Spring 5-5-2024

The Use of Music Therapy to Mitigate Trauma-Related Music Associations and Restore Personal Relationships with Music

Courtney Pitzer
cpitzer@lesley.edu

The Use of Music Therapy to Mitigate Trauma-Related Music Associations and Restore Personal Relationships with Music

Courtney Pitzer

Division of Expressive Therapies, Lesley University

Dr. Kelvin Ramirez

May 5, 2024

Abstract

For many people, music is positively associated with nostalgic memories, emotions, and experiences. But for some, it can be a painful reminder of the past. This literature review examines how music serves as a cue for reexperiencing trauma and demonstrates ways in which music therapy may be beneficial in reframing and reassociating those connections. Drawing from existing trauma treatment models such as CBT and exposure therapy, this review highlights the unique potential of music therapy in allowing clients to expose themselves to the activating stimulus while maintaining elements of safety within the music. This thesis prompts further exploration of desensitization through music and sound exposure as a way of restoring clients' personal relationship with music.

Keywords: music therapy, trauma, memory, emotion, exposure, reassociation

Introduction

Numerous studies throughout the years have demonstrated the positive impacts of music on health and wellbeing (Bensimon et al., 2008; Landis-Shack et al., 2017; MacDonald, 2013; Ning et al., 2022; Perryman et al., 2019; Sutton, 2002). Music is considered a fundamental part of life for a lot of people. It is a creative art form that exists in every culture around the world and is used as a way of navigating significant life events, understanding and processing emotions, and finding meaning and connection within the world. Some suggest that this widespread application of music is due to the emotional power it holds. Although research on music and its impact on the brain is still somewhat limited, many studies do support the idea that both emotion and memory play a role in creating strong associations and powerful relationships with music throughout the lifetime (Jakubowski & Ghosh, 2021; Levitin, 2006; Pasqualitto et al., 2023; Sedikides et al., 2022). These associations are deeply rooted in the brain but may reveal themselves through experiences of music-induced memory recall (Jakubowski & Ghosh, 2021; Pasqualitto et al., 2023; Thaut & de I'Etoile, 1993; Sakka & Saarikallio, 2020). Typically, when music has been linked as a cue for a certain memory, it then activates that memory and associated emotions when heard in the future (Jakubowski & Ghosh, 2021; Pasqualitto et al., 2023).

While this is often experienced as positive emotions and nostalgic memories, that is not always the case. Unfortunately, just as music can be associated with positive life events, it can also become unintentionally connected to life events such as trauma and loss. As Silverman et al. (2020) shared, one's "cultural and personal associations with music can result in individuals re-experiencing trauma and painful past memories" (p. 253). It is this knowledge that has prompted an investigation into how music might serve as a cue for re-experiencing trauma and the

potential of using music therapy to reframe and re-associate those connections. In doing so, music may return to being a powerful resource for that individual instead of continuing to activate symptoms of trauma.

While working as a Board-Certified Music Therapist in a residential drug and alcohol treatment center the author of this capstone thesis observed clients who experienced distressing physiological and psychological responses to music that were associated with memories of drug-use and/or trauma. This created problems as many who were attempting to find healing and recovery were confronted with very emotionally charged memories from music that they were exposed to, both in session and in their outside environment. To gather research on this issue, it was discovered that there were many studies that addressed music therapy in trauma treatment, but none specifically focused on cognitively and emotionally reframing harmful music associations. With the similarities and high level of comorbidity between substance use disorder and PTSD, it is hypothesized that even more trauma survivors across the world are impacted in the same way. Although not the biggest activator of traumatic memories, music can diminish health and well-being, especially when continuing to serve as a reminder of harmful past experiences.

The inspiration behind this capstone thesis was to find a way to mitigate these symptoms using music therapy and help restore safety within the music for those individuals. Although there are several methods that can be applied to deactivating cues such as music and sound in trauma treatment, it is argued that music therapy brings an entirely unique and healing way of going about that for those who are struggling with painful memories. Music therapists have the insight and training to help promote awareness of the connection between music and emotions and assist in reevaluating and recalibrating the emotional intensity of the memory (Pasqualitto et

al., 2023). This capstone thesis reviewed the literature in attempts to better understand the way that music acts as a catalyst for experiences of trauma, identify the neuroplastic capabilities of the brain, and consider how music therapy could be a feasible option for re-associating some of those harmful connections.

Method

Literature searches were conducted using Google Scholar and databases such as Academic Search Premier, Gale Academics, and FLO eResource catalog for peer-reviewed articles using search terms such as “music therapy,” “PTSD,” “music therapy and trauma,” and “music and memory.” This produced several results, however more was revealed when additional specific search terms were included, such as with “music-induced memory recall,” “music as harm,” and “trauma intrusion.” 40 articles were gathered for consideration, but a few were not used due to lack of access or relevance to the topic at hand. Articles were considered for inclusion based on the clinical population targeted (individuals re-experiencing symptoms of trauma), the therapy approach used (music therapy interventions and/or interventions utilized in the treatment of symptoms of trauma, and/or interventions used for deconditioning/reconditioning stimuli), and the overall scope of this literature review.

