

The Musical Touch on Mental Illness

Skylar Dunn

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Cynthia Goodrich, Ed.D.
Thesis Chair

Tamra Lynn Rasberry, Ph.D.
Committee Member

Emily C. Knowles, D.B.A.
Assistant Honors Director

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Abstract

To understand the relationship amongst anxiety, depression, and music therapy, this integrative review synthesizes the major themes and relevant education of articles discussing mental health and the benefit of music. While most existing studies focus on using music therapy to treat pain and clinical anxiety, the content of this paper is written to emphasize how the same principles can be used in unmanageable stress and emotional decomposition. Each topic is analyzed and reviewed individually, pooling several sources for a thorough examination, and understanding of the subject. Once each area is fully summarized, the gap is addressed by pulling evidence from the content analyses to address the review's major research questions and conclude that music therapy is highly beneficial in supplementing treatment for those suffering from mental disorders.

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The Musical Touch on Mental Illness

The increasing prevalence of mental illness in modern society has been spiking rapidly since the start of the global COVID-19 pandemic in early 2020. Statistics have revealed staggering increases of depression, anxiety, and suicidal ideations in both adolescents and adults over the past two years (CDC, 2022). For many cases, stigma and financial burdens can hinder receiving proper medical and pharmaceutical assistance. However, researchers have revealed different approaches to aiding the crippling side effects of mental illness. As early as the 1700s, music has been considered for its physical and psychological benefits (American Music Therapy Association, 2020). Both clinical and evidence-based research promote the phenomenon of music therapy, the therapeutic use of music to reduce manifested symptoms and achieve improvement in the overall state of mental health (American Music Therapy Association, 2023).

More than ever, our world needs coping mechanisms for the detrimental mental health crisis. Despite the death and suffering the last two years have brought universally, a plausible solution might be closer than anyone thought. Close your eyes and remember a time the swell of a symphony took your breath away. Recall the night that the jarring soundtrack of a film had you on the edge of your seat. Reflect on a memory in which the stirring chorus of your favorite song brought tears to your eyes and chills to your skin. Familiar tunes accompany some of the most pivotal days in an individual's life, from *Pomp and Circumstance* leading graduates into a new day, to chosen love ballads accompanying a bride's delivery to her groom. Music is a powerful and emotional influencer with the ability to lift or drop an individual's mood within just a few chords. However, the impact of music does not stop with mere feelings. Psychological and physical benefits have been discovered through different clinical and evidence-based studies (American Music Therapy Association, 2023).

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In some of these instances, the therapeutic touch of music has been able to decrease signs and symptoms of anxiety and depression (Cleveland Clinic, 2020). When an individual suffers from anxiety, there are many physical ailments that can hinder them. These may include but are not limited to feelings of fatigue and restlessness, hyperventilation, hypertension, tachycardia, diaphoresis, tremors, headaches, and gastrointestinal difficulty (Mayo Clinic, 2022). Furthermore, depression may be accompanied by physical manifestations of exhaustion and impaired appetite.

Researchers have shown that certain music stimulates the release of biochemical stress reducers that could help improve physical anxiety symptoms (Nilsson, 2008). Cortisol secretion may be decreased while the amount serotonin and number of endorphins released increases. In terms of improving psychological health, research also provides evidence that increased dopamine release may be triggered by music. The same processing region of the brain responsible for mood balance and emotions—the amygdala—is responsible for processing music. The artistic method of music therapy takes this knowledge on the front lines of medicine, being broadly defined as utilizing a form of music to nurture the physical, emotional, cognitive, and social spectrums of health (UMN, 2016).

Integrative Analysis

For the analysis of existing literature, I categorized over twenty sources based on their connection to the research questions: mental illness with focus on anxiety and depression, music and its understood medicinal benefits, and the artistic, healing career of Music Therapy. Rather than mere summarization, each category will consist of a discussion of common themes, trends, facts, and ideas presented in the related sources.

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Methods of Review and Framework

For the purpose of my study, I conducted an integrative review on Music Therapy and the psychological benefits of music as it pertains to mental health conditions—primarily anxiety and depression. My research was directed in pursuit of the following research questions:

- What are the physical and psychological benefits of music and music therapy in relation to anxiety, depression, and suicidal ideation?
- Does the benefit of music for mental health depend on the preference of the client or a particular genre of sound?
- Can an overstimulating environment of a patient undo or counterattack the benefit of music?

This thesis examines a collection of preexisting studies and informative literature to form an integrative analysis and a more comprehensive understanding of the topic; results will be presented, discussed, and related back to the research question. Each source on the reference page underwent a review to determine its value to the overall project. This broke down each article into the following categories: article title, article author, purpose, demographics, methods, findings, level of evidence according to Melnyk, limitations, and usefulness. For example, an entry in this chart might read across “*Music Therapy*, Cleveland Clinic. To define, summarize, and explain the profession of music therapy. N/A, this article was descriptive, not experimental (x3). Level 5. None. Yes.” A full chart of these results is recorded in the appendix and addressed in the integrative analysis.

Inclusion criteria for this integrative review included thorough discussion of one of the following topics: the modern mental health crises, anxiety, depression, suicide, music, clinical

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trials using music, and music therapy. The sources were all from a scholarly journal or a credible webpage ending in “.gov” or “.edu,” *not* “.com.”

Most research in music therapy involves studying its benefit with medical procedures and how music is used to reduce feelings of anxiety and nervousness associated with the clinical procedure. While I believe strongly in that usage of music therapy, I directed my study more towards mental health conditions such as anxiety and depression, as well as acknowledgment of increasing suicide rates. Additionally, I was interested in discovering what types of music trigger positive, therapeutic benefits. I investigated whether a certain genre of sound stimulates physical and psychological response, or whether it depends on the tastes and preferences of the patient. Furthermore, I was interested in learning if music therapy maintains its benefits regardless of setting, or if its impact is only recognizable under particular conditions. This clarification would especially be useful when studying situational effect with young people. Would a student be able to put in his earbuds in the hallway of high school and decompress, or would the overwhelming surrounding stimulus cancel out the benefit?

By breaking down the topic into different areas of study—physiology of anxiety and depression, music therapy, music therapy in clinical settings, the impact of music on emotions and moods—I was able to unite the information to address my chosen research questions. Considering the recent events of the past two years, mental health has nearly reached a breaking point, and so many individuals—particularly young people—are struggling in silence. With this thesis, I hope to break that silence with music.

