate persuasive evidence to support a more prevalent use of Om chanting during the induced dissociation phase, preventing the premature, patient-initiated termination of Esketamine treatment. Even though the findings may not adequately represent the diversity of perspectives, Om chanting has a rich meditative history of restoring inner clarity and focus with limited scientific data. Combined with the biological mechanisms of Esketamine, discovering its benefits might not be a linear process. Therefore, the prospect of regaining control in the Esketamine-induced dissociative phase is favorable and worthwhile with a longer and more complex study design. Hopefully, this project would spark

curiosity about combining meditative practices with pharmacological intervention in clinical settings.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Dakwar et al. (2019) **Country**: US **Funding**: Funding from Akermes and Braeburn-Camurus; study medication from Reckitt/ Benckkiser **Bias**: Salary support from NY State Psychiatric Institute, Brown Foundation, & Michael E. DeBakey VA Medical Center in Houston	Not stated; implied biological-behavioral framework	**Design:** RCT **Purpose:** Subanesthetic doses of Ketamine to facilitate behavioral modification in cocaine-use disorder	***n*= 55** **Demographics:** Individuals w/ CUD **Setting:** NY State Psychiatric Institute on the Columbia University Medical Center campus. **Exclusion:** Individuals w/ hx of psychotic, dissociative, depressive, anxious, & other SUD such as opioid & benzodiazepine.	**IV1:** Ketamine group w/ Mindfulness-Based relapse prevention (MBRP): Experimental **IV2:** Midazolam group w/ MBRP: Control **DV1:** Abstinence rate **DV2:** Time to relapse **DV3:** Rate of cocaine use **Definitions:** None	**Tools:** The Clinician-Administered Dissociative States Scale (CADSS) **Validity/ Reliability:** Well-documented.	**Statistical Tests Used:** Means & standard error; Wilcoxon rank-sum test; logistic regression; Cox proportional hazard model.	**DV1:** Urine-test-confirmed abstinence over the last 2 wks. was 48.2% (13/27), compared w/ 10.7% (3/28) in the midazolam group. **DV2:** Ketamine group was 53% less likely to relapse compared w/ the midazolam group	**Level of Evidence**: Primary; II **Strengths**: Accuracy, such as routine urine drug test for cocaine use during the study. **Weakness**: Small sample; not screened for tobacco & alcohol use; highly monitor, sample biased (having the motivation to quit cocaine; therefore,

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			Attrition: 57.7% (15/27) used cocaine/ drop out in Ketamine (experimental) group; 92.9% (26/28) in Midazolam (control) group.				**DV3:** Odds of cocaine use in the midazolam group were 7.8 times the odd in the ketamine group	participant joined the study); majority of AA and male **Feasibility**: Moderately feasible, needing much funding & resources. **Application**: Applicable in another settings & w/ a larger sample.
Hotho et al. (2022) **Country**: Germany **Funding**: Foundation for anthroposophical extended medicine, Software AG. **Bias**: Financial support; participants expressed personal	Not stated; implied Health Promotion Model	**Design:** Experimental; explorative **Purpose:** To explore Om chanting synchronization among the oscillations of HR, SBP, and RR	***n*=** 9 **Demographics:** HT, professional speech and drama therapy practitioners **Setting:** Office (lab) **Exclusion:** Subjects with medical conditions	**IV1**: Om chanting **DV1:** HR **DV2:** SBP **DV3:** RR **Definitions:** See key.	**Tools:** ECG, RR tachogram, continuous BP monitoring **Validity/ Reliability:** Well; hard data	**Statistical Tests Used:** Non-parametric; median & interquartile range (IQR) to quantify the distributions; Friedman test, Wilcoxon signed rank test.	**DV1:** No statistical significance in HR oscillation; shows more correlation w/ SBP than RR **DV2:** No statistical significance in SBP oscillation; shows more correlation w/ HR than RR	**Level of Evidence**: Primary; II **Strengths**: Hard date, objectivity. **Weakness**: Small sample, bias, allows position change (supine/ sitting): created variation of measurement, lack of calibration; not double blinded.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
interest in this study; all familiar w/ Om chanting			**Attrition:** Originally 10 subjects, one excluded d/t frequent ectopic HR				**DV3:** RR dropped from an average 19.9 cycles/ min to 3.5 cycles/ min; no changes in RR intervals	**Feasibility**: Moderately feasible. **Application**: Well-applicable; researchers can manually record the findings, equipment not always need.
Inbaraj et al. (2022) **Country**: India **Funding**: Unsure; it stated "Nil" **Bias**: Sample bias for recruiting advanced yoga practitioners for one group. Novice to yoga group is recruited from the community, however, they might already be interested in yoga.	Not stated; implied Health Promotion Model	**Design:** Two-group pretest-posttest design **Purpose:** Aim to investigate the effect of Om chanting on ANS in experienced yoga practitioners & yoga novice	***n*** = 36 **Demographics:** 20 to 35 years old, 2 categories yoga practitioners & novice to yoga; HT **Setting:** Office/ lab at the department of CAM **Exclusion:** Hx of physical/ mental illness, regular use of medication,	**IV1:** Om chanting **DV1:** Heart rate variability (HRV) **Definitions:** In this study, Om chanting is practiced by inhaling through both nostrils, and while exhaling a-a-u-u-m-(ug) for 5 minutes.	**Tools:** ECG **Validity/ Reliability:** Highly; medical diagnostic tool in measuring the R-R interval of the ECG. It shows the balance b/t sympathetic & parasympathetic activity of the heart.	**Statistical Tests Used:** Shapiro-Wilk test, Mann-Whitney U test, Wilcoxon Signed Ranks Test, Spearman's rank correlation test	**DV1:** 5 min of loud Om chanting increased the high frequency (HF) power (component of vagal nerve activity).	**Level of Evidence**: Primary; II **Strengths**: Accuracy in screening the participants, personal approach in collecting data, no compensation for participations. **Weakness**: Small sample size, sample biased (participants already interested or practicing yoga), HT

