Journal of Academic Inquiry and Knowledge Volume 2024 (4) 100-111
ISBN 979-8-9888908-2-9

Effect of Music Therapy on Adolescents with Depression

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In October 2021, the American Academy of Child and Adolescent Psychiatry and the American Academy of Pediatrics declared a national health emergency as the diagnosis of depression and suicide rates increased (Myles, 2022), with 20% of adolescents facing chronic depression (Ishak, 2021). According to the World Health Organization, depression, anxiety, and behavioral disorders are the leading causes of disabilities among teens and adolescents, with suicide as the fourth leading cause of death among teens and young adults (World Health Organization, 2021). Meanwhile, approximately 66% of adolescents listen to music every day (Ishak, 2021). Teenagers often turn to music to feel better and usually listen to music as a coping method for stressors (Hendricks, 1999). The purpose of this article is to review the available research to assess whether music therapy is an effective treatment for adolescent depression.

Background

The signs and symptoms of depression in teens include emotional changes like sadness, anger, irritability, hopelessness, and a loss of interest in family and friends or activities that used to be enjoyable. Low self-esteem and feeling worthless are also signs of depression. Behavioral

changes in teenagers with depression include fatigue, changes in sleep, appetite, and school performance, and risky behaviors such as using drugs or alcohol (Mayo Clinic, 1998-2024).

The significance of depression in adolescents is that it can often carry into adulthood while affecting normal psychosocial development and impairing relationships and daily life. Early treatment of depression in teens is critical in preventing long-term issues (Cook et al., 2009). Currently, the most frequent treatment options for psychiatric problems like depression are psychotherapy (counseling) and pharmacotherapy (medications). The combination of both psychotherapy and pharmacotherapy is a standard treatment for depression. Along with other treatments, music therapy has become a common adjunctive therapy for mental disorders (Freitas et al., 2022).

Music therapy utilizes music to address individuals' physical, emotional, cognitive, and social needs (American Music Therapy Association, 2024). Music therapists individualize treatment plans based on the patient's needs (Snyder-Lovera, 2024). As music therapy has become more popular over the last decade, many studies about music therapy have been published.

Musical Therapy Effects on Adolescents

Most studies indicate the efficacy of musical therapy on adolescents. A study by Calo et al. (2020) examined the effect of a community-based music intervention program on 27 adolescents12-17 years old. Although it did not specifically examine the effects of depression, the study showed that music intervention can have an impact on self-confidence, well-being, and engagement" (Calo, 2020, p. 988). Low self-esteem is a consistent co-occurrence with anxiety and depression (Keane, 2016). In a randomized study by Hendricks et al. at Texas Tech University, 21 teenagers from 14-15 years old participated in group music therapy. Because

adolescents were interested in music, contributed to the process, and responded to the techniques, there was a significant difference in the effectiveness of the music treatment group compared to the non-music treatment group (Hendricks et al., 1999).

Many other studies provide data on music therapy's effect on biochemical and physiological changes in adolescents suffering specifically from depression. Park et al. (2023) conducted a study in South Korea on 60 teenage patients with Attention Deficit Hyperactivity Disorder who also suffer from depression. The study collected blood samples of hormones 5-HT and cortisol and also measured each subject's blood pressure and heart rate. *5-HT* is serotonin, which tends to be lower in people with depression, and *cortisol* is a stress hormone; stress is one of the major factors in depression. The results indicated that music therapy reduced cortisol levels and activated 5-HT. Depression scales and questionnaires completed by the subjects also showed improvement, reflecting the "neurophysiological effect of music therapy…with the psychological effect." The study concluded that music therapy "can directly cause neurophysiological changes in the human body and prove the possibility of switching in a positive direction" (Park et al., 2023, p. 11).

Electroencephalography (EEG) is a diagnostic test that measures the brain's electrical activity. EEG can diagnose neurologic illnesses like seizures. EEG abnormalities can also be seen in psychiatric disorders, such as depression. Depression is associated with abnormal frontal lobe findings (Jaseja, 2023). Multiple studies show that frontal asymmetry on an EEG is a possible biomarker for depression and can be used to follow the response to depression treatment (Allen, 2015). In a study by Feng et al. (2019), 15 patients with major depressive disorder underwent music therapy and showed significant activation of the frontal cortex. The researchers concluded that music therapy could improve brain function in depressed patients (Feng, 2019).