Literature Review

Traumatic Stress & PTSD

As per the U.S. Department of Veteran Affairs (2023), most people in the U.S. experience a traumatic event at some point throughout their life. Exposure typically includes directly experiencing an event, witnessing a trauma happen to someone else, or learning that a traumatic event happened to a close family member or friend. In most cases, these traumas are stressful but manageable. However, in some cases, the experience feels so shocking and

dangerous that it leaves a lasting mark on those who went through or witnessed them. It is estimated that 3.5% of U.S. adults are affected by Post-Traumatic Stress Disorder (PTSD) every year, with many continuing to struggle throughout their life (American Psychiatric Association, 2022). Research over the years has shown that trauma is not necessarily predicted by the external event that one is exposed to, but rather the internal process of trying to assimilate and make sense of that experience (Sutton, 2002). Whereas some individuals may experience a trauma and be able to fully process and work through that experience with minimal trouble, others experience such threat from that experience that it may temporarily or permanently alter their ability to cope, their threat perception system, and their view of themselves and the world (van der Kolk, 2000). Although these experiences often happened in the past, the lasting symptoms can intrude and interfere with life in the present.

Experts aren't sure why some people can cope and recover from major traumas, while others experience long-term difficulty. However, research is now focused on understanding PTSD and helping individuals integrate those experiences when it doesn't happen automatically. When individuals continue to experience symptoms, they are often diagnosed with PTSD, as the intrusions become more and more difficult and often get in the way of individuals living a life of meaning and pleasure. PTSD is a diagnosis characterized by four main elements, on top of experiencing the traumatic event itself. This includes the presence of intrusion symptoms or repeated reliving of memories associated with the trauma, which is experienced as intense sensory and visual memories of the event accompanied by intense physiological and psychological distress, or persistent avoidance of reminders of the trauma, including people, places, memories, thoughts, feelings, etc. associated with the traumatic event. It also can present as negative alterations in cognition & mood, appearing as persistent negative beliefs about

oneself/others/the world, persistent negative mood overall, and/or distorted thoughts about what caused the trauma to begin with. Moreover, it shows up as increased arousal and reactivity related to the traumatic event, which includes hypervigilance, irritability and anger, reckless or self-destructive behavior, and sleep disturbances (American Psychiatric Association, 2013; van der Kolk, 2000).

Not everyone who experiences the symptoms of traumatic stress develops a PTSD diagnosis. However, regardless of the label, these symptoms really do come together to produce a disruption in daily function. Symptoms from one criterion, such as hyperarousal, will cause individuals to become more easily activated and distressed by unexpected or everyday experiences. They are living in a high energy body that already had a difficult time staying regulated. On top of that, neutral stimuli in the present can often present as similar to the trauma in some way, causing traumatic intrusions, and sometimes causing people to associate that new stimuli with old trauma. Additionally, because of how unpredictable and horrifying the intrusions are, people typically turn to avoidance behaviors to keep from being reminded of the trauma (Gentry, 2021; van der Kolk, 2000).

Traumatic Intrusion & Memory

While each of these symptoms is important to address in order to return life back to the individual that is struggling, it is crucial to look at what is causing the intrusions and find ways of integrating the memory and desensitizing the individual to whatever is activating them. Again, many individuals experience intrusion after the initial trauma via flashbacks, dreams, or encountering cues that remind them of the trauma, but find that the frequency and intensity decreases over time. Current research has been therefore looking at what maintains the intrusions

and have found that much of what is experienced in terms of re-experiencing trauma has to do with sensory perception and memory storage.

Interestingly, memory is an actively constructive process that is shaped by both external and internal factors (Bensimon, 2022). The areas of the brain that are responsible for these tasks include the brainstem, hypothalamus, limbic system, and neo-cortex. These areas all work together to take in sensory information, categorize the importance of it, integrate the information gathered with previously stored knowledge, and form a response or plan of action (Perryman et al., 2019; van der Kolk, 2000). External factors that provide information include the physical environment, such as other people, time of day, the surrounding room, etc., and internal is typically referring to the individual's own emotional state.

People are facing constant sensory stimulation in their external environment throughout the day, so it makes sense that much of that gets stored in the brain as parts of the developing memories. On the other hand, meaning is only constructed when that sensory stimulus is associated with an internal emotional state, either positive or negative. Thaut & de I'Etoile (1993) use Bower's Associative Network Theory to best explain internal factors and their influence by stating "memory can be compared to an associative network of events and emotions. Within this system, events are considered memory units associated with emotional states experienced while the event took place. In Bower's model, these emotional states function as nodes to which all memory units, as experienced in a particular emotion, become attached" (p. 73). Thus, the storage of new information and the action response are both dependent on the associations already present from past experiences.

Some scholars have affirmed that traumatic experiences impact both explicit and implicit memory within the encoding and storage stage to varying degrees (Aldridge, 2010; Lang et al.,

2001; Sutton 2002; van der Kolk & van der Hart, 1991). The explicit memory system is the more well known of the two and refers to all memories involving personal experience & information that one can intentionally retrieve and recall. It is a combination of semantic memory, which is where one's memory of general knowledge and facts lives, as well as episodic memory, which is the information stored about events or episodes one has experienced (Perera, 2023). Trauma does impact this part of the memory system, as it stems from events experienced in the past, however it is said to be much easier to forget or decondition than the implicit (Sutton, 2002). This is because implicit memory is fully unconscious and automatic. It is a combination of a few subtypes of memory as well, including procedural learning, or remembering how to perform tasks such as riding a bike and tying one's shoes, as well as perceptual, category, and emotional learning (Perera, 2023).

Interestingly, it is the emotional memory system that has gained a lot of attention in recent years, as many believe that intrusive unwanted memories and symptoms reappear largely due to emotional state-dependent learning (Ehlers, 2010; Pasqualitto et al., 2023; Streb et al., 2017; Sutton, 2002; van der Kolk & van der Hart, 1991). Touching back on the impact of internal factors, state-dependent memory is defined as "a condition in which memory for a past event is improved when the person is in the same biological or psychological state as when the memory was initially formed" (American Psychological Association, 2018). Although research is still being developed on this theory, it has been shown that when traumatic experiences prompt an internal emotional response, that emotion then becomes an activator for re-experiencing traumatic memories (Pasqualitto et al., 2023; Radulovic et al., 2018; van der Kolk & van der Hart, 1991). The strength of that association will depend on how strong the intensity of the emotion was during the initial event; however, the memories can then become reactivated

whenever exposed to a situation that prompts that same emotion present when the memory was stored (Thaut & de I'Etoile, 1993; van der Kolk, 2000). The same can be said for sensory experiences, which is why often individuals are activated by seemingly harmless external stimuli such as songs, pictures, environmental sounds, etc.

