

Scientific Research and Future Prospects of Music Therapy for Depression

Fang Liu (Zhuoyi Liu)¹, Qi Xiao², Huaijie Zhu^{1,3}

¹Henan Zhuoyi Culture Communication Co., Ltd.186-3978-8010, Zhengzhou City, Henan, China;
1650451367@qq.com

²China Musicians' Association, Zhejiang Province Musicians Association, China. First-level composer

^{1,3}Department of Pathology and Cell Biology, Columbia University, New York, USA. Jacksun Easy Biotech Inc.
New York, USA; Corresponding by Huaijie Zhu, 917-635-2608, jacksun689@gmail.com

Abstract: As a global mental health disorder characterized by high prevalence and high rates of disability, depression presents a significant challenge to public health. Music therapy for depression poses a groundbreaking challenge to existing treatment paradigms specifically, pharmacotherapy and psychotherapy. Currently, these conventional approaches often fail to yield satisfactory therapeutic outcomes for a large proportion of patients; moreover, issues such as severe side effects frequently lead to varying degrees of resistance toward current treatments among both patients and their families. As a non-pharmacological, expressive, and adjunctive intervention, music therapy have demonstrated unexpectedly unique efficacy and value within the field of research on the auxiliary treatment and intervention of depression in the recent years. This paper provides a comprehensive review of the mechanisms of action underlying music therapy for depression, the supporting clinical research evidence, and the associated primary techniques and methodologies employed. Studies indicate that music therapy achieves its demonstrable therapeutic effects through a multidimensional network of pathways, including neurophysiological regulation, the modulation of emotional arousal and motivation, cognitive restructuring, and the facilitation of social connection outcomes that pharmacotherapy and psychotherapy have historically been unable to achieve. Although challenges persist regarding standardization, the in-depth elucidation of mechanisms of action, and professional training, the advancements in neuroscience, artificial intelligence, and telemedicine have nonetheless revealed a promising and expansive future for the application of music therapy in the personalized, digitized, and community-based treatment of depression.

[Fang Liu (Zhuoyi Liu), Qi Xiao, Huaijie Zhu. **Scientific Research and Future Prospects of Music Therapy for Depression.** *Life Sci J* 2026;23(4):33-36]. ISSN 1097-8135 (print); ISSN 2372-613X (online). <http://www.lifesciencesite.com>. 04. doi:[10.7537/marslsj230426.04](https://doi.org/10.7537/marslsj230426.04)

Keywords: Music Healing; Depression; Psychology; Psychiatry; Music Therapy; Music and Health

1. Introduction:

Depression is one of the leading causes of morbidity and disability worldwide, characterized by persistent low mood, diminished interest, and cognitive impairment. According to reports from the World Health Organization, more than 350 million people globally suffer from depression. Traditional first-line treatments primarily antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs) and cognitive behavioral therapy not only yield modest results but also are. Consequently, the search for safe and highly acceptable complementary and alternative therapies has emerged as a key direction in both the clinical treatment and research of depression. Music therapy represents a novel therapeutic approach characterized by well-defined clinical standards; it utilizes musical experiences including listening, composing, performing, improvising, and discussing lyrics to achieve precise, individualized therapeutic objectives. Given its non-verbal nature and capacity to

convey profound emotional depth, music is particularly well suited for patients with depression who struggle with emotional expression or face barriers to verbal communication. This paper aims to systematically review the scientific research progress of music therapy in the field of depression, explore its underlying mechanisms, and provide an outlook on its future trajectory and application prospects.

2. The Mechanisms of Action of Music Therapy and Its Multidimensional Healing Pathways:

The therapeutic efficacy of music therapy for depression stems from the human body's sensory reception of signals conveyed through musical expression. Once these signals are received by the central nervous system—triggering a multi-level process of physiological and psychological regulation and integration—they manifest in the individual's overall physical and mental well-being. The

underlying mechanisms through which this process contributes to the treatment of depression can be broadly categorized into the following aspects:

2.1. Neurophysiological Regulatory Mechanisms:

Neuroimaging studies have revealed the direct impact of music on the limbic system and reward pathways. Listening to or creating pleasurable music activates the nucleus accumbens and the ventral tegmental area, promoting the release of neurotransmitters—such as dopamine—and thereby directly improving emotional states. Concurrently, music modulates excessive activation of the amygdala, attenuating anxiety and fear responses; it also influences the hypothalamic-pituitary-adrenal (HPA) axis, lowering cortisol levels and thereby alleviating physiological stress. Furthermore, music characterized by specific rhythms and melodies can—through the coordinated action of the central nervous system—manifest its therapeutic effects distinctly in brainwave patterns, inducing relaxing alpha (α) and theta (θ) waves.