Modern Mental Illness

Collectively, the phenomenon on the mental health crisis has been worsening in recent years. Mental Health America reported startling statistics that revealed over 50 million Americans

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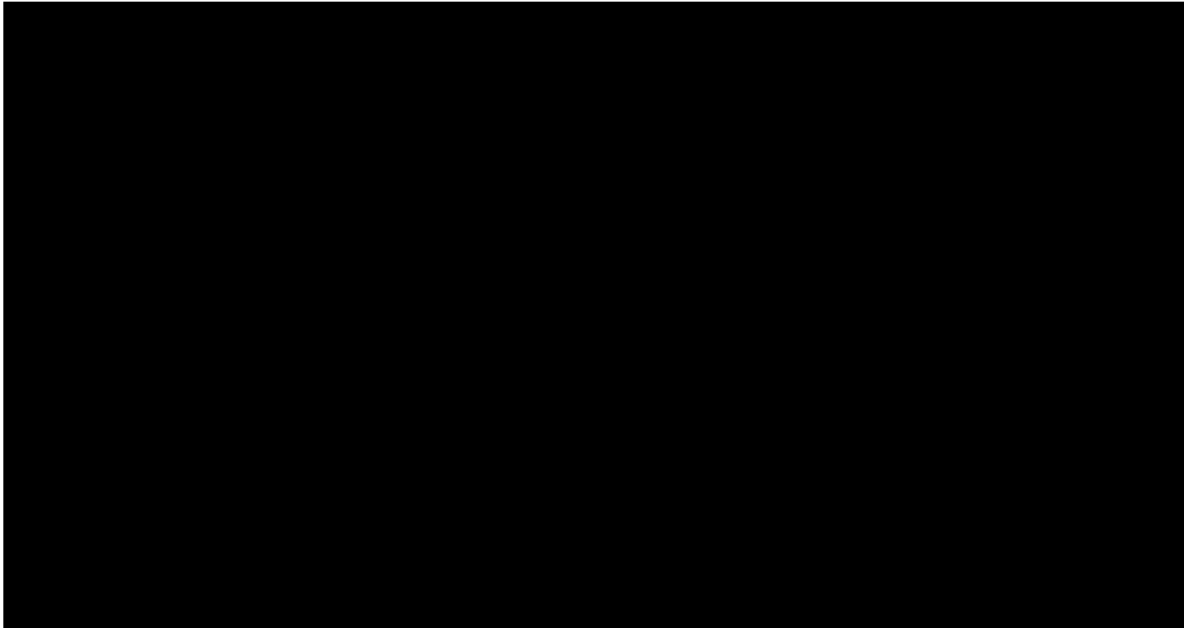
were suffering from mental illness from 2019-2020, with that number on the rise since COVID-19 (MHA, 2022). Rather than creating the mental health epidemic, Pollack agreed that COVID-19 has worsened the pre-existing crisis that was previously in need of intervention (2022).

Approximately 4.84% of adults in the United States—a number equivalent to over 12.1 million—have considered suicide in their lifetime. Furthermore, adolescents did not escape unscathed from these statistics, with reportedly 1 in 10 suffering from major depression and 6.34% of youths struggling with related substance abuse. Despite the increasing prevalence of these conditions, the majority of those suffering never receive professional help or treatment. From 2019-2020, 55% of adults with mental illness and 60% of adolescents with major depressive disorder went untreated (MHA, 2022). This tragic reality was also heavily impacted by COVID-19, creating “new barriers for people already suffering from mental illness and substance use disorders” (Panchal et al., 2021, para. 2). While the psychological impact of the pandemic spiked rates of depression, anxiety, substance abuse, and suicide for a number of reasons, international shutdowns made it difficult to attain quality care. For many, virtual options lacked the intimacy and connection of face-to-face sessions, and for mental crisis emergencies, hospitals and emergency departments were flooded with victims of the pandemic (Panchal et al., 2021).

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Figure 1

CDC Data on Youth Mental Health During COVID-19



Note. This figure provides visualization of the mental health crisis statistics and emphasizes the impact of coronavirus on Americans reflected in the writing (CDC, 2022).

Treatments for mental health conditions such as generalized anxiety disorder and major depressive disorder span a variety of options that are unique to each individual in their usefulness and effectiveness. While some patients may experience that benefits of daily diet modification, light exercise, and meditation, many require more direct medical intervention including prescription medication, psychotherapy, and—in extreme cases—hospitalization, and intense brain stimulation therapy procedures such as electroconvulsive therapy (ECT) or repetitive transcranial magnetic stimulation (TMS) (NIH, 2021).

Anxiety

Before discussing the disorder of anxiety, it is imperative to understand that stress is a crucial part of the natural mental fluctuations of life. Natural stress coexists with periods of life that are higher in tension and emotion, such as major lifestyle changes or the pressure of

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academics in post-secondary education. However, in cases of anxiety disorder, individuals experience “intense, excessive and persistent worry and fear about everyday situations” (Mayo Clinic, 2022, para. 1). In times where natural stress would be expected, true anxiety can manifest in a form that is intolerable and alters daily life function. For many that suffer from this mental illness, spikes or peaks of concentrated anxiety can cause both triggered and untriggered panic attacks. This condition can look different from individual to individual, spanning from generalized anxiety disorder to more specified forms including but not limited to the following: social anxiety disorder, separation anxiety disorder, and phobias (Mayo Clinic, 2022).

For the purposes of this study, I will be focusing primarily on generalized anxiety disorder (GAD). The increasing prevalence of anxiety in young people is startling, with reportedly becoming the most widespread psychiatric disorders in children and adolescents, with an approximately 1 in every 3 encountering an anxiety diagnosis at one point (NIH, 2016). Patients—young or old—suffering from anxiety disorders may encounter several of both physical and psychological symptoms. Physical symptoms can include diaphoresis, tachycardia, tachypnea, hyperventilation, headaches, fatigue, lethargy, insomnia, tremors, and gastrointestinal (GI) upset. On the psychological aspect, symptoms may include irritability, nervousness, avoidance, poor concentration, an impending sense of doom, and impaired control of natural worry and stress. Some developments of anxiety disorders are idiopathic or known to be the result of chemical imbalances in the brain. However, researchers has discovered that multiple external causes can be contributing factors for the mental illness. Genetics, trauma, substance use, significant illness, an accumulation of stressors, a high-strung personality, other existing mental disorders, substance use, and genetics can all function as anxiety disorder inducing factors (Mayo Clinic, 2022). Further breaking down the concept of significant illness, conditions

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that may be linked to anxiety include heart disease, diabetes, hyperthyroidism, chronic obstructive pulmonary disease (COPD), asthma, substance abuse, substance withdrawal, irritable bowel syndrome (IBS), chronic pain, and tumors stimulating the production of excess hormones.