Sensory and emotional memory is of particular concern when it comes to trauma and trauma recovery work, because unlike other types of memories that may fade or become less intense over time, these memories stay stable and unaltered by other life experiences. And, in some cases, cause new neutral stimuli to become perceived as a threat as well. Therefore, those who experienced traumatic stress are at risk of re-experiencing that state of being, regardless of their current level of safety, unless given the opportunity to reduce those associations (Streb et al., 2017; van der Kolk, 2000).

Music Associations

It is also important to note that state-dependent memory also allows for the capturing of memories and associations during positive states. We see this often with music, as the brain captures the mood state and the sound of the music and ties that into the storage of the memory. This is why so many people feel that their music is very personal and emotional, as they have been building a relationship with it throughout their lifetime. Research shows that the brain starts forming connections between stored memories, emotions, and music from an early age. According to some, this begins to develop as early as the womb (Levitin, 2006; Sutton, 2002). Given that the brain begins to pick up on sensory stimuli and form connections in this way early in life, it makes sense why music is then linked to so many different events and experiences later on. Recall of positive memories through music occurs for everyone but is more noticeable with populations such as Alzheimer's and dementia because they often have difficulty with recall.

There are many examples of individuals experiencing music and then being able to speak to a memory that was previously unavailable to them (Matziorinis & Koelsch, 2022).

Memory retrieval through music does not just happen for those who experience memory loss, but all the time without much awareness. Intentionally or not, most people experience music in some capacity every single day. Jakubowski & Ghosh (2021) relayed that music-evoked autobiographical memories are evoked, on average, once a day and can be cued by a wide variety of different types of music. Again, these memories are often accompanied by positive or mixed emotions, however it was also shown that individuals rated the music-evoked memories as highly vivid and involuntary (Jakubowski & Ghosh, 2021). Often the memory recall happened whether the individual was intentionally attending to the music in the environment or not.

While this has provided a lot of great opportunities for individuals to retain and re-experience positive feelings and memories throughout their life, it also allows for the triggering of harmful memories and experiences. Research by Thaut & de I'Etoile (1993) investigated the effects of music on mood state-dependent recall, showing that it can produce harm when music as a sensory stimulus has been linked to a negative internal emotional response. It is not inherently wrong to have things in one's environment prompt negative feelings, as it is part of the human emotional experience. However, it does present an issue when the experience of listening to a particular song leads to an individual's diminished health or wellbeing (Silverman et al., 2020).

Music As Harm

Music can unintentionally become associated with maladaptive thoughts, feelings, and behaviors particularly within addiction populations (Horesh, 2003). Clients within this community will often describe music as a necessary part of surviving hardship. However, many

find that they have music associations with both drug use and trauma, which gets in the way of their progress in recovery. Often with this population, they have been surrounded by an environment that reinforces self-destructive behaviors, which unfortunately includes things like music. Individuals can be particularly vulnerable to relapse for a while after getting sober, and most are encouraged to identify high-risk relapse factors such as people, places, and things that remind them of using. While songs may be obviously associated with drug use for some, others have no idea that there has been a subconscious connection between a past memory and a particular piece of music. As a result, many find themselves confronting the mental and emotional response that arise unprepared and alone. This issue is addressed by authors such as Horesh (2003).

Horesh (2003) documented the recurring theme within their clinical practice but found very little research on the issue. They observed that the common approach to this issue in treatment is isolation or attempting to protect the client from exposure as to not activate the conditioned response. This may be helpful in early detoxing stages. However, if no attempt is made to address the danger that the music presents it will leave the client to deal with it on their own outside of the treatment environment. The researcher therefore proposed that this topic be addressed in the therapy space, to help hold space for the client and keep them from drowning in the emotion. In this article they described their experience doing so with one group in particular and saw the clients actively reverting to aggressive and disrespectful addictive behavior without even realizing it (Horesch, 2003). Horesch (2003) reflects on one group member's response, stating:

> He said that the song took him back to the neighborhood he grew up in. He described a closely knit society, where the people all knew each other. Ofer Levi's music in the air,

> the women cleaning and cooking inside, the guys sitting outside, eating sunflower seeds and smoking hash. The atmosphere was one of potential violence and reckless behavior. The memory was nostalgic but tinged with pain and fear, bringing up traumatic events from his past. He told us that the main emotion he felt was stress and unrest. In the past, when feeling this way, he would take a friend's car and drive it, recklessly ... that was the only way he could calm down. (p.138)

However, experiencing that song within the music therapy space allowed the client to face the music, take time to intentionally reflect on that song and the ways that it prompts feelings and behaviors, and feel more in control.

This can also be present for those who have lived through other traumatic experiences such as car accidents, traumatic birth, sexual assault, and abuse. Ehlers (2010) completed a systematic comparison of intrusive trauma memories in people and found that one of the most important similarities between candidates was the ease of triggering by matching cues. They found that even when the cue does not have an obvious meaningful connection to the trauma, it still can easily activate a trauma intrusion. Even closer analysis revealed that triggers often have sensory similarities with the stimuli present just before the trauma occurred, or that which was present during the worst moments (Ehlers, 2010). Research specifically looking at music in this scenario has not been conducted yet. However, it is highly likely that a stimulus, such as music, would become an activator if associated with a traumatic event. For example, if a particular song was playing just before a horrific car accident.