Alpha (α) Waves (8–12 Hz): These appear when the eyes are closed, the body is relaxed, and the mind is calm. In music therapy, music with a tempo of 60–70 beats per minute—characterized by a smooth, steady melody is frequently used to help the brain transition from a state of tense Beta waves to Alpha waves, thereby fostering deep physical and mental relaxation as well as focused attention.

Theta (θ) Waves (4–8 Hz): These occur during light sleep, dreaming, or deep meditation, and are associated with creativity and subconscious activity. Therapists utilize slower tempos (such as approximately 50 beats per minute)—employing techniques like binaural beats or isochronic tones—to guide the brain into the Theta state, facilitating deep stress relief, trauma processing, and subconscious exploration.

2.2. The mechanism by which the active regulation of induced emotional attunement facilitates a transition from a negative to a positive and proactive state:

Depression is a disorder rooted in emotional factors, characterized by an onset that stems from an initial state of emotional fixation. Music serves as both a "container" and an "amplifier" for emotions. In a therapeutic setting, the therapist employs "frequency-matching" techniques—selecting music that aligns with the patient's current emotional state—to establish empathy and build trust. Subsequently, by skillfully manipulating musical elements (such as tempo,

tonality, and intensity), the therapist guides the patient's emotions to "transition" from a negative state toward a positive or calm one, thereby helping the patient acquire strategies for emotional.

2.3. Inspired patients to transition from cognitive passivity to active engagement, and to initiate mechanisms of self-reconstruction.

Self-negativity is one of the characteristic symptoms exhibited by the vast majority of patients with depression. Song discussion and lyrical analysis serve as a safe medium for cognitive restructuring. Through lyrics created by others, patients are able to project and reflect upon their own beliefs and thought patterns, and under the guidance of a therapist challenge their negative. Furthermore, successfully completing a musical performance or composition provides an immediate sense of accomplishment and self-efficacy. This serves to counteract the negative self-perceptions such as a lack of self-confidence, worthlessness, and helplessness as well as the specific emotional states characteristic of depression.

2.4. Mechanisms of Guiding Patients to Join Social Groups:

A typical manifestation of depression is a detachment of one's thoughts and emotions from social reality, often resulting in a sense of alienation and an inability to fit in with others. A crucial aspect of the therapeutic process involves addressing this sense of alienation—specifically, repairing the impaired social functioning and personality traits that have become disconnected from society. Group music therapy (such as choral singing or ensemble playing) creates a stress-free, highly structured social environment. Through non-verbal rhythmic synchronization and harmonic collaboration, participating patients with depression are able to rapidly establish a fundamental sense of trust and connection, causing their feelings of social isolation to vanish or diminish instantly. The unique, pre-structured environment of this group choral singing and instrumental ensemble work allows patients to—almost imperceptibly—step into a cooperative experience within a harmonious social setting, thereby effectively repairing the social functioning impaired by their depression.

3. Discussion on Clinical Research Evidence and Technical Methods for Music Therapy in the Treatment of Depression:

A substantial body of randomized controlled trials and meta-analyses supports the efficacy of music therapy for depression. A meta-analysis published in the

(Cochrane Database of Systematic Reviews) indicated that adding music therapy to standard care significantly alleviates depressive symptoms, yielding results superior to those of a control group receiving standard care alone. The following clinical protocol is typically administered 1–2 times per week for a duration of 8–12 weeks, conducted in either individual or group settings; the primary techniques employed include:

- 3.1. Receptive Music Therapy: Emphasizes listening, such as through musical relaxation, song discussion, and Guided Imagery and Music (GIM).
- 3.2. Recreative Music Therapy: Involves learning to play instruments or sing songs, focusing on the process of participation and the sense of accomplishment.
- 3.3. Improvisational Music Therapy: Utilizes simple instruments free improvisation, serving as a core method for expressing inner emotions and facilitating interpersonal interaction.

4. Discussion on the Current Challenges and Limitations of Music Therapy for Depression;

Music therapy holds a particularly optimistic outlook and future for the treatment of depression; however, this specialized field continues to face and encounter challenges from various quarters.

