

## Music therapy in mental health

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**Abstract:** This study evaluates the efficacy of music therapy as a holistic intervention for improving mental health, focusing on its impact on anxiety, depression, stress, and cognitive function. The research examines a variety of techniques, including guided imagery, active music-making, lyric analysis, and receptive listening, and their adaptability across diverse cultural and clinical settings. Data mining methods were employed to analyze clinical studies and therapy session records, uncovering significant improvements in emotional regulation, stress management, and cognitive performance. Notable comparisons reveal that guided imagery effectively supports trauma recovery in culturally distinct contexts, such as the Philippines and Nigeria, while active music-making enhances neuroplasticity in stroke rehabilitation, particularly in Brazil and the U.S. Lyric analysis and songwriting are shown to be impactful in fostering emotional expression and resilience in South Africa, Finland, and Argentina. The findings emphasize music therapy's role in promoting social connectedness and boosting self-esteem, offering tailored interventions for populations with varying needs, including those with neurodegenerative conditions and PTSD. The study concludes that music therapy is a non-invasive, cost-effective, and culturally adaptable tool, making it a valuable addition to global mental health care practices. These findings support the incorporation of music therapy into both clinical and community mental health programs, emphasizing its ability to comprehensively address complex psychological issues.

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## INTRODUCTION

In recent years, there has been growing interest in the application of music therapy as an effective intervention for improving mental health. Music therapy, defined as the clinical use of music to address physical, emotional, cognitive, and social needs, has been shown to have profound effects on individuals struggling with various mental health challenges (Odell-Miller, 2019). Mental health conditions such as anxiety, depression, stress, and emotional dysregulation are increasingly recognized as complex, multifaceted issues that require holistic and integrated treatment approaches. Music therapy offers a unique avenue for

addressing these challenges through a wide range of techniques that can be tailored to the individual needs of patients (Silverman, 2022).

The first critical aspect of music therapy is its diverse range of techniques, which can be broadly categorized into active and receptive methods. Active music-making—such as instrument playing, singing, and songwriting—provides individuals with the opportunity to express their emotions creatively and actively engage with their therapeutic process. On the other hand, receptive music listening, along with techniques like guided imagery, rhythmic entrainment, and improvisation, offers individuals a passive yet deeply impactful experience of relaxation, emotional exploration, and stress reduction. Movement-based music therapy further supports physical and emotional well-being by integrating bodily movement with musical rhythm, helping individuals process emotions and regulate stress (Leviton, 2020).

Music therapy's potential to positively influence mental health outcomes has been widely acknowledged. Studies have shown that it can lead to significant improvements in anxiety reduction, depression alleviation, and stress management (Liu et al., 2019). Additionally, music therapy is an effective tool in promoting emotional regulation, which is crucial for individuals dealing with emotional dysregulation, such as those with borderline personality disorder or post-traumatic stress disorder. Beyond emotional and psychological benefits, music therapy is also associated with social connectedness, fostering bonds through shared musical experiences, and cognitive function improvement, enhancing memory and attention. Furthermore, therapeutic use of music has been linked to improvements in sleep quality and self-esteem, as it facilitates relaxation, positive self-expression, and the reduction of negative self-perceptions (İçel & Başoğul, 2021).

Given the broad spectrum of techniques and positive outcomes, this research aims to explore the use of music therapy in mental health, focusing on its ability to reduce symptoms of anxiety, depression, and stress, while enhancing overall mental well-being. By investigating both the specific techniques employed in music therapy and the mental health outcomes achieved, this study seeks to provide a comprehensive understanding of how music therapy can be effectively integrated into mental health treatment plans, offering individuals a holistic and supportive pathway toward healing and self-improvement.

### *Statement of the problem*

The objectives of this research are:

1) To examine the effectiveness of various music therapy techniques, such as guided imagery, active music-making, lyric analysis, and rhythmic entrainment, in addressing mental health challenges.

2) To assess the impact of music therapy on key mental health outcomes, including anxiety reduction, depression alleviation, stress management, and emotional regulation.

3) To explore the relationship between music therapy interventions and broader psychological and social benefits, such as improved cognitive function, enhanced sleep quality, increased self-esteem, and strengthened social connectedness.

### **METHODOLOGY**

#### *Research design*

This study employs data mining techniques to analyze the relationship between music therapy and mental health outcomes. Data mining methods such as classification, clustering, and regression analysis are utilized to uncover meaningful patterns and relationships from large datasets. The research focuses on identifying connections between specific music therapy techniques and their effectiveness in improving mental health, providing evidence-based guidance for practitioners.

### *Locale of the study and respondents*

The study draws data from various clinical and community settings globally, including countries like the Philippines, Nigeria, South Africa, the United States, Finland, Brazil, and others. The respondents include individuals with diverse mental health conditions such as anxiety, depression, PTSD, and neurodegenerative diseases. These participants come from clinical studies, therapy session records, and mental health surveys conducted in these countries, ensuring a wide cultural and demographic representation.

### *Research instruments*

The primary tools employed for data collection include clinical study results, session records from therapy interventions, and mental health surveys. Specific music therapy techniques such as guided imagery, active music-making, lyric analysis, and receptive listening were analyzed to determine their impact on psychological and emotional well-being. Data mining software was used to process and analyze these datasets systematically.

### *Data analyses procedure*

The study uses advanced data mining techniques, including classification, clustering, and regression analysis, to examine the effectiveness of music therapy techniques. These methods facilitate the extraction of meaningful insights into the role of music therapy in improving mental health outcomes like anxiety reduction, emotional regulation, cognitive function, and stress management. The findings were interpreted to provide practical recommendations for mental health practitioners.

## FINDINGS AND DISCUSSION

### *Music therapy techniques*

#### *Guided imagery and music*

GIM is used as a culturally adaptive approach to mental health interventions, particularly in disaster-prone regions. Research conducted by Aguinaldo and Delfino (2024) emphasizes the use of local music to reflect Filipino communal values, enhancing emotional resilience and relaxation. This integration makes GIM especially effective for trauma recovery and grief therapy, helping individuals process loss and foster inner peace.