Synthesized, anxiety disorder is a broad condition that could be further broken down into a number of categories or specificities, with this study focusing primarily on GAD. GAD is recognizable from a number of physical and psychological symptoms—often impacting the cardiovascular, respiratory, and digestive systems—and is notably distinct from healthy stress with a degree of unmanageability that causes a disturbance of regular life activities. While some causes are idiopathic or an internal chemical imbalance, other external factors have been reported as causing the development of GAD.

Depression and Suicide

Similar to anxiety, there are periods of life and expected situations that warrant natural episodes of heavy or depressed emotions. However, in cases of major depressive disorder (MDD), or clinical depression, the longevity and severity of the condition begins to impair the quality and function of daily life activities. While this study will focus primarily on MDD, other forms of depression have been identified, included but not limited to the following: persistent depressive disorder, perinatal or post-partum depression, seasonal affective disorder, and accompaniment to bipolar and other psychotic disorders (NIH, 2021). While psychological symptoms are the primary indicators of clinical depression, few notable physical symptoms may present such as headaches, fatigue, sleep disturbance, cramps, GI upset, muscle aches, and weight fluctuation. Feelings of emptiness, hopelessness, frustration, pessimism, guilt, and worthlessness comprise some of the emotional distress experienced in MDD. Furthermore, a loss

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of interest in favorite activities, concentration and remembrance difficulty, self-harm, and thoughts of morbidity and suicide are part of the devastating mental impact of this condition.

Suicidal ideation is a disturbing spectrum that could easily be defined as the most detrimental aspect of clinical depression. It varies in form and severity, with the milder being persistent thoughts of morbidity or life without the patient in it without intent, and the more severe involving self-destructive behaviors and a premeditated plan of action for suicide.

Anywhere on the ideation spectrum is devastating for both the individual and any loved ones who are made aware, broadening the audience that could be traumatically impacted by self-harm and suicide. Institutions such as the Columbia Lighthouse Project have developed charts and assessments tools to gauge suicidal ideation and approximate risk of where their thoughts and behaviors land, as pictured below.

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Figure 2*Columbia Lighthouse Project Depression Risk Scale*

Always ask questions 1 and 2.	Past Month	
1) Have you wished you were dead or wished you could go to sleep and not wake up?		
2) Have you actually had any thoughts about killing yourself?		
If YES to 2, ask questions 3, 4, 5 and 6. If NO to 2, skip to question 6.		
3) Have you been thinking about how you might do this?		
4) Have you had these thoughts and had some intention of acting on them?	High Risk	
5) Have you started to work out or worked out the details of how to kill yourself? Did you intend to carry out this plan?	High Risk	
Always Ask Question 6	Life-time	Past 3 Months
6) Have you done anything, started to do anything, or prepared to do anything to end your life? <i>Examples: Took pills, tried to shoot yourself, cut yourself, tried to hang yourself, or collected pills, obtained a gun, gave away valuables, wrote a will or suicide note, took out pills but didn't swallow any, held a gun but changed your mind or it was grabbed from your hand, went to the roof but didn't jump, etc.</i> If yes, was this within the past 3 months?		High Risk

Note. This figure demonstrates how assessment tools are used to analyze and assess depression severity, as well as determine associated risk as symptoms are described as increasingly intense. The pictured tool is used specifically for suicide risk assessment (Columbia Lighthouse Project, 2016).

A definitive clinical depression diagnosis requires five or more of any of these symptoms to be experienced all day for a minimum of two weeks. Much like with GAD, MDD can be hereditary, idiopathic, or caused by severe internal chemical imbalance—specifically a deficit of serotonin, dopamine, and norepinephrine that occurs due to an excess of monoamine oxidase A (MAO-A). It can also accompany substance use, chronic pain, or traumatic medical conditions

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such as cancer, heart disease, and diabetes. Modern research also attributes partial responsibility to biological, psychological, genetic, and environmental influences (NIH, 2021).

While anxiety and depression are often experienced simultaneously and may consist of similar origins, physical symptoms, and methods of treatment, the psychological fallout of both can strongly conflict and cause further torment. Additionally, according to the journal author, development of anxiety typically precedes the onset of depression, with the former initially presenting in preadolescents while the latter is typically first diagnosed between adolescence and early to mid-adulthood (Kalin, 2020). Conflict can occur when the psychological symptoms begin to act against one another, while the restlessness, impending panic, and high stress of anxiety pushes the patient to overcompensate while the pessimism, hopelessness, and exhaustion of depression never wants to get out of bed.

Synthesized, major depressive disorder is a mental illness characterized by feelings of unmanageable helplessness and despair, often accompanied by exhausted physical manifestations and posing a risk of suicidal ideation. Much like generalized anxiety disorder, MDD can remain idiopathic or be connected to genetics, chronic pain, catastrophic diagnoses, chemical imbalances, or major life trauma.

Medicinal Music

Appreciation for the beauty, influence, and artistry of music transcends a motivational speaker or blog entry—it is science. Because the amygdala—the same processing region of the brain responsible for mood balance and emotions—is responsible for processing music, the connection between music and emotional response is significant. The Atlanta Institute of Music and Media affirms this with a discussion of influenced heartrate and synchronized respiration of singers that can bring about a sense of connection and boosted serotonin (AIMM, 2019).

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Furthermore, the authors of one of these studies report that “increased activity in brain regions associated with emotion and reward when listening to pleasurable music” (Arjmand et al., 2017, para. 1). This source also reported that tempo and intensity of the music influenced the measurable emotional response by building a sense of tension and suspense. Additionally, it is noteworthy that the study analyzed by Frontiers utilized the patient’s personal music tastes for testing, as well as a dissonant remix of their music and neutral music for a control group. Using an electroencephalograph (EEG), it was verified that activity of the frontal and temporal sites indicated positive brain activity in response to the test subject’s preferred music.