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			chronic smoking, alcoholism **Attrition:** None dropped out of the study.					participants (different result who the participant has resp. disorders), only evaluate HRV **Feasibility**: Moderately feasible. **Application**: Moderately applicable. Needing ECG equipment & recruiting samples with specific yoga experience.
Naveen et al. (2022) **Country**: India **Funding**: "None" **Bias**: Recruited participant might be already in interested this intervention; not enough	Not stated; implied Health Promotion Model	**Design:** Experimental **Purpose:** To observe the effectiveness of 12-wk & 5 days Om chanting on reaction time and spatial and verbal memory.	***n*=** 20 **Demographics:** HT; right-handed, 25-55 yrs old **Setting:** Department of Pharmacology, Mamatha Medical	**IV1:** Om chanting daily for 20 minutes, supervised by yoga instructor. **DV1:** Spatial and verbal memory test **DV2:** Reaction time **Definitions:** Spatial memory: maintenance of the information of spatial locations	**Tools:** Spatial and verbal memory test; Auditory reaction time was assessed for high and low pitch sounds; visual reaction time was assessed for green and red lights **Validity/ Reliability:** Low, stated these tools	**Statistical Tests Used:** SPSS 20.0 version; Student t-test; probability value of <0.05 was considered significant	**DV1:** Significant improvement in the spatial memory scores **DV2:** Significant improvement in the auditory reaction time	**Level of Evidence**: Primary; II **Strengths**: Accuracy in conducting the study & collecting data, no compensation for participations. **Weakness**: Small sample &

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
randomization (sample bias).			College, Khammam **Exclusion:** None stated **Attrition:** None dropped out		were obtained from the literature, but not listed on the reference		for high & low pitch sounds; Significant improvement in visual reaction time for red & green light.	conducted at one center **Feasibility**: Highly feasible; not needing large funding/ resources **Application**: Highly applicable in other setting/ culture/ sample
Nugent et al. (2019) **Country**: US **Funding**: Intramural Research Program at the National Institute of Mental Health, **Bias**: Researchers received awards for r/t study, unsure if it would create biases.	Not stated; implied Health Promotion Model	**Design:** RCT (double-blind, placebo-controlled, crossover design w/ infusion order randomized) **Purpose**: to identify clinical & neurobiological correlates of ketamine Tx in unmedicated inpatients w/ MDD	***n*=** 35 unmedicated MDD & 26 HT control subjects were included **Demographics:** Adult (18-65 years old); Dx of MDD w/o psychotic features & hasn't responded to at least one adequate antidepressant trial during current episode	**IV1:** Ketamine infusions **DV1:** Mood – MDD (Experimental group) **DV2:** Mood – HT (Control group) **DV3**: Electrophysiology – MEG result (assessed using gamma power) **DV4:** Electrophysiology – Gemma power & antidepressant response **Definitions:** Gamma power: lower baseline gamma is associated w/ a better response to	**Tools:** Clinician Administered Dissociative States Scale (CADSS) & Montgomery-Asberg Depression Rating Scale (MADRS) **Validity/ Reliability:** Highly; clinical rating scale	**Statistical Tests Used:** IBM SPSS 23.0.0.3; CTF software, MNE-python, Analysis of Functional Neuroimages	**DV1:** Significantly improved s/s scores a wide variety of domains (anhedonia, anxiety, PTSD, suicidality, and quality of life. **DV2:** Unexpected increase in depressive s/s d/t the main effects of drugs	**Level of Evidence**: Primary; II **Strengths**: Objectivity & randomization. **Weakness**: Small sample size. **Feasibility**: Not likely; require large funding & expertise in a narrow subject (neuroscience).