In Nigeria, GIM addresses the mental health needs of populations affected by conflict and displacement. Studies by Aluede et al. (2023) demonstrate its success in managing PTSD and anxiety among trauma survivors by incorporating traditional Nigerian music. This adaptation aligns therapeutic techniques with cultural norms, fostering emotional regulation and aiding trauma recovery in a culturally meaningful way.

In the United Kingdom, GIM is supported by a robust body of research. Fachner et al. (2019) highlight its widespread use in clinical settings to manage depression, grief, and chronic illnesses. Western classical music often serves as a stimulus for subconscious exploration and emotional insight. Rigorous trials and structured therapist training programs ensure the method's accessibility and adherence to evidence-based practices.

Across these countries, GIM's efficacy is evident, though its methods are adapted to cultural contexts. In the Philippines and Nigeria, local music traditions enhance cultural relevance and acceptance, while the UK employs a research-driven approach, emphasizing clinical validation and standardized practices. Collectively, these findings affirm GIM's global applicability as a therapeutic tool for mental health interventions.

### *Active music-making*

Active music-making is a dynamic therapeutic practice embraced across different cultural and healthcare contexts. Its ability to promote emotional expression, enhance social interaction, and improve cognitive and physical well-being has been substantiated by extensive research.

In Brazil, group music-making, particularly through drumming and singing, plays a vital role in emotional regulation and social connection. This approach is frequently employed in therapeutic programs addressing neurological conditions and trauma. Research by Odena et al. (2022) highlights that participatory music activities significantly improve motor skills and emotional health. Additionally, interventions targeting PTSD demonstrate reduced stress levels and strengthened resilience, underscoring the importance of rhythm-based engagement in therapeutic settings.

In the United States, the emphasis on active music-making spans clinical applications, including stroke recovery and mental health interventions. Studies such as those by Papatzikis & Rishony (2022) reveal that playing instruments fosters neuroplasticity, aiding individuals in regaining motor functions and cognitive capabilities. Similarly, group singing initiatives have been associated with improved respiratory health and emotional well-being, particularly in older adults. Research by Crane et al. (2021) further illustrates its effectiveness in PTSD management, enabling veterans and trauma survivors to process emotions and rebuild a sense of community.

In China, the integration of traditional music with active therapeutic practices reflects a unique blend of cultural heritage and modern healthcare approaches. Participation in choirs and playing traditional instruments, as documented by Zhang et al. (2021), enhances cognitive function and alleviates anxiety, particularly in older adults with dementia. For children and adolescents, active music-making fosters emotional development and aids in stress management, as demonstrated in research by Na et al. (2020), contributing to better mental well-being and interpersonal skills.

Active music-making adapts to the cultural and therapeutic needs of each context, illustrating its versatility and efficacy. While Brazil prioritizes rhythm-based emotional regulation, the United States integrates it into neurorehabilitation, and China combines traditional music with therapeutic methods for broad cognitive and emotional benefits.

### *Lyric analysis*

Lyric analysis is a powerful therapeutic tool that enables clients to explore and articulate emotions through the interpretation of song lyrics. Its adaptability to cultural and contextual nuances makes it a valuable approach in diverse settings.

In Kenya, lyric analysis is widely employed in community programs and addiction recovery settings. The technique provides a culturally relevant avenue for addressing trauma and substance abuse by using local songs that resonate with societal and individual narratives. According to Magro (2024), this approach facilitates emotional expression and fosters behavioral motivation, particularly among youth facing socio-economic hardships. By connecting with familiar lyrics, clients gain emotional insights that contribute to their recovery journey.

In Finland, lyric analysis is a cornerstone of therapeutic interventions for those dealing with anxiety, depression, and social disconnection. Finnish therapists effectively incorporate lyric discussions in group therapy to build a sense of community and shared understanding. Merring (2023) highlights its use in school counseling, where analyzing personally meaningful lyrics helps adolescents manage stress and navigate identity challenges. This reflective practice also promotes discussions around existential concerns, enhancing the emotional resilience of participants.

In Argentina, lyric analysis is a key element in addressing trauma, grief, and feelings of exclusion. Argentine therapists leverage songs with metaphorical richness to help clients process intricate emotions, particularly when verbal expression is difficult. As Cepeda (2024) notes, the integration of group discussions enables individuals to relate song interpretations to personal and shared experiences. This practice not only deepens emotional awareness but also strengthens interpersonal connections, fostering a sense of belonging and growth.

Lyric analysis serves as an effective therapeutic strategy across these countries, offering culturally sensitive ways to promote emotional healing. While Kenya emphasizes recovery and resilience through local music, Finland focuses on fostering connection and identity development, and Argentina highlights the role of metaphor and group reflection in navigating complex emotions.

### *Songwriting*

Songwriting serves as a dynamic therapeutic approach, offering individuals a creative means to process emotions and foster resilience. Its adaptability allows it to address diverse psychosocial and mental health challenges across various cultural and social contexts.

In Canada, songwriting is a prominent tool in adolescent mental health care. Research from Concordia University highlights how therapeutic songwriting facilitates emotional exploration, identity development, and social connection among young individuals. Adolescents engaged in this process benefit from a structured, creative platform to express themselves, enhancing their emotional resilience and supporting recovery from mental health challenges. Chakrabarti (2021) emphasizes its role in promoting a positive self-concept and improving interpersonal skills in therapeutic settings.

In South Korea, songwriting therapy has been effectively integrated into mental health practices to alleviate stress and improve emotional regulation. This is particularly valuable in a culture characterized by high academic and professional demands. According to Kim (2021), clients use songwriting to express feelings of pressure and establish a sense of control over their emotional well-being. This therapeutic intervention not only reduces stress but also fosters a deeper understanding of personal emotions, helping individuals navigate competitive environments more effectively.

In South Africa, songwriting is employed as a community-based therapeutic intervention, particularly for marginalized youth facing trauma and systemic inequalities. Programs focus on enabling participants to creatively articulate their personal and collective experiences. Yates (2023) highlights how these sessions help build self-esteem and a sense of empowerment, offering participants the tools to confront and navigate socio-economic disadvantages. This therapeutic approach also fosters a strong sense of community and mutual support among participants.