Healing Through Music

The purpose of this literature review is not to cast a negative light on music, but rather to draw attention to the unconscious impact of it and propose a way of addressing stored sensory

memories that are resurfacing and causing harm. Research supports music to address trauma symptoms, partly due to the strong relationship that people already have with it prior to traumatization (Beck et al., 2018). In a narrative review, Sedikides et al. (2022) shared that relationships people build with music are so strong because of the way that it evokes emotions. Music serves as a means for altering mood state, matching a current emotion, comforting oneself, relieving stress, and celebrating social or lifetime events. It is most often associated with positive feelings such as happiness and contentment and brings significant feelings of nostalgia due to the way it has been associated with valued past experiences. In addition, the research suggests that nostalgic music in general is related to meaning in life, social connectedness, and self-esteem (Sedikides et al., 2022). It also is described by some as being "a companion, one's 'best and only friend' during difficult times" (Sakka & Saarikallio, 2020, p. 7). Given this information, it is understandable why so many value the presence and impact of music in their life. And why they might want to address the music or sounds that are activating them.

As mentioned earlier in this review, there is no literature looking specifically at retraining emotional responses to music when it serves as an activator for trauma. However, there are several examples of research looking into the general use of music therapy to address symptoms of trauma. According to a literature review by Ning et al. (2022), there are many studies that show that music therapy can significantly reduce the severity of PTSD symptoms and improve quality of life. Interventions such as Guided Imagery and Music (GIM) decreased symptoms of dissociation, songwriting decreased the numbing and depressive symptoms of PTSD, playing instruments increased the sense of openness and togetherness, and allowed for non-intimidating access to the traumatic memories. In addition, listening to or playing music allows those

experiencing hyperarousal to create calmness, reduce tension, and promote safety, relaxation, and happiness (Ning et al., 2022).

In terms of symptoms such as physical and emotional intrusion, Bensimon (2022) touched on the use of music therapy to address the physical, cognitive, and emotional wounds of trauma through integration, interviewing several music therapists on their work in this area. Although recognizing that there is more research needed, the results showed that many have found success using music therapy interventions such as singing, songwriting, and musical improvisation to facilitate integration of dissociated traumatic memories using the music experience. Through this experience, clients are kept connected to the present while engaging with the past (Bensimon, 2022). Bensimon (2022) proposed that music can not only be utilized as a sensory stimulus to address physical symptoms of trauma such as nervous system regulation and hyperarousal, but also as a way of cognitively and emotionally reframing the narrative and allowing the client to detach from the trauma.

This approach to trauma treatment is supported by researchers like van der Kolk (2000), who found that body-oriented therapies and those that tap into the sensory experience are more effective than traditional insight-oriented therapies for working with trauma. The research indicates that traumatized people have great difficulty talking about their trauma simply because verbal communication operates out of the left hemisphere of the brain, while things like facial expression, sensory imprints, and emotions are stored in the right. While these two halves are operating together under normal circumstances, things like intrusive trauma memories often activate the right hemisphere while deactivating the left (van der Kolk, 2014). It can be very difficult for individuals to construct a narrative around the experience, especially when actively re-experiencing the sound, smell, feeling, and emotion of the trauma. van der Kolk (2000) adds

that it is important to help people with PTSD find a language that allows them to communicate their experiences, which is where music comes into play.

Music therapy, as well as the other creative arts modalities, helps clients to connect with parts of themselves not readily available in traditional talk therapy. As creative processes are experienced in the right hemisphere of the brain, where fragmented traumatic memories also exist, resources like music have the potential to help traumatized clients tap into and process the sensory and emotional (right-brain) aspects of the experience in a way that is non-threatening, and connect that experience with words (left-brain) as the music is allowing integration of those parts (Perryman et al., 2019). Ultimately this is the desired outcome, as integration of the traumatic experience means that the client is no longer experiencing the same level of distress from the memory. However, the research is currently limited as to how music therapists accomplish this, as music therapy research has not yet prioritized formulating systematic therapeutic tools to examine the concept of integration through music.

Still, there are some that are beginning the work, such as Bensimon et al. (2008), who presented music therapy group work to six soldiers diagnosed with combat or terror related PTSD to facilitate a sense of belonging, intimacy, togetherness, and connectedness; to achieve a non-intimidating access to traumatic memories; to allow an outlet for rage; and to regain a sense of control. Within this study there were many great areas of focus, but the most relevant include those related to the use of drumming to access traumatic memories in a non-intimidating manner. As mentioned above, traumatic events can impact individuals in the auditory sense. With veterans specifically, many have psychological trauma related to the sounds of war. However, it is often hard to verbalize the physical and emotional impact of that sensory association.

Therefore, rather than prompt the participants to speak about the trauma memory, they invited them to express themselves creatively.

Bensimon et al., (2008) discussed the rationale behind the use of the drum for confronting these memories, stating that drums have often been reported to be vivid and frightening auditory reminders of combat-related trauma. To quote some of the participants in this study, "It reminds me exactly of the chaos that was there" and additionally, "It was frightening, it reminds me of war" (Bensimon et al., 2008, p. 39). Although terrifying for some at first, the use of music in this way was a deliberate way of prompting confrontation with the distressing stimuli. As mentioned, music can help those with PTSD navigate through the experience with a sense of safety that makes it easier to confront. Through the behavioral technique of habituation, these participants were able to expose themselves to the harmful auditory association and decrease their own anxiety through that exposure. As per Bensimon et al. (2008), the repetitive confrontation within this study helped the participants to recall their associations more and more over time without reluctance or intimidation. It decreases fear, and increases a sense of control, relief, and empowerment for those that are struggling (Bensimon et al., 2008). Although more research is needed to further understand this phenomenon, this study may promote theoretical comprehension and prompt further research, potentially leading to a specific intervention model later down the line.