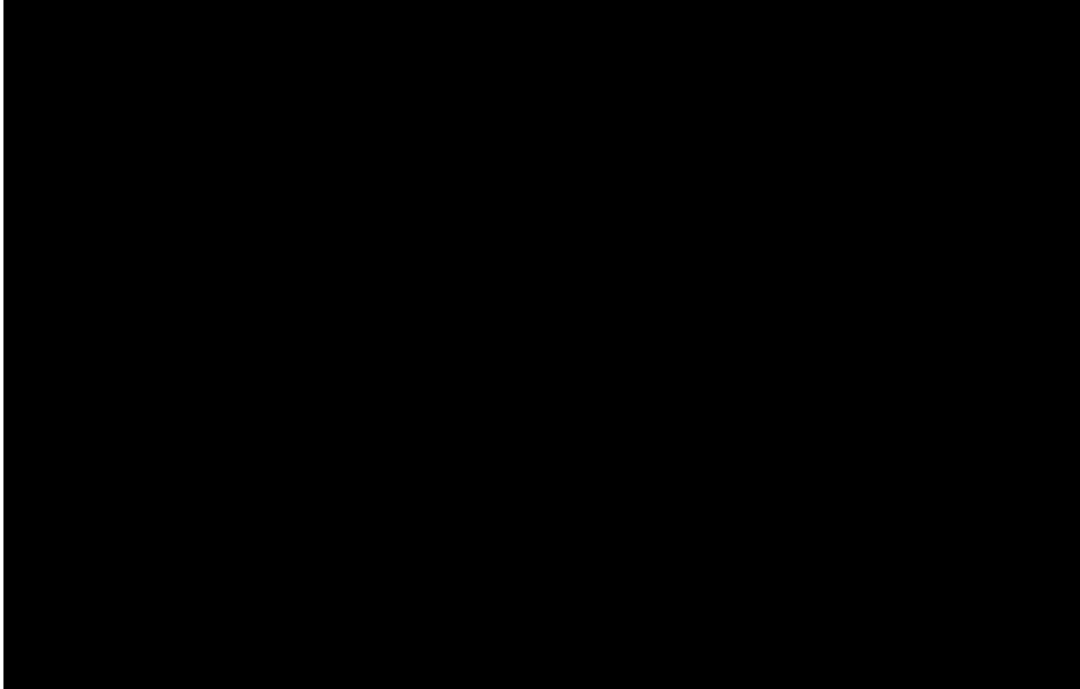
These positive types of reactions facilitated by pleasant music can also be associated with decreased cortisol secretion and increased release of serotonin, dopamine, and different beneficial endorphins. When endorphins are released from the pituitary gland, they act on opiate receptors to minimize perception of pain and provide an overall increased sense of comfort and both physical and mental wellbeing. Because of this, different medical studies have started to implement music for analgesic and antianxiety benefit. One example utilized a patient population of 373 individuals receiving ventilatory support and reported that “at any time point, patients in the PDM (patient-directed music) group had an anxiety score that was 19.5 points lower (95% CI, -32.2 to -6.8) than patients in the usual care group ($p = .003$)” (Chlan et al., 2013, p. 2335). Additionally, by the fifth day of that study, overall patient anxiety was decreased by 36.5% in all tested PDM patients. The report went as far as to record that sedatives could be gradually decreased in response to the positive impact. Another similar study was conducted regarding pain and anxiety of surgical patients, in which the results stated “music interventions provided during general anesthesia significantly decreased pain compared with that in controls (MD - 0.41, -0.64 to -0.18; $p < 0.001$)... music interventions significantly reduce anxiety and pain in

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adult surgical patients revealed that not only did music reduce the anxiety levels but actually improved patients' vital signs (Ni et al., 2011, p. 623).

Table 1

Preoperative Anxiety and Music Clinical Trial Results



Note. This figure demonstrates the results from the article “Minimizing Preoperative Anxiety with Music for Day Surgery Patients – A Randomized Clinical Trial” (Ni et al., 2011).

This trend was repeated throughout a number of similar clinical and non-clinical studies, with reportedly significant reduction of pain and anxiety for the subjects while unfortunately holding a high risk of bias and inconsistency in the methodology.

Synthesized, music has become known to hold significant health benefits for both the physical and psychological realm of wellness. Due to the activity between released endorphins and opiate receptors, music is able to utilize analgesic qualities and minimize pain in the clinical setting, while certain neurotransmitters are capable of inducing a sense of pleasure and overall wellbeing.