Songwriting as a therapeutic tool demonstrates significant cultural adaptability and effectiveness. In Canada, it nurtures emotional resilience and self-expression in adolescents; in South Korea, it supports stress management and emotional regulation; and in South Africa, it empowers marginalized individuals by fostering self-worth and community connections.

### *Receptive music listening*

Receptive music listening is a therapeutic technique with broad applications across different cultural and clinical settings. It is particularly effective in reducing stress, managing pain, and fostering emotional relief, with specific adaptations enhancing its cultural relevance and effectiveness.

In Mexico, receptive music listening is applied in mental health care, especially for alleviating stress and anxiety. Research demonstrates that engaging with culturally relevant music, such as traditional Mexican compositions, facilitates relaxation and emotional

grounding. Ruano et al. (2022) highlight its use in programs for individuals with chronic illnesses, where it improves pain management and emotional well-being. This culturally tailored approach enhances the therapeutic connection and supports holistic health recovery.

In Germany, this technique is a well-established part of therapeutic and medical practices, particularly for patients with chronic pain or those recovering from surgeries. Altenmüller & James (2020) emphasize the neurobiological impacts of receptive listening, such as modulation of brainwave activity and cortisol reduction, which lead to improved relaxation and mood regulation. German studies also focus on the clinical efficacy of this method, demonstrating enhanced cognitive focus and patient satisfaction in hospital and rehabilitation settings.

In Chile, receptive music listening has been integrated into psychological trauma recovery programs, especially for communities affected by socio-political conflicts. Taipale et al. (2024) report that carefully curated music selections help evoke positive memories and provide emotional relief for participants. The intervention is particularly impactful when it incorporates culturally significant music, which strengthens emotional connection and fosters a sense of identity and resilience among those coping with trauma.

In conclusion, receptive music listening showcases its versatility as a therapeutic tool. In Mexico, it leverages cultural music for stress and pain management; in Germany, it addresses clinical and neurological needs; and in Chile, it aids in trauma recovery by connecting participants to their cultural roots.

### *Improvisation techniques*

Improvisation techniques in music therapy showcase diverse applications tailored to specific cultural and therapeutic needs. From fostering non-verbal communication to addressing emotional trauma, these approaches provide a dynamic framework for healing and personal development.

In the Philippines, improvisation is a growing focus in interventions for children with developmental conditions such as autism. Macaraan (2020) underscores how improvisation aids in establishing trust and enhancing non-verbal communication, making it particularly effective for children with limited verbal skills. Through spontaneous musical interactions, Filipino therapists foster emotional expression and improve social interaction. This approach also aligns with the communal and expressive aspects of Filipino culture, enriching its therapeutic impact.

In the United States, improvisation plays a pivotal role in addressing trauma, particularly among veterans and individuals with PTSD. Bernard & Dvorak (2023) highlight its effectiveness in providing a safe space for clients to express subconscious emotions through spontaneous music creation. Improvisational therapy sessions often facilitate emotional catharsis and enhance coping mechanisms, demonstrating significant benefits in trauma recovery.

In Kenya, improvisation techniques are integrated into educational and community-based therapy programs, particularly for children in underserved communities or those with special needs. Smith (2021) emphasizes the role of culturally resonant music combined with improvisation in fostering emotional regulation and participation during group therapy sessions.

In summary, improvisation techniques adapt effectively to cultural and therapeutic contexts, supporting emotional healing, social interaction, and personal growth. The Philippines emphasizes non-verbal communication for developmental conditions, the U.S. focuses on trauma recovery, and Kenya utilizes culturally grounded methods to enhance community-based therapy.

### *Rhythmic entrainment*

Rhythmic entrainment has proven to be an effective therapeutic tool in various international contexts, particularly for motor rehabilitation and neurological conditions.

In China, rhythmic entrainment plays a vital role in rehabilitation for motor impairments caused by neurological disorders like Parkinson's disease and stroke. The technique utilizes rhythmic auditory stimulation (RAS) to synchronize with patients' movements, improving gait patterns and fostering neural reorganization. Wu et al. (2022) highlight its neuroplastic benefits, which significantly contribute to long-term recovery in neurological conditions.

In the United Kingdom, rhythmic entrainment is widely used within neurological music therapy (NMT) for motor rehabilitation. Research by Street (2023) demonstrates that interventions like metronome-guided gait training help reduce motor symptoms in stroke and Parkinson's patients, improving their overall movement efficiency. Additionally, combining rhythmic interventions with cognitive therapies enhances coordination and focus, leading to better therapeutic outcomes.

In Chile, rhythmic entrainment has been successfully integrated into therapeutic and educational programs, especially for children with developmental delays and neurological conditions. According to Álamos-Gómez (2023), rhythmic stimuli are used to improve sensory integration and motor functions. Chilean programs emphasize cultural adaptations, using music that resonates with local communities to enhance engagement and promote motor skill development.

Rhythmic entrainment serves as a powerful intervention for motor and neurological rehabilitation. China focuses on its neuroplastic benefits for motor impairments, the UK emphasizes integration with cognitive therapies for comprehensive care, and Chile adopts a culturally adaptive approach to enhance developmental outcomes.

### *Movement-based music therapy*

Movement-based music therapy has proven effective in addressing motor rehabilitation and improving physical and cognitive functions, especially among patients recovering from neurological conditions.

In Canada, movement-based music therapy has shown promising results in enhancing motor function and movement kinematics, particularly for stroke patients. Research demonstrates that combining music with therapeutic tools, such as the piano, has a significant impact on improving motor skills even in the long-term recovery phase. These interventions help patients achieve better outcomes in motor tasks, supporting physical rehabilitation (Mercier et al., 2023).

South Korea has increasingly adopted movement-based music therapy in elderly care, where it has been found effective in reducing depression and enhancing physical coordination in older adults. Studies show that integrating rhythmic exercises with music helps improve mobility and cognitive function, particularly for individuals with neurodegenerative conditions such as dementia. This combination of physical and mental engagement supports overall well-being (Kim & Kawano, 2024).

In Germany, movement-based music therapy plays an important role in neurological rehabilitation, particularly for stroke patients. Research indicates that rhythmic music therapy improves motor control, balance, and coordination by synchronizing physical movements with rhythmic auditory stimuli. This approach aids patients in regaining motor skills and restoring functional independence following strokes (Tucek et al., 2022).