Implementing Trauma Treatment

According to Bensimon et al. (2008), many clinicians are going into trauma work with more of a behavioral approach, because of the efficacy in decreasing reactivity to certain associated stimuli. However, there remains a lack of consensus as to which treatment protocol or methodology provides best outcomes for clients that are suffering. The study mentioned above

by Bensimon et al. (2008) is an example of a clinician utilizing music therapy and traditional psychotherapy approaches together. Although this study had positive outcomes, it is one of the only examples published looking at this type of integrated approach to treatment. Most research to-date on treatment for trauma and PTSD has been based on more traditional approaches such as exposure therapy, EMDR, systematic desensitization, stimulus discrimination training, and cognitive therapy for PTSD (Bradley et al., 2005; Ehlers et al., 2005; Harvey et al., 2003; Nosen et al., 2014; Powers et al., 2010). While each has shown to be successful in reducing symptoms, it is still up for debate whether factors such as type of symptom, duration, intensity, and comorbidity have any effect on treatment outcomes. Given the nature of this review, and the specific symptoms addressed, it is important to review the literature within the realm of traditional trauma therapy to draw connections or comparisons that may further research and practice within the music therapy field.

Although there are many different therapeutic frameworks today, many within the field continue to support the use of exposure-based approaches in trauma treatment. Nosen et al. (2014) stated that exposure-based psychotherapy treatment is considered the "gold standard" in terms of treatment for PTSD. As mentioned above, traumatized individuals often begin to engage in avoidance behaviors as a way of safety-seeking or protecting themselves from the trauma intrusions. However, that act in itself is often intensifying the fear and activation experienced because it does not allow the individual to ever learn that the thoughts, emotions, or situations they are experiencing are not as threatening as they seem and does not allow the individual to fully process their experience. This method of treatment directly addresses the experience of reliving painful memories and focuses on desensitizing emotional reactivity to the trauma cues through exposure to them. Meaning, the individual is exposed to the thing that is scary or

distressing to them so that it will no longer be scary and distressing and won't continue to take over their life. The rationale behind exposure treatment is explained well by van der Kolk (2000), who stated that meaning making is not enough when it comes to PTSD and trauma. Often the individual needs to have experiences that counter the physical and emotional effects of the intrusion. In confronting the feared stimuli in this way, they are able to separate remembering the trauma from re-experiencing it again and again (van der Kolk, 2000). Supporting this is Ehlers et al. (2005), who stated non-trauma focused behavioral interventions such as relaxation training are less effective than those allowing for systematic exposure to the memory or cognitive restructuring of the meaning of the trauma.

After reviewing the literature, it seems that many of the exposure-based protocols meet the same goals but just differ in approach. It is worth noting that some exposure techniques involve imaginal exposure, which is confronting the fear-evoking memories of the traumatic event through imagination or writing; whereas others use in vivo exposure, or confronting the stimuli or situations that are distressing or avoided (Ehlers et al., 2005; Nosen et al., 2014). Although both have proven effective in terms of trauma treatment, it is interesting to think about which of these might be more helpful in the context of reframing a cue that is activating a trauma memory. Although some are hesitant to use in vivo exposure, due to the potential of exacerbating symptoms, many have found it possible to safely and systematically expose their clients to the thing that is activating their intrusions (McLean et al., 2022; Minnen et al., 2012). Ehlers et al. (2005) shared an example in which they were working with an individual who had been in a car accident and was continuing to re-experience the terror of that experience in the present. This client was able to identify that any sort of bright lights (sunlight, overhead projectors, etc.) served as a trigger for that experience, as it brought back images of the van that was about to hit

him. In using in vivo exposure therapy with this client, they were able to intentionally provoke the memory with bright lights, and then allow the client to behave in ways that he could not have at the time (standing up and moving), which helped to discriminate between “then” and “now” (Ehlers et al., 2005). Obviously, the setting in which one is engaging in exposure to their trauma serves as an important factor when doing the work. Several researchers and clinicians that support exposure therapy agree that it is most effective due to the safety that is provided alongside the confrontation and reassociation experience (Beck et al., 2018; Gentry, 2021; van der Kolk, 2000). Whether doing a more gradual exposure, such as with prolonged exposure (PE) or systematic desensitization, or more rapid exposure techniques such as flooding, it is important that the client feels prepared with resources and some level of safety before doing the work.

The second category of trauma-focused approaches worth mentioning are those that fall under the Cognitive Behavioral Approach (CBT). This approach to trauma-treatment also emphasizes exposure, but involves other aspects such as psychoeducation, cognitive restructuring, and anxiety management (Harvey et al., 2003). While CBT also emphasizes exposure as a way to reduce fear conditioning and enhance empowerment, it also involves implementing interventions such as cognitive restructuring to help clients obtain corrective information that is incompatible with existing fear structures. As explained by the Australian Institute of Professional Counselors (AIPC) (2016), individuals' ability to cognitively process and integrate information is significantly impacted in the acute phase of trauma. In attempts to comprehend the events, the survivor often replays the memory repeatedly, causing distress and eventually inhibition within the traumatized person. Over time, this can develop into a cycle of experiencing numbness/withdrawal and then hyperarousal/intrusion, which will continue until the individual is able to reassess the situation and revise their cognitive schema (AIPC, 2016).