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			Setting: Inpatient **Exclusion:** None. **Attrition:** None.	ketamine infusion in MDD subjects			**DV3:**Gemma power nonsignificant in both MDD & HT groups. **DV4**: The effect of ketamine depended on homeostatic regulations; significant increases in gamma power post-ketamine in the combined depressed and HT group	**Application**: Moderately applicable, specific sample.
Sachdev and Sittiprapaporn (2020) **Country**: Thailand **Funding**: Mae Fah Luang University grant; Brain Science and Engineering Innovation Research Group,	Not stated; implied Health Promotion Model	**Design:** Correlational **Purpose:** Investigate the effect of listening to Om chanting on human brain waves	***n*=** 12 **Demographics:** Age 20-40 yrs old; good health **Setting:** Office/ Lab **Exclusion:** No congenital illness, no record of brain surgery, not	**IV1:** Resting **DV1:** Listening to Om chanting. **Definitions:** None.	**Tools:** EEG; eeg mylab (analysis of the data) **Validity/ Reliability:** Moderate (neuroheadset).	**Statistical Tests Used:** Inferential statistic compare each type of brainwaves both before & after listening to Om chanting, compared by	**DV1:** Increased delta & theta brainwaves No changes in alpha, beta, and gamma	**Level of Evidence**: Primary; II **Strengths**: Reliable result. **Weakness**: Small sample size **Feasibility**: Well-feasible. **Application**: Applicable in other settings &

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Mae Fah Luang University grant **Bias**: None mentioned.			taking any meds affecting nervous system **Attrition:** None			*t*-test. $p <$ 0.05		w/ a larger sample.
Simonsson and Goldberg (2022) **Country:** US **Funding:** A grant from Sweden – America Foundation and Osmond Foundation **Bias:** Covariates (controlled): demographic, age, sex, education, cocaine & alcohol use; population-based sample	Stated ego dissolution	**Design:** Cross-section; exploratory **Method:** Online survey **Purpose:** To explore a lifetime meditative psychedelic use and ego dissolution	***n* = 536**; 953 surveyed, filtered to 536 in a follow-up survey after confirming psychedelic use **Demographics:** American, adults, recruited on Prolific Academic **Setting:** Online **Attrition:** 582 were invited to complete follow-up survey, only 536 completed.	**IV1:** Lifetime psychedelic use **DV1:** Ego dissolution **DV2:** Perceived efficacy of meditation practice **Definitions:** None.	**Tools:** Likert scale & Meditation-Related Adverse Effects Scale **Validity/ Reliability:** Well-documented; references of tools provided.	**Statistical Tests Used:** Descriptive statistics; Linear & logistic regression models; z-score; Pearson correlation coefficient, point biserial correlation coefficient, and Phi coefficient	**DV1:** Ego dissolution was associated w/ greater amount of current meditation practice. **DV2:** Perceived efficacy is associated w/ the likelihood in developing the psychological capacity	**Level of Evidence**: Primary; II **Strengths**: Large sample **Weakness**: Controlled, sample reliability **Feasibility**: Moderately feasible. **Application**: Applicable in other settings w/ a different population.
Zhang et al. (2022) **Country**: Suzhou, China	Stated Dell's model of speech production	**Design:** RCT	***n* = 33** **Demographics:** Undergraduate students &	**IV1:** Passive viewing x neutral stimuli **IV2**: Passive viewing x negative stimuli	**Tools:** 9-point scales for ERPs (Valence rating & arousal rating)	**Statistical Tests Used:** Two-way repeated measures	**DV1:** Om chanting x neutral stimuli	**Level of Evidence**: Primary; II

Key: **AA** African American; **AUD** Alcohol-Use Disorder; **ANS** Autonomic Nervous System; **CAM** Complementary and Alternative Medicine; **CUD** Cocaine-Use Disorder; **DV** Dependent Variable; **ECG** Electrocardiogram; **EEG** Electroencephalography; **HT** Healthy; **HR** Heart Rate; **Hx** History; **IV** Independent Variable; **MEG** Magnatoencephalography; **MDD** Major Depressive Disorder; **PTSD** Post-Traumatic Stress Disorder; **RCT** Randomized-Controlled Trial; **RR** Respiration Rate; **SPB** Systolic Blood Pressure; **SUD** Substance- Use Disorders; **Tx** Treatment; **VA** Veteran

