

**AN EXAMINATION OF A SOUND HEALING INTERVENTION AS AN
ADJUNCT TO PSYCHOTHERAPY FOR DEPRESSION**

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Abstract

Depression rates in the United States are the second highest in the world, and research has shown that individuals who struggle with depression are increasingly turning to complementary and alternative medicine to manage their lives. Sound healing is an ancient alternative medicine modality that has been utilized for thousands of years; yet, few studies have been conducted to examine its effects on mental health, namely depression. Moreover, no studies have examined sound healing as an adjunct to individual psychotherapy treatment of depression. The purpose of this study was to explore the experiences of participants who engaged in a four-week sound healing treatment as an adjunct to psychotherapy for depression. Eight women participated in four sound healing treatments, responded to open-ended semi-structured interview questions, and completed three quantitative self-report measures of depression, anxiety, and perceived stress. Sound healing treatment included utilization of seven Tibetan singing bowls in a group setting. Data analysis revealed multiple emergent categories and themes, in addition to significant reductions in depression, anxiety, and perceived stress. Categories derived from a constant comparative method of data analysis capturing participants' perceived experience of sound healing included themes related to: Response to the singing bowls, sound healing promoted wellbeing, participant satisfaction, and sound healing as an adjunct to psychotherapy. All eight participants' perception of their experience of sound healing demonstrated a positive response and more specifically an improvement in their overall wellbeing, symptom reduction, and an improvement in their psychotherapy treatment of depression.

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Dedication

I dedicate this manuscript to those who struggle with depression and who have found little relief from adhering to the conventional medical model alone.

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CHAPTER I

Introduction

Sound waves are vibrational frequencies that differ depending on the speed at which that frequency travels (Leeds, 2001). The human body interacts with the vibrations of the surrounding environment, thus affecting the vibration of the body itself (Gaynor, 2002). The constantly changing vibrational frequencies of the human body and environment are the primary component of the theoretical underpinnings of vibrational medicine (Gerber, 2000). Vibrational medicine is a practice of medicine that encompasses the multitude of frequencies within the entire electromagnetic spectrum as a means to define and to restore the human energy system. Matter itself, including every component of the human body is a non-static, moving, changing, adaptive interaction of frequencies. Frequencies such as sound waves have been found to have an effect on the human body and therefore affecting mental health.

To utilize frequencies, such as sound waves as a means to induce healing of both physical and mental ailments, is an ancient healing practice (Heather, 2007). Every culture and time period embraces sound healing practices that are stitched into the fabric of its people. Singing, drumming, chanting, toning, and music making are just some of the common methods of what can be considered sound healing. To implement these practices to induce specific reactions stems from an alternative conceptualization of health. Sound healing practices are increasingly being offered at establishments that offer alternative health practices such as yoga studios, meditation centers, and spiritual communities in the United States; however, little is known within the scientific framework about its effect on mental health.

Statement of the Problem

The utilization of Complementary and Alternative Medicine (CAM) is on the rise in the United States (U.S.). According to the National Center for Complementary and Integrative Health (NCCIH), a division of the National Institutes of Health (NIH), more than 30% of American adults use health care approaches that stem from a non-Western medical modality (NCCIH, 2017). Depression is one of the most common reasons that U.S. adults turn to alternative health practices (Ernst, Rand, & Stevinson, 1998).

Depression rates in the U.S. are also on the rise according to the National Alliance of Mental Illness (NAMI, 2017). The U.S. has the second highest depression rates in the world, which not only affects the individual and their families; it also has a high social and economic impact on the country. Depression affects over 19 million American adults and 121 million people worldwide according to the World Health Organization (Bromet et al, 2011).

Conventional treatment for depression is limited to predominantly pharmaceutical treatment, psychotherapy, and electroconvulsive treatment, while individuals who suffer from depression are turning to a more integrative approach to care. The combination of conventional and alternative treatments can often have the highest efficacy, according to the NAMI (2017). Although research on the effects of sound healing and depression has not been examined extensively, there are a handful of studies on a similar modality: music therapy.

Sound healing and music therapy differ due to the method by which the therapy is administered, along with the theory behind its mechanism of action, which will be discussed subsequently. Interestingly, most of the studies on music therapy and

depression in adults were conducted in countries other than the U.S., whereas most of the studies on music therapy in the U.S. focus mostly on physical health, as well as the effects of music on non-human matter such as water and plants (Emoto, 2011; Chowdhury & Gupta, 2012). Hence, the purposeful application of sound waves to create homeostasis in the human body can theoretically be a useful addition to conventional treatment of depression. However, there is a lack of studies exploring the mental health benefits of sound healing in general and more specifically as an adjunct to psychotherapy treatment of depression.

Purpose of the Study

Based on the review of literature, sound healing is in its infancy with regards to the scientific understanding of its effect on human health. Although sound healing is perhaps one of the oldest methods of healing, its utilization within the Western model of conventional medicine has thus far been overlooked. The few studies that have been published correlate sound healing with positive effects on physical and mental wellbeing yet no studies have looked specifically at sound healing and symptoms of depression, to the best of our knowledge.

Moreover, the utilization of sound healing as an adjunct to conventional treatment of depression has yet to be fully examined, nor has it yet been established as an evidence-based treatment within the mental health arena. The findings of this study provide an understanding of the viability of sound healing as an adjunct to conventional treatment of depression from the perspective of individuals who engaged in a four-week sound healing treatment.

This study aimed to answer two central questions:

1. What are the experiences of individuals with depression who participate in a sound healing intervention?
2. What is the perceived impact of sound healing on patients with depression that also attend psychotherapy?

CHAPTER II

Literature Review

Depression

Feelings of unhappiness, discontentedness, and sadness are a normal part of life and these feelings typically come and go throughout the lifespan (NAMI, 2017). Life stressors, such as the death of a loved one, divorce, loss of a job, trauma, and loss of physical ability are just some of the types of situations that may lead to depressive symptoms. Most individuals are able to regain a sense of wellbeing, yet when an individual is unable to regain balance after a stressful life event or if they are generally unhappy without any apparent life stressor, they may be suffering from Major Depressive Disorder (MDD) or other depressive disorders. Depression is a serious mental health condition that affects not only the depressed individual's mood, it can also have a negative impact on the economic and social aspects of that person's life, as well as imposing a burden on friends, family, intimate partners, and employers.

Episodes of depression that are severe enough to cause a disruption in social, occupational, or other areas of functioning must be present to diagnose an individual with MDD (American Psychiatric Association, 2013). Some of the symptoms of MDD include depressed mood, weight loss or weight gain, insomnia or hypersomnia, fatigue, feelings of worthlessness or excessive guilt, and inability to concentrate nearly every day for most of the day. Typically most people will experience a Major Depressive Episode (MDE) throughout the lifespan and for most, repeat episodes are more common than not (NAMI, 2017). According to NAMI, 7% of American adults experienced 1 MDE last year alone.

An MDE is defined as a time period of two or more weeks of MDD symptoms and represent a change in previous functioning (American Psychiatric Association, 2013). The symptoms of an MDE include loss of interest or loss of pleasure in all activities, change in appetite or weight, sleep disturbance, feeling agitated or feeling slowed down, fatigue, feelings of low self-worth, guilt or shortcomings, difficulty concentrating or making decisions, and suicidal thoughts or intentions (NAMI, 2017). To diagnose depression can often be challenging due to the difficulty in ruling out the cause of the MDE as a symptom of another mental illness. Another aspect of the difficulty of diagnosis to consider is that U.S. cultural norms of mental health often conflict with those who come from other backgrounds. For example, African American and Latino individuals are among the highest population of misdiagnosis for depression. Lack of cultural competency, bias, and language barriers often contribute to this diagnostic discrepancy.

Conventional Theories of Depression. Although the cause of depression is unique for every individual, research suggests that a combination of genetic, environmental, biological, and psychological factors can contribute. According to Harvard Medical School, depression is a complex affliction that goes far beyond merely a chemical imbalance, as many believe (health.harvard.edu, 2017). Dysfunctional mood regulation in specific brain regions, along with genetic predisposition, stressful life situations, medications, medical problems, and even temperament can all contribute to causing depression. Mood, perception, and how one experiences one's life is a highly complex process that involves a multitude of intricate chemical reactions throughout the entire body. Therefore, depression is not a matter of having too much or too little of one

chemical. Symptoms of depression may appear similar on the surface, but each individual's unique physical make-up requires unique individualized treatment.

Prevalence of Depression. MDD is one of the most common mental disorders in the United States according NAMI (2017). Also according to NAMI (2017), Americans of all ages, ethnic backgrounds, socioeconomic status, and race are all susceptible to depression, but there are some groups that are affected more than others. Women are 70% more likely than men to suffer from depression and people in young adulthood are at higher risk than those in late adulthood. Left untreated, depression can have a high impact on both the individual as well as society at large.

Depression is a growing epidemic in the United States. An increasing number of individuals report struggling with maintaining a positive state of mind, which affects every day level of functioning. It affects over 19 million U.S. adults, is recurrent, and progressive (Britton et al., 2012).

On a global scale, depression affects over 121 million people and accounts for over 850,000 deaths by suicide each year according to a longitudinal study conducted by the World Health Organization (Bromet et al., 2011). The study suggests that MDD is most prevalent in high-income countries in comparison to middle to low-income countries worldwide with the U.S. having the second highest depression rates on the planet and France at number one.

Depression is projected to become the leading cause of disability and the second leading contributor to disease overall by 2020, according to the World Health Organization (2000). Given the prevalence of this societal affliction, the personal and

economic effects on both the individual and society as a whole, treatment and prevention of depression must be a high national priority.

Conventional Treatment of Depression. Thus far, conventional treatment for depression is confined to three basic treatment methods: psychotherapy, pharmaceutical treatment, and electroconvulsive therapy (Hankin, 2006). Pharmaceutical treatment and electroconvulsive therapy can pose higher risks for adverse side effects, some of which can be fatal. Tricyclic antidepressants and Serotonin Reuptake Inhibitors (SSRI's) are evidence based in the treatment of depression, but little difference has been found between the drugs and placebos (Moncrieff, 2003). According to the National Comorbidity Survey Replication, approximately 40% of those who receive conventional treatment for depression see a reduction in symptoms (Harvard, 2007).

Recurrence of Depression. There are several theories that aim at discovering the cause of depression, most of which involve a combination of biological and cognitive factors as stated above. Both models suggest that regardless of causation, the end result is a prolonged or intensified negative affect during the stress response, which puts a person at risk for repeat MDE's. (Britton et al., 2012).

When an individual has one MDE, the likelihood of repeated episodes increases with time. For example, if a person has three MDE's he or she has a 90% probability of having another. Age, ethnicity, gender, and socioeconomic status contribute to the likelihood of susceptibility to depression throughout the lifespan.

The inability to regain balance after exposure to stress and the progressive sensitivity to stress that occurs in individuals with MDD is the primary focus for treatments that embody the importance of emotional regulation through various

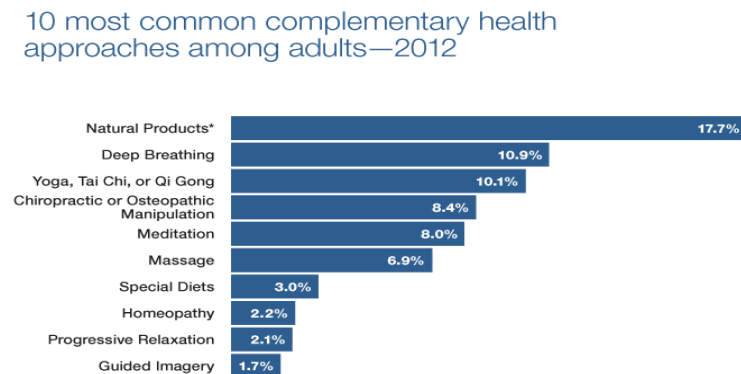
alternative health practices. Non-conventional treatments for depression are increasing in use and are gaining attention within the scientific community. The use of alternative medicine is on the rise in the United States, much in part due to the increasing evidence of its efficacy.

Complementary and Alternative Medicine

Any type of health practice that was developed outside of Western medicine or the conventional medical model is considered alternative medicine, according to the National Institutes of Health (National Institutes of Health, 2016). Additionally, when an alternative medicine method is used in conjunction with mainstream Western medicine, the integration is defined as complementary. If used in place of mainstream Western medicine, it can be considered alternative medicine. Integrative medicine combines complementary and Western medicine in a coordinated way.

The use of integrative medicine is on the rise in the United States, much in part due to the ongoing evidence of its efficacy. According to the National Center for Complementary and Integrative Health (NCCIH), the top ten complementary health practices are: (National Center for Complementary and Integrative Health, 2015)

Figure 1. *10 most common CAM approaches*



*Dietary supplements other than vitamins and minerals.
Source: Clarke TC, Black LJ, Stussman BJ, Barnes PM, Nahri RL. Trends in the use of complementary health approaches among adults—United States, 2002–2012. National health statistics reports no. 79. Hyattsville, MD: National Center for Health Statistics; 2015.

NCCIH is the Federal Government's leading agency for research on complementary and integrative health practices and is a department within the National Institute of Health.

Prevalence of Use of Complementary and Alternative Medicine. Some common complementary and alternative treatments for depression include the use of natural supplements, exercise, massage, acupuncture, and meditation (NAMI, 2017). The combination of conventional and alternative treatments can often have the highest efficacy, according to the NAMI.

In attempts to understand the reason why more people are turning to alternative medicine to treat depression, a national telephone survey was conducted of more than 3,000 women (Harvard Health Publications, 2007). 220 of these women stated that they had been diagnosed with depression within the last year and 54% had used alternative medicine to treat their symptoms. 26% of the women reported using manual therapies (massage, acupuncture, chiropractic), while 20% used herbs and teas, and 16% used supplements. According to the survey, yoga, meditation, tai chi, Chinese medicine, Ayurveda, and Native American healing were also reported as being used to treat diagnosed depression (Harvard Health Publications, 2007).

Interestingly, 45% of the women mentioned adverse side effects of conventional treatment, as well 43% reporting conventional medicine being ineffective. 65% reported as preferring natural methods of treatment and 59% stated that the natural approach falls in line with their beliefs and values. Authors of the survey suggest that given the prevalence of use of alternative medicine and the reported dissatisfaction of conventional medicine to treat depression, health care professionals should not criticize their patients for choosing an alternative medicine (Harvard Health Publications, 2007).

Depression is one of the most common reasons why people turn to complementary and alternative medicine (Ernst, Rand, & Stevinson, 1998). Lack of satisfaction with conventional treatments, avoidance of adverse side effects from pharmaceuticals, and avoidance of the stigma associated with psychotherapy may be associated with more people seeking alternative treatments for depression. In a study of 1,035 participants who utilize alternative medicine, the participants reported that they do so because it aligns with their own beliefs, values, and philosophical life views rather than being unsatisfied with conventional treatments (Astin, 1998).

Psychotherapy alone with the emphasis relying on verbal communication may be difficult for some to process and even insufficient (Erkkila et al., 2011). It is imperative to align with each individual's unique set of strengths, interests, and values for the treatment of mental illness to be successful. Complementary and alternative medicine treatments and practices offer the patient a wide variety of options that can both complement, and at times, replace conventional treatments.

Research is in its infancy in understanding the efficacy, as well as the mechanism of action, in relation to integrative health. Meditation, yoga, acupuncture, chiropractic, movement therapies, and massage are just some of the practices that fall under the category of mind and body practices. To better understand the differences between alternative and conventional theory on health, it is important to review the foundation of alternative medicine theory.

Traditional Chinese Medicine (TCM) Theory of Depression. From a TCM perspective, depression is viewed as a disturbance of the spirit, otherwise known as *shen* (Most, 2013). When the *shen* is disturbed, the manifestation of that disturbance presents

itself as having a lack of meaning in life, inability to create deep connections with others, self-loathing, feelings of worthlessness, lack of energy, as well as others.

Another component from the TCM perspective that vastly differs from the conventional model is that depression is partly caused by the inability for energy (*qi*) to move freely throughout the body due to energy blockage, which can cause emotional disturbance (Most, 2013). Some goals of TCM treatments for depression are to move blocked *qi* throughout the body while reconnecting the patient's spirit with the deepest sense of self as well as expanding connection to the universal greatness beyond the self. This process allows blocked energy to release and move freely, which results in alleviating the feelings of being stuck emotionally and spiritually. Lifestyle changes, herbal remedies, acupuncture, and ongoing spiritual and energetic practices are all part of the treatment for depression from this perspective (Most, 2013).

Within the TCM system, life-energy systems in the body function as an interactive exchange of absorption and distribution, which nourishes the organs and cells in the body (Most, 2013). The acupuncture meridian system within TCM consists of energy channels throughout the body. The acupuncturist seeks to assess for blocked energy in the body while rebalancing the energy flow by inserting needles into specific energy points (Gerber, 2000). TCM has grown in popularity in the west and is widely used in many Asian countries.

Ayurvedic Medicine Theory of Depression. Ayurvedic Medicine, one of the oldest medical models, is rooted from India and dates back to more than 3,000 years (National Center for Complementary and Integrative Health, 2015). Its model shares many similarities with the TCM model. The word Ayurveda is a combination of two

Sanskrit words meaning ‘life science.’ Universal interconnectedness (people, nature, health, and the cosmos), the body’s unique constitution (*doshas*), and life force are the three core concepts within Ayurvedic Medicine (Perlin, 2016).