CBT is unique in that it focuses on helping clients to identify and evaluate their beliefs about the trauma, themselves, the world, and their future. Several reviews do indicate strong support for the efficacy of CBT for PTSD (Bradley et al., 2005; Harvey et al., 2003; Kar, 2011). However, the literature does not support the idea that it is superior to purely exposure-based treatment.

The last popular trauma-focused treatment is a newer approach called Eye Movement Desensitization and Reprocessing (EMDR). EMDR involves asking clients to develop a mental image of a traumatic event and related negative cognitions, while tracking a bilateral stimulus (Bradley et al., 2005). Unlike some of the other treatments that focus on directly altering some of the emotions, thoughts, and behaviors resulting from the traumatic experience, EMDR is designed to focus directly on the memory, and change the way that it is stored in the brain. Using some form of bilateral stimulation, whether visual, auditory, or tactile, the goal with EMDR is to activate both hemispheres of the brain at once in efforts to create a neural pathway and promote integration. However, it is still difficult for researchers to understand quite how this approach works neurologically. In terms of effectiveness, Harvey et al. (2003), shared a few studies that demonstrated greater long-term treatment outcomes in both those that received CBT and exposure therapy, compared to EMDR which did not maintain over time. Interestingly, the meta-analysis by Bradley et al. (2005), did not find support for differential efficacy across treatments, meaning CBT (exposure and non) and EMDR seemed to produce the same level of results. Conversely, Gentry (2021) noted that what is important to remember in terms of working with trauma survivors is it's "not the treatment model itself that is healing, it's what's embedded in that treatment model. It's what's delivered through that treatment model" (Gentry, 2021, 5:22).

What Music Therapy Can Deliver

As mentioned earlier in this review, music therapy already exists within the world of trauma treatment. Although it has a substantial amount of support currently, it is not quite recognized or valued in the same way as some of these other popular treatment approaches. This is not entirely surprising, as it is still a developing field and does not have the same level of supportive evidence. However, it is proposed that music therapy is just as successful, if not more so than other psychotherapy approaches when it comes to trauma treatment because of the ways that it is both similar and different to the other evidence-based approaches. To clarify, there are many ways of transferring the principles and practices of approaches such as EMDR, CBT, and exposure therapy in ways that allow for music-based delivery.

EMDR, for example, involves focusing on the trauma memory while engaging in bilateral stimulation, which typically involves auditory or tactile stimulation such as music listening or tapping. It is likely that the bilateral application of auditory or tactile stimulation could easily happen, and somewhat already does, through music therapy experiences, such as tapping along to a song or playing an instrument such as a drum with alternating hands. Macfarlane et al. (2019) shared a feasibility study revealing that the use of rhythmic entrainment, body percussion in bilateral movement patterns, and musical attention control training can impact stress responses in the brain and decrease hyperarousal in those experiencing PTSD. As a bonus, they propose that this is a short-term music therapy process, taking only half the time that EMDR does and showing promising results. More research is needed; however, it stands to reason that this would make treatment even more accessible to certain populations. It is also reasonable to assume that the research supporting protocols such as exposure therapy and CBT would support music therapy interventions employing the same type of techniques. In reference

to the CBT framework, Bensimon (2022) demonstrated ways in which music experiences help clients cognitively restructure and reframe the trauma memory to be able to make sense of the experience and move forward, placing it as one event within the lifespan.

Some music therapists within the field offer that expressive therapies are able to provide more to clients than the traditional talk therapy approaches. Landis-Shack et al. (2017) argued that music therapy is more accessible and less stigmatizing for clients with PTSD, offering more of a tailored and person-centered approach. Additionally expressive therapies also provide additional safety through the art making that allows individuals to re-experience their trauma in a supportive way. Beck et al. (2018) spoke to the argument of music specifically, affirming:

> When the narration of trauma episodes is accompanied by music, the music serves both as a holding and structuring framework that keeps the patient from fragmenting. It also helps the stimulation of imagery so that the recalling of trauma memory can change from being stuck in repetitive flashback. With the music as a support, processing of trauma fragments can take place at an implicit level of body sensation and imagery formation, a symbolization process where the memory is transformed into a metaphor. The ability to symbolize an experience allows it to be installed as memory that can be placed in the past instead of occurring as a recurrent flashback experienced as real time. (p. 14)

The natural safety and holding provided within the music therapy experience also reveals it to be an excellent option for providing exposure experiences, both through in vivo and imaginal practices. Beck et al. (2018) compared music therapy treatment and traditional psychotherapy treatment with refugees diagnosed with PTSD, identifying how imaginal exposure through guided imagery and music (GIM) can support treatment outcomes. As per their research, trauma exposure through music therapy is effective and shows promising results. However, they warned

that implementing this type of treatment requires both client and therapist to be aware and work together to keep arousal manageable. Exposure through music provides additional benefits for many clients, but it is always possible to cause harm in cases of hypersensitivity to sound, stimulation of trauma due to loud or dynamic music, activation of trauma for those who have been tortured with the sound of music, and/or music listening that triggers reminders of trauma memory in general (Beck et al., 2018). This is of course the consideration when deciding whether to seek music therapy treatment or something more traditional.

After completing a thorough review of the current literature surrounding treatment for trauma and PTSD, it seems that there are many approaches targeting the desensitization and integration of trauma intrusions for those that are suffering. However, seeing the gap in music therapy literature in this area reveals a great opportunity to further explore how music might add to/further progress clinical outcomes. One could argue that music is not needed, as many are finding success without it. Yet, there is a long history of individuals using music to cultivate resilience and foster healing in the aftermath of violence and hardship. Gentry (2021) stated the most important predictor of positive outcomes in psychotherapy has nothing to do with the therapy itself, but much more to do with the development and maintenance of a good therapeutic relationship and the presence of positive expectancy and hope.