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The Art of Music Therapy

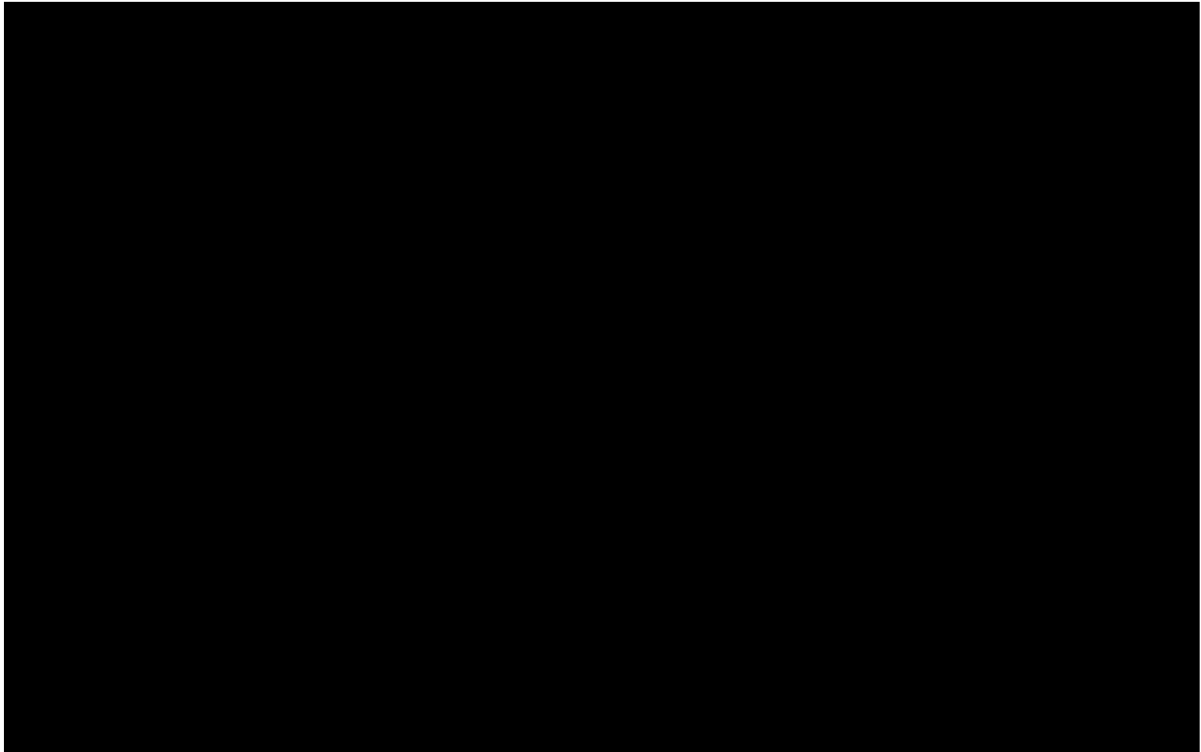
As early as the seventeenth century, it was stated by an English dramatist that “music has charms to soothe the savage breast, to soften rocks, or bend a knotted oak” (UMN, 2016, para. 1). The amazing reality of music’s medicinal abilities was more than just a home remedy to keep in the back pocket—it has now become its own realm of therapy. The American Music Therapy Association (AMTA) defines music therapy as “clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program,” and reports that it can be utilized to “promote wellness, manage stress, alleviate pain, express feelings, enhance memory, improve communication, promote physical rehabilitation, and more” (American Music Therapy Association, 2023, para. 1). The earliest music therapy programs were established in beginning years of the 1900s, with Eva Augusta Vescelius founding the National Society of Musical Therapeutics in 1903, Isa Maud Ilse founding the National Association for Music in Hospitals in 1926, and Harriet Ayer Seymour founding National Foundation of Music Therapy in 1941. While none of these organizations lasted long or were capable of jumpstarting the clinical profession of Music Therapy, they were able to serve as a source for some of the first books, journals, and educational programs on the topic. Later in the 1940s, music therapy as a profession was finally able to become a recognized intervention. In 1945, the United States War Department was able to utilize music therapy in Army hospitals to aid with “occupational therapy, education, recreation and physical reconditioning” (Cleveland Clinic, 2020, para. 3). The American Music Therapy Association was born in 1998, officially uniting the existing programs and organizations for the first time since the seventies. They stated their mission as a combination of advocacy and education for the entirety of the music therapy profession and is

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now considered the largest music therapy association in America while still representing music therapy thirty additional countries internationally (American Music Therapy Association, 2023).

Figure 4

Regions of the American Music Therapy Association



Note. This figure demonstrates the prevalence of the American Music Therapy Association as the largest music therapy association in the country. It shows different locations across the map, as well as different specialties and facts regarding different regions (American Music Therapy Association, 2023).

Separate from American Music Therapy Association, The Certification Board for Music Therapists (CBMT) acts to ensure competency, credibility, and consistency in the profession.

Musical therapists can choose to work with or specialize in specific patient populations, similarly to a clinical counselor. These options can include active military, autism spectrum disorder (ASD) patients, dementia and Alzheimer's disease patients, correctional facility

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members, trauma and crisis victims, physically or chronically ill patients, mental health patients, and substance abusers. Additionally, music therapists can choose to focus on children, adolescents, adults, or a combination of such. Music therapy services can be offered in “hospitals, schools, nursing homes, outpatient clinics, mental health centers, home residences juvenile detention facilities, and private practices” (Cleveland Clinic, 2020, para. 4). Different professional music therapists are able to use a variety of techniques to harness the healing qualities of music, whether it be creating music through composing and writing, singing, listening to existing music, moving to music—whether outrightly or subtly, discuss lyrical meanings, or playing instruments.

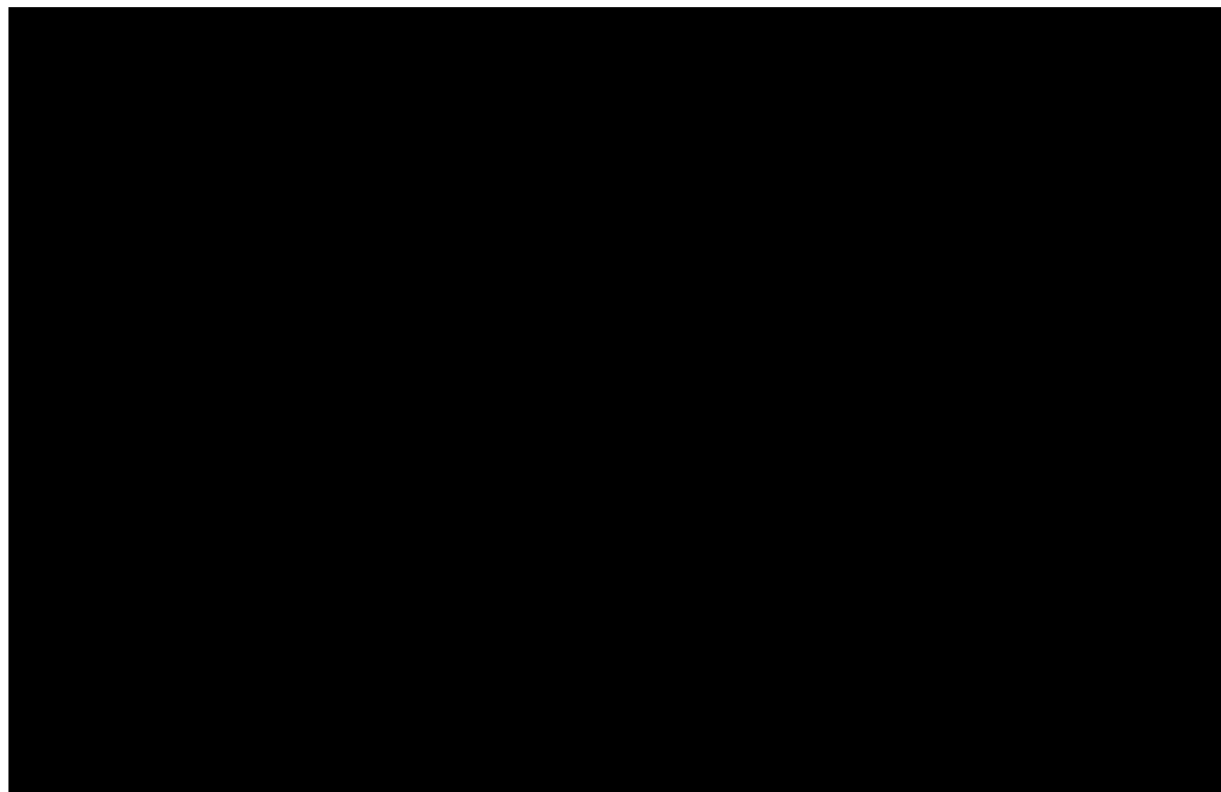
Sources defined the impact of music therapy as being psychological, emotional, physical, spiritual, cognitive, and social. While the physical and psychological benefits were previously analyzed in this review’s discussion of music’s medicinal value, the emotional, spiritual, cognitive, and social advantages have yet to be examined. Music therapy has reportedly been capable of softening and lowering an individual’s walls, opening their minds to exploring spirituality and spiritual beliefs. In terms of cognition, music therapy can foster a sense of steadiness and control that acts as coping mechanisms and even minimizes the devastating symptoms of dementia and Alzheimer's Disease through unlocking emotional recall and memory. Finally, music is a language of its own that builds and maintains a nonverbal sense of community and connection between individuals, “not just at large gatherings such as parties, weddings, or funerals, but in more informal, intimate, shared experiences, like a hospital room” (Cleveland Clinic, 2020, para. 5). Because of this, autistic children have been able to improve their communicative abilities while undergoing music therapy.