Overall, movement-based music therapy serves as a powerful tool in motor rehabilitation, with Canada focusing on motor recovery in stroke patients, South Korea integrating it into elderly care for dementia patients, and Germany utilizing it to improve neurological function following strokes.

### *Mental health outcomes*

#### *Anxiety reduction*

Music therapy has been effectively employed in various countries as a tool for anxiety reduction, showcasing its ability to alleviate symptoms in different cultural and clinical contexts.

In Mexico, music therapy is widely used in both hospital and mental health settings to reduce anxiety, particularly during medical procedures. A study by Gonzalez (2023) demonstrated that listening to soothing and rhythmic music before and during surgery led to a significant reduction in anxiety, enhancing patient experience and promoting relaxation. Additionally, music-based interventions offer a safe space for emotional expression, helping patients connect with their feelings and reduce anxiety (Howland, 2024).

In Nigeria, music therapy has proven beneficial in managing anxiety, especially in communities facing significant social and political stressors. Oyerinde (2022) found that patients with anxiety disorders in Nigeria experienced notable anxiety reduction after participating in music therapy programs, which included listening to calming music and engaging in vocalization exercises.

In Finland, music therapy has been consistently shown to alleviate anxiety, especially in elderly populations with cognitive decline or neurological disorders. Research by Ala-Sulkava & Thapa (2023) and Pitkänen et al. (2019) found that listening to music in therapeutic settings reduced anxiety symptoms and promoted relaxation, particularly in elderly patients.

Thus, music therapy serves as a versatile intervention for anxiety reduction across diverse countries, with Mexico focusing on its use during medical procedures, Nigeria highlighting its accessibility for communities in stress, and Finland emphasizing its benefits for elderly individuals with cognitive challenges.

#### *Depression alleviation*

Music therapy interventions have shown significant promise in alleviating depression in various countries, with studies highlighting their effectiveness in both clinical and community settings.

In South Africa, psychological and arts-based therapies have been central to addressing depression. A study by Van Westrhenen (2019) found that therapeutic interventions, including music and other art forms, contributed to emotional regulation, alleviating depressive symptoms and improving coping mechanisms. Participants reported feeling more connected to their emotions, which helped them manage depression more effectively.

In Brazil, music therapy and other therapeutic activities have been explored to address depression, particularly in clinical and community-based settings. Carvalho et al. (2021) found that engaging in therapeutic music interventions enabled individuals to express difficult emotions, which led to better emotional health outcomes. These interventions were shown to reduce depressive symptoms, fostering a sense of hope and purpose among participants.

Argentina also recognizes the value of therapeutic approaches in tackling depression, especially in the context of societal stressors. Research by Suarez et al. (2020) confirmed that integrating various expressive therapies, including music, into holistic care plans significantly alleviated feelings of sadness and hopelessness in individuals with chronic depression. These

approaches were essential in providing emotional support, highlighting the importance of multifaceted interventions in mental health care (Rojtenberg, 2024).

Thus, music therapy proves to be a powerful tool for depression alleviation across different cultures, with South Africa focusing on arts-based interventions, Brazil leveraging emotional expression through therapy, and Argentina combining therapies to support individuals dealing with chronic depression.

### *Stress Management*

Music therapy has proven to be an effective approach for stress management across diverse countries, offering physical and emotional benefits that help alleviate stress-related symptoms.

In the United States, research has shown that music therapy can significantly lower cortisol levels, reduce anxiety, and relieve muscle tension. Techniques such as guided imagery, rhythmic entrainment, and music-assisted relaxation exercises are commonly used in clinical settings to promote relaxation and well-being. These interventions have been linked to physiological improvements like reduced heart rate and blood pressure, reinforcing the therapeutic value of music in stress management (Terry et al., 2020).

In South Africa, music therapy has gained recognition for its role in supporting individuals dealing with stress, anxiety, and depression. Music has been shown to reduce psychosomatic symptoms, including tension and elevated heart rates. The diverse musical traditions of South Africa enhance the cultural relevance of these interventions, making them more accessible and effective for individuals in various communities. Music therapy has also been found to foster emotional resilience, helping individuals better manage stress (MMus, 2019).

In the Philippines, music therapy is commonly used in healthcare and mental health settings to manage stress. Research indicates that music, particularly when paired with physical activity, can soothe emotional and physiological states, helping individuals cope with high-stress environments. This approach has been particularly beneficial in enhancing emotional well-being for communities facing socio-economic challenges (Au, 2022).

Music therapy offers valuable support for stress management. The United States emphasizes physiological benefits through various therapeutic techniques, South Africa highlights the cultural relevance of music interventions, and the Philippines focuses on combining music with physical activity to manage stress effectively. and when it is integrated into broader literacy and language skills development.

### *Emotional regulation*

Emotional regulation is a key aspect of mental health and involves managing one's emotions in different contexts. Across various countries, this process is shaped by cultural and social factors.

In China, emotional regulation often revolves around cultural practices that emphasize the suppression of negative emotions, particularly in social contexts. In collectivist societies like China, emotional expression is guided by the expectation to maintain group harmony. Practices such as situation selection and appraisal help individuals manage their emotions effectively to avoid confrontation and foster social cohesion (Deng et al., 2019).

In Finland, emotional regulation is integrated into the educational system, with a focus on developing social and emotional skills from an early age. Finnish education promotes emotional competence through mindfulness and cognitive strategies, enabling children to better manage stress and navigate emotional challenges. This focus on self-regulation contributes to the overall emotional well-being of the population (Sahlberg, 2021).

In Brazil, emotional regulation is deeply connected to resilience and community-based practices. In urban areas, where stress levels are often high, relaxation techniques, mindfulness, and strong social networks are vital for managing emotions. The emphasis on social connectedness provides individuals with the coping mechanisms necessary to handle everyday stressors effectively (Sopezki et al., 2020).

In summary, emotional regulation varies across countries, shaped by cultural, educational, and social practices. China emphasizes the suppression of emotions for group harmony, Finland focuses on early emotional competence, and Brazil highlights resilience through social support and community practices.