Desensitization & Reassociation Through Music

As the current research supports music therapy as a resilience-enhancing and distress-reducing approach, it is safe to say that music therapy is holding up within the world of trauma treatment (Beck et al., 2018; Landis-Shack et al., 2017). But what about music therapy in instances where the music itself is serving as the cue for activation and intrusions? Given the support for exposure therapy with this population, one would assume that administering music to

those activated by it would be the most effective method of reducing distress and returning safety to that individual. While the memories evoked by the music might be disturbing for the individual, it is essential to view the exposure process as an opportunity to alter the interpretation of that association so that the song or sound no longer continues to harm the individual or prompt them to engage in avoidance. There is no current treatment protocol for desensitization using music therapy, however this capstone thesis reviews the literature and provides some recommendations for future studies.

Music therapists have the awareness and training to recognize music induced harm, utilize music interventions in an informed way, and engage creatively with clients to support clinical progress. Sutton (2002) spoke to this, stating music therapists "possess a tool which gives them direct access to the emotions and the inherent dangers of provoking and consolidating unpleasant and threatening memories. However, used appropriately and with care, music also has the power to heal by helping people to understand and rationalize emotions" (p. 50). Regardless, it is important to continue advancing research to support current methods and propose new ways of serving clients and avoiding harm.

It is worth considering that exposure-based music therapy seems to be the most effective method to expand upon and continue investigating. As demonstrated in the initial work conducted by Beck et al. (2018) and Bensimon et al. (2008), exposure therapy can be delivered in many different formats depending on the presentation and symptoms experienced by each client. Bensimon et al. (2008) demonstrated in vivo exposure through active music making proved successful in decreasing trauma symptoms within a group of combat veterans, and Beck et al. (2018) spoke to the potential benefits of GIM in approaching the same types of symptoms. However, there is very little research looking at the way one might utilize exposure therapy to

reframe or recondition an individual's response to a particular song or set of songs that was present during an experience of trauma. Most people do not have the experience of a combat veteran or a refugee, and while it is important to have treatment protocols in place to address significant prolonged experiences of trauma such as this, it is also worth considering whether there are short-term techniques available to help those that have experienced single event trauma and are looking to move forward.

This literature review highlights the value of music therapy in reframing and establishing new associations with music that has been connected to harmful past memories. Music serves as a resource for hope and healing. Based on the literature reviewed, it is unknown whether or not individuals would be able to regain their relationship with music after associating it with a particular experience of trauma, however it is the opinion of the author of this capstone thesis that they would at least be able to recondition the fear response and avoidance of that music/sound. In doing so, they may regain the freedom to choose how and when they utilize music for their own health and wellbeing.

References

Aldridge, D. (2010). *Music therapy and addictions.* Jessica Kingsley Publishers.

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

American Psychiatric Association. (2023). *What is posttraumatic stress disorder (PTSD)?* https://www.psychiatry.org/patients-families/ptsd/what-is-ptsd#:~:text=PTSD%20can%20occur%20in%20all,with%20PTSD%20in%20their%20lifetime

American Psychological Association. (2018). *State-dependent memory.* APA Dictionary of Psychology. https://dictionary.apa.org/state-dependent-memory

Australian Institute of Professional Counselors (2016, March 2). *CBT interventions for trauma.* AIPC Article Library. https://www.aipc.net.au/articles/cbt-interventions-for-trauma/

Beck, B. Lund, S., Søgaard, U., Simonsen, E., Teller, T., Cordtz, T., Laier, G., & Moe, T. (2018. Music therapy versus treatment as usual for refugees diagnosed with posttraumatic stress disorder (PTSD): Study protocol for a randomized control trial. *Trials. 19*(1), 301.https://doi.org/10.1186/s13063-018-2662-z

Bensimon, M (2022). Integration of trauma in music therapy: A qualitative study. *Psychological Trauma: Theory, Research, Practice, and Policy, 14*(3), 367-376. https://doi-org.ezproxyles.fol.org/10.1037/tra0001032

Bensimon, M., Amir, D., & Wolf, Y. (2008). Drumming through trauma: Music therapy with post-traumatic soldiers. *The Arts in Psychotherapy, 35*(1). 34-48. https://doi-org.ezproxyles.flo.org/10.1016/j.aip.2007.09.002

Ehlers, A. (2010) Understanding and treating unwanted trauma memories in posttraumatic stress disorder. *Zeitschrift für Psychologie / Journal of Psychology. 218*(2). 61-150. https://doi.org/10.1027/0044-3409/a000021

Gentry, E. J (2021). Trauma competency for the 21st century: The empowerment & resilience treatment structure for effective trauma & PTSD treatment [video]. Udemy. https://www.udemy.com/course/trauma-competency-for-the-21st-century/

Horesh, T. (2003). Dangerous music-working with the destructive and healing powers of popular music in the treatment of substance abusers. In D. Aldridge & J. Fachner (Eds.) *Music and Altered States-Consciousness, Transcendence, Therapy. and Addiction.* Jessica Kingsley Publisher. 125-139.

Jakubowski, K., & Ghosh, A. (2021). Music-evoked autobiographical memories in everyday life. *Psychology of Music*, *49*(3), 649-666. https://doi.org/10.1177/0305735619888803

Kar N. (2011) Cognitive behavioral therapy for the treatment of post-traumatic stress disorder: A review. *Neuropsychiatr Dis Treat. 7*(1), 167-81. https://doi.org/10.2147%2FNDT.S10389

Landis-Shack, N., Heinz, A.J., Bonn-Miller, M.O. (2017). Music therapy for posttraumatic stress in adults: A theoretical review. *Psychomusicology, 27*(4). 334-342.