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Synthesized, the concept of music therapy has been in circulation since the 1700s and was finally channeled into a therapeutic profession in the 1900s. There are many different variations of this therapy, using singing, active listening, dancing, instrumentals, and lyrical analysis to provide psychological, emotional, physical, spiritual, cognitive, and social restoration to both the young and old. It can be applied to aid in numerous battles, including but not limited to traumatic diagnoses, memory impairing conditions, military service, mental illness, substance abuse, or developmental struggles.

Figure 5

Experiences in Music Therapy



Note. This figure organizes multiple psychological and physiological benefits of music therapy into a petal-design table to better visualize the variety and overlap of positive outcomes (Uggla, 2021).

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Addressing the Gap

At the beginning of this integrative review, I presented several initial research questions:

1) What are the physical and psychological benefits of music and Music Therapy in relation to anxiety, depression, and suicidal ideation? 2) Does the benefit of music for mental health depend on the preference of the client or a particular genre of sound? 3) Can an overstimulating environment of a patient undo or counterattack the benefit of music?

What are the physical and psychological benefits of music and music therapy in relation to anxiety, depression, and suicidal ideation?

According to the integrative review, physical manifestations of anxiety and depression include but are not limited to diaphoresis, tachycardia, tachypnea, hyperventilation, headaches, fatigue, lethargy, insomnia, tremors, cramps, muscle aches, weight fluctuation, and GI upset (Mayo Clinic, 2022). However, all sources consistently emphasized the analgesic or pain-relieving effect of music due to its impact on opiate receptors. Music also initiates a sense of relaxation that could ease muscle aches and cramps, as well as bring down elevated heart rate, ventilation, and blood pressure (Cleveland Clinic, 2020). The sense of peace and relaxation enabled by music could also aid in restoring more regular sleep patterns for those struggling with anxiety-induced insomnia or depression-induced sleep disturbance.

Psychological symptoms of both may consist of irritability, nervousness, avoidance, poor concentration and remembrance, an impending sense of doom, impaired control of natural worry and stress, a loss of interest in favorite activities, self-harm, and thoughts of morbidity and suicide (Mayo Clinic, 2022; NIH, 2021). Music has been shown to enable emotional connections that could be invaluable in depressed, suicidal patients. Furthermore, by reopening the individual towards exploration of spiritual beliefs, those struggling with loss of meaning or hope could find

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an inspiration or motivation for life from a supernatural confidence, faith, or relationship with a higher power (Cleveland Clinic, 2020). Music therapy was shown to release repressed emotions, reduce feelings of isolation, aid in stress management, improve overall mood, and was even directly stated by the Cleveland Clinic to reduce symptoms of anxiety and depression (2020).

Sources listed patients with mental health disorders as potential specialties for professional music therapists, specifically those struggling with anxiety and depression. Additionally, musical therapists can choose to work with patients dealing with chronic pain, chronic illnesses, substance misuse, and trauma—several of the leading causes of mental disorder development (Cleveland Clinic, 2020). Several studies were conducted in which results pointed consistently towards significant reduction of pain and anxiety for the subjects who underwent exposure to music throughout the pre, peri, and post of their medical procedures.

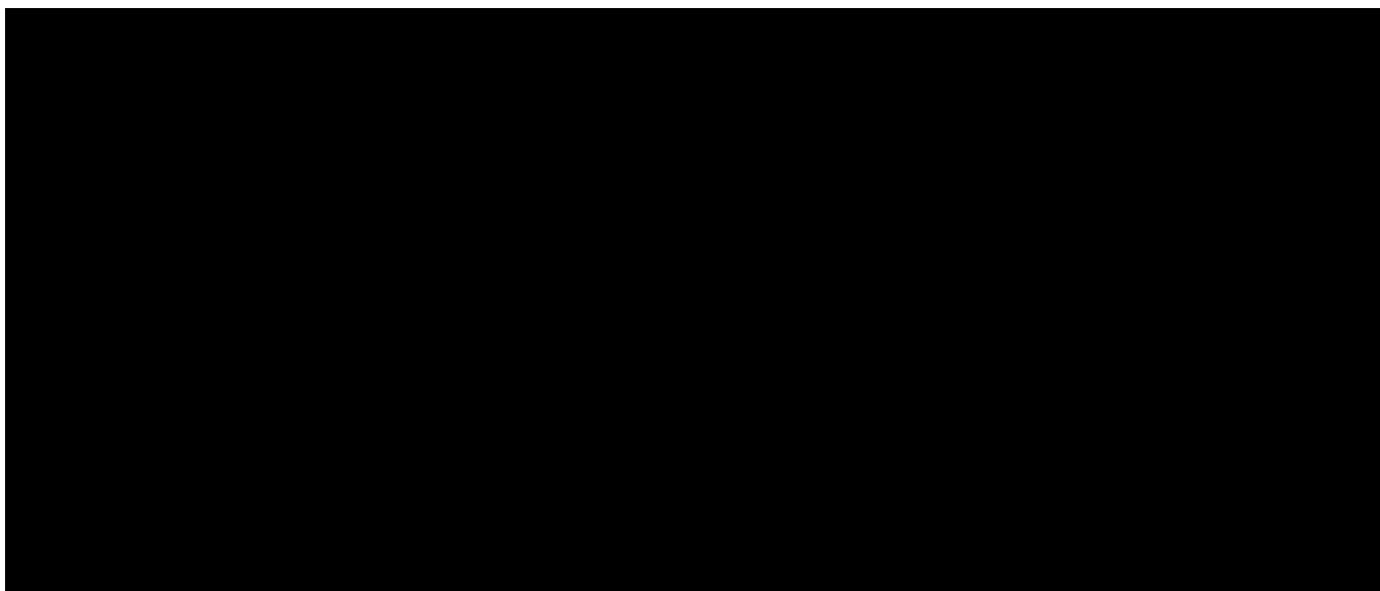
Does the benefit of music for mental health depend on the preference of the client or particular genre of sound?