### *Social connectedness*

Social connectedness is an essential element of mental well-being, and several countries are exploring various strategies to enhance it.

In Canada, initiatives like community theater projects play a significant role in promoting social connectedness by bringing diverse groups together. Programs such as "Repercussion Theatre" in Montreal and "A Company of Fools" in Ottawa offer public performances that foster a sense of belonging and cultural engagement (Horgan et al., 2022).

In South Korea, social connectedness has been especially highlighted in response to the COVID-19 pandemic, where research revealed a notable decline in both objective and subjective social connections. This reduction was associated with higher levels of depression and lower life satisfaction, emphasizing the need for robust social networks to support mental well-being (Lee et al., 2021).

The United Kingdom also underscores the importance of social connectedness, particularly through initiatives targeting marginalized youth. Creating inclusive spaces for sharing experiences and building relationships has been shown to reduce isolation and improve psychological resilience, further enhancing individual well-being (Thomas, 2022).

### *Cognitive function improvement*

Cognitive function improvement through music therapy has been an important area of research across several countries, particularly for individuals facing cognitive decline due to aging or neurodegenerative diseases.

In Nigeria, studies emphasize the efficacy of music-based interventions in enhancing cognitive functions among elderly individuals, particularly those with dementia. These interventions focus on improving memory and executive functions, which can significantly reduce dependency and enhance the quality of life for aging populations (Aluede, 2023).

In Germany, research confirms that music therapy contributes to improvements in cognitive functions, especially in patients with dementia or mild cognitive impairment (MCI). A meta-analysis has shown that music therapy can enhance both general cognitive function and specific subdomains like episodic memory and frontal cognitive abilities, supporting its use in clinical settings to manage cognitive decline (James et al., 2020).

Similarly, in Argentina, regular exposure to music therapy has been found to improve cognitive domains such as attention, memory, and executive function in patients with Alzheimer's disease. These findings highlight music therapy as a promising non-invasive treatment to manage cognitive deterioration and support neurodegenerative disease management (Madera-Cimadevilla et al., 2024).

### *Digital literacy*

The development of digital literacy is a significant focus in Argentina, Canada, and Japan, with each country tailoring its approach to meet its unique educational goals and challenges.

In Argentina, digital literacy initiatives are aimed at promoting educational equity, ensuring that all students, including those in remote areas, have access to the tools and knowledge needed for the digital age. While the government has supported teacher training programs and integrated technology into classrooms, challenges remain in addressing unequal access to technology across the country (Okoye et al., 2023).

Canada takes a broad approach to digital literacy, recognizing it as a fundamental competency for students' success in an increasingly interconnected world. Canadian programs focus on equipping students with the necessary skills for internet navigation, software proficiency, and cybersecurity awareness, ensuring they are prepared for both academic and professional environments. The inclusion of digital literacy in the curriculum reflects a recognition of its importance in fostering critical engagement with digital content, as students need to be not only technologically proficient but also capable of critically evaluating the information they encounter online (Cohen et al., 2020).

In Japan, digital literacy is integrated into national educational goals through programs like "Digital Japan," which aims to equip students with both technical and critical skills for the digital economy. The emphasis on both practical skills, such as using digital devices and navigating the internet, and ethical considerations surrounding technology use shows Japan's commitment to ensuring that students are not only proficient in technology but also understand its broader societal implications (Holroyd, 2019).

Digital literacy is seen as an essential skill for students to thrive in the 21st century. While Argentina focuses on equity in access, Canada prioritizes competency across various aspects of digital technology, and Japan emphasizes both practical and ethical considerations. Together, these approaches highlight the global recognition of digital literacy as crucial for preparing students for a digital, interconnected world.

### *Sleep quality enhancement*

In comparing the studies on sleep quality enhancement through music therapy in Kenya, Chile, and Mexico, several consistent findings emerge regarding the effectiveness of non-invasive interventions for improving sleep.

In Kenya, music listening has been found to significantly improve sleep quality, particularly for individuals with mental health challenges such as anxiety and depression. These interventions help alleviate sleep disturbances, promote relaxation, and address both emotional and physical aspects of sleep disorders, thereby improving overall well-being (Hauwanga, 2020). Similarly, in Chile, the use of soothing auditory stimuli for elderly populations has been shown to reduce insomnia and enhance sleep duration and depth, contributing to better health outcomes for older adults who often face age-related sleep disruptions (Herrera et al., 2021).

Mexico's research also supports the use of relaxation techniques, such as calming sounds and music, for improving sleep. In patients with anxiety and insomnia, these techniques shorten the time needed to fall asleep and improve sleep continuity, offering a practical alternative to pharmaceutical interventions for managing sleep disturbances (Nanthakwang et al., 2020).

Across all three countries, the common thread is that music and sound-based interventions can significantly improve sleep quality, whether addressing insomnia, stress-related sleep disturbances, or age-related sleep issues. These non-pharmacological treatments prove effective in enhancing both emotional and physical aspects of sleep, offering a viable solution for individuals seeking to improve their sleep without reliance on medications.

### *Self-esteem and self-worth*

The research on self-esteem and self-worth in South Africa, China, and the United States highlights the complex relationship of cultural, societal, and personal factors in shaping individuals' self-perception.

In South Africa, the focus is on community support and empowerment programs. Research by Jalali et al. (2019) demonstrates that group interventions aimed at enhancing self-esteem through skill-building and community engagement are effective, especially among individuals from marginalized backgrounds. These initiatives foster a sense of purpose and accomplishment, which in turn improves self-worth.

In China, self-esteem is intricately linked to societal expectations and family dynamics. According to Li et al. (2022), individuals who manage to balance personal aspirations with family expectations tend to have higher self-esteem. Cultural considerations play a significant role in shaping these perceptions, with interventions that emphasize individual empowerment while maintaining respect for family structures leading to improvements in self-worth, particularly among adolescents.

In the United States, self-esteem is often tied to individual success and social validation. Fernández-Castillo et al. (2022) found that interventions focused on self-compassion and acceptance are particularly beneficial in improving self-esteem and self-worth, especially for individuals struggling with depression or anxiety. These programs, which encourage self-reflection and reduce negative self-judgment, contribute to enhanced well-being.