Ayurveda views depression quite differently than the conventional medical model, which stems from an alternative view of the mind. Both conscious and unconscious mental processes, such as thoughts, ideas, emotions, sensations, energy, will, memory, intuition, instinct, love, and faith are just a few of the components of the mind from the Ayurvedic perspective, which are referred to as *chitta*. Ayurveda and its ‘sister science,’ yoga, aim at looking within to observe *chitta* with clarity so that mental and spiritual growth can occur. The key to mental and physical health is to remember one’s true nature as spirit, which leads to a life of congruence between belief and action. Realizing that the self is not separate from the totality of the universe is a primary aim of Ayurvedic theory (Perlin, 2016).

When an individual presents with depressive symptoms, the Ayurvedic doctor will often focus on helping the patient bring their energy elements (*doshas*) back into balance (Perlin, 2016). The concept of the *dosha* is highly complex and is composed of three *doshas* (*Vata*, *Pitta*, *Kapha*). *Vata dosha* is the energy of movement consisting of the elements of air and ether. *Pitta dosha* is the energy of metabolism or transformation consisting of the elements of fire contained by water. *Kapha dosha* is the energy of structure, strength, and immunity consisting of earth and water. When the mind presents with psychological imbalance, the *doshas* are out of balance. Lifestyle, diet, herbal remedies, yoga, and spiritual practices are all often prescribed to regain *dosha* balance for

the patient. Depending on which *dosha* is the dominant *dosha* of the patient, treatment will vary (Perlin, 2016).

Common Thread Within the Eastern Medical Model. The above descriptions of both Chinese and Ayurveda medicine are intended to highlight the difference between the conventional and Eastern medicine views of depression. However, they are far more complex than described above and by no means are described in full, for the purpose of this paper. The use and practices that encompass and stem from these ancient medical models are gaining attention in the west and are now being integrated with conventional medicine to complement its efficacy (National Center for Complementary and Integrative Health, 2015).

The theory that body, mind, and spirit all play an integral role in the cause of illness as well as in the overall health of human beings can often be overlooked within conventional medicine. The energetic quality of every element of the human system is of high importance within the Eastern medical model. Health is seen as an energetic interaction between every cell, thought, behavior, and intention.

Vibrational Frequencies

Vibrational frequencies permeate the universe and therefore permeate all of life. By definition, a vibrational frequency is the frequency of the motion that occurs when atoms in a molecule are in periodic motion hence creating motion for the molecule as a whole (Gerber, 2010). From the more apparent frequencies that are within conscious awareness, such as light and sound, to the not so apparent, such as the quantum interaction of molecules, everything contains a vibrational quality. The quality of any specific vibrational frequency is highly dependent on the interconnectedness of

neighboring frequencies. Without this interconnectedness, the universe and life itself would cease to exist (Gerber, 2010).

These frequencies relate to human life, as 70% of the human body is made of water (Franklin & Carey, 2005). Water itself is an interaction of both hydrogen and nitrogen, both of which contain a vibrational frequency. This interaction or relationship can be applied to the planetary motion within our galaxy, to the rising and setting of the sun/moon rotation, and down to the expanding and contracting of the breath. Vibrations create the universe, all of which require a symbiotic rhythmic interaction.

Fritjof Capra (1996) a pioneer of systems theory explains this law of physics by stating that the universe is in a constant state of vibratory motion. He wrote, “Rhythmic patterns appear throughout the universe from very small to the very large. Atoms are patterns of probability waves, molecules are vibrating structures, and living organisms manifest multiple interdependent patterns of fluctuations. Plants, animals, and human beings undergo cycles of activity and rest, and all their physiological functions oscillate in rhythms of various periodicities” (Capra, 1996).

Vibrational Medicine. Another alternative medical model is known as Vibrational Medicine (VM), also known as energy healing. Based on Einsteinian and quantum physics, VM asserts that the body is a dynamic energy system and that the mind and spirit are the sources of consciousness (Gerber, 2001). The belief that emotions and spirit have an influence on wellness or illness due to the interaction between body, mind, and spirit is another example of the difference between conventional and alternative views on health.

VM is not separate from Chinese Medicine or Ayurveda Medicine, but is more of a fundamental element within both. VM is considered by its practitioners to integrate the ancient medical models mentioned above with modern scientific understanding of physics, taking into account the vibrating energy of the whole body (Gerber, 2001).

Albert Einstein produced his groundbreaking theory of relativity, which concluded that matter and energy are interchangeable (Gerber, 2001). Given that energy vibrates at different rates (frequency), the body is also vibrating at different frequencies, thus vibrational medicine views illness in terms of energy systems. Endless factors contribute to either promoting or inhibiting the energy flow in the body. These include human emotion, relationship to others, our ability to love, relationship to nature and even a higher energy, otherwise known as the divine. From this model, every factor in a person's life, including consciousness, has a role in the overall wellbeing of the individual (Gerber, 2001).

Brain State as a Vibrational Frequency Measure. The human body is comprised of a multitude of complex interactions of vibrations throughout the system (Heather, 2004). Every component of the human body vibrates at different speeds such as bones, blood, organs, digestive system, immune system, cellular activity, and neurochemistry.

Perhaps one of the most commonly known frequencies in the body is that of the brain in relation to brain state. With technological advances in brain imaging, neuroscientists are able to examine the different brain states (Takahashi et al., 2005). The electroencephalogram (EEG) is the summation of brain activity that is recorded by electrodes on the scalp. Different frequencies of the EEG are found to be associated with

the different states of consciousness, namely, alpha, theta, beta, and gamma states. High alpha waves are generally associated with sleepiness and boredom, while theta waves are associated with creativity and spiritual experience. The electrical activity in the brain that is measured by EEG, each contains a frequency range (The McGill Physiology Virtual Lab, 2017). The following list summarizes both frequency and traits associated with each brain state:

Delta: 3Hz or below. Delta brainwaves are slow and loud. They are present during deep, dreamless sleep and the deepest meditative states. Delta waves are void of external awareness and are essential in regeneration and healing.

Theta: 3.5Hz – 7.5 Hz. Theta brainwaves occur most often in lighter sleep than Delta, as well as in meditative states. Theta waves are the pathway to both memory and learning. Senses are focused on the internal rather than the external and when in theta, our senses are withdrawn from the external world and focused on signals originating from within. When the mind is engaged in imagery, intuition, and dreams, the brain is in Theta. It is also the brain state where fears and nightmares reside.

Alpha: 7.5Hz – 13Hz. Alpha brainwaves are present when thoughts are flowing but not in a state of problem solving. It is the state when the mind is most present, is in a state of rest but not sleep, as well as in a space of overall calm, mental coordination, is alert, and is when the mind and body are integrated.

Beta: 14Hz -38Hz. Beta brainwaves dominate our normal waking state of consciousness when attention is directed towards cognitive tasks and the outside world. Beta is a 'fast' activity, present when we are alert, attentive, engaged in problem solving, judgment, decision making, and engaged in focused mental activity.

Gamma: 32Hz – 42Hz. Gamma waves are the fastest and occur when the brain is synthesizing information from multiple areas. This state is highly active and is the subtlest of the brain waves. Gamma waves are present when the individual is experiencing altruism, high virtues, universal interconnectedness, and universal love. Spiritual consciousness and spiritual evolution is thought to stem from this state.

Sound

To understand how vibrations are transferred into information that is perceived by the ear and brain as sound, let us first define the term sound. Sound, is defined as, “vibrations that travel through the air or another medium that can be heard when they reach a person or animals ear (Google.com, 2016).” The physical structure of an ear contains tiny specialized cells (auditory cochlear hair cells) that are able to pick up vibrations that originate from changes in air pressure, which then convert the movement of those cells into electromagnetic signals that send messages to the brain (Ricci, 2013).

Humans are able to hear vibrations that fall within a decibel (dB) range of 0dB and 120dB (Physics.bu, 2016). A decibel is the unit used to measure the intensity of sound and the ear has the capability of hearing a broad range of sounds. It is also important to consider the adaptability of the ear.

The ear must constantly adapt to the vibrations that are present in order to preserve its overall function (Ricci, 2013). According to Ricci, researcher at Stanford University, adaptation process enables humans to hear everything from a pin drop to a jet engine without pain or severe damage. Ricci (2013) states that adaptation is the most important aspect of understanding hearing and yet researchers know very little about how it works. The ear will adapt to environmental sounds and thus enable us to hear what is

present. The following list is an example of the dB of specific sounds (HowStuffWorks, 2017):

- Near total silence - 0 dB
- A whisper - 15 dB
- Normal conversation - 60 dB
- A lawnmower - 90 dB
- A car horn - 110 dB
- A rock concert or a jet engine - 120 dB
- A gunshot or firecracker - 140 dB

The Ear and Brain Connection. Humans are born with 30,000 cochlear and vestibular hair cells per ear, both of which not only allow for the perception of sound, but are also imperative to equilibrium, to navigate the body through space and time, and gives meaning to our inner and outer world (Ricci, 2013). Age, as well as exposure to loud sounds damages these cells, which is hypothesized as the root cause of hearing loss and in some, dizziness.

Not only do the ear's hair cells respond and adapt to sound, the eardrum is also a contributing factor in our ability to hear (Physics.bu, (2017)). The ear has three major parts: the outer ear, middle ear, and inner ear. The outer ear acts like a mini amphitheater that captures sound, which then sends these vibrations to the middle ear. This is where the eardrum resides and can be thought of like a tiny drum. The skin of the eardrum responds to vibrational frequencies from the inner and outer world, sending those vibrations into the fluid-filled tube of the inner ear called the cochlea. The movement of the vibrations creates movement of the fluid, which then moves the hair like cells. This process converts the movement in the inner ear to electromagnetic signals that are then interpreted by the entire body (Physics.bu, (2017)). A symbiotic interaction of vibrational frequencies gives rise to the ability to not only hear, but sound itself is directly affecting

the body and mind at all times.

Alfred Tomatis. Alfred Tomatis (1992) the French ear, nose, and throat specialist, devoted his career to the role of sound on human function. He believed that high frequency sounds (3.000 Hz +) stimulate specific brain function correlated with thinking, spatial memory (which helps with attention), and concentration. Tomatis (1992) believed that hearing is the most important of all senses due to its multitude of functions. The function of the ear as described above controls the bodies' ability to have physical balance and equilibrium, as well as rhythm and movement, and is vital to central nervous system function.

How humans perceive sound waves through the ear/brain connection is only a fraction of understanding the function of sound. However, sound is being interpreted by the entire body at all times, which leads to the hypothesis that the body itself is physiologically comprised of sound waves (Tomatis, 1992). The interpretation of sound waves by the body dictates, on a physiological level, how the body is to respond to stimuli at all times. Sound waves are constant and even shape life before birth.

In Utero and Sound. Before birth, the human embryo begins to develop ears as early as 3 weeks (Gaynor, 2002). In the womb, we are surrounded by the sounds of fluid being moved by the beating of our mother's heart. This early exposure to the sound of a mother's heartbeat can be utilized to create a sense of calm as well as anxiety in infants. Infants who are exposed to a recording of a heartbeat of 72 beats per minute (BPM) exhibit a calm behavior and those exposed to a recording of 120 BPM, exhibit notable distress. Mothers who are exposed to consistent loud, unpleasant sounds, such as living in the flight path of an airport, have smaller babies according to studies.

Sound and Music Medicine

Sound and music as a method to induce healing was believed by our ancestors to aid in creating wellness and the prevention of illness, while creating a curative effect for both physical and mental illness (Crowe & Scovel, 1996). Music therapy as we know of it today, is based on the premise that music can be used as a therapeutic tool, but not as a cure for illness. However, there is a growing interest in the possible curative effect of sound.

Sound Healing Defined. Due to the growing interest in the healing benefits of sound, several approaches have been developed, rediscovered, and reimagined, all of which stem from alternative medicine practices (Goldman, 1992). These approaches are known as sound healing. Sound healing is a broad term with a wide variety of applications and methods, all of which are for the purpose of healing. Sound healing is the intentional, utilization of acoustical sound vibrations directed onto the body inducing physiological and neural activity changes (Goldman, 1992).

Based on the concept that sound waves exhibit certain properties and behaviors and when those waves are applied directly into a human being, they can induce a state of harmony and healing (Heather, 2004). Humans contain a vibrational frequency that is unique to each individual's health and wellbeing (Shrestha, 2013). These frequencies can become out of tune, similarly to a musical instrument, resulting in physical and mental illness. Furthermore, stress and negativity can block the energy flow of the body resulting in illness as well. Sound healing can re-tune the bodies' vibrational frequency and free any energetic blocks, allowing the body to regain homeostasis, wellness, and balance.

Sound waves travel through the various elements at different speeds. Some examples of the differences between the speed of sound through various elements are as follows:

- Air = 760 MPH
- Water = 3,350 MPH
- Glass = 12,500 MPH

Since humans are 70% water, they are an optimal conductor of sound. The theory behind the use of sound as a way to induce healing is that when frequencies in the body begin to resonate at a frequency that creates an illness or unwanted mental state, sound can be utilized to bring a healthy vibration to the whole human system (Heather, 2004).

Methods at which sound healing is often administered or used are:

- Toning with voice either individually or with others
- Listening to music either instrumental or lyrical
- Listening to instruments
- Playing instruments
- Listening to ancient sounds such as: gongs, Tibetan bowls, crystal bowls
(Heather, 2004).

History of Sound Healing. Sound healing is one of the oldest methods of healing (Heather, 2004; Gaynor, 2002; Goldman, 1992). Records of the utilization of sound to induce health and wellness can be found in the ancient Vedic scriptures of the Hindu tradition, which dates back to over 7,000 years. Buddhist sutras were sung for 500 years in an oral tradition before it was ever written. Tribal rituals often involve drumming, singing, and dancing to intentional sound for the purpose of healing sickness, bringing the rain, cultivating a bountiful harvest, and to connect with the spirit of past loved ones.

Regardless of the culture you identify with, the transcultural use of sound links mankind in a universal understanding of its benefits.

From Mesopotamia and ancient China to Egypt, from India to the golden age of Greece, humans believed in the fundamental nature of music to create change for both the individual, as well as society as a whole (Roskam, 1993). Utilized as a method for healing, music was believed by our ancestors to be instrumental in supporting wellness, preventing disease, and for having a curative effect on physical and mental illness (Boxberger, 1962).

Pythagoras. Perhaps one of the most influential Western historical figures in relation to sound medicine was Pythagoras, the Greek philosopher and mathematician (Iamblichus, 2008). He gained recognition as the first, in the west, to organize sound for the purpose of healing. Pythagoras began to take notice of the rhythms of the hammer blows of blacksmiths while at work and noted that certain hammer sounds were more pleasant than others. Over time, he was responsible for creating the musical scales as well as a series of new theories about harmonics.

The historical accuracy of the story of Pythagoras is up for debate; however, he did utilize music for healing and believed that music if applied and composed in a specific manner could cure the passions of the psyche. He created music for anger, aggression, and for all mental afflictions. He spoke about how every atom has a sound due to its vibrational movement. His belief was that all of these sounds of every vibrating element in the universe created a universal harmony. Although no one knows what his music sounded like, it is thought to have been simple and repetitive.

Entrainment. To understand the mechanism of action of sound healing, it is important to understand entrainment. All living organisms resonate at a specific vibratory frequency. This frequency is in constant motion as it changes, moves, matches, and even mirrors surrounding frequencies. The process of a vibratory frequency of one object being projected onto a second object with a similar frequency, causing the second object to match the vibratory frequency of the first is called entrainment (Gaynor, 2002). Entrainment has been explored in the scientific community in numerous ways, both mechanical, as well as organic.

One of the classic studies on the dynamics of entrainment dates back to the mid 1600's when astronomer/physicist Christian Huygens simply observed pendulum clocks (Leeds, 2001). When two pendulum clocks are near one another and upon onset of the observation are swaying at different rates, they find synchrony and begin to sway at precisely the same rate. It was an unavoidable circumstance that was cause for replication studies of any two oscillating mechanisms within close proximity and of similar rhythms would find synchrony.

Another example can be easily observed when one C note tuning fork is struck next to another C note tuning fork; the second fork will begin to vibrate at the same frequency as the first (Heather, 2007). The vibration of the first fork shares its energy with the second and they begin to find harmony together. Nature gravitates towards harmony through the process of entrainment.

We can also see entrainment within the animal kingdom. Schools of fish, flocks of birds, and herds of buffalo all move in accordance with one another to create a functioning interrelated system, dependent on the process of entrainment. The group

does not follow one leader. It is more as though the group entrains to one another and moves as a whole (Gaynor, 2002). Humans harmonize with their environment as a function of survival, as a method to make sense of the world, and even in finding meaning to one's existence. Physiologically, when two separate muscle cells of the heart, both pulsing on their own rhythm were moved closer to one another, the results were fascinating. Their pulsating beats began to drastically shift to entrain to one another, finding synchrony.

Sound healing utilizes the process of entrainment to entrain the body to resonate at the same frequency as the sound that is being absorbed by the individual, and thus restoring homeostasis to the body and mind. Sound can be used to bring a healthy vibration back to the body similarly to tuning an instrument. This theory embraces the importance of using the surrounding keys to tune the instrument as a whole rather than removing the key to bring it into tune. The removal of the key would fall into the reductionist conventional medical model.

Intention. Another vital component to sound healing is the intention behind the methods. If a person listens to an instrument being played with the intention of allowing that sound to bring balance to their body and mind, the intention set forth can theoretically aid in delivering results. It is the vibration of the sound coupled with the intention to heal that creates a healing environment (Heather, 2007).

Evidence Based Effects of Sound, Music, and Intention

Drumming and the Central Nervous System. With the process of entrainment and the inevitable synchrony of vibrational frequencies occurring in nature, one could assume that humans, on a physiological level, become – or at least can be profoundly

influenced by – those with whom and that with which we surround ourselves. Drumbeats have been examined in the scientific community to determine the relationship between entrainment and rhythm and what affects it has on the body and mind.

The 1960's researcher Andrew Neher was interested in just that, concluding in some interesting results of the physiological response to shamanic-style drumming (Neher, 1962). His study began by observing the similarity between responses in drumming ceremonies and rhythmic light stimulation (photic driving) being implemented in a laboratory setting.

Previously, Neher (1962) attempted to use alternate methods of rhythmic stimulation (i.e. clicking sounds, single tones) to see if the response was similar to shamanic-style drumming, however, no such similarity was found. He then used a drum in the lab to attempt to understand the effects of shamanic drumming and came to the hypothesis that due to the multitude of vibrational frequencies found in a drum beat, the physiological mechanism of interpreting those frequencies are processed by several parts of the central nervous system; unlike a single tone or click, which contains a single frequency.

Drumbeats contain mostly low frequencies, which are less susceptible to damage than high frequencies. Therefore, lower frequencies can be interpreted by the body at a higher decibel range than that of higher frequencies before causing pain or discomfort. When the body is exposed to the low frequency of a drumbeat, more energy can be sent to the central nervous system, creating an effect that is much more profound than that of a high pitch sound.

Responses to the drumming were similar to the response of photic driving in that exposure to both resulted in electrical activity in the auditory region of the brain and participants reported unusual perceptions as well as muscle twitching in some. Exposure to drumming, as well as to photic driving, both create neural activity in brain regions not normally affected through their connections with the area being stimulated (Neher, 1962).

Sound and Acupuncture Meridians. In a study conducted by Laquita and Shealy (2004), the physiological effects of toning with a Marcel Vogel crystal bowl were examined. The researchers were primarily interested in measuring change on the acupuncture meridians of the body. Acupuncture meridians are the basis of Traditional Oriental medicine practices, which views the body as an energy field. There are about 400 acupuncture points on the body, which are all interconnected and circulate between the principal meridians. There are 20 meridian pathways in the body, which are broken down to two groups: 12 principal meridians & 8 extraordinary meridians. Forty-two subjects participated in this study, yielding significance in comparing a treatment group with a control group.

A computerized electrodermal instrument called the Asyra was used to measure changes in the acupuncture meridians (Laquita and Shealy (2004). In this study, measurements were taken at 40 access points on both the fingers and toes that are specifically linked to different acupuncture meridians throughout the entire body. Before both interventions, readings were conducted at five-minute intervals to identify a control and baseline for each participant. Two more readings were taken post exposure to the intervention. Intervention one consisted of the researcher holding and playing a crystal

bowl to each of the seven-chakra positions on the subject's back. The other consisted of playing the bowl tuned to the tone of F, which is said to correspond to the heart chakra.

Researchers found that both toning and playing the crystal bowl correlated with changes in measurements by the Asyra (Laquita and Shealy (2004). Significant increase in the energetic field of all subjects were found on the left hand post toning with $p < .05$, and a significant decrease in the readings on the right foot post the crystal bowl intervention with $p < .01$. These results support the hypothesis of the researchers that sound healing therapies can yield physiological changes in the body thus creating a change in the energetic balance of the body as measured by the Asyra (Laquita and Shealy (2004).

An unexpected result of this study found that the significant changes were found in the non-dominant hand and non-dominant foot of the subjects (Laquita and Shealy (2004). The majority of people are right-hand dominant with a corresponding left-foot dominance. The significant effects of listening and toning to the crystal bowl are correlated with the right temporal gyrus of the brain, which is thought to be responsible for creative thinking.

Problems with this study are that measurements were taken over a short time period (Laquita and Shealy (2004). Only one exposure to each intervention was measured, which yielded consistent patterns in the energetic changes as indicated by the Asyra; however, continued exposure to the sounds may or may not yield consistent results. To fully understand how exposure to toning and listening to crystal bowls affects the body, further studies must be conducted.

Sound Healing and Cognition. When an individual undergoes chemotherapy for the treatment of cancer, a decline in cognitive function is a common side effect (Tager, Mckinley, & Schnabel, 2010). Cognitive decline in breast cancer survivors is quite common, according to growing evidence, which ranges from 16% and 39% (Teuchen et al., 2003). Cognitive decline along with ongoing problems are found several years after chemotherapy treatment has ended (du Ruitter et al., 2011).

Working memory, processing speed, executive function with visuospatial functioning, and psychomotor speed are the areas that neuropsychological studies have found impairment and dysfunction. Neuroimaging studies that compared differences in the brains of breast cancer survivors who underwent chemotherapy and patients who did not, found structural differences (Wefel & Schagen, 2012). Although it is uncommon that performance tests (objective) and self-report measures (subjective) in relation to cognitive functioning are seldom correlated, self-report measures are correlated with psychological function. Survivors often report that their experience of cognitive decline highly affects their ability to thrive (Milbury et al., 2013).

Treatment for both the objective and subjective cognitive decline in breast cancer survivors who underwent chemotherapy are limited (Milbury et al., 2013). None of which have found significant efficacy. Pharmaceutical interventions have been tested; however, results are not consistent and the side effects are often extreme, affecting the survivors' quality of life (QOL). Behavioral interventions that have targeted the objective cognitive decline are limited, have yielded weak results, and do not target the overall wellness of the person. There is increasing evidence that mind-body programs

aimed at implementing meditation and body awareness practices may treat both the objective and subjective cognitive decline with no side effects.

The exploration of mind-body practices was the basis of the above study due to the ongoing efficacy of meditation practices on both physiological and psychological functioning (Milbury et al., 2013). The researchers sought to introduce a Tibetan Sound Meditation (TSM) to survivors of breast cancer who underwent chemotherapy and who are experiencing cognitive decline. TSM, unlike a traditional meditation that focuses on the breath, utilizes self-produced sounds.

TSM is a six-week program where participants meet twice per week (60 minutes each session) with a meditation teacher who offers guided meditations that include breath awareness and concentration technique, as well as visualization and sound exercises.

Each practice correlates a specific healing sound (Ah, Om, & Hoong, year) to a part of the chakra system in the body (forehead, throat, and heart) and a color in the form of light. These healing sounds originate from ancient Hindu text in the Rigveda, which contains a detailed written account of Sanskrit hymns. Stage 1 of the cognitive portion of the program offers practices that are intended to recognize, clear, and release negative thoughts. Stage 2 intends to cultivate positive feelings of joy, love, and peace. Stage 3 teaches participants to integrate all that has been learned in TSM into their daily life.

Milbury et al. (2013) hypothesize that the TSM program could improve both objective and subjective cognitive functioning in breast cancer survivors in comparison to a wait-list control group. Mood, fatigue, sleep disturbance, spiritual well being, and overall QOL were also examined. The participants in the TSM group had high attendance

rates, high rates of home practice participation, and positive evaluations of the program itself. Open-ended questions about the TSM program were nearly 100% positive.

Self-report measures of cognitive function (The Functional Assessment of Cancer Therapy (FACT)-Cog), quality of life (SF-36), depressive symptoms (Center for Epidemiologic Studies Depression Scale), spirituality (FACT-Sp), sleep disturbance (Pittsburg Sleep Quality Index), and fatigue (Brief Fatigue Inventory) were completed at baseline, the end of treatment, and 1-month post treatment. Overall, participants in the TSM group in comparison to the control group performed better on the verbal memory test, short-term memory, and processing speed tasks. Also, they reported improvements in cognitive function, cognitive abilities, mental health, and spirituality post participation in TSM.

Water, Sound, & Intention. Researcher Masaru Emoto produced a number of studies with the hypothesis that water crystals will form differently depending on how those water crystals are treated (Emoto, 2001). Over the course of his work he looked at the quality of water crystals when exposed to different sounds as well as intentions. His hypothesis was proven to have significant differences between water crystal formations that were exposed to a variety of conditions such as sound waves, intentions, and words.

In one study, Emoto (2001) exposed distilled water to various genres of music and then froze the water to see if there were any differences between the water crystal patterns. He found that the water exposed to classical music formed beautiful, colorful crystals. The water exposed to Tibetan healing music also formed beautiful patterns with various colors. However, the water exposed to heavy metal music produced forms with no symmetry, as though the crystal had exploded.

Radin, Lund, Emoto, and Kizu (2008) also observed water crystal formation with another variable: distant intention. Water samples located in an electromagnetically shielded room in California were intentionally thought of by a group of 1,900 people in Germany for three days. The group of people was led in a prayer of gratitude towards the water. Water located outside of the electromagnetic room was used as the control and did not receive the gratitude prayers. Results of the study found that the crystal images of the intention condition were rated as far more beautiful than the control crystals.

Emoto (2001) also found that water crystals formed differently depending on specific words that were either written and placed on the container of water or spoken towards the water. Words such as “thank you” produced beautiful hexagonal crystals whereas the word “fool” produced deformed, misshaped crystals. Emoto’s (2001) studies add to the evidence that sound and intention has a profound effect on water crystals. Given that the human body is primarily made of water, theoretically, sound and intention will also affect the human system.

Cymatics. Swiss scientist Hans Jenny studied how sound affects matter, which he named Cymatics (Jenny, 1972). Cymatics, meaning wave in Greek, is the use of crystal oscillators and the tonoscope to observe differences in the shape and design of piles of granular or powdery materials such as sand, iron filings, fine grained plastic, and mercury when exposed to different sound frequencies. The tonoscope is an acoustic device that enables one to observe a visual representation of sound waves (Webster.com, 2017). The structure and design of the piles varied depending on what type of sound the material was exposed to. Similar to Emoto’s studies on water crystals, the piles exposed to certain vibrations rearranged themselves to resemble beautiful kaleidoscopic patterns with depth

and texture. The patterns resemble universal patterns seen in nature such as snowflakes, flowers, and spirals.

Perhaps one of the most interesting discoveries by Hans was his study on the effects of the mantra Om, which produced an image that replicates the ancient Buddhist mandala, a spiritual image representing various universal or cosmic patterns that represent the sacred vibration of creation. The image found by Cymatics was consistently seen as a pattern of diamonds and triangles with a circle in the middle. This is the same image that has been seen throughout the ages within Buddhist tradition for thousands of years.

Cymatics Therapy. From the study of Cymatics, Dr. Mannars created Cymatic Therapy, which uses audible sound waves to stimulate biological systems for the purpose of creating an ideal metabolic state within that system. Cymatic Therapy has been used in the U.S. for 30 years to treat a wide variety of physical ailments such as but not limited to rheumatism, muscle strain, arthritis, and bone fractures (Qimaster.com, 2007).

Sound, Healing, and Plant Health. Plants, like people, are susceptible to the effects of various sound frequencies, which either promote or inhibit growth. The study of the effects of sound on plants is an area of research that yields interesting results. Ultrasound is used at times to jumpstart the germination of seeds (Shores et al, 1999). Plants that live near noisy freeway sound grow differently than those in a quiet environment (Bache & Macaskill, 1984). Music can also promote seed germination depending on the type of music that the seeds are exposed to (Chivukula & Ramaswamy, 2014). Given that plants do not have a central nervous system, it is in the interest of

researchers how and why sound and music has such a profound effect on the livelihood of growth.

Previous studies showed that when seeds were exposed to stress caused by a 1% saline solution compared to another group of seeds exposed to a 1% saline solution that was held by an energy healer for 15 minutes, the growth of the seeds showed significant differences (Grad, 1967). The group of seeds that were watered with the energy healer-exposed solution grew taller and more robustly.

In a study by Haid and Huprikar (2001) that examined the effects of meditation on seed germination, researchers found that pea seeds that were given water that was meditated on with the intention of promoting seed growth grew 20% faster than controls. Interestingly, wheat seeds that were given water that had been meditated on the inhibition of growth grew 8% slower than controls.

Researchers Creath & Schwartz (2004) examined the effects of music, noise, and energy healing in attempts to better understand the therapeutic implications as well as mechanisms of action of the three variables on seed germination. A series of experiments were conducted using okra and zucchini seeds, all of which were placed in growth chambers designed to eliminate as many environmental variables that may affect each condition.

In the sound condition, identical speakers were placed inside the growth chamber, exposing the seeds to continuous sound for 16 hours per day. The music group was given a composition that incorporates nature sounds, Native American flute, sounds of the breath, and continuous short phrases. The noise condition involved another group of seeds that were exposed to pink noise, which is a series of 3-minute high and low

frequencies. Pink noise was chosen due to its power spectrum being similar to white noise, which contains low frequencies that roll up and the high frequencies rolling off. Pink noise has more low frequencies than white noise. It is unclear why the researchers chose pink over white noise. Both sound conditions were set to the same speaker volume and were compared to controls. The okra and zucchini seeds that were exposed to music sprouted faster than controls. Also, the noise condition group did not germinate as fast as the music group.

In the energy healing condition, the Vortex Healing (VH) therapeutic modality was used, which is recognized by the Associated Bodywork and Massage Professionals as a method of intentional healing. The VH method developed by Weinman (1994) can be traced back to over 5,000 years ago in India. VH for this study included consciously connecting to the okra and zucchini seeds, setting the intention for the seeds to germinate faster than controls, asking all energetic systems to allow for this, allowing these systems to engage naturally, and for the VH practitioner to become a channel for this energy to flow. The VH practitioner utilized his hands to lightly touch the petri dishes of seeds while engaging in intentional healing.

The seeds treated with VH for 15-20 minutes per day, twice per day, for a total of six treatments grew faster. Although the possible bioelectromagnetic thermal activity from the hands of the healer was not specifically measured, the study showed that the VH technique has an effect on seed germination (Creath & Schwartz, 2004).

Given that sound and energy healing both have a profound effect on seed germination, further studies have been conducted to look at different types of music on plant growth. Chivukula and Ramaswamy (2014) found that not only does music

enhance plant growth, but also that the plants have a preference to different types of music. The word preference is used to describe the plant's response to the various types of music that the researchers exposed the plants to. They used *Rosa Chinesis* plants, commonly known as the China rose, which were all grafted on the same day from the same mother plant.

The plants were divided into groups with six plants per group and potted in similar sized pots with equal amounts of soil. One group was used as a control, while the others were exposed to Indian classical music, Vedic chants, western classical music, or rock music for 60 minutes for 62 days. Environmental variables were taken into consideration and minimized as much as possible.

Results found that the highest measurements of shoot length, number of flowers, and diameter of the plants were found in the Vedic chanting group. The highest increase in internode length was found in the Indian classical music group. The western classical music group also stimulated growth, but not as much as the Vedic chant and Indian classical music groups. Interestingly, the rock music group displayed significantly lower growth than all other groups as well as the control group.

Observational data was also taken on the directional growth of the plants. The Vedic chanting and Indian classical music groups notably grew in a direction towards the music. The Western music group grew straight in an upward direction with no significant growth towards the music source. In the rock music group, however, the plants grew away from the music source (Chivukula & Ramaswamy, 2014).

Music Therapy

Music therapy can offer a non-verbal method of communication, a space to get in touch with emotions, and a way for the body and mind to regain a sense of balance. According to the American Music Therapy Association (2017), “music therapy is the clinical and evidence-based use of musical interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program.” Although not all professionals who integrate music into treatment modalities for physical and mental illness are certified ‘music therapists,’ music can provide a method of communication that may be beneficial for those who struggle to express themselves using language alone.

Evidence For Beneficial Effects of Music Therapy. Music has been found to have an effect on an array of physical and mental health disorders, such as acute pain management (Koch et al., 1998), pain due to cancer (Zimmerman et al., 1989), and labor pain (Phunmdoung & Good, 2003). Researchers have found that the beneficial effect of music is partially due to the response to music and the physiological activation of the mesolimbic system, which is partially responsible for feelings of pleasure (Menon & Levitin, 2005).

Music Therapy for Depression. The utilization of music therapy for mental health is generally used in both group and individual settings. Music therapy can be interactive, allowing the participant to engage in music making, or it can be receptive, meaning the participant listens or absorbs the sound of the music in a passive manner (Maratos et al., 2011). These methods most often involve listening to a composed musical arrangement to induce feelings of relaxation, reflection, guided imagery, and

change of mood states. Free improvisation is a form of music therapy that is also utilized, which offers a non-verbal method to connect with emotional memories and images that allows the participant to engage in self-projection and free association (Hadley, 2003).

Few studies have looked at the effects of music therapy for depressive symptoms; however, observational data on how individuals respond to music therapy are positive (Edwards, 2006). No adverse effects of music therapy have been found thus far, unlike conventional methods of treating depressive symptoms as stated above.

Another study showed that people with chronic pain who were exposed to music showed less depression, pain, and disability than controls (Siedliecki & Good, 2006).

Researchers in Oaxaca, Mexico compared music therapy to traditional psychotherapy in people with low and medium levels of depression (Perez et al., 2010). Their hypothesis was that music could affect chemical activity in the brain, which can reduce symptoms of depression. They found that the music therapy group was exposed to both baroque and classical music due to previous studies on their neurobiological effects. The music group was given recordings and self-administered the music for 50 minutes per day. The music group showed significantly lower scores on depression scales and symptoms than the psychotherapy group.

Researchers in Finland looked at the efficacy of music therapy as an adjunct to conventional treatment for depression (Erkkila et al., 2011). They used an improvisational, psychodynamic music therapy as an adjunct to treatment as usual and compared it to a control group that was purely treatment as usual. Treatment as usual consisted of short-term psychotherapy, medication, and psychiatric counseling. The

music therapy group engaged in active participation that is rooted in a psychodynamic music therapy technique. The goal of this form of music therapy is to engage the patient in an interactive-free musical improvisation and discussion. The role of the therapist is to facilitate the patient's therapeutic process through musical elements combined with reflection of what was experienced. Results of the study found that music therapy as an adjunct to treatment as usual had greater improvement on depressive symptoms than standard care alone.

As mentioned earlier, intention is a component to sound healing practices and as Emoto discovered correlates between intention and matter. Researcher Adina Goldman (2004) Shore conducted a study to explore the long-term effects of energetic healing on symptoms of psychological depression and self-perceived stress. Shore randomly assigned participants to three groups: hands-on *reiki* (energy healing), distance *reiki*, or distance *reiki* placebo (control group). Each participant received a 90-minute treatment each week for six weeks. The Beck Depression Inventory, the Beck Hopelessness Scale, and Perceived Stress Scale were used to assess for changes in symptoms of depression among participants. Participants were also asked to not engage in any new types of treatments or activities that may affect symptoms. Data was gathered immediately after the six-week treatment, and again gathered one year after (Goldman, 2004).

Pretest data found no differences between groups; however, post test data found significant, positive differences in the hands-on and distance *reiki* groups in comparison to the placebo control. No significance was found between both treatment groups, suggesting that both hands-on and distance energy healing can be correlated with symptom reduction. Symptoms of depression continued to decrease even after one year

of receiving treatment in comparison to controls, despite receiving no further treatment. These results suggest that both hands-on and distance energy healing is effective in reducing symptoms of depression that can also have lasting results (Goldman, 2004).

Researchers in Taiwan provided further evidence of the effects of music on depression by conducting a study with a sample of psychiatric inpatient individuals diagnosed with major depression (Hsu & Lai, 2004). In this study, 54 participants were examined using pre and post-test measures of depression. Researchers hypothesized that subjects who listened to soft music for the purpose of therapy every day at 6pm for two weeks would show depression symptom reduction compared to those who did not.

Participants who were assigned to the music therapy group were given a choice between six types of music on a recorded CD. They were then instructed to listen to the CD for 30-minutes at the same time each day. Music choices included four types of Western music and two of Chinese and Taiwanese music. Results of the study showed a significant reduction in depressive scores in the music therapy group at the post-test data collection point in comparison to controls. All music types were found to have similar effects even after one week. Effects continued to increase for the second week as well and no plateau emerged at the two-week termination point of data collection. It is unclear whether depression scores changed due to listening to the music itself or if scores changed due to participants' engagement in an activity they enjoyed (Hsu & Lai, 2004).

CHAPTER III

Method

Research Design

Grounded Theory is a qualitative research design that is utilized for the purpose of developing a theory. This study utilized a qualitative design of grounded theory due to the limited amount of research and understanding of sound healing. More specifically, no studies have been published that aim at understanding the efficacy of sound healing as an adjunct to psychotherapy treatment of depression. By collecting detailed information about phenomena such as physical sensations, thoughts, and emotions that are not accessible through quantitative measures, qualitative research can gain a better understanding of a participant's perceptions of the benefits of sound healing (Strauss & Corbin, 1998).

Theoretical development through the process of grounded theory provided evidence of the need for further research. Semi-structured interviews were conducted to explore individual experiences of sound healing, which resulted in establishing categories and themes between participants' dialogue. A theory about sound healing as a viable adjunct to conventional treatment of depression was established through the findings of this study.

The synthesis of the previous literature on both sound healing and music therapy with the results of this study assisted this researcher in establishing a theoretical model about sound healing as a complementary treatment of depression. Additionally, quantitative measures of depression, anxiety, and perceived stress were collected as an

addition to the qualitative data, revealing trends in symptom reduction amongst participants.

Participants

Eight women who were diagnosed with MDD by a mental health professional and who were undergoing individual psychotherapy with an outside psychotherapist were recruited from local mental health facilities.

Inclusion Criteria. Recruitment of participants was based on three criteria: 1) adults over the age of 18); participated in weekly individual psychotherapy during the course of the study, 3); diagnosed with major depressive disorder by a mental health professional as defined by the DSM-V (American Psychiatric Association, 2013).

Participants who were concurrently receiving pharmaceutical treatment for depression or who were using natural supplements or herbs for depression were included and permitted to continue use throughout the duration of the study.

Exclusion Criteria. Participants were excluded from the study if they were actively psychotic, homicidal, or suicidal, or if they had a severe substance abuse disorder. Exclusion also included anyone who currently attended regular sound healing sessions. Non-English speaking individuals were excluded due to the primary researcher's monolingual English speaking status. Anyone who was unable to attend four, weekly sound healing sessions, was excluded or terminated from the study.

Recruitment and Consent

Recruitment of participants was conducted via contact with local therapists through phone calls and emails with information about the study. A flyer detailing a brief description of the study was given to therapists (Appendix D) who expressed an interest

and were given the opportunity to offer participation of the study to their patients who meet the inclusion criteria. Each potential participant contacted this researcher via email or by phone to inquire further about the study. The primary researcher followed up with each potential participant to provide details about the study, answer any questions, and conduct scheduling. An informed consent was given to those who agreed to the terms and conditions of the study (Appendix A).

Protection of Human Participants

The study followed the *Ethical Principles and Codes of Conduct* for psychology (American Psychological Association, 2002) and obtained approval from the Institutional Review Board (IRB) at Alliant International University. Participants were notified of their rights as volunteer participants, including the right to terminate participation of the study at any time, confidentiality rights and limits, and were given information regarding the measures that were taken to protect their identity. Participants were given the opportunity to ask questions regarding the study via the primary researchers contact information. Each participant signed and agreed to the Informed Consent form (Appendix A) prior to participation.

Materials

Both semi-structured interviews and quantitative measures were collected for the completion of this study. A recording device for semi-structured interviews and paper-based quantitative measures were used for both data collection and analysis. Details of each are discussed below.

Semi-Structured Interviews. Semi-structured interviews took place at a private, confidential setting and were recorded for assurance of accuracy. Interview questions

were open-ended and designed to gain an understanding of the subjective experience of sound healing for each participant (see Appendix C).

Quantitative Measures. Participants who agreed to the terms and conditions of the study and who signed the informed consent form completed questionnaires at time 1 (T1), immediately before the first sound healing session and at time 2 (T2), 4 weeks later, immediately after each participants' last sound healing session. Questionnaires were used to gather further data on the perceptions of patient's depression, perceived stress, and anxiety symptoms. In combination with the data gathered through semi-structured interviews, questionnaires added to overall impressions of the experience of participants, providing a broader range of information. Demographic data was collected at the beginning of the study (Appendix B). The measures used in this study were administered to participants individually at T1 and T2. Copies of assessments are not included in this document due to copyright restrictions.

Measures

Demographic Data. Participants completed a brief demographic questionnaire to identify their gender, age, race, ethnicity, and socio economic status. Previous exposure to alternative medicine was also assessed.

The Beck Depression Inventory-II. The Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) was administered to assess severity of depression. The BDI-II is a self-report, 21-question multiple-choice questionnaire designed for adults (ages 17-80). Items are scored with a 4-point Likert scale designed to assess symptoms of depression such as hopelessness, depressive feelings, and physical symptoms. The BDI-II is a widely used measure of depression, has demonstrated good internal

consistency (Chronbach's $\alpha=.91$), and validity in a range of populations (Wang & Gorenstein, 2013).

The Beck Anxiety Inventory (BAI). The BAI was administered to assess severity of anxiety (Steer & Beck, 1997). The BAI is a self-report, 21-question multiple-choice questionnaire designed for individuals who are 17 years of age and older. Items are scored with a 4-point Likert scale designed to assess symptoms of anxiety such as numbness and tingling, sweating not due to heat, and fear of the worst happening. The BAI is a widely used measure of anxiety, has demonstrated good internal consistency (Cronbach's $\alpha=.90$ to $.94$), and validity in a range of populations (Fydrich, Dowdall & Chambless, 1993).

The Perceived Stress Scale (PSS). The PSS was administered to assess perception of stress as defined as the degree to which situations in one's life are seen as stressful (Cohen & Williamson, 1988). The PSS self-report, 10-item questionnaire is designed for individuals who are community members and have at least a junior high school education level. Items are scored on a 5-point Likert scale and are designed to assess how the respondent felt over the past month. The PSS is a widely used measure of perceived stress and has demonstrated good internal consistency (Cronbach's $\alpha = .89$) in a community sample (Roberti, Harrington & Stoch, 2006).

Procedure

A sample size of eight participants was used to analyze results of this study using quantitative measures of depression, anxiety, and perceived stress, as well as semi-structured interviews. Participants were recruited by both word of mouth and email to local therapists throughout San Diego County. A flyer (Appendix D) was given to

therapists with a brief description of the study, inclusion criteria, and incentives for completion of the study: four free sound healing sessions and a \$25 gift card.

The study took place at a space used as a meditation studio and private therapy practice where the primary researcher is currently employed as a registered psychological assistant. Participants attended four, 30-minute sound healing sessions, once per week, for four weeks in addition to their ongoing individual psychotherapy treatment with an outside psychotherapist. Sound healing sessions were administered to participants by the primary researcher in both group-based and individual session format. At the onset of the study, all participants were assigned to one of three groups of no more than four participants per group. When participants were unable to attend any given group session, a makeup session was provided during the same week as the assigned group session. Interviews were conducted individually upon completion of all four weekly sound healing sessions. Immediately before administration of the first sound healing session participants responded to quantitative measures.

The sound healing sessions consisted of beginning each session with the facilitator guiding participants to bring awareness to an intention for the session, along with a brief description of the purpose of intention setting. Intention setting included a personal purpose for that particular sound healing session. Intentions included but were not limited to: release any stagnation or negativity from the body and mind, to cultivate inner peace, to let go of a particular thought pattern that no longer served them, or to simply be present. The facilitator then paused for a moment of silence to provide time for participants to internally set an intention for their sound session. Following the

intention setting, the facilitator then began striking and rubbing a set of seven handmade Tibetan singing bowls for 30-minutes.

Materials

Tibetan singing bowls have been traditionally used for meditation and healing purposes, with historical traces back to the Bon civilization, a time long before the birth of Buddhism (Inacio, Henrique, & Antunes, 2003). Throughout the ages, Tibetan singing bowls have survived thousands of years and are still being used today for meditation, relaxation, healing, and music making. They are made by hand in Tibet, Nepal, Bhutan, Mongolia, India, China, and Japan. Metals, such as copper and tin, are mostly used to make the bowls; however, other metals, such as gold, silver, iron, and lead are also used. Each metal is believed to have spiritual properties, giving Tibetan singing bowls a unique intentional association to spirituality. The bowls are made specifically to produce a tone, which is dependent on the alloy composition, its shape, size, and weight.

The bowls are typically played with a leather wrapped wooden mallet (Terwagne & Bush, 2011). Tapping and rubbing the bowl's rim produces an excitation, causing the bowl to vibrate and thus producing a sound that can not only be heard, but can be felt throughout the entire body. Several variables affect the emanating sound of the bowl: location of the tapping and/or rubbing, the force at which the mallet impacts the bowl, and the materials of the mallet itself (Inacio et al., 2003). The sound healing facilitator of the proposed study provided participants with minimal instruction. Instruction included: 1) finding a posture that is relaxing to the body (sitting or lying), 2) eyes closed or open, and 3) guidance on sensing into the sound waves with intention. Sensing into the sound waves with intention included but was not limited to the following words:

I invite you to open your awareness to the sound of the bowls. Experience the sound for what it is in this moment: waves of energy in the atmosphere being absorbed by the body. Allow the sound to flow through the body, while exploring the sensations that arise.

Upon completion of each 30-minute sound healing session, participants were instructed to begin to move the body slowly, to open closed eyes if they were shut, and to come to an upright, seated position for those who chose to lie down. The facilitator then opened the group to engage in brief dialog for sharing about their experience and to ask questions.

Immediately upon completion of each participant's final sound healing session, quantitative measures were completed. At this point, some participants scheduled their interview times with the researcher and some conducted their interview at that time. Interviews were conducted no later than one-week after the participant's final sound healing session. Interviews were recorded with a recording device and later transcribed via a professional transcriber who signed a confidentiality form (Appendix E). Upon completion of the study, participants were given a \$25 gift card and information about sound healing sessions offered to the public throughout the community.

Data Analysis

Transcriptions of the semi-structured interviews were analyzed using Grounded Theory as explained in this section. Grounded Theory can establish themes to create testable hypothesis and theory (Flick, 2014). A four-stage, Constant Comparative Method that involved open coding, axial coding, and selective coding were utilized. The

Constant Comparative Method was used to analyze interview data and to discover common themes amongst participants' experiences (Maykut & Morehouse, 2003).

Units of meaning and concepts, also known as codes, were established during the open coding stage (Flick, 2014). Upon completion of each audio-recorded interview, a transcription was created to begin open coding. Each document was read while listening to the audio recording to observe any vocal tones that may add to the information within the written data. Once thoroughly examined, the first transcription was then coded by extracting units of meaning within the data. Units of meaning were written in a comment bar alongside each transcript and refined into succinct codes. Each successive interview was then analyzed in the same manner and constantly compared to one another, as the researcher constructed labels to define each code. Codes were then applied to each extracted theme from the data, which were then examined further in the next stage.

Units of meaning and codes were then categorized, establishing a secondary set of codes during the axial stage. Axial coding aimed at identification of one main theme that integrated all of the main concepts in the open coding stage. Development of a proposed theory occurred during this stage, which became the focus of the study. (Strauss & Corbin, 1990). A table of each participant's codes was then created and colors were assigned to each code to better organize the data and axial coding was initiated. Codes were compared and contrasted with one another and placed into overarching themes and categories. When irrelevant codes were discovered, an elimination process was implemented, while relevant codes remained and compared to one another until saturation was met. Upon analysis of the data collected, the examiner established themes and categories from all interview answers.

Secondary codes were then grouped into overarching themes and core concepts during the selective coding stage. Review of the recorded interviews from the perspective of the main themes were conducted for the purpose of identifying causes, strategies for addressing context, potential interventions, and results of such interventions as they related to the main themes (Creswell, 2007). The coding paradigm developed as a result of this process and lead to the theory being represented as a visual model.

Finally, during the selective coding stage, themes and core concepts were reviewed, providing the basis of a theory about sound healing as a viable adjunct to conventional treatment of depression (Strauss & Corbin, 1990). Theoretical model development at this stage integrated the entirety of each stage, showing how all components connected to one another (Flick, 2014).

Data collection terminated at a sample size of eight due to data saturation. Data saturation is the point in qualitative analysis when the data becomes redundant, fails to reveal new information, and where new themes no longer present themselves (Glaser & Strauss, 1967). Data saturation was determined when no new information was obtained, when redundancy was achieved, when the data revealed substantial information to answer research questions, and when enough data was gathered to develop a grounded theory about sound healing as an adjunct to psychotherapy.

Although there are no set regulations regarding a minimum number of participants within qualitative research methods, Guest, Bunce, and Johnson (2006) suggested that saturation often occurs at around 12-15 participants. In this study, saturation was met when data analysis of eight participant's interviews were thoroughly reviewed as described above. During the selective coding stage of data analysis, core

categories and themes were then analyzed to build a story about the participant's experience of sound healing and its influence on psychotherapy. Initially, 10 participants were enrolled in the study at the onset, but two did not complete the study.

Provisions of Trustworthiness

To ensure reliability and validity of the study results, provisions of trustworthiness were implemented throughout the duration of the study. First and foremost, researcher bias was continuously examined. The primary researcher was not only invested in the research topic of sound healing, but was also a sound healer. Having utilized sound healing as a personal health modality for over ten years, the primary researcher had a fundamental belief in its benefits and theoretical underpinnings. Alternative methods of health were of high importance to the primary researcher both in personal and professional realms. To reduce researcher bias throughout the duration of the study, as well as during the data analysis phase, specific measures were taken: descriptive validity and theoretical validity.

Descriptive Validity. To ensure accuracy of data analysis, a research assistant was assigned. The assistant had previous experience as a research assistant for a qualitative research study. Over 25% of the recordings were analyzed and coded by the outside peer reviewer and then compared and discussed with the primary researcher. Refinement of categories and themes were discussed between the primary researcher and research assistant. No major discrepancies were found.

Theoretical Validity. Discussion of interpretations with peers was implemented. Upon completion of a development of a theoretical model, the primary examiner scheduled time with selected peers who have received training in qualitative research

methods to discuss the findings to allow for other's perspectives, interpretations, and suggestions for edits. No major discrepancies were found.

Research Journal. Use of a research journal to document observations of participants and researcher reactivity, behaviors, and other unforeseen occurrences that arose was implemented. Following each interview, the investigator logged impressions as well as potential biases that arose during and after interviews. Processing of any concepts, thoughts, emotions, and observations was documented and considered during the entirety of the study.

CHAPTER IV

Results

The purpose of this study was to examine the experience of participants who engaged in a four-week sound healing treatment as an adjunct to individual psychotherapy for depression, as well as their perceived impact of sound healing on their lives. This chapter includes participant descriptions, including demographics and a summary of their experience of depression, psychotherapy, and their overall impressions of the use of CAM practices. Results of qualitative data analysis, including descriptions of emergent categories and themes with participant quotes, are presented in this chapter. Additionally, the quantitative measure results gathered at T1 and T2 are summarized.

Participants

At the onset of the study, a total of ten participants agreed to the terms of the study, signed the informed consent, and completed a demographics questionnaire, as well as all three quantitative measures. Two individuals terminated the study, which will be further discussed in the participant retention section of this document. The results of this study utilized the information gathered from the eight participants who completed the study. In addition to the pre-study requirements listed above, these eight individuals participated in four weekly, 30-minute sound healing sessions, which were divided into three groups, completed three post treatment quantitative measures, and met with this researcher individually to complete a semi-structured interview. Due to minor conflicts in scheduling, individual make-up sessions were provided to those who missed any group sessions. To maintain confidentiality, each participant was assigned a fictitious name.

The following table outlines each participant’s fictitious name and sound healing schedule:

Table 1.

Sound Healing Session Schedule

| Participant | Session 1 | Session 2 | Session 3 | Session 4 |
|-------------|-----------|-----------|------------|------------|
| Andrea | Group | Group | Group | Group |
| Beth | Group | Group | Individual | Individual |
| Claire | Group | Group | Group | Group |
| Lydia | Group | Group | Group | Individual |
| Mary | Group | Group | Individual | Individual |
| Nicole | Group | Group | Group | Individual |
| Sofia | Group | Group | Group | Group |
| Tara | Group | Group | Individual | Individual |

Table 1

Participant Profiles

At the time of the study, Andrea was a 34-year-old, Caucasian, heterosexual, single female who was referred to the study by her therapist in a private practice in San Diego. She was born and raised in Texas and reported living alone in San Diego, California during the study. Andrea’s highest level of education was a bachelor’s degree, and she had worked in sales. She reported having struggled with depression since childhood and had been in psychotherapy on and off since adolescence. Andrea did not utilize psychotropic medications for her mental health and reported having tried alternative health treatments including meditation and yoga.

Andrea reported that she had always felt “different.” She also reported experiencing some childhood trauma that resulted in feelings of shame and guilt, which she believed exasperated her lifelong struggle with depression. Some of her identified symptoms of depression were sadness, struggles with food and body image, weight fluctuations, and toxic relationships. She felt that for her, psychotherapy has been most

successful in the last year due to the relationship she had with her therapist, who integrates CAM into her treatment. In her daily mental health maintenance, she found that regular exercise, proper nutrition, meditation and ongoing psychotherapy were vital to her overall wellbeing.

Beth was a 63-year-old, Caucasian, heterosexual, divorced female, at the time of the study and was referred to the study by her therapist in a private practice in San Diego. She was born and raised in San Diego, California and reported that she lived alone in her car. Beth's highest level of education was high school, and she did not report any employment status. She reported having struggled with depression since childhood and had been in psychotherapy on and off since 1992. Beth did not utilize psychotropic medications for her mental health and reported that she finds utilizing holistic methods of treatment to be the most effective in treating her depression.

Beth reported feeling like she never really fit in, but that she knew how to "fake it to get by." She discussed having a, "gnawing inner feeling of unworthiness" and not being accepted and that one of her depressive symptoms included overeating. Beth discussed having suffered severe postpartum depression and that Western medicine was unsuccessful in helping her find relief. Beth reported that psychotherapy has not been very helpful to her until recently when she began seeing a therapist who integrates alternative medicine into her treatment. She also shared that she viewed herself as resilient and a survivor. Beth reported that being an active researcher of treatments and theories regarding overall health and wellbeing was imperative to her daily mental health, as well as in maintaining a healthy lifestyle.

Claire was a 57-year-old, Caucasian, heterosexual, divorced female at the time of the study. Her therapist who owns a private practice in San Diego referred her to the study. She was born in Massachusetts and grew up in San Diego, California where she was residing alone. Claire obtained a bachelor's degree and was retired from a career in public relations. She reported having struggled with depression on and off for 12 years and had been in psychotherapy intermittently throughout that time. Claire utilized 10 mg of Lexapro daily for depression. She reported having tried alternative health treatments for her mental health, including meditation.

Claire shared that her depression stems from having chronic health issues and going through a divorce seven years ago. She reported having feelings of hopelessness due to her health issues and that this feeling of hopelessness leads to isolation. She stated, "It's not ever been like I can't get out of bed or anything. I still do stuff and still like to socialize and all that kind of stuff, but it's just sort of sometimes - just a weight of health problems that I feel are out of my control." Claire found mindfulness-based psychotherapy helpful and also had a belief that the therapeutic relationship was vital to successful treatment. She discussed the importance of exercise, meditation, journaling, community engagement, listening to positive talks on the Internet, and positive thinking as important aspects of her day-to-day methods of managing her depression.

Lydia was a 40-year-old, Caucasian, heterosexual, single female who was referred to the study by her therapist in a private practice in San Diego at the time of the study. She was born and raised in Massachusetts and reported living alone in San Diego, California. She obtained a bachelor's degree and currently works as a retail buyer. She reported having struggled with depression for 25 years and has been in psychotherapy

intermittently since she was 20 years old. Lydia utilized 20 mg of Lexapro daily for depression during the time of the study. She reported having tried alternative health treatments for her mental health including meditation, yoga, relaxation, acupuncture, massage, Reiki, shamanic training, and Qi gong.

Lydia shared that her experience of depression had changed throughout her life. At times, she suffered severe anxiety and panic, which prevented her from being able to work. She reported she felt as though there was a cloud over her head and that others viewed her as a “downer.” As a result, she felt she needed to take care of her mental health, which led to a lot of time spent alone. When her depression is at its worst, she is unable to engage in her life and struggles with weight fluctuations and difficulties in self-care. Lydia shared that it wasn’t until she found a therapist who integrated alternative health practices into the therapy that she began to improve, and that for her, the relationship to the therapist is vital. For Lydia, attending alternative health workshops, healthy sleep, journaling, and reaching out to her family is helpful in managing her mental health.

At the time of the study, Mary was a 33-year-old, Caucasian, bisexual, divorced female who was referred to the study by her therapist in a private practice in San Diego. She was born and raised in Spain and reported living with a roommate in San Diego, California. She obtained a master’s degree and worked as an elementary school Spanish teacher throughout the duration of the study. Mary reported having struggled with depression since her early 20’s and sought therapy in early adulthood. She did not take psychotropic medication for her mental health, but reported having tried alternative health

treatments including meditation, yoga, relaxation, acupuncture, massage, dance, and exercise.

Mary reported some stressful life events occurred in her early 20's that lead to the onset of her depression in which she experienced extreme sadness and difficulty with productivity. Last year, Mary was in a car accident resulting in a concussion that exasperated her symptoms of depression and anger. Her previous methods of managing her mental health were no longer helpful, which inspired her to seek psychotherapy once again. For Mary, loss of productivity, sadness, anger, irritability, overeating, self-doubt, isolation, and changes in her typically extraverted personality are some of her identified symptoms of depression. For Mary, processing her emotions, identifying solutions to problems and having a positive perspective, along with verbalizing her thoughts to others, were vital to her day-to-day coping with stressors. She found that psychotherapy was most successful when a good therapeutic relationship was established. Although she utilized CAM, she also reported a belief that the majority of CAM modalities are expensive, limiting its use to individuals with a higher socio economic status.

Nicole was a 53-year-old, Caucasian, heterosexual, separated female, at the time of the study. Her therapist in a private practice in San Diego referred her to participate in the study. She was born and raised in California and reported living alone in San Diego, California. She obtained a master's degree and worked as a teacher throughout the duration of the study. Nicole reported having struggled with depression since puberty and had been in psychotherapy on and off for 10 years. She was not taking psychotropic medication for her mental health, but had done so in the past, which she found unhelpful.

Nicole reported having tried alternative health treatments for her mental health including meditation, yoga, and acupuncture.

Nicole shared that depression had affected her level of self-confidence, which decreased her ability to trust her own decisions when growing up. At the time of the study, she reported being more confident in her decision-making, which increased her overall ability to manage her depressive symptoms. For Nicole, running was a great way to set goals, create structure in her daily routine, and to provide her with a sense of community. After an injury, she learned to turn inward to find balance. Gratitude, compassion toward those who have less, and her relationship with God all contribute to maintaining a positive state of mind for Nicole. She perceived psychotherapy as part of her lifelong journey towards self-awareness. For Nicole, having a therapist who validated her thoughts and emotions, as well as provided the support she needed to engage in self-care was vital to her growth. Nicole began exploring CAM treatments about two years ago and found a more holistic approach to healthcare beneficial.

Sofia is a 26-year-old, Latina, heterosexual, married female who was referred to the study by her therapist in a private practice in San Diego. She was born California, and raised several locations. She currently lives with her husband in San Diego, California, obtains an Associate degree, and works as a massage therapist. Sofia reported having struggled with depression for a few years and had been in psychotherapy intermittently during that time. She did not take psychotropic medication for her mental health during the study, but reported having tried alternative health treatments including meditation, yoga, acupuncture, and dance.

Sofia discussed how her depression came in waves, fluctuating between reductions in symptoms to an increase in symptoms. Some of her reported symptoms included loss of interest in hobbies and work, fatigue, chronic pain, as well as struggling to express and feel love in her life, all of which increased her depression. She shared that talking to her therapist and loved ones, along with alternative health practices and socializing with others, sometimes helps with her depression, but that at times, she struggles to enjoy anything. To manage her mental health, Sofia engages in practices and activities such as herbal medicine, and listening to pod casts and other online talks about positivity, spirituality, and impermanence. Although Sofia has been relatively inconsistent with psychotherapy, which she reported as being partially due to the stigma surrounding therapy, she was more accepting in her perspective of its benefits. Sofia has a strong belief in CAM's potential benefits, and she encouraged others to engage in preventative medicine.

Tara was a 47-year-old, Caucasian, heterosexual, divorced female, who was referred to the study by her therapist in a private practice in San Diego at the time of the study. She was born in Oregon, grew up in Washington, and reported living alone in San Diego, California at the onset of the study. Tara was a professor whose highest level of education was a doctorate degree. She reported having struggled with depression for 30+ years and had been in psychotherapy for the majority of those years. Tara reported taking 200 mg of Zoloft daily for depression and regularly met with a therapist for individual psychotherapy. She had tried alternative health treatments for her mental health including meditation and yoga and reported that mindfulness was extremely difficult for her, which at times increased her depressive symptoms.

Tara shared that depression had been a “central theme” in her life. She reported that her home as a child was chaotic and that she had experienced emotional trauma. In the early adulthood stage of her life, she felt disconnected and extremely depressed, struggling with self-regulation and anger. During the course of her doctoral studies, three loved ones died, which exasperated her depression. She had reported that she was working on self-acceptance, addressing her trauma, and exploring how attachment plays a role in her life. Tara was a strong advocate of psychotherapy and appreciated when therapists integrate a sense of secure attachment into treatment. In addition to individual psychotherapy, she engaged in yoga and meditation to manage her mental health. She believed in CAM approaches to healthcare and found it vital to her overall health and wellbeing.

Demographics

Of all eight participants, 100% identified as female ($n=8$), 87.5 % identified as Caucasian ($n=7$), and 12.5% identified as Latina ($n=1$). Half of the participants, 50% ($n=5$), were between the ages of 30-50, while 37.5% ($n=3$) are over age 50, and 12.5% ($n=1$) are between 18-30. The relationship status of participants is reported as 12.5% ($n=1$) married, 12.5% ($n=1$) separated, 50% ($n=4$) divorced, and 25% ($n=2$) single. Of the eight participants, 62.5% ($n=5$) live alone, 12.5% ($n=1$) lives with roommate, 12.5% ($n=1$) lives with spouse, and 12.5% ($n=1$) reported being homeless, while 100% ($n=8$) currently live in San Diego, California.

Table 2.
Participant Demographic Information

| Demographic | <i>N</i> | % |
|-------------|----------|-------|
| <u>Age</u> | | |
| 18-30 | 1 | 12.5% |
| 30-50 | 4 | 50% |

| | | |
|----------------------------|---|-------|
| 50+ | 3 | 37.5% |
| <u>Gender</u> | | |
| Female | 8 | 100% |
| <u>Ethnicity</u> | | |
| Caucasian | 7 | 87.5% |
| Latina | 1 | 12.5% |
| <u>Relationship Status</u> | | |
| Married | 1 | 12.5% |
| Divorced | 4 | 50% |
| Separated | 1 | 12.5% |
| Single Never Married | 2 | 25.5% |
| <u>Sexual Orientation</u> | | |
| Heterosexual | 7 | 87.5% |
| Bisexual | 1 | 12.5% |
| <u>Occupation</u> | | |
| Unemployed | 1 | 12.5% |
| Sales | 1 | 12.5% |
| Retail Buyer | 1 | 12.5% |
| Massage Therapist | 1 | 12.5% |
| Teacher | 2 | 25.5% |
| Professor | 1 | 12.5% |
| Retired | 1 | 12.5% |
| <u>Education</u> | | |
| High School | 1 | 12.5% |
| Some College | 2 | 25.5% |
| Bachelor's Degree | 4 | 50% |
| Master's Degree | 1 | 12.5% |
| Doctorate | 1 | 12.5% |
| <u>Place of Birth</u> | | |
| California | 4 | 50% |
| Oregon | 1 | 12.5% |
| Spain | 1 | 12.5% |
| Texas | 2 | 25.5% |
| Massachusetts | 2 | 22.5% |
| <u>Living Status</u> | | |
| Alone | 5 | 62.5% |
| With Partner | 1 | 12.5% |
| With Roommate | 1 | 12.5% |

| | | |
|---------------------------|---|-------|
| Homeless | 1 | 12.5% |
| <u>Place of Residency</u> | | |
| California | 8 | 100% |

Table 2

Table 3.*Reported Age of Onset of Depression*

| Age Range | <i>N</i> | % |
|-----------------|----------|-------|
| Childhood | 3 | 37.5% |
| Adolescence | 2 | 25% |
| Young Adulthood | 2 | 25% |
| Adulthood | 1 | 12.5% |

Table 3

Participant Retention

Two participants terminated the study despite having completed the informed consent, T1 quantitative measures, and attending two sound healing sessions. One of the participants reported she was unable to commit to the time requirements of the study due to an increase in life stressors, but found the sound healing enjoyable. The second participant, the only male in the study, struggled with attendance, and despite having been given one make-up session, continued to miss subsequent sessions. Given that the study required four consecutive sessions and consistency, a second make-up session was not offered to this participant. He did, however, express that he thoroughly enjoyed the sound healing sessions.

Categories and Emergent Themes Derived from Qualitative Analysis

Through utilization of the constant comparative model of qualitative data analysis, units of meaning were coded and the coding structure was analyzed. Codes endorsed by high numbers of participants were considered themes, while subthemes fit within one of the major themes. Eight themes and two subthemes emerged, while

clustering into four categories, or thematically coherent domains of meaning. Categories, themes, and subthemes are depicted in the table below.

Table 4.

Categories and Themes

| |
|---|
| Category 1: Response to the singing bowls |
| Theme 1.1: Physical sensations in the body |
| Theme 1.2: Awareness of subtle energy resulting in a sense of healing |
| Theme 1.3: Temporary discomfort |
| Category 2: Sound healing promoted wellbeing |
| Theme 2.1: Decrease in negative symptoms and/or increase in positive mental states |
| Subtheme 2.1: Reduced racing thoughts |
| Subtheme 2.2: Increased self-awareness and or clarity |
| Theme 2.2 Reactivity decrease or an increase in self control |
| Category 3: Participant Satisfaction |
| Theme 3.1: Positive experience with sound healing |
| Theme 3.2: Termination of the four-week sound healing treatment |
| Category 4: Sound healing as an adjunct to psychotherapy |
| Theme 4.1: Sound healing was experienced as a beneficial adjunct to psychotherapy |

Table 5

*Participant
Endorsements*

| | Andrea | Beth | Claire | Lydia | Mary | Nicole | Sofia | Tara |
|----------------------|--------|------|--------|-------|------|--------|-------|------|
| Category 1 | | | | | | | | |
| Theme 1.1: | X | | | X | X | X | X | X |
| Theme 1.2 | X | X | | | | X | X | X |
| Theme 1.3: | X | X | | X | X | X | | X |
| Category 2 | | | | | | | | |
| Theme 2.1: | X | X | X | X | X | X | X | X |
| <i>Subtheme 2.1:</i> | X | | | | | | X | X |
| <i>Subtheme 2.2:</i> | X | X | | | | | X | |
| Theme 2.2: | X | | X | X | X | | X | X |
| Category 3 | | | | | | | | |
| Theme 3.1: | X | X | X | X | X | X | X | X |
| Theme 3.2: | X | X | X | | X | X | X | X |
| Category 4 | | | | | | | | |
| Theme: 4.1 | X | X | X | X | X | X | X | X |

Table 5

Category 1: Response to the singing bowls. Themes within Category 1 include participants' descriptions of their response to the sound and/or vibratory frequency of the singing bowls. All eight participants endorsed a reaction to the sound of the singing bowls, some of which contained both pleasant and unpleasant experiences.

Theme 1.1: Sound healing induced physical sensations in the body. Six of the eight participants reported feeling the vibrations of the singing bowls in the body. Rather than only experiencing the sound as an auditory experience, the sound waves were experienced somatically. Participants' direct quotes related to Theme 1.1 are as follows:

Andrea stated:

And then, I mean I don't know, like the vibration that it kind of sends through your body. And I notice sometimes, like certain sounds, I feel them more, I'll feel a whole vibration through my head or, I don't know, I guess body.

Lydia shared,

But I feel them (sound of the bowls) and when I feel them in my physical body, I think things are shaking, if that makes sense?

Mary stated:

But if you really consciously listened you can actually feel that sound going through your whole body.

Nicole shared:

I mean, just the experience of being in here and meditating, very relaxing and the sounds definitely, the different sounds hit different parts of the body, I did notice all that, so that I thought was pretty magical.

Sofia stated:

Yeah, I would physically feel stuff in my body and I like that, so I connect with that a lot.

Tara stated:

I think in general the experience is, I was extremely struck, especially today in the individual session with just the level of attunement of the vibrations with the body.

Theme 1.2: Awareness of subtle energy movement. Five out of eight participants reported experiencing a sensation of subtle energy movement resulting in a sense of healing. Participants' direct quotes related to Theme 1.2 are as follows:

Andrea shared:

I don't know, I just like that it really focuses on shifting, like the energies and just shifting kind of your perspective, in a way, and I feel like it's longer lasting. Its shifting energies, which you can't necessarily feel, but then you feel them when you live, go through your day or week or whatever, that's how you can start to feel the difference.

Beth stated:

So I think all the different sounds are helping to heal my inner being. We get stuck. Just like acupuncture, the chi and all that, and I feel like things are moving more, because when you're cluttered and congested and clogged up and nothing's moving, that's got to take you down and make you drag and feel slumped over and the world's against me and it's just not good. So I felt lighter and brighter.

Nicole stated:

Let's see, the idea that, like my head would have like just these waves of, like a flushing almost, just like you were saying, you're flushing out those toxins or whatever, your stagnation, that it really, it does do that and I do think that there's a benefit to it.

Sofia shared:

And then yeah, last week I started feeling like a warm release in my chest, like the way I like to describe it is like if somebody opened a jar and there were like sparkles and sprinkles and they were just like, my heart was pouring it out my chest area, that's how I've been feeling. Like out of nowhere I started feeling that.

Tara said:

This was different, because it's so vibrational and so internal that I feel it on this molecular level, I really, really do and I was noticing, I was thinking about how... they were talking about how traumas carry into the cells, and I feel like this is changing the cellular level.

Theme 1.3: Exposure to the singing bowls induced temporary unpleasant sensations. Five of the eight participants reported they experienced physical or emotional discomfort as a result of being exposed to the sound of the singing bowls. Participants also experienced increased resiliency as well as a sense that the discomfort itself was a part of the healing process. Participants' direct quotes related to Theme 1.3 are as follows:

Andrea shared:

And then I did notice the first time I came you're just getting used to it, so some of the sounds caused, like... just getting used to the sounds and the waves of... like a

certain high pitch or some of the sounds you made kind of made my stomach kind of feel a little anxious. And then as the class has gone on I kind of wanted to breathe into those, certain sounds.

Beth shared:

That one time when the bowl got too close to my ear, I think it was the second session. I did not enjoy that. But I was able to overcome it without just splitting and never coming back again, to work through it, did a lot of work that day. So made it through.

Lydia stated:

Yeah, and the sounds that are being made and the gongs or whatever the sounds are, can be like it feels very low vibration, negative. For me it feels like negative. Feels very heavy, but I just know that it's working or I intend on it's working and that's the only thing that feels kind of off for my like working with depression specifically. It feels like tones that are sad for me.

Mary shared:

The third thing that I want to say is the sounds, right, like that truly physical thing. I found it like not all the time relaxing, because sometimes it's like hmm, it's kind of like... It's not abrupt or like violent, but it shakes you, you know? In a good way.

Sofia shared:

Yeah, I guess this episode I'm going to call it, I've been having a lot of pain, like just weird feeling in my right ear that would go all the way down my throat and I noticed that with sound, it was like penetrating my... I'm sorry, my left ear, it (sound healing) was penetrating my left ear a lot more, so I don't know, that was

interesting to me. I don't know if it's like opening up a channel or what it's doing, but I don't know. It actually went down, the feeling in my ear.

Category 2: Sound healing promoted wellbeing. Within Category 2 are themes related to reported mental health symptom reduction or an increase in positive states of being that were viewed by participants as a direct correlation to sound healing. All eight participants endorsed Category 2.

Theme 2.1: Sound healing reduced depression. Theme 2.1 relates to participants' report of a decrease in symptoms related to depression and/or increased positive mental states. Depressive symptoms are defined in this theme in correlation to participants' individual reports of their experience of depression during interviews and with the literature on symptoms of depression. An increase in positive mental states are defined as any reported increase in traits associated with wellbeing such as peace, calm, relaxation, and clarity. All eight participants endorsed theme 2.1. Participants' direct quotes related to Theme 2.1 are as follows:

Andrea shared:

I tend to like catastrophize or like dramatize everything and now I just don't feel that way anymore, I feel kind of more peaceful and calm and relaxed."

Beth. "I just felt lighter and that my chakras were more open, like to take on the day in a more positive way.

Claire stated:

Well, I think that day I walked out like more relaxed and with more energy and like with a positive energy vibe going on.

Lydia shared:

Less triggered. Kind of maybe even more strong, like energetically stronger in my core. Like I felt more whole walking down an aisle or... Yeah, not flustered. Like I have a lot of anxiety, usually I'm tapping or like touching my body, but I didn't feel like I needed to do that or like get impatient at all or anything like that.

Mary discussed:

So it gave me some comfortless and allowed me to do whatever I felt that I need to do.

Nicole stated:

I was doing an experiment with myself because I'd come on Sunday and it did carry over to Monday, where I would have more energy. I felt more kind of energized, calm energy that I felt kind of rested and that really carried through.

Sofia described:

So I've been having it like in my ear, down my throat, this feeling and it was when I would get a lot of anxiety or my depression would be at a peak, I would have that pain right there. And now that I'm thinking about it, it's gone down within these last four weeks that we've been doing this it's gone down a lot. Like I don't feel it as much anymore.

Tara stated:

When I find myself getting irritated at something or impatient at something I'm like, no I'm not supposed to be feeling this way because I'm not supposed to be stressed out, why am I feeling this way? I'm not doing anything, I'm not supposed to be stressed out right now and that kind of visual and remembering okay, the

sound healing and how is this contributing, like has come into my brain at these points and been like an anchor.

Subtheme 2.1: Reduced overactive thinking. Subtheme 2.1 was endorsed by three of the eight participants and is defined by sound healing having an effect on an overactive mind. Participants' direct quotes related to subtheme 2.1 are as follows:

Andrea stated:

I feel kind of more peaceful and calm and relaxed.

Sofia shared:

My mind has been very, very chattery [sic] and this is the only thing that made me chill out. Yeah, and like today it cleared my mind. I've been having a very crazy, all over the place mind lately, so it actually, this is the only thing that has helped me right now, so that was pretty cool.

Tara described:

By the end, my brain wasn't thinking about anything at all, I was completely... Like it was almost, I felt like it was a spiritual experience of this true kind of element of matter in our soul and the reality of... I mean it brought me down to this completely different experience of the human condition than I've ever experienced. As I said before, I think a bubble, it's like a bubble of... just this wonderful bubble of sound and it really did this amazing quieting of my brain, which is difficult for me to achieve.

Subtheme: 2.2: Increased self-awareness and improved clarity. Subtheme 2.2 was endorsed by three of the eight participants and relates to a reported

improvement in awareness and clarity. Participants' direct quotes related to subtheme 2.2 are as follows:

Andrea. "I think just greater awareness on so many levels, you know? And then kind of helping with anxiety and how I'm thinking about kind of what I'm working on, sort of the transition I'm in. And I don't know, I don't know. Some of it I feel I can articulate very clearly and some of it's just sort of a shift."

Beth shared:

Yeah, I just, I mean I leave here, I go walking through the park, just able to see clear, clearer because my intuition is humming at a higher level and just enjoying and looking deeper into things. Sort of like that, it's bright.

Sofia shared:

So yeah, I don't know, and it helped open up things or helped me like put the points together and it helped me understand myself, I guess. Helped me understand myself better, I don't know, it made me feel nice.

Theme 2.2: Improved reactivity and/or self-regulation. Theme 2.2 relates to participants' report of a change in their overall reactivity to external and internal stimuli and an increase in their ability to self-regulate. Six of the eight participants endorsed theme 2.2. Participants' direct quotes related to Theme 2.2 are as follows:

Andrea shared:

Like I can feel the difference in my reaction, or like I feel just less reactive towards external things, I guess, which is how I know it is effective.

Claire shared:

And I think the meditation and even the sound therapy, like slowing down and just getting a little more control over my thoughts is very helpful and also, like that feeling of being grounded and in the moment.

Lydia stated:

Yeah, Saturday is when I noticed that it was just very smooth. Like I felt like there wasn't anything that kind of rattled me. So even if I went to the store or whatever, it was just, I was very calm.

Mary shared:

It comes calmness [sic]; it comes like thinking straight and perspective. Like easier to oh, this happened, oh well. And yeah, like getting great at restlessness and... Yeah.

Sofia discussed:

I was a lot calmer and I wasn't so quick to just... I'm a very fiery person, so any little thing will set me off. Well, with the people around me. Yeah, the people close to me for some reason, there's just like no filter with them and I just blow up with like the smallest thing. So it was easier to control myself, like getting out of here it was easier to control that, so...

Tara discussed:

An awareness, I carried an awareness of the session with me a lot. I think for me that's probably... Because I was saying that when I would find myself reacting in a way that maybe I was trying to not, it was the kind of visual space that the vibrations were creating, were able to come back to me in a more effective means to help self-regulate than anything with mindfulness.

Category 3: Participant Satisfaction. Themes within Category 3 encompass a general report of the participants' overall satisfaction in engaging in sound healing for four weeks, as well as their reported response to the termination of this engagement. All eight participants endorsed Category 3.

Theme 3.1: Positive experience with sound healing. All eight participants endorsed theme 3.1 by providing their overall opinion of the four-week sound healing treatment. All opinions were positive in nature. Participants' direct quotes related to Theme 3.1 are as follows:

Andrea stated:

Actually, I really enjoyed it and I didn't know what it was before I started. So I'd done other types of meditation, but never the sound meditation and it's surprisingly, it's kind of addictive because it feels so good and it's so relaxing.

Beth shared:

I think it's awesome. I have done some in the past and I really enjoy just feeling lighter and brighter and coming here.

Claire stated:

It was very helpful. And then I liked the sound bowls or the singing bowls, whatever.

Lydia shared:

Yeah, it was good to come here for four weeks, it was not... It didn't feel like a commitment, it felt like a treat in a very comfortable setting.

Mary shared:

It was extremely pleasant, mainly because you make it really... Like you create and hold this safe space where you can be... By holding the space safely, you allowed us... I did feel that way, I don't want to speak for other people, but you let me to be me and that was really appreciated.

Nicole stated:

Well, I've been very excited about it. I've shared it with people, that I'm doing this sound meditation and that I think it's really a wonderful experience.

Sofia shared:

I just really liked this, yeah. Yeah, highly recommend it. I really liked it, I really, really enjoyed it and it helped me.

Tara stated:

It has been really, just amazing and I feel so blessed and grateful to have been able to have had this experience, first of all.

Theme 3.2: Termination of the four-week sound healing treatment. Seven of the eight participants endorsed theme 3.2 by verbalizing their thoughts about the treatment coming to an end. Some expressed a sense of sadness and/or a desire to continue with sound healing in the future. Participants' direct quotes related to Theme 3.2 are as follows:

Andrea described:

I really enjoyed it and I want to continue to do it going forward.

Beth discussed:

I'd like to find more classes to go longer than a half an hour, which I think is possible. And I'd like to go on a more regular basis, cost effective and all, I would be very interested in that.

Claire shared:

Just I enjoyed it and I think I'm going to miss the class on Saturday. So it was something I looked forward to.

Mary described:

I'm going to miss it, because it almost forced me to stop and be conscious and whatever's going on in my head or in my body, I get 30 minutes there to like deal with it and it's in all my power to how I spend those 30 minutes, right?

Nicole discussed:

And I am interested in kind of incorporating it into my life, because I think it's really beneficial and I think it's just another healthy practice of an opportunity to get in touch with that mind/body connection.

Sofia shared:

I want to find places where they do this.

Tara stated:

So I'm hopeful to be able to encounter this again, either with you or with some other way or... And I've spoken to people about the experience and actually, a lot of people.

Category 4: Sound healing as an adjunct to psychotherapy treatment of depression. One theme within Category 4 is highlighted to report participants'

perception of the benefits of utilizing sound healing as an adjunct to their psychotherapy treatment of depression.

Theme 4.1: Sound healing is a beneficial addition to psychotherapy. Seven of the eight participants endorsed theme 4.1. Participants' direct quotes related to Theme 4.1 are as follows:

Andrea stated:

Just, I guess made me more receptive to what I was working on with Rochelle and I don't know, it just kind of... Like solidifying with the work I've done already and like helping to build on it.

Beth stated:

So sound healing really works on getting into the nooks and crannies a little bit more to help... It helps me figure things out better, so it's a great addition to a good counselor.

Claire shared:

Yeah, I mean I just kind of see it, like I said, kind of as another component of kind of meditating, which has helped in the psychotherapy as well. And I think the meditation and even the sound therapy, like slowing down and just getting a little more control over my thoughts is very helpful and also, like that feeling of being grounded and in the moment.

Mary shared:

like someone else is holding the space for me and is doing it for me, so it did felt really good as a productive thing to be beneficial from, to get benefit from and I think it adds to the therapy.

Nicole shared:

Well, I told my therapist about feeling like I slept better on Sunday night and that I had like a sense of calm energy on the Monday the following day, and that was really positive. And I think the more experiences I have with feeling those feelings, that that will reinforce for me, this is what it feels like to not be depressed and this is what I should be feeling.

Sofia shared:

I feel like it has helped, because when I feel something here, I discuss it with my therapist, so we kind of come up with like what it could have been, what could be happening, why I'm probably feeling that or just stuff like that. So I think it did help.

Tara shared:

I mean it has definitely been a very valuable part of (therapy), as I've said, the kind of things we're working on to deal with some issues of trauma and attachment in a space for healing and that this has definitely resonated with me a lot and been helpful in this process for sure.

Grounded Theory

Through thorough examination of the quantitative results of this study, emergent categories and themes revealed that sound healing as an adjunct to psychotherapy for depression was perceived as beneficial for the eight women. Sound healing's positive impact on participant's symptoms of depression, reactivity to internal and external stimuli, self-regulation, self-awareness, and mental clarity improved from the perspective of these eight women during the course of the study per their report. Furthermore, sound

healing was perceived as a beneficial adjunct to conventional treatment of depression during the course of the study.

Perceptions of the mechanism of the effects of sound healing by participants included a physical experience of sound rather than solely auditory. Participants reported a somatic experience of sound healing that was believed to induce healing, resulting in improvement in their lives, in addition to strengthening their weekly psychotherapy treatment. Although it would require further investigation into the mechanism of action of sound healing, results of this study suggest that having a somatic relationship to the sounds produced by Tibetan singing bowls was perceived to be a vital component to the healing process of this modality by participants.

Overall, sound healing as an adjunct to psychotherapy treatment of depression may serve as an integrative treatment modality for psychotherapists according to findings within this study. The perspective experiences of these eight women who participated in a four-week sound healing treatment in addition to weekly conventional depression treatment was reported as positive. Further discussion on these findings including additional findings not related to the purpose of the study, limitations of the study, suggestions for future research, and clinical implications are highlighted in the discussion section of this document.

Summary of Quantitative Results

The following section summarizes results of quantitative measures including raw scored, mean scores, and standard deviations. Raw score and mean score differences between T1 and T2 are presented along with defining traits within each scoring category. A one-tailed dependent variable *t*-test was conducted for each data set to determine the

extent of measured change from T1 to T2, for consideration together with the results of the qualitative analyses. Furthermore, a Cohen's d was computed to determine the effect size of pre and post changes.

Perceived Stress Scale (PSS). Participant scores on the PSS at T1 ranged from 17 to 30 with a mean score of 24.13 and a standard deviation of 4.76. Of the eight participants, 50% ($n=4$) scored within the moderate stress range (14-26) and 50% ($n=4$) scored within the high-perceived stress range (27-40) at T1. Participant scores on the PSS at T2 ranged from 4 to 22 with a mean score of 16.38 and a standard deviation of 5.71. At T2, 50% ($n=4$) scored within the low stress range (0-13) and 50% ($n=4$) scored within the moderate stress range. The total mean score decreased to 16.38, a difference of 7.75

Figure 2.

Raw scores of the PSS at T1 and T2

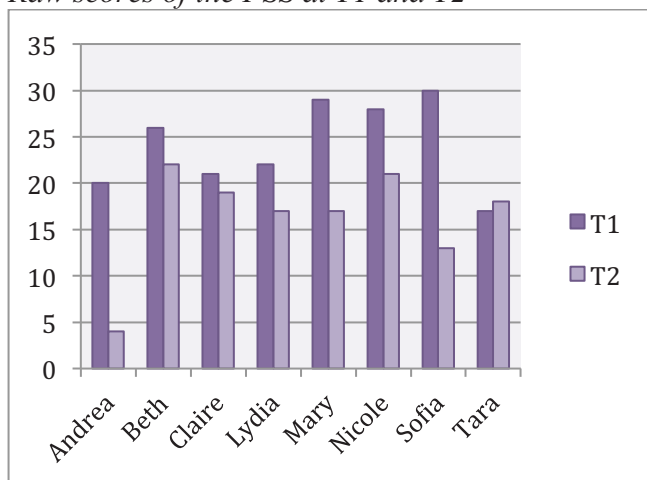


Figure 2

A dependent samples t -test was conducted to compare perceived stress scores amongst participants at T1 and T2 at the $p < .05$ level of significance. There was a significant difference in perceived stress scores between T1 ($M=24.13$, $SD=4.76$) and T2

($M=16.38$, $SD=5.71$); $t(7)=-3.33$, $p = 0.01$; Cohen's $d = 1.47$; 95% CI [2.11, 13.39].

These results suggest that when participants engage in a four-week sound healing intervention, perceived stress decrease. The effect size for this analysis ($d=1.47$) met Cohen's (1988) criterion to be considered a large effect ($d > .80$). These results suggest that the magnitude of the effect of a four-week sound healing intervention on perceived stress, independent of sample size, had high practical significance.

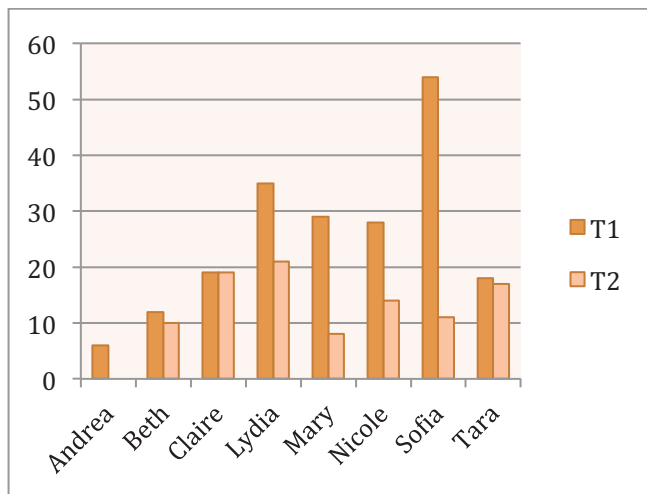
Table 6.

Descriptive statistics and t-test results for the PSS

| Treatment | <i>n</i> | <i>Mean</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> | <i>d</i> |
|-----------|----------|-------------|-----------|----------|-----------|----------|----------|
| T1 | 8 | 24.13 | 4.76 | -3.33 | 7 | *0.01 | 1.47 |
| T2 | 8 | 16.38 | 5.71 | | | | |

* $p < .05$

Beck Anxiety Inventory (BAI). Participant scores on the BAI at T1 ranged from 6 to 54 with a mean score of 25.13 and a standard deviation of 15.03. Of the eight participants, 12% ($n=1$) scored within the minimal range of anxiety (0-9), 12% ($n=1$) scored within the mild level of anxiety range (10-16), 50% ($n=4$) scored within the moderate level of anxiety range (17-29), and 25% ($n=2$) scored within the severe level of anxiety range (30-63) at T1. Participant scores on the BAI at T2 ranged from 0 to 21 with a mean score of 12.5 and a standard deviation of 6.78. At T2, 12% ($n=1$) scored within the minimal level of anxiety range, 50% ($n=4$) scored within the mild level of anxiety range, and 38% ($n=3$) scored within the moderate level of anxiety range. The overall mean score at T2 decreased to 12.5, a difference of -12.62.

Figure 3.*Raw scores of the BAI at T1 and T2*

A dependent samples *t*-test was conducted to compare anxiety scores amongst participants at T1 and T2 at the $p < .05$ level of significance. There was a significant difference in anxiety scores at T1 ($M=25.13$, $SD=15.03$) and T2 ($M=12.5$, $SD=6.78$) conditions; $t(7)=-2.57$, $p = 0.02$; Cohen's $d = 1.08$; 95% CI [0.12, 25.13]. These results suggest that when participants engage in a four-week sound healing intervention, anxiety decreased. The effect size for this analysis ($d=1.08$) met Cohen's (1988) criterion to be considered a large effect size ($d = .80$). These results suggest that the magnitude of the effect of a four-week sound healing intervention on anxiety, independent of sample size, had high practical significance.

Table 7.*Descriptive statistics and t-test results for the BAI*

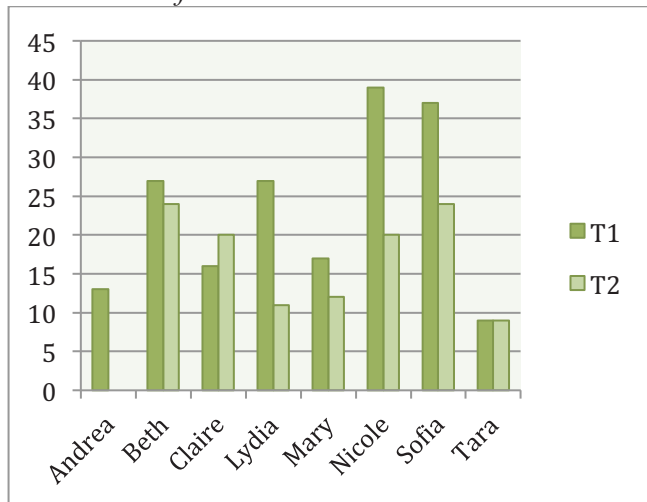
| Treatment | <i>n</i> | Mean | SD | <i>t</i> | <i>df</i> | <i>p</i> | <i>d</i> |
|-----------|----------|-------|-------|----------|-----------|----------|----------|
| T1 | 8 | 25.13 | 15.03 | -2.57 | 7 | *0.02 | 1.08 |
| T2 | 8 | 12.5 | 6.78 | | | | |

* $p < .05$

Beck Depression Inventory-II (BDI-II). Participant scores on the BDI-II ranged from nine to 39 with a mean score of 23.13 and a standard deviation of 11.12. Of the eight participants, 25% ($n=2$) scored within the minimal range of depression (0-13), 25% ($n=2$) scored within the mild range of depression (14-19), 25% ($n=2$) scored within the moderate range of depression (20-28), and 25% ($n=2$) scored within the severe range of depression (29-63) at T1. Participant scores on the BDI-II at T2 ranged from 0 to 24 with a mean score of 15 and a standard deviation of 12. At T2, 50% ($n=4$) scored within the minimal range of depression and 50% ($n=4$) scored within the moderate range of depression. The overall mean score at T2 decreased to 15, a difference of -8.13.

Figure 4.

Raw scores of the BDI-II at T1 and T2



A dependent samples t-test was conducted to compare depression scores amongst participants at T1 and T2 at the $p < .05$ level of significance. There was a significant difference in depression scores at T1 ($M=23.13$, $SD=11.12$) and T2 ($M=15$, $SD=8.43$) conditions; $t(7)=-2.78$, $p = 0.01$; Cohen's $d = 0.70$; 95% CI [-2.28, 22.53]. These results suggest that when participants engage in a four-week sound healing intervention, depression decreases. The effect size for this analysis ($d=0.70$) met Cohen's (1988)

criterion to be considered a medium effect size ($d = .50$). These results suggest that the magnitude of the effect of a four-week sound healing intervention on depression, independent of sample size, had high practical significance.

Table 8.

Descriptive statistics and t-test results for BDI-II

| Treatment | <i>n</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> | <i>d</i> |
|-----------|----------|----------|-----------|----------|-----------|----------|----------|
| T1 | 8 | 23.13 | 11.12 | -2.78 | 7 | *0.01 | 0.70 |
| T2 | 8 | 15 | 8.43 | | | | |

* $p < .05$

CHAPTER V

Discussion

Through thorough examination of the experiences of eight women who participated in a four-week sound healing intervention, research data revealed that sound healing as an adjunct to psychotherapy for depression was perceived by participants to improve their lives throughout the duration of the study. Conventional treatment of depression is primarily limited to pharmaceutical treatment, psychotherapy, and electroconvulsive therapy (Hankin, 2016). An increasing number of individuals who struggle with depression are seeking complementary and alternative health practices and methods for treatment (NAMI, 2017).

According to NAMI, the integration of conventional and CAM treatments can often yield the best results (2017). Sound healing utilized as an integration of conventional and CAM treatment of depression will be the focus of this chapter. Discussion of the current research findings in relation to the theoretical underpinnings and previous literature of sound healing is presented. Furthermore, limitations of the current research and suggestions for future studies are included in this chapter.

Connecting Theory to Results

According to the National Institute of Mental Health (NIMH, 2017), symptoms of depression include the following:

- Persistent, sad, anxious, or “empty” mood
- Feelings of hopelessness, or pessimism
- Irritability
- Feelings of guilt, worthlessness, or helplessness
- Loss of interest or pleasure in hobbies and activities
- Decreased energy or fatigue
- Moving or talking more slowly
- Feeling restless or having trouble sitting still

- Difficulty concentrating, remembering, or making decisions
- Difficulty sleeping, early-morning awakening, or oversleeping
- Appetite and/or weight changes
- Thoughts of death or suicide, or suicide attempts
- Aches or pains, headaches, cramps, or digestive problems without a clear physical cause and/or that do not ease even with treatment

Prior to gathering data regarding each participant's experience of sound healing, a series of questions were implemented to gain an understanding of each individual's experience of depression, as well as their experience with psychotherapy and their overall outlook on CAM. Although symptoms and experience of depression are unique to each individual, all participants reported symptoms that are included in NIMH's list of common symptoms of depression. A summary of each participant's experience of depression can be found in the Participants section of this document.

Category 1 is in line with previous literature on sound healing that purports that the vibrational frequency of the singing bowls, when directed toward a human being, can induce a state of harmony (Heather, 2007). Participants reported the vibratory frequency of the singing bowls were experienced in various parts of the body, and although this sensation was not always pleasant, all eight reported that sound healing improved their lives during the course of the study. Those that did report intermittent discomfort during sound healing sessions also reported a belief that the discomfort itself resulted in a sense of moving energy through the body, which was experienced as healing. This is congruent with Chinese, Ayurvedic, and Vibrational medicine theories of depression that postulate; optimal energy flow throughout the body is imperative to human functioning (Most, 2013; Perlin, 2016).

The physical and auditory sensation of the frequency of the singing bowls was reported by participants to induce a subjectively experienced sense of clarity, peace, relaxation, and a reduction in symptoms of depression.

Category 2 revealed that post a four week-sound healing treatment in addition to weekly psychotherapy; participants' symptoms of depression were perceived to have reduced per their reports. In reviewing responses regarding participants' overall experience of depression, symptom reduction in Category 2 was determined by their reported perceived experience of the effects of sound healing on mental health symptoms. All eight participants reported a decrease in depressive symptoms such as catastrophic thinking, racing thoughts, anxiety, chronic pain, irritability, fatigue, difficulties with sleep, and difficulties completing daily tasks. All eight participants also reported an increase in positive mental states such as an increase in inner peace, relaxation, calm, clarity, positivity, inner strength, patience, distress tolerance, physical energy, and increased awareness of self and their environment.

Additionally, 75% of the participants discussed how sound healing improved their reactivity to stressors and an increase in self-control. This finding, from a sound healing theoretical viewpoint, may be a result of an energetically balanced body. Sound vibrations can be utilized as a means of bringing the body into balance on a cellular level, allowing energy to move freely while gaining vibrational alignment with health (Shrestha, 2013). From this alternative view on health, emotions such as fear, anger, and resentment resonate at a lower frequency. Sound healing can bring these vibrations into a higher level, resulting in an increase in trust, patience, and acceptance. When participants described their perceived experience of minimized reactivity and increased

self-control, they spoke of a sense of freedom from impulsivity in which they previously had difficulty managing. These findings suggest that a four-week sound healing in addition to psychotherapy treatment may promote an improvement in overall functioning and behavior.

Within Category 3, all eight participants reported having enjoyed participating in a four-week sound healing intervention while finding it beneficial to their lives. Additionally, some participants made comments about the physical space where the sound healing was implemented, the relationship to the researcher, and the positive energy of the group. Given that depression often leads to isolation and lack of self-care, group sound healing, when used as an adjunct to treatment of depression, can result in community engagement and can act as a means to self-care. Not all participants completed their sessions in a group format, while those who engaged in individual sound healing sessions commented on a preference to individual over group. Further exploration of the efficacy of group versus individual sessions is warranted.

In relation to theme 3.2, seven out of the eight participants shared their thoughts and feelings about termination of the sound healing sessions. Some participants expressed sadness, and all eight participants mentioned wanting to continue implementing sound healing on a regular basis. Findings within Category 3 suggest that participants found a great deal of value in the potential impact sound healing can have on their lives and gave them a sense of hope for the future as well as potential freedom from depression. Seven participants prompted this researcher to provide them with resources of sound healing throughout the community, along with inquiring whether or not this researcher offers sound healing sessions.

Category 4 includes participants' perception of the effects of sound healing on their individual psychotherapy treatment of depression. Seven out of the eight participants reported that sound healing improved their psychotherapy treatment of depression. As the literature on CAM and depression highlights, an increasing number of people are turning to CAM approaches for treatment, and as stated above, this integration can often have the highest efficacy (NAMI, 2017). Some of the participants who endorsed Category 4 shared having discussed their experience of sound healing with their psychotherapist. This discussion further integrated their experience of sound healing and cultivated deeper insight into their therapeutic work per their report. Sound healing was seen as an additional space for healing that augmented their experience in psychotherapy treatment of depression.

Clinical Implications

According to the findings of this study, sound healing as an adjunct to psychotherapy treatment of depression can act as a viable complementary treatment modality. Upon thorough data analysis, the experience of sound healing for these eight participants yielded symptom reduction and an overall positive experience that inspired hope for their future due to the potential they came to see in vibrational healing. Vibrational medicine can energetically balance the body and mind through sound vibrations, techniques that have been utilized for thousands of years. During the course of each sound healing session, this researcher allowed participants to share their experience with the group and researcher, which yielded a consistent dialogue of reports of physical sensations that were coupled with a sense of the vibration of the bowls moving energy throughout their body. Some reported experiencing visual images such as

patterns, colors, and symbols. Additionally, participants reported experiencing minor temperature shifts, such as heat coupled with a sense of movement of energy that was believed by participants to be healing.

Throughout the study, all participants reported not only an auditory experience of sound healing, but also a somatic, whole body experience of the sound. This may correlate to the concept of entrainment discussed in the literature review section of this document. As Joshua Leeds states in his book, *The Power of Sound* (2001), “Sound affects glass and concrete as well as brain waves, motor response, and organic cells.” Research suggests that sound waves are constantly impinging on and affecting both the body and mind, beginning in the womb (Gaynor, 2002). Certain sounds can be harmful to human health such as sounds that are at a high decibel range, which can create increased heart rate, blood pressure, and overall stress in the body. Other sounds can optimize health and yield positive shifts in the body and mind.

Nature finds synchrony with its environment when two objects begin to resonate at the same vibrational frequency (Goldman, 1992). The stronger frequency dictates the direction of the weaker frequency, eventually finding synchrony and resonating together in harmony. Depression, according to alternative theories, is a weak frequency, while sound waves produced by objects such as singing bowls can be considered stronger. As this study revealed, participants reported feeling uplifted, at peace, and experienced increased clarity and awareness as they proceeded forward into their day post sound healing. The potential congruence with the theory of entrainment and participants perceived experience of sound healing during the course of this study provide an area for further investigation into the benefits.