This specific question was never directly addressed in any of the sources. However, it was indirectly incorporated into one of the reported studies analyzed in *Medicinal Music*. Revisiting the experiment recorded by Arjmand, Hohagen, Paton, and Rickard, the brain consistently trended towards positive activity when exposed to pleasurable music. “Subjective reports of emotional experience averaged across the condition confirmed participants rated their music selection as very positive, the scrambled music as negative, and the neutral music and silence as neither positive nor negative” (Arjmand et al., 2017, para. 1). This was the only study that specified the music in relationship to the test’s subjects. The pleasant music was defined as the music of choice of the patient, while the unpleasant music was a dissonant alteration of the preferred music. Additionally, two control groups were utilized—no music and neutral music.

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Interestingly, the pleasant or preferred music triggered the positive emotional and cognitive response while the neutral music had no impact. There was no difference between having no music and having the neutral music. It was also noteworthy that the unpleasant music had an adverse effect on the patients, further emphasizing that the choice of music must be personally favored by the individual in order for there to be a positive reaction.

With all this being said, it is important to keep in mind that the music itself must be creating the right frame of mind for psychological and physiological benefit. If a patient is severely depressed and submerges herself in a familiar, tragic ballad, the heaviness of the tone, composition, and lyrics could worsen the client's mental state despite whether or not she personally enjoys the song. Furthermore, listening to a jarring heavy metal soundtrack might not be ideal for an individual attempting to lower his respiratory and heartrate, even if the arrangement was a favorite.

Figure 6*Mean Subjective Emotion Ratings*

Note. This figure demonstrates a visual interpretation of the results from “Emotional Responses to Music: Shifts in Frontal Brain Asymmetry Mark Periods of Musical Change.” It contributes to the review by allowing the reader to physically see the valence and arousal levels for pleasant, unpleasant, and neutral music samples (Arjmand et al., 2017).

With this being considered, it could be inferred from the study that mere music is not enough to elicit the positive response we have come to expect through this review. Rather, it must be preferred music of the patient’s particular taste. However, further experimentation and peer review would be required before this could be verified and labeled more than a theory.

Can an overstimulating environment of a patient undo or counterattack the benefit of music?

Much like the previous research question, this question was not directly—or even indirectly—addressed at any point throughout the literature review. The focus of the studies tended to circulate primarily on the response of pain and anxiety to music, while articles on music therapy focused on the history and general expectations rather than details of a session. I believe this could partially be due to each music therapist being different in their technique,

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specialty, and location of service. It was discussed that this profession could be utilized at numerous different facilities including hospitals, schools, nursing homes, outpatient clinics, mental health centers, home residences juvenile detention facilities, and private practices (Cleveland Clinic, 2020). Environmental stimulus varies greatly amongst these locations, and there was no discussion of whether or not there is an effort made to ensure a private, quiet space before beginning therapy.

In several of the clinical studies, it was mentioned in passing that headphones or earbuds were used per patient direction. This could partially be due to creating a more immersive experience or blocking out audible distractions, though it was never specified. In music therapy sessions in which movement, dance, and lyrical analysis is being used, it is understood that the meeting is likely taking place in a private area for privacy and focus. However, it is possible that this environment is preferred simply for those reasons and not because outside noise, stressors, or stimulus could undo the benefit of the music.

Future Implications & Conclusion

Moving forward in a nation suffering from a mental health crisis, music therapy should be a more commonly considered method of treatment for individuals suffering from anxiety and/or depression. While it should not be used as a substitute for clinical counseling or necessary medications, it should be used to supplement them and possibly to reduce utter dependence on one or the other. With what I have learned about music establishing an emotional connection and even lowering the walls individuals use to guard their heart and mind, it could be used to prepare a client before counseling to create a healthy therapeutic bond and sense of safety to share more honestly.

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This topic takes a personal application in my own life, as I plan to dedicate the coming years to service as a sexual assault nurse examiner (SANE), working on the front lines of absolute trauma, violation, and both physical and emotional devastation. While this field is not a profession that specializes in mental disorders, victims of rape frequently encounter many of the conditions discussed in this thesis. Trauma is one of the leading external causes of anxiety, PTSD, and depression, placing assault victims at high risk of both acute and chronic mental crisis (Mayo Clinic, 2022). Due to the known psychological and physiological benefits, music could play a beneficial role in the immediate care of sexual assault survivors, particularly in the performance of forensic rape kits. Even in the most horrific cases, perhaps the comforting tunes of a familiar Disney song could ease the nerves of a violated child undergoing care.

“Addressing one another in psalms and hymns and spiritual songs, singing and making melody to the Lord with your heart” (English Standard Version, 2001, Ephesians 5:19). In light of recent years, international mental health has worsened considerably. As topics that are already controversial and stigma-ridden, anxiety, depression, and suicidal ideation are often difficult to speak out on and find help for. However, as early as the days of the Old Testament, music has played a pivotal role in shaping generations and soothing the human soul. When King Saul was burdened with a troubled spirit, it was the harmony of David’s harp that was able to offer any form of peace or consolation. We now live in an age in which the therapeutic benefit of music has been realized and channeled into a profession of music therapy—using different applications of music to promote wholistic wellness, effectively manage stress, decrease depression, relieve pain, release repressed feelings, sharpen memory and concentration, strengthen connection and communication, and support physical healing and rehabilitation. While it is not a guaranteed option for all who suffer from mental illness, or an instant one-and-done cure for all symptoms

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of mental health disorders, music is a gift from God to unite His people and offer physical, psychological, emotional, cognitive, environmental, social, and spiritual wellness.