In addition, Fachner et al. (2010) conducted a review of three case studies and concluded that frontal alpha and frontal midline theta asymmetry on EEG "demonstrate some potential as (depression) biomarkers in music therapy studies" (Fachner et al., 2010, p. 11). Moreover, Field et al. studied 14 chronically depressed adolescents with EEG tests and saliva samples for cortisol levels. These two measures were recorded before and after listening to music. The study concluded that even though test subjects may not have reported mood changes, music positively affected them physiologically and biochemically (Field, 1998). Another study by Jones & Field (1999), examined 30 teens with depression. The study found significant improvement in the subjects' frontal EEG asymmetry after music sessions (Jones, 1999). EEG is being recognized as useful in the diagnosis and management of psychiatric disorders, including depression (Jaseja, 2023)

Several studies on music therapy's effect on adolescent depression reveala connection between music therapy and the improvement of biochemical and physiological markers in depressed teens. Thus, there is data that indicates music therapy could be effective for depression in adolescents. A review of such studies by Frietas et al. (2022) concluded that music therapy has "the potential to improve self-esteem, social engagement, decrease social isolation, and depressive and anxiety symptoms in psychiatric adolescents" (Frietas et al., 2022, p. 11). However, because the studies used different methodologies, the final compilation of results was a limiting factor. The study concluded that "more quality research is needed to expand music therapy interventions" (Frietas, 2022, p. 1).

The same conclusion was reached by Stegemann et al. in their analysis of several studies regarding music therapy in pediatric health care. They concluded that music therapy is especially effective in "improving mood and affecting regulation" and can also help with anxiety and stress

(Stegemann et al., 2019). However, they add that music therapy seems “effective especially in combination with other treatment forms and within a multimodal therapy approach," While it is not a magic bullet, it is a safe therapy option that is easily individualized with a high acceptance rate by patients (Stegemann et al., 2019). They also caution that more research is needed.

Ishak et al. (2020) conducted a comprehensive review of studies on adolescent depression and music therapy, They found that music therapy had a positive impact on adolescents with depression across multiple countries. They further concluded that more research is needed “on optimal incorporation of music therapy into clinical practice,” as their research suggests that music therapy could be an appropriate supplemental behavioral health treatment (Ishak et al., 2020, p. 4). Roddis et al. (2020) also performed a literature review to evaluate music therapy for depression as an alternative or complementary treatment. Although the review did not specifically target adolescents, the researchers concluded that there was a significant but short-term improvement in depressive symptoms when music therapy was used adjunctively (Roddis et al., 2020).

Other studies have discovered that the benefits of musical therapy are effective but short-lived. A randomized controlled trial done by Porter et al. (2016) from 2011 to 2014 examined the effectiveness of music therapy on 342 children and adolescents. The researchers noted an improvement in depression in the subjects receiving music therapy compared to the control group. They also noted that the improvement was short-term, and positive results were not seen past the 26th week. They recommended further research to determine what type, how much, for whom, and in what circumstances music therapy would be the most effective. Results from a study by Geipel et al. were similar to Porter et al. (n.d.). Their study examined nine adolescents

with depression and found improvements in depressive symptoms with music therapy, but the results were not sustained during the follow-up stage (Geipel et al., 2022).

The Cochrane Review in 2024 published an article about using music therapy for depression and concluded that there was a short-term benefit in the treatment. The study noted that adding music therapy to the standard treatments for depression showed more improvement than the therapies alone. It also noted, as did many other studies, that music therapy has no adverse reactions.

Other studies focusing on music therapy note that it is being seen as a socially engaging and accessible method of treatment (Sunderland, 2017), and music can be used as a cost-effective therapy to address issues such as mental health problems worldwide (Hesser, 2017). More research was recommended with "adequate design and larger samples of children and adolescents" (Aalbers et al., 2024, p. 72).

Discussion

Many studies have shown that music therapy produces positive biochemical, physiological, and neurological changes. There is a consensus that music therapy is helpful with psychotherapy and pharmacotherapy. However, there are questions about the amount and duration needed for the treatment to be effective, who benefits, and under what circumstances. Many studies also caution that the positive effects of musical therapy seem to be temporary. All the studies recommend more research and analysis.

The issue with the studies and research articles is that there is no single way of documenting effectiveness, so it is difficult to prove the level of efficacy or positive impact across the different studies in various countries. These issues are another reason to research the effectiveness of music therapy on depression in more depth. It was also noted that music therapy

can be cost-effective and accessible, giving teens with depression broad access to mental health care. Music therapy can be considered a tool for health equity, and more research should focus on where care is most needed.

Conclusion

Music therapy is effective in treating depression in teens along with traditional treatment options, even if the results are short-lived. This is supported by studies that have shown biochemical and physiological changes as well, such as serotonin, cortisol, and EEG improvements in patients with depression. The fact that there are little to no adverse side effects of music therapy is a big positive to keep in mind, especially when there could be significant adverse reactions or side effects due to the medications used to treat depression.

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