- 4.1. Balancing Standardization and Personalization: Treatment protocols are difficult to fully standardize, as they rely heavily on the therapist's clinical judgment and the patient's real-time feedback; this poses challenges for validation through large-scale research.
- 4.2. Further Research Needed on Underlying Mechanisms: Existing studies on neural mechanisms are largely based on healthy populations or passive listening; consequently, our understanding of the brain network coordination mechanisms involved in active, improvisational therapeutic processes remains superficial.
- 4.3. Scarcity of Professional Resources: The number of globally certified music therapists is limited, and the training process is lengthy, thereby restricting the accessibility of services.
- 4.4. Efficacy Assessment Tools: There is a need to develop more specific assessment tools targeting the processes and outcomes of music therapy.

5. The Future and Application Prospects of Music Therapy for Depression:

Drawing upon current techniques for treating depression through music therapy—and in light of recent advancements in science and technology, as well as evolving concepts of health—the future prospects for the application of music therapy exhibit the following trends:

- 5.1. Digitalization and Remote Access: App-based "digital music therapy" programs and remote video therapy can transcend geographical barriers, providing support to patients in their homes or in remote regions. Artificial intelligence can assist in generating personalized playlists or simple interactive music experiences.
- 5.2. Precision and Personalization: By integrating biomarkers—such as electroencephalography (EEG) and genetic testing—the future may enable the precise matching of "music prescriptions," recommending the most effective music intervention modalities for patients with specific neurological profiles.
- 5.3. Prevention and Community-Based Application: Integrate music therapy into community-based mental health promotion systems. Through modalities such as community choirs and music-based mindfulness groups, target subclinical populations and patients in the recovery phase to leverage music therapy's capacity for preventing relapse and fostering social integration.
- 5.4. Multimodal Fusion Therapy: Integrated with virtual reality technology to create immersive musical environments that enhance emotional exposure and regulation; and combined with neurofeedback technology to enable real-time music adjustment based on brainwave states, thereby enhancing therapeutic precision.

6. Conclusion:

By virtue of its multimodal mechanisms of action and high patient acceptability, music therapy has emerged as an effective auxiliary and interventional tool in the comprehensive management of depression. Existing research has demonstrated from various perspectives that, when employed in the treatment of depression, music exhibits unique value in improving mood, cognitive function, and social functioning. The current challenge lies in charting the course for future development; efforts must be dedicated to deepening research into underlying mechanisms, fostering the innovative integration of technology and therapeutic practice, and strengthening both the training of specialized professionals and the construction of

robust systemic frameworks. These constitute the essential directions and objectives that must be adopted for the future advancement of music therapy in the treatment of depression. With the continuous accumulation of evidence-based data and the expansion of application models, music therapy for depression holds great promise for integration into comprehensive mental health services—spanning the spectrum from hospital-based care to community-based support, and from curative treatment to preventive care—for the benefit of the entire population. Music therapy is poised to play an indispensable role in the treatment of depression, offering patients a "harmonious pathway" toward spiritual and emotional healing.

References:

1. Janeen Bower, PhD, RMT a,b,c, Jo Rimmer, MMusThrpy, RMT b, Lauren Miller, MMus Therapy, RMT b, Jack Thomas, MMusThrpy, RMT b, Stefanie Zappino, MMusThrpy RMT b,d, Kate Masterson, PhD, RNL: Music interventions in the paediatric intensive care unit: A scoping review. *Australian Critical Care*, 2026, 39(101522):1-10.
2. Kun Feng, Chen-Yu Shen, Xiang-Yun Ma, Gui-Fang Chen, Ming-Lu Zhang, Bo Xu, Xiao-Min Liu, Jing-Jing Sun, Xiao-Qian Zhang, Po-Zi Liu, Ya Ju: Effects of music therapy on major depressive disorder: A study of prefrontal hemodynamic functions using fNIRS, *Psychiatry Research*, 2019, 275: 86-93.
3. Aalbers, S., et al. (2017). Music therapy for depression. *Cochrane Database of Systematic Reviews*, (11).
4. Koelsch, S. (2014). Brain correlates of music-evoked emotions. *Nature Reviews Neuroscience*, 15(3), 170-180.
5. Sundhedsstyrelsen. National Klinisk Retningslinje for Unipolar depression. 2016..
6. Chanda, M. L., & Levitin, D. J. (2013). The neurochemistry of music. *Trends in Cognitive Sciences*, 17(4), 179-193.

4/19/2026