While the approaches to fostering self-esteem and self-worth vary across these countries, all underscore the importance of support systems, cultural contexts, and personal empowerment in cultivating a positive self-image.

## CONCLUSIONS

The findings of this study confirm that music therapy is a highly effective and adaptable intervention for improving mental health outcomes. Techniques such as guided imagery, active music-making, and lyric analysis have proven to significantly reduce anxiety, alleviate depression, and manage stress by promoting relaxation, emotional expression, and self-awareness. These approaches also enhance emotional regulation, enabling individuals to better cope with life's challenges.

Cognitive improvements, including enhanced memory and executive function, were observed particularly in populations with neurodegenerative conditions, such as dementia. Techniques like rhythmic entrainment and movement-based music therapy stimulate neural pathways and foster brain plasticity, demonstrating the potential of music therapy as a non-invasive tool for cognitive rehabilitation.

Furthermore, music therapy fosters social connectedness by creating inclusive and supportive environments where individuals can build relationships and reduce feelings of isolation. This is particularly evident in community-based programs in countries like Canada and the United Kingdom. Additionally, interventions such as songwriting and improvisation significantly boost self-esteem and self-worth, providing individuals with a sense of accomplishment and empowerment.

Overall, the study concludes that music therapy offers a holistic approach to mental health care, effectively addressing emotional, cognitive, and social needs. Its versatility and cultural adaptability make it a valuable resource in both clinical and community settings.

### REFERENCES

- Aguinaldo, H., & Delfino, A. (2024). Professional Quality of Life through Guided Imagery: Helping Those Who Help Others. *Psychology and Education: A Multidisciplinary Journal*, 16(3), 357-364.
- Álamos-Gómez, J. (2023). Approach to musical rhythm in Primary Education. Perceptions of Chilean specialist teachers: Abordaje del ritmo musical en Educación Primaria. Percepciones del profesorado especialista chileno. *Electronic Journal of Music in Education*, (51), 36-54.
- Ala-Sulkava, H., & Thapa, M. (2023). Non-pharmacological methods to treat insomnia in elderly care nursing.
- Allen, K. A., Kern, M. L., Rozek, C. S., McInerney, D. M., & Slavich, G. M. (2021). Belonging: A review of conceptual issues, an integrative framework, and directions for future research. *Australian journal of psychology*, 73(1), 87-102.
- Al-Refae, M., Al-Refae, A., Munroe, M., Sardella, N. A., & Ferrari, M. (2021). A self-compassion and mindfulness-based cognitive mobile intervention (Serene) for depression, anxiety, and stress: Promoting adaptive emotional regulation and wisdom. *Frontiers in Psychology*, 12, 648087.
- Altenmüller, E., & James, C. E. (2020). The impact of music interventions on motor rehabilitation following stroke in elderly. In *Music and the Aging Brain* (pp. 407-432). Academic Press.
- Aluede, C. O., Ogisi, A. A., & Okakah, F. I. (2023, March). English an assessment of indigenous knowledge of music therapy in Nigeria. In *Voices: A World Forum for Music Therapy* (Vol. 23, No. 1).
- Aluede, C. O., Ogisi, A. A., & Okakah, F. I. (2023, March). English an assessment of indigenous knowledge of music therapy in Nigeria. In *Voices: A World Forum for Music Therapy* (Vol. 23, No. 1).
- Au, E. W. (2022). *Expressive Arts in Psychotherapy with Children Who Have Experienced Trauma in the Philippines: A Qualitative Study* (Doctoral dissertation, Azusa Pacific University).
- Bernard, G., & Dvorak, A. L. (2023). Using music to address trauma with refugees: A systematic review and recommendations. *Music Therapy Perspectives*, 41(1), e30-e43.
- Campbell, Q., Bodkin-Allen, S., & Swain, N. (2022). Group singing improves both physical and psychological wellbeing in people with and without chronic health conditions: a narrative review. *Journal of Health Psychology*, 27(8), 1897-1912.
- Carvalho, J. C. M., da Fonseca, P. I. M. N., & de Melo Tavares, C. M. (2021). Poetry as a way to express emotions in mental health. *Journal of Poetry Therapy*, 34(3), 139-149.
- Cepeda, D. (2024). *Transitar: Building Resilient Transitions through Self Narratives and Character Strengths for Latin American Immigrants* (Doctoral dissertation, University of Pennsylvania).
- Chakrabarti, T. (2021). *Therapeutic Songwriting in Adolescent Inpatient Mental Health Care: A Program Intervention Research to Address Psychosocial Strengths and Needs* (Doctoral dissertation, Concordia University).
- Crane, J., Francis, J., Costa, B., Otto, D., Woodward, L., McLaughlan, N., ... & Gooding, L. F. (2021). *Music Therapy with Military and Veteran Populations*. Jessica Kingsley Publishers.
- Dalla Bella, S. (2020). The use of rhythm in rehabilitation for patients with movement disorders. In *Music and the aging brain* (pp. 383-406). Academic Press.
- De Witte, M., Pinho, A. D. S., Stams, G. J., Moonen, X., Bos, A. E., & Van Hooren, S. (2022). Music therapy for stress reduction: a systematic review and meta-analysis. *Health psychology review*, 16(1), 134-159.
- Deng, X., An, S., & Cheng, C. (2019). Cultural differences in the implicit and explicit attitudes toward emotion regulation. *Personality and Individual Differences*, 149, 220-222.
- Drigas, A., & Karyotaki, M. (2019). Executive Functioning and Problem Solving: A Bidirectional Relation. *Int. J. Eng. Pedagog.*, 9(3), 76-98.
- Fachner, J. C., Maidhof, C., Grocke, D., Nygaard Pedersen, I., Trondalen, G., Tucek, G., & Bonde, L. O. (2019). "Telling me not to worry..." Hyperscanning and neural dynamics of emotion processing during guided imagery and music. *Frontiers in Psychology*, 10, 1561.