“The trumpeters and musicians joined in unison to give praise and thanks to the Lord. Accompanied by trumpets, cymbals and other instruments, the singers raised their voices in praise to the LORD and sang: “He is good; his love endures forever” (ESV, 2001, 2 Chronicles 5:13).

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Appendix

Article Title Article Author	Purpose	Demographics	Methods	Findings	Melnyk's Level of Evidence	Limitations	Useful
How Does Music Affect Your Mood? AIMM	To prove information on music's impact on an individual's mood	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	Not professional writing	No
<i>History of Music Therapy</i> , American Music Therapy Association	To summarize the history of music therapy	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>What is Music Therapy?</i> American Music Therapy Association	To define, summarize, and explain the profession of music therapy	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Emotional Responses to Music: Shifts in Frontal Brain Asymmetry Mark Periods of</i>	To analyze the brain activity in response to music	18 participants (6 males, 12 females) recruited from tertiary institutions located in Melbourne, Australia	Online survey, Peak Frontal Asymmetry in Alpha EEG Frequency Band, Subjective Emotional Response,	Positive response to pleasant music, no response to neutral or no music, negative response to unpleasant music	Level 2	Possible bias	Yes

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<i>Musical Change</i> Arjmand, Hohagen, Paton, Rickard			Music Stimuli				
<i>New CDC data illuminate youth mental health threats during COVID-19 pandemic</i> , CDC	To provide a chart for illustrating the impact of COVID-19 on mental health	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Effects of patient-directed music intervention on anxiety and sedative exposure in critically ill patients receiving mechanical ventilatory support</i> , Chlan, Weinert, Heidenscheit, Tracy,	To analyze the impact of music on patients receiving ventilatory care	73 patients from 12 intensive care units (ICUs) at 5 hospitals receiving vent care	Daily assessments of anxiety (on 100-mm visual analog scale) and 2 aggregate measures of sedative exposure (intensity and frequency)	Reduction of anxiety and sedative requirement after music	Level 2	Possible bias	Yes

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Skaar, Guttormson, Savik							
<i>Music Therapy</i> , Cleveland Clinic.	To define, summarize, and explain the profession of music therapy	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>A Unique Suicide Assessment Tool</i> , Columbia Lighthouse Project	To provide a chart for illustrating the spectrum of suicidal ideation	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Effectiveness of music to improve anxiety in hemodialysis patients : A systematic review and meta-analysis</i> , Francesco, Forton, Magavern, Valentina, Cristiano, Luigi, Brioni	To analyze existing studies on music and anxiety's relationship in hemodialysis patients	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 1	None	Yes

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<i>U.S. Surgeon General Issues Advisory on Youth Mental Health Crisis Further Exposed by COVID-19 Pandemic, HHS</i>	To review the impact of COVID-19 on youth's mental health	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>The critical relationship between anxiety and depression, Kalin</i>	To analyze the critical balance and relationship between anxiety and depression	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Meta-Analysis Evaluating Music Interventions for Anxiety and Pain in Surgery, Kühlmann, de Rooij, Kroese, van Dijk, Hunink, Jeekel</i>	To analyze existing studies on musical interventions for anxiety and pain in surgery	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 1	None	Yes

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<i>Music for Anxiety? Meta-Analysis of Anxiety Reduction in Non-Clinical Samples</i> , Panteleva, Ceschi, Glowinski, Courvoisier, Grandjean	To analyze existing studies on anxiety reduction in a non-clinical environment	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 1	None	Yes
<i>Anxiety disorders</i> , Mayo Clinic	To define, summarize, and explain anxiety disorders	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Music Therapy: What is it and How Does it Work?</i> MI	To define, summarize, and explain music therapy	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>The State of Mental Health in America</i> , MHA	To discuss and analyze the current mental health crisis in the U.S.A	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Minimizing preoperative anxiety with</i>	To study to the relationship between music and the	72 surgical patients (60 men and 112 women) with a mean age of 40	State-Trait Anxiety Inventory, and vital signs to analyze	Lower levels of anxiety and normalized vitals after music	Level 2	Possible bias	Yes

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

<i>music for day surgery patients – a randomized clinical trial</i> , Ni, Tsai, Lee, Kao, Chen	anxiety/vitals of pre-op patients		response to either music or no music				
<i>Understanding Anxiety Disorders: When Panic, Fear, and Worries Overwhelm</i> , NIH	To define, summarize, and explain anxiety disorders	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Depression</i> , NIH	To define, summarize, and explain depression	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>The anxiety- and pain-reducing effects of music interventions: A systematic review</i> , Nilsson	To study to the relationship between music intervention and anxiety/pain reduction	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>The Implica</i>	To study the	N/A, this article was	N/A, this article was	N/A, this article was	Level 5	None	Yes


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<i>tions of COVID-19 for Mental Health and Substance Use</i> , Panchal, Kamal, Cox, Garfield	connection between COVID-19 and mental health & substance use	descriptive, not experimental	descriptive, not experimental	descriptive, not experimental			
<i>Perspective: We Must Address America's Behavioral Health Crisis Now</i> , Pollack	To discuss and analyze the current mental health crisis in the U.S.A.	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Music therapy for children undergoing transplantation</i> , Ugglá	To provide a chart for illustrating the positive impact of music	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>What is music therapy?</i> UMN	To define, summarize, and explain music therapy	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 5	None	Yes
<i>Music for reducing the anxiety and</i>	To analyze existing studies on music intervention and	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	N/A, this article was descriptive, not experimental	Level 1	None	Yes

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<i>pain of patients undergoing a biopsy: A meta-analysis</i> , Song, Li, Zhang, Shang, Yan, Chu, Sun, Xu	anxiety/pain for patients undergoing a biopsy						
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PK Posner, Kelly (NYSPI) <Kelly.Posner@nyspi.columbia.edu>        

To:  Dunn, Skylar Hope Wed 3/15/2023 11:12 AM

You don't often get email from kelly.posner@nyspi.columbia.edu. [Learn why this is important](#)

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The Columbia Lighthouse Project Team



Kelly Posner, Ph.D.
Director

Columbia University/ New York State Psychiatric Institute
1051 Riverside Dr., Box 78 New York, NY 10032
C: +1(646)286-7439

Adam Lesser, LCSW
Deputy Director for Implementation

C: +1(617)285-0149