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Funding: Grants from the Natural Science Foundation of Jiangsu Province Humanities and Social Science Planning Fund of the Chinese Ministry Education **Bias**: All were paid 45-yuan (7 dollars) for participation All emotional stimuli/ pictures were from the Chinese affective picture database		2 groups (Passive viewing & Om chanting) 2 stimuli (negative & neutral) **Purpose:** Compare event-related potentials (ERPs) responses to emotional stimuli in passive viewing (control) and Om chanting (experimental)	single heritage (Chinese) **Setting:** Soochow University: dimly lit & sound-attenuated booth. **Exclusion:** All were reported to have no Hx of psychiatric or neurological disease None or little meditation experience **Attrition:** None mentioned. No study withdrawal & all participants completed the study.	**DV1:** Om chanting x neutral stimuli **DV2**: Om chanting x negative stimuli **Definitions:** **Passive viewing**: No intervention **Om chanting**: Chanting A, U, E to produce a sound vibration; meditation technique **Neutral stimuli**: neutral image **Negative stimuli**: unpleasant image	Likert scale (1-7) for Om chanting Electroencephalogram (EEG) with 64 electrodes attached to a BrainCap EEG data were processed & analyzed with the EEG lab Tracks horizontal eye movement Vertical eye movement Questionnaire after the study **Validity/ Reliability:** Not mentioned Interpretation: objective & subjective data Tracking eye movement to confirm participation	ANOVAs for two trial types, behavioral (valence & arousal rating), and EEG data Used SPSS (statistical package) Greenhouse-Geisser correction was applied, when appropriate Uncorrected degrees of freedom are reported	No difference between Om chanting VS passive view for neutral stimuli **DV2**: Om chanting x negative stimuli Behavioral results – reduced the valence & arousal rating EEG result – attenuated processing of negative stimuli in early & late stages Negative stimuli were rated lass unpleasant and less arousing in the condition of Om chanting	**Strengths**: RCT, no subject withdrawal **Weakness**: Small sample (28 participants) Only neutral & negative stimuli, no pleasant images Conducted with silent Om chanting; noting the processes of vocalization & speech production could have a different result **Feasibility**: Using non-pharmacological methods to regulate emotional responses **Application**: Future study could include a larger sample &

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
								more diverse participants

Key: **AA** African American; **AUD** Alcohol-Use Disorder; **ANS** Autonomic Nervous System; **CAM** Complementary and Alternative Medicine; **CUD** Cocaine-Use Disorder; **DV** Dependent Variable; **ECG** Electrocardiogram; **EEG** Electroencephalography; **HT** Healthy; **HR** Heart Rate; **Hx** History; **IV** Independent Variable; **MEG** Magnatoencephalography; **MDD** Major Depressive Disorder; **PTSD** Post-Traumatic Stress Disorder; **RCT** Randomized-Controlled Trial; **RR** Respiration Rate; **SPB** Systolic Blood Pressure; **SUD** Substance- Use Disorders; **Tx** Treatment; **VA** Veteran

Table A2

Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Azmoodeh et al. (2022) **Country:** London, UK **Funding:** University College London **Bias:** None of the authors have any financial or other interests to declare.	Briefly touch on in the discussion section: brevity, self-compassion, compatibility b/t meditative & MDMA-induced subjective states, self-conceptualization (alleviate suffering and promote well-being by loosening one's ties to a rigid self-concept	**Design**: Phenomenological **Method:** Cross-sectional survey - Online **Purpose:** Explore the first-hand accounts of the "psychedelic-meditation" experience.	**Sample:** *n*= 256 responded; *n*=89 did not. **Demographics:** Adults (> 18 yrs old) w/one-lifetime use of psychedelics. **Setting:** Online survey w/ text response. **Attrition:** Thematic analysis: once codes were established and applied to the data, a structure of themes and subthemes was identified and agreed upon.	• **RQ1:** Compatibility b/t psychedelic and meditative states • **RQ2:** Enhancement of the meditative and psychedelic experience • **RQ3:** Beneficial changes in relating to the internal and external world • **RQ4**: Negative effects of combined use • **RQ5**: Meditation as a preparatory and	**Data Collection:** Online survey – filtering. **Data Dependability:** No monetary compensation; open-ended nature of the free-text responses; no responses were discarded before analysis; extracted themes aimed to capture the broad nature (content VS style); subtheme used.	Thematic analysis Code Themes (6) Subthemes	(1) Encompassed embodied movement and body-oriented practices (2) Alignment b/t psychedelic and meditative states (3) Acceptance, connection, peacefulness, & transformation. (4) Undesirable effects of psychedelic meditation: Overwhelmed & difficulty meditating (5) Use as a tool of enhancement.	**Level of Evidence:** Primary; II **Strengths:** Large sample size, open-ended questions to broaden responses. **Weakness:** Inherent to online surveys, some variables cannot be obtained through questionnaires/ scales, no quantitative data, cross-sectional, nonexperimental studies w/ a convenience sample. **Feasibility:** Low cost & convenience. **Application:** Can be applied in clinical settings, such as using

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				navigational tool • **RQ6**: Contextual considerations **Definitions:** None needs to be defined.			(6) Reflection of the process & implementation	meditation to guide Spravato Tx.
Mollaahmetoglu et al. (2021) **Country:** London, United Kingdom **Funding:** Funded by Ph.D. scholarships from Society for the study of addiction, University of Exeter College of Life, Environmental Sciences Global Excellence, and Medical Research Council **Bias:** All participants are volunteers to be involve in the Ketamine Tx. It	Ketamine Psychedelic Therapy Ketamine for the Reduction of Alcoholic Relapse (KARE)	**Design:** Phenomenological A retrospective, semi-structured interview lasted up to 90 minutes **Method:** Conducted by two members of the team (O.M. Mollaahmetogule & J. Keeler) **Purpose:** To examine participant experiences of ketamine infusions and how these related to therapeutic mechanisms in a clinical trial setting	***n* = 12** **Demographics:** 9 males & 3 females Participants who had previously taken part in the double-blind RCT They received up to 3 ketamine Tx in the previous study **Setting:** Online interview over Zoom **Attrition:** None mentioned. No study withdrawal & all participants received ketamine Tx from the previous study.	**RQ1**: Multifaceted motivations **RQ2**: Set and setting as influential in determining Ketamine experience **RQ3**: Contradictions of the Ketamine experience **RQ4**: Fluctuation and changing Ketamine experience **RQ5**: meaningful, spiritual, and mystical experience **RQ6**: A potentially transformative experience	**Data Collection:** Interviews are conducted over Zoom **Data Dependability:** Meetings audios are recorded & transcribed.	Reflexive Thematic Analysis (TA) Defined by Braun and Clarke Seeks to identify patterns of meaning across a dataset Initial codes were developed following a line-by-line reading of the transcripts The consensus was reached between the 2 researchers for each code;	**RQ1**: Consist of concern over AUD & health; hitting rock bottom, altruism, legitimacy of the ketamine Tx, and curiosity **RQ2**: Participants' prior mindset and spiritual beliefs were reported to have affected their acute Ketamine experience. Setting and professionalism affected their perception **RQ3**: The participants reported the experience was	**Level of Evidence:** Primary; II **Strengths:** The accuracy of the result since all participants previously received the same medication (Ketamine); clinical & professional settings; all participants are verified by the researchers. **Weakness:** Only participants with a positive experience in ketamine Tx volunteered to be interviewed. **Feasibility:** Exploring Ketamine to be used in

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potential skews the result since the sample is not random/ not involving others with an adverse dissociative reaction with Ketamine. Only involved sample with AUD or alcohol dependence				**Definitions:** As implied above.		disagreements were resolved by discussion with a third researcher Codes were analyzed to identify overarching themes, underpinning the data & develop a thematic model Memos and research notes were kept for reflection	highly positive and negative in the same time, using the analogy of "rollercoaster ride." **RQ4**: Nearly all participants report feelings of dissociation, detachment, or floating. Some reported a near death experience; some reported ego dissolution All participants reported perceptual distortions. Some reported sensory changes, such as hallucinations. **RQ5**: Gaining deep & meaningful insights into important aspects of their life **RQ6**: Reevaluated	psychotherapy/ talk therapy **Application:** Overall, a positive experience despite the transient distressing experience. The short-lived intense distress can be well-tolerated in a supportive & therapeutic setting

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							one's perspective on life & relationship with alcohol.	
Next Study								

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Table A3

Synthesis Table

Study	**Azmoodeh et al. (2022)**	**Dakwar et al. (2019)**	**Hotho et al. (2022)**	**Inbaraj et al. (2022)**	**Mollaahmetogula et al. (2022)**	**Naveen et al. (2022)**	**Nugent et al. (2019)**	**Sachdev and Sittiprapaporn (2020)**	**Simonsson and Goldberg (2022)**	**Zhang et al. (2022)**
Design LOE	Qualitative/ Phenomenological	Quantitative/ RCT	Quantitative/ experimental & explorative	Quantitative/ 2-group pretest-posttest	Qualitative/ Phenomenological	Quantitative/ Experimental	Quantitative/ RCT	Quantitative/ Correlational	Quantitative/ Cross-section & exploratory	Quantitative/ RCT
Sample										
n subjects	256	55	9	36	12	20	35	12	536	33
M-Age	31.8	48.9	41	25.5	46.5	30	MDD: 35.5; HT: 33.9	*M* not stated; 20-40 years old	44	19.73
Country	UK	US	Germany	India	UK	India	US	Thailand	US	China
Another variable	Lifetime use of psychedelics	w/ CUD	HT, professional speech/ drama therapy practitioners	2 categories: yoga practitioners & yoga novice	Received up to 3 ketamine tx in previous study	HT & right-handed	2 categories: MDD w/o psychotic features individuals & HT individuals	HT	Lifetime use of psychedelics	Undergraduate students; single heritage (Chinese)
Setting										
	Online survey/ text response	Hospital - Inpatient	Office (Lab)	Office (Lab)	Online interview over Zoom	Medical Campus ground (Lab)	Hospital - Inpatient	Office (Lab)	Online survey	College Campus ground (Lab)
Interventions/ Major Themes studied										
Compatibility b/t psychedelic & meditation	X									
Enhancement of meditation	X				X				X	
Ego dissolution	X				X				X	

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Study	Azmoodeh et al. (2022)	Dakwar et al. (2019)	Hotho et al. (2022)	Inbaraj et al. (2022)	Mollaahmetogula et al. (2022)	Naveen et al. (2022)	Nugent et al. (2019)	Sachdev and Sittiprapaporn (2020)	Simonsson and Goldberg (2022)	Zhang et al. (2022)
Negative effects	X				X					
Meaningful, mystical experience.	X				X					
Ketamine infusion		X					X			
Om chanting			X	X		X		X		X
Outcomes/ Themes – Findings										
Mind-body practices	X				X				X	
Alignment b/t altered & meditative states	X				X				X	
Connection & peacefulness	X				X				X	
Undesirable effect of altered mind	X				X					
High Abstinence rate		X								
Less likely to relapse		X								
Remission rate							X			
PSN activation			X	X			X	X		
Improvement in spatial memory						X				
Improvement in auditory & visual reaction time						X				
Reduced arousal to negative stimuli										X

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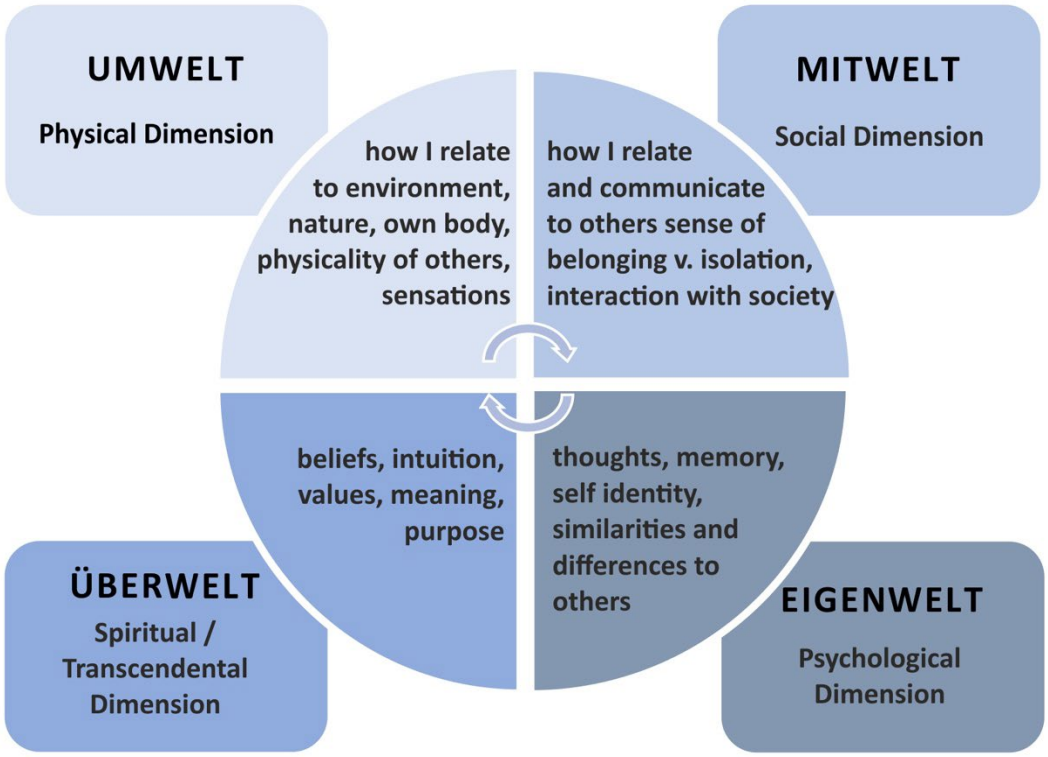
Appendix B

Models and Frameworks

Figure B1

Theory – Existentialism

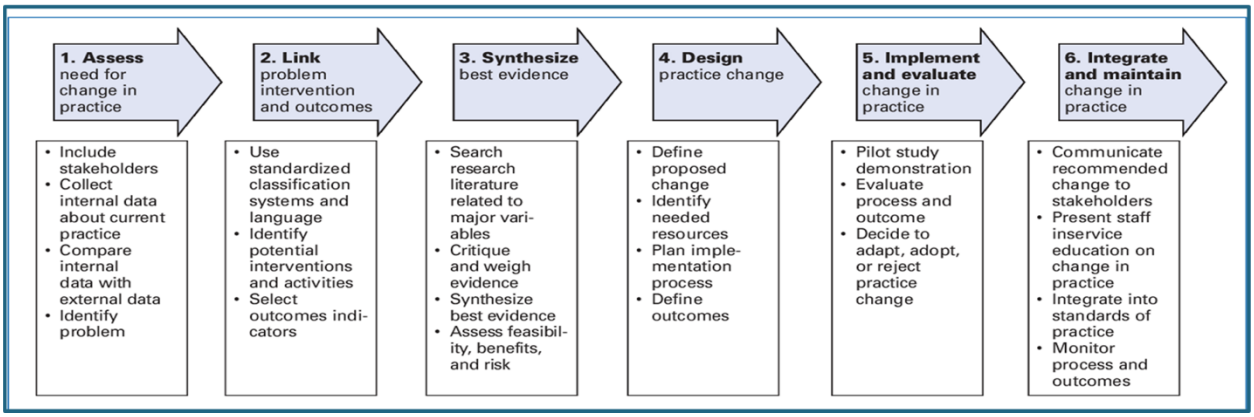


Note. From *existential dimensions,* by Martensen, G., 2021, Existential Leadership.

https://existenzielle-fuehrung.de/en/2021/02/17/existential-dimensions/

Figure B2

Evidence-Based Practice (EBP) Model for Change by Rosswurm and Larrabee



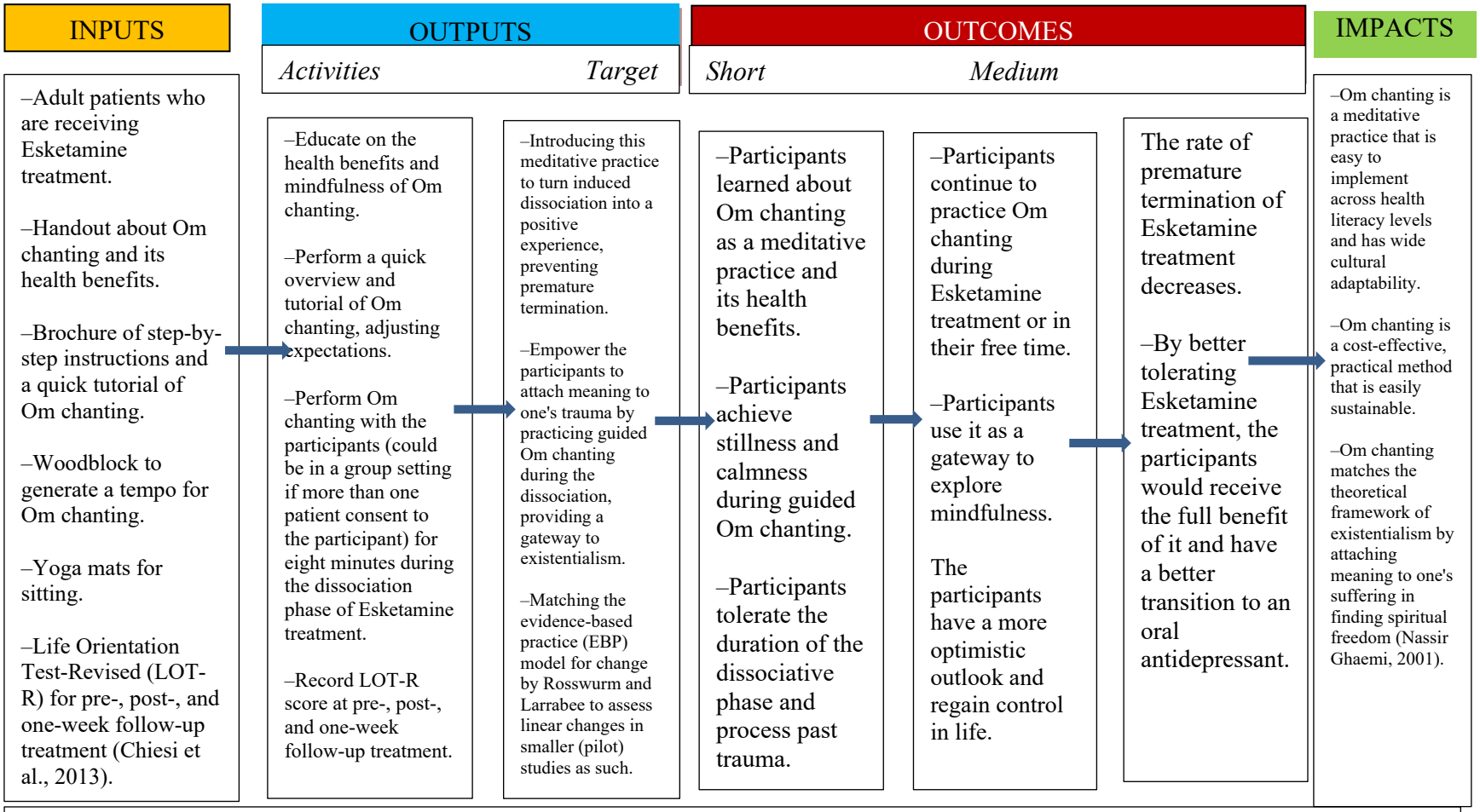
Note. From *implementing evidence-based nursing practice*, by Pipe, T. B., Wellik, K. E., Buchda, V. L., Hansen, C. M., & Martyn, D. R., 2005, Urologic Nursing.

Appendix C

Recruitment Handout

Appendix D

Logic Model



Assumptions: Om chanting is a sound-frequency meditative practice with the physiological benefits of activating the vagus nerve, indirectly stimulating the parasympathetic nervous system (Rao et al., 2018). With its extensive literature on health benefits and spiritual empowerment, it has a favorable outlook in utilizing it in Esketamine-induced dissociation. This strategy would better manage the dissociative phase by turning it into a positive experience, seeing the silver lining of one's past from a third-person perspective.

Appendix E

Revised Life Orientation Test (LOT-R)

[0] = Strongly disagree

[1] = Disagree

[2] = Neutral

[3] = Agree

[4] = Strongly agree

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Scoring: Reverse code items 3,7, and 9 prior to scoring (0 = 4) (1 = 3) (2 = 2) (3 = 1) (4 = 0). Sum items 1, 3, 4, 7, 9, and 10 to obtain an overall score. Items 2, 5, 6, and 8 are filler items only. They are not scored as part of the revised scale.

Appendix F

Budget Overview

Phase	Activities/ Materials	Cost	Total
Preparation (Direct Cost)	Printing cost includes colored handout, consent forms, and evaluation tools	$0 (The site provided.)	
	Woodblock for tempo during Om chanting	$10	
	Yoga mat for investigator to sit and keep the tempo	$0 (Investigator has a yoga mat)	
	Cleaning supplies	$0 (The site provided.)	
	Gas to the site (s)	$150	
			$160
Delivery (Indirect Cost)	Indirect costs, such as office expenses, rent, and utilities	Unknown	
	Donated time from providers & supportive staffs	Unknown	
			Unknown
Evaluation (Direct Cost)	Participant's incentive to finish one-week follow-up LOT-R (Sample size x $10 gift card)	$90	
	Statistical analysis	$0 (The school provided.)	
			$90
Total			$250
Budget Justification			

1. Direct Costs
    a. Printing – Colored handout needed for advisement, consent forms needed for the record, evaluation tools needed for the record.
    b. Woodblock – Needed, part of the intervention.
    c. Yoga mat – Needed, investigator must sit on the floor to start the tempo.
    d. Cleaning supplies – To have a clean, peaceful setting for the intervention.
    e. Gasoline – Primary transportation method.
2. Indirect Costs – Listed.
3. Potential Funding Sources – From site, such as indirect costs, donated time from staffs, and cleaning supplies.
4. Cost versus Revenue/ Savings – The generated revenue in decreasing premature Esketamine treatment will be greater than the project cost.