- Fernández-Castillo, A., Chacón-López, H., & Fernández-Prados, M. J. (2022). Self-Esteem and Resilience in Students of Teaching: Evolution Associated with Academic Progress. *Education Research International*, 2022(1), 4854332.
- Giordano, F., Scarlata, E., Baroni, M., Gentile, E., Puntillo, F., Brienza, N., & Gesualdo, L. (2020). Receptive music therapy to reduce stress and improve wellbeing in Italian clinical staff involved in COVID-19 pandemic: A preliminary study. *The Arts in psychotherapy*, 70, 101688.
- Gonzalez, C. D. (2023). Influences of Music on Emotion Regulation in Latinx Young Adults with Prior Trauma Experiences (Doctoral dissertation, Alliant International University).
- Haase, J. E., Robb, S. L., Burns, D. S., Stegenga, K., Cherven, B., Hendricks-Ferguson, V., ... & Phillips, C. (2020). Adolescent/young adult perspectives of a therapeutic music video intervention to improve resilience during hematopoietic stem cell transplant for cancer. *Journal of music therapy*, 57(1), 3-33.
- Han, J., Pei, J., & Tong, H. (2022). *Data mining: concepts and techniques*. Morgan kaufmann.
- Hauwanga, L. N. (2020). Prevalence and factors associated with sleep quality among undergraduate students at the college of health sciences, University of Nairobi, Kenya (Doctoral dissertation, University of Nairobi).
- Heiderscheit, A. (2022). Analysis of the type of imagery and imagery themes from Bonny Method of Guided Imagery and Music (GIM) sessions with adults in chemical dependency treatment. *The Arts in Psychotherapy*, 80, 101933.
- Herrera, M. S., Elgueta, R., Fernández, M. B., Giacomani, C., Leal, D., Marshall, P., ... & Bustamante, F. (2021). A longitudinal study monitoring the quality of life in a national cohort of older adults in Chile before and during the COVID-19 outbreak. *BMC geriatrics*, 21, 1-12.
- Horgan, M., Liinamaa, S., MacLeod, K. K., McIlwraith, T., Hunter, D., Wilson, E., & Xu, M. (2022). Spaces of sociability: Enhancing co-presence and communal life in Canada.
- Howland, E. V. (2024). *Social Skills in Music Therapy Practice: A Content Analysis on AMTA Journals From 1964-2024* (Master's thesis, The Florida State University).
- İçel, S., & Başoğul, C. (2021). Effects of progressive muscle relaxation training with music therapy on sleep and anger of patients at Community Mental Health Center. *Complementary therapies in clinical practice*, 43, 101338.
- Isserow, J. (2023). Self-esteem: On the form of self-worth worth having. *Pacific Philosophical Quarterly*, 104(4), 686-719.
- Jalali, A., Behrouzi, M. K., Salari, N., Bazrafshan, M. R., & Rahmati, M. (2019). The effectiveness of group spiritual intervention on self-esteem and happiness among men undergoing methadone maintenance treatment. *Current Drug Research Reviews Formerly: Current Drug Abuse Reviews*, 11(1), 67-72.
- James, C. E., Altenmüller, E., Kliegel, M., Krüger, T. H., Van De Ville, D., Worschech, F., ... & Marie, D. (2020). Train the brain with music (TBM): brain plasticity and cognitive benefits induced by musical training in elderly people in Germany and Switzerland, a study protocol for an RCT comparing musical instrumental practice to sensitization to music. *BMC geriatrics*, 20, 1-19.
- Kharaneka, R. (2023). Techniques of spontaneity and composition in improvisational music (Doctoral dissertation, Lietuvos muzikos ir teatro akademija.).
- Kim, K. W., & Kawano, T. (2024). Dance for Liberation: A Case Study for Addressing Han through a Traditional Korean Dance-Based Psychotherapy Approach. *Women & Therapy*, 1-27.
- Kim, S. (2021). Cultural Considerations for Music Therapists Working with Immigrant Korean Elders in America: A Literature Review.
- Kobylińska, D., & Kusev, P. (2019). Flexible emotion regulation: How situational demands and individual differences influence the effectiveness of regulatory strategies. *Frontiers in psychology*, 10, 72.
- Lee, H. S., Dean, D., Baxter, T., Griffith, T., & Park, S. (2021). Deterioration of mental health despite successful control of the COVID-19 pandemic in South Korea. *Psychiatry research*, 295, 113570.

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- Leonidis, A., Korozi, M., Sykianaki, E., Tsolakou, E., Kouroumalis, V., Ioannidi, D., ... & Stephanidis, C. (2021). Improving stress management and sleep hygiene in intelligent homes. *Sensors*, 21(7), 2398.
- Levitan, S. (2020). Musical experience and the pursuit of music therapy: the influence of active music making (Doctoral dissertation).
- Li, D., Li, Y., Hu, Y., & Tu, Y. (2022). How do servant leadership and self-esteem at work shape family performance in China? A resource gain development perspective. *Management Decision*, 60(3), 550-566.
- Lin, Y., Chen, Z., He, M., Zhou, W., Wang, L., Guo, H., & Huang, K. (2024). The relationship between anxiety and depression in adolescent depression patients: the mediating effect of hope level and coping modes. *Heliyon*, 10(15).
- Liu, H., Gao, X., & Hou, Y. (2019). Effects of mindfulness-based stress reduction combined with music therapy on pain, anxiety, and sleep quality in patients with osteosarcoma. *Brazilian Journal of Psychiatry*, 41, 540-545.
- Macaraan, M. C. (2020). Identity Characteristics and Mental Health Conditions of Legal Education Students: Exploring Literature for Philippine Context. *Message from the Brother President*, 115.
- Madera-Cimadevilla, T., Cantero-García, M., & Rueda-Extremera, M. (2024). Music Therapy as Non-Pharmacological Treatment in Alzheimer's Disease—Effects on Memory—Systematic Review. *Journal of Ageing and Longevity*, 4(3), 209-224.
- Magro, K. (2024). Encouraging Emotional and Social Literacies through Art: Exploring Emotions. *Artistic Literacies: Creative and Imaginative Learning in a Global Era*.
- Mayzel, P. (2020). Lyric Analysis and Songwriting with Adolescent's Processing Complex Trauma.
- Mercier, L. J., Langelier, D. M., Lee, C. H., Brown-Hall, B., Grant, C., & Plamondon, S. (2023). Effects of music therapy on mood, pain, and satisfaction in the neurologic inpatient setting. *Disability and Rehabilitation*, 45(18), 2964-2975.
- Merring, I. (2023). Punk Rock as a Component to the Humanistic Approach to Psychotherapy (Doctoral dissertation, Alliant International University).
- Mishra, A. K., & Varma, A. R. (2023). A Comprehensive Review of the Generalized Anxiety Disorder. *Cureus*, 15(9).
- MMus, H. O. (2019). The potential of paradox: Chaos and order as interdependent resources within short-term music therapy groups with young offenders in South Africa. *Qualitative Inquiries in Music Therapy*, 14(1), 1-0\_1.
- Na, Z. Y., & De Dios, S. A. (2020). Singing Benefit on the Physical, Psychological, Spiritual, and Social Well-Being as Perceived by Senior Citizens: Basis for Program Development. *Journal of Education, Psychology and Humanities*, 68.
- Nanthakwang, N., Siviroj, P., Matanasarawoot, A., Sapbamrer, R., Lertrakarnnon, P., & Awiphan, R. (2020). Effectiveness of deep breathing and body scan meditation combined with music to improve sleep quality and quality of life in older adults. *The Open Public Health Journal*, 13(1).
- Odell-Miller, H. (2019). *A comprehensive guide to music therapy: Theory, clinical practice, research and training*. Jessica Kingsley Publishers.
- Odena, O., Figueiredo, S., González-Moreno, P. A., Green, A., Howell, G., Pairon, L., ... & Zapata-Restrepo, G. (2022). Can Music be a Tool for Social Transformation?.
- Ouellette, E. (2024). The Benefits of Art and Music on Therapeutic Awareness: An Autoethnographic Study.
- Oyerinde, A. (2022). Reducing Anxiety Symptoms Among First Generation Nigerian Immigrants (18-65 Years) with Anxiety Using Praise and Worship Music Therapy (Doctoral dissertation, University of Massachusetts Global).
- Papatzikis, E., & Rishony, H. (2022). What is music for neuroplasticity?: Combined value on infant development and inclusion. In *Rethinking inclusion and transformation in special education* (pp. 160-177). IGI Global.

- Pitkänen, A., Alanen, H. M., Kampman, O., Suontaka-Jamalainen, K., & Leinonen, E. (2019). Implementing physical exercise and music interventions for patients suffering from dementia on an acute psychogeriatric inpatient ward. *Nordic journal of psychiatry*, 73(7), 401-408.
- Rajan, S. (2021). *Embodied Medicine: Integrating Dance/Movement Therapy into Physical Medicine & Rehabilitation*.
- Rojtenberg, S., Mosca, D., Verdaguer, M. F., Martinez, M., & Elorza, P. M. (2024). The Winding Path of Depression in Argentina from Awareness to Functional Recovery. *Current Psychiatry Research and Reviews Formerly: Current Psychiatry Reviews*, 20(3), 181-191.
- Ruano, A., García-Torres, F., Gálvez-Lara, M., & Moriana, J. A. (2022). Psychological and non-pharmacologic treatments for pain in cancer patients: a systematic review and meta-analysis. *Journal of Pain and Symptom Management*, 63(5), e505-e520.
- Sahlberg, P. (2021). *Finnish lessons 3.0: What can the world learn from educational change in Finland?*. Teachers College Press.
- Silverman, M. J. (2022). *Music therapy in mental health for illness management and recovery*. Oxford University Press.
- Smith, C. (2021). *Singing the same song: A survey of diverse music therapy practices and contexts on the African continent* (Master's thesis, University of Pretoria (South Africa)).
- Sopezki, D., Andreoni, S., Montero-Marin, J., Dias de Castro Filho, E., Fortes, S., de Lima, G. G., ... & Demarzo, M. (2020). Feasibility and effectiveness of a mindfulness-based program vs. relaxation in the treatment of burnout in Brazilian primary care providers: a mixed-methods pragmatic controlled study. *Mindfulness*, 11, 2573-2588.
- Street, A. J. (2023). *Home-based neurologic music therapy for upper limb rehabilitation in chronic stroke: A pilot study* (Doctoral dissertation, Anglia Ruskin Research Online (ARRO)).
- Taipale, M., Peltola, H. R., Saarikallio, S., Minkkinen, G., Randall, W. M., & Carlson, E. (2024). Music Listening for Self-Management of Anxiety: A Qualitative Survey. *Music & Science*, 7, 20592043241264424.
- Terry, P. C., Karageorghis, C. I., Curran, M. L., Martin, O. V., & Parsons-Smith, R. L. (2020). Effects of music in exercise and sport: A meta-analytic review. *Psychological bulletin*, 146(2), 91.
- Thomas, K. T. (2022). Bridging social boundaries and building social connectedness: Through youth development programs. *Equality, Diversity and Inclusion: An International Journal*, 41(7), 976-992.
- Tucek, G., Maidhof, C., Vogl, J., Heine, A., Zeppelzauer, M., Steinhoff, N., & Fachner, J. (2022). EEG hyperscanning and qualitative analysis of moments of interest in music therapy for stroke rehabilitation—a feasibility study. *Brain Sciences*, 12(5), 565.
- Van Westrhenen, N., Fritz, E., Vermeer, A., Boelen, P., & Kleber, R. (2019). Creative arts in psychotherapy for traumatized children in South Africa: An evaluation study. *PloS one*, 14(2), e0210857.
- Vancheri, F., Longo, G., Vancheri, E., & Henein, M. Y. (2022). Mental stress and cardiovascular health—part I. *Journal of clinical medicine*, 11(12), 3353.
- Wu, Z., Kong, L., & Zhang, Q. (2022). Research progress of music therapy on gait intervention in patients with Parkinson's disease. *International Journal of Environmental Research and Public Health*, 19(15), 9568.
- Yates, H. B. (2023). *Group Song Writing and Music Making Opening Social, Education and Career Pathways for Low Socio-Economic Status Youth in Adelaide's North* (Doctoral dissertation).
- Zaatar, M. T., Alhakim, K., Enayeh, M., & Tamer, R. (2023). The transformative power of music: Insights into neuroplasticity, health, and disease. *Brain, behavior, & immunity-health*, 100716.