Another finding that adds to the clinical implications of sound healing for depression is the researcher's experience. A sense of entrainment also occurred for this researcher. Throughout the duration of each 30-minute sound healing session, this researcher experienced a sense of deep connection to both the sound of the singing bowls and participants. The bowls were played in a manner similar to musical improvisation. After each session, there was a felt sense of connection in the room and a decrease in defensiveness from the perspective of the researcher. A noticeable shift occurred in the interaction of the researcher and participants before and after sound healing sessions. From the researcher's observations, the participants left the space with a more open body posture as evidenced by better eye contact, smiling, and a more upright spine.

Limitations

Although this study provided insight into the perceived benefits of utilizing sound healing as an adjunct to psychotherapy treatment of depression by participants, limitations of this study were also discovered. These included researcher bias, lack of demographic variability, preconceived belief in CAM amongst participants, non-blinded intention of the study, unknown theoretical orientation of the participants' psychotherapists, and a potential halo effect on T2 measures.

Although guidelines for provisions of trustworthiness are followed, researcher bias was likely a factor in the results. Biases from the researcher such as having a strong belief the benefits of sound healing and having a long history with utilizing sound healing in both professional and personal realms was present throughout the duration of the study. Although extensive efforts were implemented to reduce researcher bias through provisions of trustworthiness, this researcher conducted the sound healing sessions and

semi-structured interviews. Therefore, the cultivation of the relationship between researcher and participant most likely affected participant reports. Furthermore, the potential desire for participants to gratify this researcher by over reporting the benefits of their experience of sound healing must be considered. This researcher has a strong belief in the efficacy of sound healing, which could have affected participants' reports.

In addition to provisions of trustworthiness, this researcher remained mindful of potential suggestions, verbal or non-verbal, that could have affected participant's responses during interviews. On two occasions, a participant's response was unclear to this researcher, which prompted an interpretation of the response to clarify, potentially causing that participant to agree with the researcher's interpretation rather than coming up with her own clarification. The research assistant was consulted to assess for this potential suggestive affect on data analysis and it was concluded that minor interpretations did not change the overall code and theme endorsement.

Lack of ethnic, cultural, gender, and sexual orientation diversity in the sample constricts findings within this study to a potentially heteronormative, ethnocentric view. As described in the demographics section of this document, all participants who completed the study were female and all but one participant identified as Caucasian. Due to participant reports of their education level and career, it can be assumed that a socio-economic status (SES) of middle to upper class was the norm in this study. However, one participant did report being homeless, which suggests a low SES. Furthermore, the one participant who identified as Latina endorsed themes within each category similar to the Caucasian participants. However, one participant's response cannot represent an entire demographic, which negates any assumed relationship between results and

ethnicity. A sample of a more diverse population in all demographic domains could help clarify whether present results are generalizable beyond the demographic groups represented in the sample.

Quantitative measures were used to help understand the impact of emergent categories and themes. When analysis of quantitative data was reviewed, perceived stress, anxiety, and depression scores significantly reduced between T1 and T2. Furthermore, effect size between each measure at both time points were within the medium and large conventions (Cohen, 1988). However, the T2 measures were taken immediately after each participant's final sound healing session, so the observed change may have resulted from a halo effect, a temporary good mood just after the session, rather than representing a change that would endure over time. Nonetheless, when integrating these results with participant's endorsement of themes within Category 2, this researcher can hypothesize that for these eight women, sound healing played a role in reductions of perceived stress, anxiety, and depression immediately after sound healing. The quantitative results of this study are inconclusive in regards to the lasting effects of sound healing on mental health symptoms.

Given that the interviews were conducted immediately after participants' final sound healing session, their responses could have been skewed due to the immediate effects of the sound. Although interview questions were designed to gather information about their experience sound healing, it's affect on their mental health and overall lives, and their perception of it's effects on their individual psychotherapy, this halo effect may have affected responses. Conducting interviews during the immediacy of the post-sound

healing time frame may have affected responses in a more favorable manner, resulting in another limitation of this study for consideration.

Another limitation of this study is that all participants believe in and practice CAM approaches. Some are relatively new to implementing CAM into their lives, while others have a long history of its use and positive effects. This participant bias raises another question: Can sound healing yield similar results in the presented study with participants who have no previous experience of CAM?

Additionally, during the recruitment phase of this study, participants were given a flyer stating the intention of the study, resulting in potential expectancy bias amongst participants. Just as researcher bias could affect overall impression of the data, expectancy bias may have skewed responses from participants in favor of the effects of sound healing by merely the suggestion of the expectations of the study.

Finally, six of the eight participants reported their psychotherapist adheres to an integrative approach to care by utilizing CAM practices in therapy and treatment. However, the specific theoretical orientation and approach of each participant's psychotherapist is unknown. Not knowing this variable leads to two questions: 1) Can sound healing work in conjunction with all theoretical orientations within the various models of conceptualization? 2) Does sound healing have a greater affect on depression if coupled with certain theoretical orientation versus others? Additionally, do psychotherapist beliefs about CAM practices affect the results their patients are able to obtain with CAM?

Suggestions for Future Studies

Examination of the limitations of this study, along with additional questions that arose throughout the course of the study will be discussed within this section. Results of this study yielded emergent categories and themes, as well as a decrease in symptoms as found in quantitative measures of depression, anxiety, and perceived stress per reports of participant's perceived experiences. Future studies include both quantitative and qualitative research design.

A refined mixed methods study designed to further eliminate researcher and expectancy bias is suggested. Assigning an outside sound healer to conduct all four sound-healing sessions would reduce relational variables that may affect participant's responses.

To effectively test the effects of sound healing on self-report measures of any symptom, a larger sample size must be obtained. Conducting a quantitative study with a sample size as determined by conducting a power analysis is suggested. Utilizing the same quantitative measures as within this study would not only determine statistical significance, but would provide further understanding in terms of the efficacy of sound healing on mental health symptoms. Furthermore, to reduce the potential halo effect of symptom reduction immediately following a sound healing intervention, additional data collection time-points are suggested. Collecting data immediately after, one-week after, and one-month after a series of 4, weekly consecutive sound healing treatments is suggested.

Additionally, randomly selecting participants to be assigned to one of three groups is suggested. The recommended three groups are: a four-week sound healing

intervention alone, a four-week sound healing treatment in conjunction with psychotherapy treatment, and psychotherapy treatment alone. To gain an understanding of the potential benefits of sound healing alone, assessment of a potential placebo effect, and to examine differences between psychotherapy treatment alone vs. psychotherapy in conjunction with sound healing is recommended.

Diversity in future samples in regards to demographics is also suggested. Broadening the participant demographics to include a multitude of ethnicities, socio-economic statuses, sexual orientations, and gender identities would provide further validity into this area of research. Given the lack of demographic variety in this study, it is unclear if sound healing would yield similar results across cultures.

Integrating sound healing directly into individual psychotherapy sessions and other mental health settings is suggested as a point of inquiry. As per report from the participants who had the opportunity to experience sound healing individually with this researcher, they described having a deeper and more effective experience. Furthermore, this researcher often integrates sound healing with a variety of populations and settings including those with severe, chronic, and acute mental illness in an inpatient, intensive outpatient facility, as well as in individual psychotherapy treatment at a private practice. Conducting further qualitative inquiry into the experience of sound healing in various settings and populations would assist in exploring a potential new paradigm of integrating sound healing into psychotherapy treatment within the field.

Does sound healing have long lasting effects on depression? A quantitative, longitudinal study that analyzes the effects of sound healing on mental health symptoms via quantitative self-report measures over time would further validate results of this

study. Analysis of self-report measures after six-months or one-year post termination of participants' final sound healing session would give a better understanding of the potential curative effects of sound healing.

Sound healing as a means to rebalance the energetic flow in the body and thus, improving overall mental and physical health is difficult to validate. Given that current physiological measures of vibrational frequency is limited to targeted areas of the body such as: heart rate variability, body temperature, electroencephalogram, and functional magnetic resonance, a series of studies measuring physiological responses from the body is suggested. This will provide further understanding into the theory and practice of sound healing by examining correlations between sound and physiological activity.

What does energetic balance mean and how do we achieve it? Can sound waves when directed at a human being create long-lasting physical and mental health? What types of frequencies are harmful and which ones are beneficial to humans? How can the field of clinical psychology begin to shift our perspective on human health by integrating the ancient wisdom of ancestors into practice and treatment? This study on the perceived experiences of participants who engaged in a sound healing intervention as an adjunct to psychotherapy treatment of depression can serve as a spring board to explore such questions and further our understanding of the underutilized benefits of sound healing.

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Appendix A**Informed Consent****CONSENT TO PARTICIPATE IN A CLINICAL DOCTORAL DISSERTATION
STUDY**

An examination of a sound healing intervention as an adjunct to
psychotherapy for depression

This form is meant to inform you about your decision to participate in this research study, as well as to offer you the opportunity to indicate your voluntary consent for participation. Alliant International University at San Diego is sponsoring this study as part of a Psy.D. dissertation. Please read the information presented on this form carefully. Feel free to ask any questions you may have about the information presented or about any aspect of your participation in this study.

INVESTIGATOR

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PURPOSE OF THE RESEARCH

This study will look at the experience of individuals who participate in a sound healing

intervention. Little is known about the effects of sound healing and in particular, if sound healing can be a viable adjunct to conventional mental health treatment. This study seeks to gain understanding of individuals' perceptions of the effects of sound healing, as well as potential symptom reduction. The results have the potential to elicit future studies, as well as to develop a theory about sound healing and mental health.

Involvement in the study will require participation in:

- Sound healing sessions: 4x, 30 minute, group based sound healing sessions at a facility in, San Diego. The proposed group will have no more than 8x participants.
- Interview: 1x in depth interview with the primary researcher, which is designed to gather information about your experience with sound healing. An audio of the interview will be recorded.
- Questionnaires: Responding to 3x assessment measures at the beginning of the four-week intervention and upon completion. Also, a demographic questionnaire is required. Each assessment measure takes less than 10 minutes to complete.

PROCEDURES TO BE FOLLOWED DURING THE RESEARCH

This research will take place at a private mental health facility in San Diego, California. Upon agreement to participate, you will meet with the primary researcher and other participants of the study to go over details and to complete a demographics questionnaire, as well as establish subsequent session scheduling. At this time, you will fill out 3 assessment measures, followed by implementation of sound healing session #1. The two sound healing sessions will be conducted with no additional requirements. Upon completion of sound healing session #4, you will fill out another set assessment

measures. Interviews will be scheduled individually and conducted within an appropriate time frame. You will then meet with the primary researcher to conduct the recorded interview. Once completed, you will receive your \$25 gift card.

DURATION OF PARTICIPATION IN THE RESEARCH

You can expect to spend a total of approximately 5 hours. The demographic questionnaire and three assessment measures is expected to take 20 minutes or less to complete. Sound healing sessions are each 30 minutes and the interview will take approximately 1 hour.

RISKS

The risks associated with this study are expected to be minimal. If you experience discomfort while discussing your experiences, the researcher may end the interview process to discuss your reaction with you. You are welcome to remove yourself from participation in this study at any time and for any reason, without consequence. You will not receive your gift card if you stop your involvement with the study before you complete the interview. Should you have an adverse reaction to the sound healing, you may contact the primary researcher to discuss if continuation is appropriate. Your primary therapist will be permitted to contact the primary researcher at any time as well for questions or comments.

POTENTIAL BENEFITS OF THE STUDY

There are no guaranteed benefits to participants involved in this study; however, sound healing may result in positive symptom changes for you.

CONFIDENTIALITY

You have a right to privacy, and all information identifying you will remain confidential

(private), unless otherwise required by law. Your signed consent form (which includes your name) will be filed in a locked file cabinet and in a separate drawer from your interview transcript and demographics questionnaire. Your name will be deleted from your interview transcript and any identifying information from the interview will be altered on the transcript. An audio recoding of your interview recording will be identified with a number and kept in an encrypted file on a computer in a locked location. This audio recording will be deleted upon completion of the study. Information gathered for the purpose of this research will include your personal experiences and information. This information will be used in the writing and presentation of this dissertation and may be published in scientific journals. Excerpts from your interview transcript (without the use of your name or identifying information) may also be presented or published. Throughout this process your identity will remain private. Please be advised; however, that the privacy of information sent to or from the researcher in e-mail messages or text message cannot be guaranteed. Legal requirements for disclosure of private and identifying information include court order and mandated reporting laws discussed in the following section. Circumstances requiring legally mandated disclosure are not anticipated to occur during the process of this study.

MANDATED REPORTING OF SUICIDE, HOMICIDE, CHILD ABUSE, AND ELDER ABUSE

According to California law, if the researcher obtains information that leads to a reasonable suspicion of child abuse, elder abuse, or dependent adult abuse, Austin Slade is legally required to report the suspicions to appropriate authorities. Additionally, if you reveal a serious intent to harm or kill yourself or another person who is specifically

identified, state law also requires the researcher to report such intent to the appropriate authorities. Therefore, participants must understand and agree that disclosure of information about child abuse, elder abuse, dependent adult abuse, or suicidal and homicidal intents will be reported to appropriate legal authorities.

PARTICIPANT RIGHTS AND RESEARCH WITHDRAWAL

Due to the voluntary nature of your participation in this study, you have the right to stop participation at any time and for any reason. Stopping participation in the study will not result in loss of access to the results of the study, if access is desired. You will not receive your gift if you withdraw from the study before the interview is completed.

CONSENT TO BE AUDIO-RECORDED

I understand that the interview in which I participate will be audio-recorded. I also understand that the final transcripts will not include real names or personal identifying information. I further understand that a professional transcription service may be used to transcribe the interviews. This service will not be given your name or identifying information in connection with the audio recording they receive. Audio-recordings will be emailed with an encrypted password. The transcriptionist will email completed transcripts containing false names and no other identifying information to the researcher. Upon reception of completed transcripts, the researcher will verify each transcript against recorded interviews to ensure accuracy before starting data analysis. I understand that the transcription service will also protect my privacy and confidentiality and that the transcriber will sign a confidentiality agreement, promising to maintain the privacy of the interview. I understand that the audio recordings will be destroyed by the researcher seven years after completion of the study. I understand the recording procedures that will

be used for this study. I have been offered an opportunity to have my questions and concerns on the matters of audio recoding and transcribing addressed. By signing this document, I am indicating that I am voluntarily consenting to the recording procedures and the transcription of the interview.

QUESTIONS ABOUT THE STUDY

Any questions related to this study that have not been answered for you before, during, or after your participation in the study can be answered by contacting the researcher, Rebecca Luna at, 619-729-0767 or by email at, rluna@alliant.edu, or by emailing the dissertation chair, Marina Dorian, Ph.D. at mdorian@alliant.edu. For further questions about the rights of research participants, contact the Institutional Review Board at Alliant International University at alliant-irb@alliant.edu or (858) 635-4741. My signature indicates that I voluntarily agree to participate in this research study. I have reviewed, understand, and agree with the information provided to me, which relates to my participation in this research study.

Printed Name of Research Participant

Signature of Research Participant

Appendix B

Demographics Questionnaire

Please respond in the spaces provided below each question.

Name:

Age:

Telephone Number:

Occupation - Past or current:

Highest Level of Education:

Race/Ethnicity:

Place of Birth:

Where did you grow up (if different from place of birth)?

Gender:

Marital Status:

Sexual Orientation:

If in a relationship, how long have you been together?

Living status (alone, roommates, family, partner, etc.):

How long have you struggled with depression?

Are you currently taking a psychotropic medication for your mental health? If yes, what type, for how long, and what dosage?

How long have you been in psychotherapy?

Have you tried any alternative health treatments for your mental health (i.e. meditation, yoga, relaxation, acupuncture, massage)?

Appendix C

Semi-Structured Interview Guide

History

- 1) How long have you suffered from depression?
- 2) Tell me about your experience of depression?
- 3) What treatments have you tried for your depression?
- 4) What do you find helpful in daily coping with depression?
- 5) What is your experience of psychotherapy?
- 6) What are your thoughts about alternative medicine?
- 7) Is there anything you feel you would like to share with me about your depression or treatments that you find either beneficial or not?

Sound Healing Sessions

- 8) What was your experience of the sound healing overall?
- 9) What did you notice about your every day functioning after each sound healing session?
- 10) What have affect do you feel it's had on your life?
- 11) In what way does it compare to other treatment you have had?
- 12) Was there anything that you did not enjoy about it?
- 13) Do you feel that the sound healing had an affect on the work you are doing in psychotherapy?
- 14) Is there anything you feel you would like to share with me about sound healing that you have not stated?

Appendix D

Recruitment Flyer



**Participate in a Research Study on Sound
Healing and Depression**

**Receive 4 FREE Group Sound Healing Session
+ \$25 Amazon Gift Card**

WHO: Individuals who struggle with depression AND who are currently in weekly psychotherapy treatment

WHAT: A clinical psychology doctoral dissertation study aimed to explore the potential benefits of sound healing as an adjunct to psychotherapy treatment of depression

WHERE: New Mindful Life, 3367 4th Ave, San Diego, CA 92103

WHEN: 30-minute weekly group sessions on 4 consecutive weekends
Start date to be determined based on your availability

**Interested? For more details, email Rebecca Luna, MA
rebecca@newmindfullife.com
Dissertation Chair: Marina Dorian, PhD**

Approved by Alliant International University Review Board