Levitin, D. (2006). *This is your brain on music: The science of a human obsession.* Plume.

MacDonald, R. (2013) Music, health, and well-being: A review. *International Journal of Qualitative Studies on Health and Well-being*, *8*(1), https://doi.org/10.3402/qhw.v8i0.20635

Matziorinis, A., Koelsch, S. (2022). The promise of music therapy for Alzheimer's disease: A review. *Ann N Y Acad Sci. 1516*(1). 11–17. https://doi.org/10.1111%2Fnyas.14864

McLean, C., Levy, H., Miller, M., Tolin, D. (2022). Exposure therapy for PTSD: A meta-analysis. *Clinical Psychology Review. 91*(1). https://doi.org/10.1016/j.cpr.2021.102115

Minnen A., Harned, M., Zoellner, L. & Mills, K. (2012). Examining potential contraindications for prolonged exposure therapy for PTSD. *European Journal of Psychotraumatology 3*(1). https://doi.org/10.3402/ejpt.v3i0.18805

Ning, M., Wen, S., Zhou, P., & Zhang, C. (2022). Ventral tegmental area dopaminergic action in music therapy for post-traumatic stress disorder: A literature review. *Front Psychol, 13*(1). https://doi.org/10.3389/fpsyg.2022.1014202

Nosen, E., Littlefield, A.K., Schumacher, J.A., Stasiewicz, P.R., Coffey, S.F. (2014). Treatment of co-occurring PTSD-AUD: Effects of exposure-based and non-trauma focused psychotherapy on alcohol and trauma cue-reactivity. *Behaviour Research and Therapy, 61*(1). 35-42. https://doi.org/10.1016/j.brat.2014.07.003

Pasqualitto, F., Panin, F., Maidhof, C., Thompson, N., & Fachner, J. (2023). Neuroplastic changes in addiction memory—How music therapy and music-based intervention may reduce craving: A narrative review. *Brain Sciences*, *13*(2), 259. doi:https://doi.org/10.3390/brainsci13020259

Perera, A. (2023, September 22). *Implicit & explicit memory: Definition & examples.* Simply Psychology. https://www.simplypsychology.org/implicit-versus-explicit-memory.html

Perryman, K., Blisard, P., Moss, R. (2019). Using creative arts in trauma therapy: The neuroscience of healing. *Journal of Mental Health Counseling. 4*(1). 80-94.

Powers, M.B., Halpern J.M., Ferenschak, M.P., Gillihan, S.J., & Foa, E.D. (2010). A meta-analytic review of prolonged exposure for posttraumatic stress disorder. *Clinical Psychology Review. 30*(6). 635-641. https://doi.org/10.1016/j.cpr.2010.04.007

Randulovic, J. Lee, R. & Ortony, A. (2018). State-dependent memory: Neurobiological advances and prospects for translation to dissociative amnesia. *Front Behav Neurosci. 12*(259). https://www.frontiersin.org/articles/10.3389/fnbeh.2018.00259/full

Sakka, L. S. & Saarikallio, S. (2020). Spontaneous music-evoked autobiographical memories in individuals experiencing depression. *Music & Science*. https://doi.org/10.1177/2059204320960575

Sedikides, C., Leunissen, J., Wildschut, T. (2022). The psychological benefits of music-evoked nostalgia. *Psychology of Music. 50*(6). 2044-2062. https://doi.org/10.1177/03057356211064641

Silverman, M. J., Gooding, L. F., Yinger, O., (2020) It's...complicated: A theoretical model of music-induced harm, *Journal of Music Therapy, 57*(3) 251–281, https://doi-org.ezproxyles.flo.org/10.1093/jmt/thaa008

Streb, M., Conway, M., & Michael, T. (2017). Conditioned responses to trauma reminders: How durable are they over time and odes memory integration reduce them? *Journal of Behavior Therapy and Experimental Psychiatry. 57*(1). 88-95. https://doi.org/10.1016/j.jbtep.2017.04.005

Sutton, J. (2002). Trauma: Trauma in context. In D.S. Austin & J. Sutton (Eds.), *Music, Music Therapy and Trauma: International Perspectives.* 21-39. Jessica Kingsley Publishers. http://ebookcentral.proquest.com/lib/lesley/detail.action?docID=290752.

Thaut, M. H., & de I'Etoile, S. K. (1993). The effects of music on mood state-dependent recall, *Journal of Music Therapy*, *30*(2). 70–80, https://doi.org/10.1093/jmt/30.2.70

U.S. Department of Veteran Affairs. (2023). *How common is PTSD in adults?* PTSD: National Center for PTSD. https://www.ptsd.va.gov/understand/common/common_adults.asp

van der Kolk B. (2000). Post traumatic stress disorder and the nature of trauma. *Dialogues in Clinical Neuroscience, 2*(1). 7-22. https://doi.org/10.31887%2FDCNS.2000.2.1%2Fbvdkolk

van, D. K. B. (2014). *The body keeps the score : Brain, mind, and body in the healing of trauma*. Penguin Publishing Group. https://ebookcentral.proquest.com/lib/lesley/reader.action?docID=6099843&ppg=18

THESIS APPROVAL FORM

Lesley University
Graduate School of Arts & Social Sciences
Expressive Therapies Division
Master of Arts in Clinical Mental Health Counseling: Music Therapy, MA

Student's Name: Courtney Pitzer

Type of Project: Thesis

Title: The Use of Music Therapy to Mitigate Trauma-Related Music Associations and Restore Personal Relationships with Music

Date of Graduation: May 18, 2024

In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

Thesis Advisor: