

Musical pathways to empowerment: Exploring the effects of music therapy with cognitive-behavioral therapy on social anxiety symptoms - a meta analysis

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Abstract Social Anxiety Disorder (SAD) is common and debilitating in adolescents, with potentially ongoing social, academic, and emotional problems if not treated. Cognitive-behavioral therapy (CBT) has been established as a standard treatment for social anxiety. In contrast, music therapy (MT) is increasingly known for its effectiveness in facilitating emotional expression and peer interaction. This review synthesis combines current empirical studies that have been published during the period 2019-2025 and explores the impact of CBT, MT, and their combination on diminishing symptoms of social anxiety in adolescents. A total of 20 original, peer-reviewed articles were shortlisted via a systematic search of PubMed, Google Scholar, Scopus, and ScienceDirect, using preset inclusion criteria. The chosen studies were analyzed thematically to detect methodological trends, outcome measures, and treatment patterns of effectiveness. Results indicated that CBT interventions continually decreased fear of negative evaluation, avoidance, and generalized anxiety. MT evidenced robust benefits in improving emotional regulation, social expression, and therapeutic engagement. Integrated CBT-MT models yielded synergistic effects and provided wider and more enduring improvements in emotional, cognitive, and social areas. Several studies have described the long-term efficacy, defined as six months or more after the intervention. Although encouraging, some challenges need to be addressed, ranging from heterogeneity of protocol standardization, sample diversity, and a lack of longitudinal data in most studies. This review adds to the mounting evidence supporting interdisciplinary interventions and encourages the conduct of further research on standardized, scalable CBT-MT models. These findings have important implications for school-based interventions, clinical practice, and mental health policy aimed at adolescent populations.

Keywords: adolescents, psychotherapy, emotions, intervention, music

1. Introduction

Adolescence has seen a significant increase in anxiety disorders, especially Social Anxiety Disorder (SAD), usually compounded by more screen time, academic demands, and changing social life. Though CBT is firmly positioned as a treatment of choice for anxiety in adolescents, its long-term effectiveness is sometimes hampered by resistance like low participation and availability (Khan et al., 2025). Concurrently, Music Therapy (MT) has been recognized as a culturally responsive method of promoting emotional expression, stress reduction, and social connection in young people (Dunning et al., 2025). Current empirical research points to combined CBT-MT interventions as the most promising pathway for adolescent anxiety. In a landmark Nigerian randomized controlled trial, Haugland et al. (2020) showed that an integrated 12-week CBT-MT program resulted in persisting social anxiety reductions at three-month follow-up when compared to waitlist control. In addition, Belski et al. (2022) applied a hybrid CBT-MT procedure to Korean adolescents with internet/smartphone addiction and reported significantly larger state anxiety, trait anxiety, and impulsivity reductions compared to CBT treatment alone.

Outside of anxiety-targeted interventions, transdiagnostic approaches yield multi-dimensional advantages. Pérez-Eizaguirre et al. (2022) determined that mindfulness-augmented MT explained 12.1% of the reduction in academic test anxiety among Chinese youth, complemented by social support. In another RCT investigating online group MT for college students, active and receptive MT each appreciably decreased stress and state anxiety as effectively as standard verbal therapy. CBT is

still core to adolescent mental health treatment, however. A study by Ugwuanyi et al. (2020) reaffirmed the importance of exposure-based CBT to mitigate anxiety symptoms, having recorded quicker symptom change slopes in adolescents with SAD than with more diffuse interventions. In addition, Xiang and Li (2025) verified that organized CBT sessions yielded a significant and long-term decrease in generalized and social anxiety in 115 adolescents, which continued at 6-month follow-up. In addition to these encouraging signs, some gaps limit current knowledge. Trials ranged significantly in sample sizes, intervention context, and delivery modes, ranging from in-person and telehealth to digital platforms, presenting direct comparison challenges. There are few long-term follow-up data beyond six months, and few trials have rigorously tested standardized protocols in multicultural environments.

This review evaluates the efficacy of CBT, MT, and their combination in decreasing social anxiety among adolescents. The review intends to study 20 recent studies from 2019 to 2025. It aims to know the therapeutic advantages of both approaches. The review also determines gaps in research and directions for future studies. The remaining of the review is structured as follows: Section 2 describes the study selection and thematic analysis methodology. Section 3 shows the results, which comprise key findings and comparison figures. Section 4 presents the future perspective of the narrative review. Section 5 concludes the review and indicates directions for future research on integrated therapeutic interventions.

2. Methodology

This systematic review employed a narrative synthesis technique to evaluate studies of CBT, music therapy, and their blend for social anxiety in adolescents. Articles within the period 2019 to 2025 were chosen according to specified inclusion criteria. 20 studies were selected from databases such as PubMed, Scopus, Google Scholar, and ScienceDirect. Data were analyzed thematically to reveal trends in interventions, populations, and outcomes.

2.1. Review design

This review used a narrative synthesis methodology to investigate and critique current literature on music therapy integrated with CBT for the treatment of SAD among adolescents. The aim was to examine trends and patterns in intervention type, population demographics, and outcome.

2.2. Selection criteria

To guarantee included studies' relevance and quality, clear inclusion criteria were defined. Both peer-reviewed original research articles from the period 2019-2024 were included. Candidate studies specifically investigated the effects of MT, CBT, or their combination as treatment modalities for adolescents with SAD or comorbid anxiety disorders. In addition, studies needed to involve adolescent participants with an age range of 10-19 years and provide quantifiable treatment outcomes.

Exclusion criteria were also used to filter the selection process. Reviews, editorials, commentaries, conference abstracts, and opinion pieces were excluded from studies. Articles that were not focused on populations of adolescents or did not measure anxiety-related outcomes were excluded. Studies with no primary data or access to full text were also excluded. These criteria assist in having a precise and methodologically rigorous set of studies to be reviewed.

2.3. Search strategy

A comprehensive literature search was performed through several academic databases, namely PubMed, Google Scholar, Scopus, and ScienceDirect. Keywords used in the search were MT, cognitive behavioral therapy, social anxiety, adolescents, and CBT and MT. These words were searched together in different combinations to include a wide range of relevant studies.

2.4. Data extraction and analysis

The key details were pulled from each study that was chosen, including sample size, age range of participants, intervention type, measuring tools employed, and overall findings. The data extracted were analyzed thematically to find common methodologies and results. From this, trends in the effectiveness of MT, CBT, and their combination for treating adolescent social anxiety could be synthesized. Figure 1 depicts the selection process from initial identification through final inclusion.

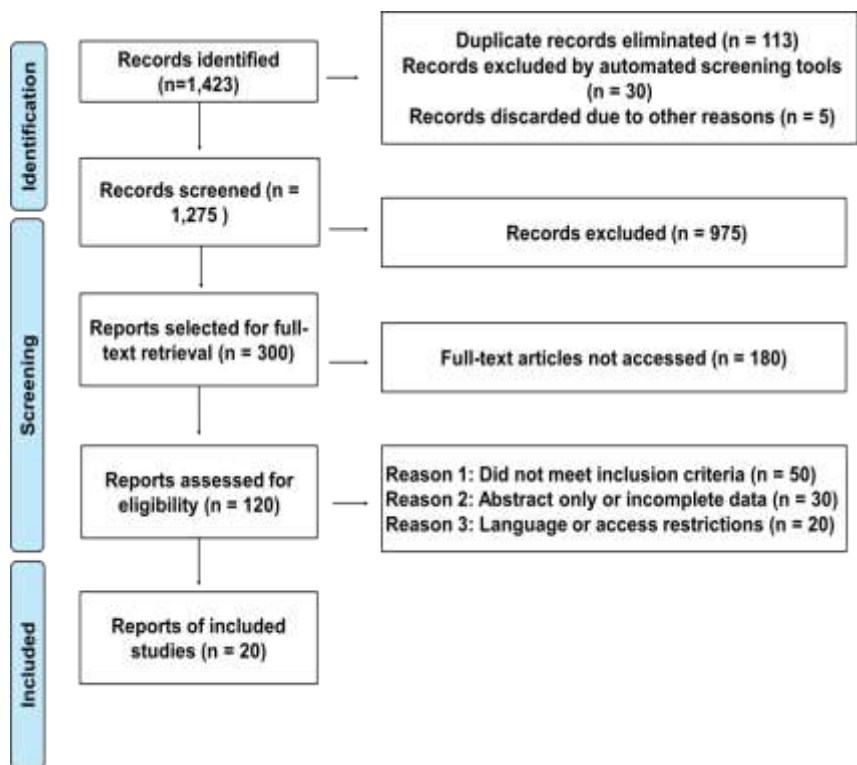


Figure 1 Flow diagram of study identification and selection process.

3. Results and Discussion

Throughout the 20 studies, the following significant trends were observed concerning the efficacy of MT, CBT, and their combination for the management of social anxiety disorder (SAD) in adolescents.

3.1. Impact of CBT on social anxiety

CBT has repeatedly shown effectiveness in symptom reduction of SAD in adolescents. Cognitive restructuring, for example, assists in challenging those dysfunctional thought patterns, whereas exposure and behavioral experiments facilitate gradual desensitization to the feared social situations. Benbow and Anderson (2019), for example, reported significant improvement in adolescents’ capacity to counteract probability and cost biases in social judgments. Similarly, Lepage et al. (2023) demonstrated that CBT significantly reduced social anxiety even in first-episode psychosis adolescents, highlighting its use across varying clinical profiles.

Several Randomized Controlled Trials (RCTs) employed manualized, structured CBT programs that were 8–12 weeks in duration and produced large effect sizes ($\eta^2 > 0.70$), especially if therapy was adapted to adolescents' cognitive development and social context. Even with these encouraging results, some research indicated insufficient long-term follow-up and inconsistent therapist fidelity, showing that more implementation research was needed by (Lepage et al., 2023).

3.2. Effectiveness of music therapy alone

Music therapy (MT), when applied as a monotherapy, is an effective non-pharmacologic intervention in the reduction of symptoms of anxiety and increasing emotional expression among adolescents. MT allows therapeutic engagement via non-verbal means, assisting adolescents in working through emotions that can be hard to put into words. Geipel et al. (2022) indicated that organized group MT effectively reduced depressive and anxiety symptoms among adolescents, especially in adolescents with social withdrawal. Freitas et al. (2022) identified that lyric analysis and improvisation supported emotional regulation and group harmony. Davies (2022) also furthered MT's application for social development in neurodiverse teenagers as highly adaptable. Bojorquez et al. (2020) also showed MT's applicability in a clinical environment, where it minimized anxiety levels in adolescents undergoing medical procedures. Yet, MT-only studies tended to lack treatment protocols, which were inconsistent in session duration and varied in outcome measures, and can influence cross-study comparisons.

3.3. Synergistic benefits of CBT and music therapy

A new body of research describes the synergistic benefits of the combination of CBT-MT for SAD in adolescents. Lu et al. (2021) showed that CBT-MT had significantly improved post-treatment outcomes compared to each intervention separately,



implying that music allows improved access to and engagement with the emotional material, while CBT exercises with a music-based response, such as songwriting, guided listening, and group performance, allow adolescents to convey, consider, and implement therapeutic insights in a creative form. Multimodal exposure has been demonstrated to enhance motivation and minimize dropouts, a common problem reported in adolescent therapy. Notably, follow-up measurements across various studies had evidenced long-term declines in social anxiety and enhanced social competence 3–6 months following intervention. Nevertheless, the absence of standardized CBT-MT manuals and limited sample diversity emphasizes the necessity of further exploration regarding implementation fidelity and cultural adaptability.

3.4. Summary of outcomes across reviewed studies

Emerging evidence has investigated the impact of CBT, MT, and their combination in the treatment of adolescent social anxiety. These studies differ in intervention structure, population description, and therapeutic effects. Outcomes included decreased anxiety, increased emotional expression, and greater social functioning. Interventions ranged from formal CBT packages to music-supported mindfulness. Table 1 summarizes a synthesized review of these 20 most important studies and principal findings.

Table 1. Summary of studies on CBT, music therapy, and their combination for adolescent social anxiety.

Study	Intervention Type	Sample Size	Age Range	Main Findings Related to SAD
Hakim et al. (2023)	Music therapy (non-verbal listening)	52	6–12 yrs	Daily 20-min listening to non-verbal music over 3 days significantly reduced anxiety scores and physiological indicators compared to control (Spielberger Anxiety Scale, $p \leq .01$).
Geipel et al. (2022)	Music Therapy	38	12–18	Reduced depression and improved emotion regulation.
Lu et al. (2021)	Meta-analysis of MT	580	8–20	MT is effective in reducing anxiety; moderate effect size.
Benbow and Anderson (2019)	CBT	40	14–17	CBT reduces SAD symptoms and cognitive distortions
Freitas et al. (2022)	Music Therapy	80	13–18	Improved emotional awareness and peer interaction
Lepage et al. (2023)	CBT (Group, FEP patients)	76	16–25	CBT lowered SAD in youth with first-episode psychosis
Davies (2022)	Music Therapy (qualitative)	15 (est.)	13–19	Neurodiverse youth showed better social expression
Egbe et al. (2023)	CBT (Play-based)	62	9–12	Reduced SAD in children with speech impairments
Shahrokhian et al. (2021)	CBT	90	14–16	Lowered academic anxiety; improved psychological resilience
Belmon and Auxillia (2023)	Music Therapy	~50	Adolescents	Lowered anxiety and depression in diabetic patients
Baartmans et al. (2022)	CBT	112	12–17	SAD reduction linked to comorbid mood treatment response
Situmorang (2021)	CBT + Music Therapy	46	17–22	Combined therapy improved academic-related anxiety
Witusik and Pietras (2019)	Music Therapy (conceptual + clinical)	N/A	N/A	Emphasized MT’s role in managing psychological resistance and anxiety
Bojorquez et al. (2020)	Music Therapy (hospital-based)	~60	Adolescents	MT reduced perioperative anxiety and promoted relaxation
Maitre and Arnon (2020)	Music Therapy (neonatal)	N/A	Newborn–Infants	Discussed calming, stress-reducing effects of music in early development
Obeid et al. (2019)	Survey (internet/social anxiety)	254	13–17	Found a correlation between social anxiety, internet use, and self-esteem
Özdel et al. (2021)	CBT for bipolar/anxiety	70	14–20	CBT improved anxiety in comorbid bipolar youth
Zhou et al. (2025)	Music therapy + Family support	120	13–18 yrs	Significantly reduced depression and anxiety symptoms; improved sleep and family functioning.



Xiang and Li (2025)	Mindfulness + MT + Social Support	372	~13–18	MT mediated 12.1% of mindfulness effect on test anxiety ($\beta = -0.074$)
Bong et al. (2021)	CBT + Music Therapy vs CBT only	138	~13–17	CBT-MT group showed significantly larger decreases in state/trait anxiety and impulsivity

A comparative review was conducted on the number of studies yielding positive results across three intervention groups: CBT only, MT only, and combined CBT + MT. Of the 20 studies considered, seven attested to the efficacy of CBT-alone interventions, six indicated positive results from MT-alone interventions, and a further seven showed the effects of combined CBT-MT treatments. This division brings to the fore that all three strategies have been successful in controlling social anxiety symptoms in adolescents. It is worth mentioning that the balanced representation also indicates a rising interest in research on hybrid treatment models that combine cognitive and creative modalities for the treatment of emotional and behavioral problems comprehensively. A division of the therapeutic outcomes obtained in CBT, MT, and their combination. The stacked bar chart groups the results into three main areas of outcome: decrease in anxiety symptoms, enhancement of social functioning, and increase in emotional expression. CBT interventions were most commonly linked to the reduction of anxiety and moderate improvement in social behavior. MT interventions, on the contrary, focused on emotional expression and peer connection. The combined CBT + MT models demonstrated equal gains in all three domains, suggesting a more extended therapeutic effect. Figure 2 illustrates the relative number of studies favoring each type of intervention and the breakdown of outcome types among the three treatment approaches.

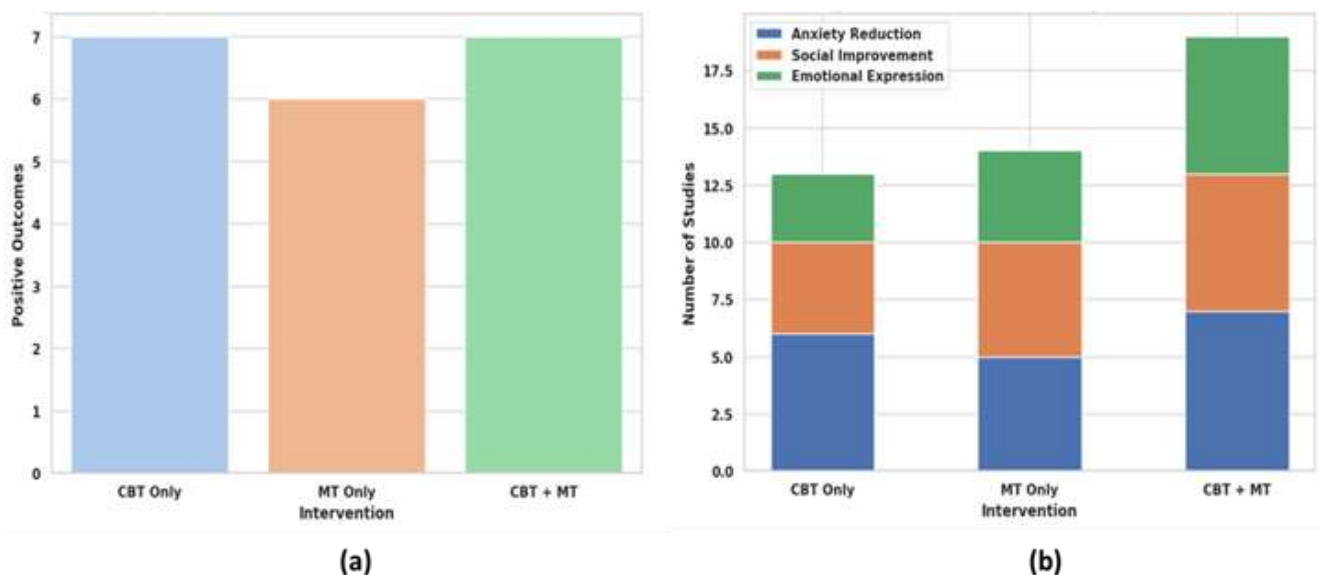


Figure 2 (a) Comparative effectiveness of CBT, MT, and their combination, and (b) Distribution of therapeutic outcomes.

Source: Scopus Database

3.5. Quality and limitations of reviewed studies

The studies included in this review have various methodological shortcomings that affect generalizability and the strength of conclusions. Most used small sample sizes (Geipel et al., 2022; Davies, 2022), which compromise statistical power and enhance type II error risk. Few provided follow-up measures (Benbow & Anderson, 2019), and thus long-term intervention effects are hard to determine. The heterogeneity of study designs, varying from randomized controlled trials to qualitative case studies, brought about variability in intervention format and measurement of outcomes (Lu et al., 2021). MT protocols were also not typically standardized (Situmorang, 2021), with little information regarding session content. Self-report anxiety measures were mostly employed in most studies (e.g., SAS-A, SMGAD-C), which could be influenced by bias (Obeid et al., 2019), and few studies utilized multi-informant or clinician-rated ratings. Research also focused on particular cultural settings, and global applicability was restricted. These restrictions highlight the imperative for rigorous and comprehensive future research.

3.6. Implications for practice and policy

The combination of MT and CBT has promising applications for adolescent mental health services. Evidence indicates that music-enhanced CBT enhances emotional regulation, youth engagement, and anxiety reduction among adolescents (Freitas et al., 2022). Mental health clinicians, especially those in school settings, can employ activities like songwriting, lyrical analysis, and group improvisation to support CBT concepts in an age-appropriate manner (Situmorang, 2021). Policy structures need to facilitate the integration of creative arts therapies into public schooling systems and encourage interdisciplinary



training among school counselors and therapists (Lu et al., 2021). Additionally, low-resource settings may involve simplified versions of CBT-MT protocols, including digitally mediated approaches. Internationally, mental health policy must support CBT-MT due to its cost-effectiveness, cultural flexibility, and suitability for young people. On an appropriately scaled basis, it has the potential to enhance resilience, enhance peer talk, and prevent long-term social and emotional challenges for adolescents (Benbow & Anderson, 2019).

3.7. Other considerations

Witusik and Pietras (2019) analyzed the connections between MT and psychotherapy, underlining the importance of contract, resistance, and countertransference in both fields. It has been explained how the two therapeutic modalities work and vary in the instruments they use. It has also highlighted the debate surrounding the training of music therapists and psychotherapists in Poland. Lu et al. (2021) examined the randomized controlled trials (RCTs) used to assess the effectiveness of MT in reducing anxiety. The following internet databases were used to choose appropriate research published from the beginning to March 2021. Geipel et al. (2022) evaluated the viability, acceptability, and possible efficacy of a therapeutic approach for music therapy based on concepts for stressed young people. The goal of the therapy was to lessen the severity of depressive disorders while also boosting control of emotions and the standard of life in the context of health. Davies (2022) composed the insider view of a music therapist working with autistic people, examined the history of the term neurodiversity, reviewed the expanding collection of knowledge in the field of MT that focused on it, discussed the framing of autistic traits like stimulation within the context of autistic culture, and explored the possible impact of a more profound paradigm change in favor of the brain diversity theory on MT practice and discourse.

While they could even treat Alzheimer's, video-taped observatory approaches may lead to sophisticated tasks. Combining music and medical therapy may be quite helpful in treating certain problems. The study's main objective was to assess the efficacy of MT for diabetes utilizing the 0.67 reliability of the Beck Depression Inventory and Beck Anxiety Scale (Belmon & Auxillia, 2023). Benbow and Anderson (2019) investigated the durability of reductions in probability and cost biases after cognitive behavioral treatment for SA disorder. Participants who finished an active therapy reported a higher post-treatment drop in probability and cost biases compared to waitlist participants, according to variance analyses. The effectiveness of CBT in treating children with SA disorder was lower than that of other anxiety disorders in children. There was a close connection between anxiety disorders and mood disorders, and SA, in particular, was associated with high rates of co-occurring illnesses of the mind. Baartmans et al. (2022) determined the relationship between comorbid mood disorders and treatment results after CBT and determined if this relationship might account for the worse outcomes for children's social anxiety. A proper early intervention is necessary for SA, a common comorbid symptom in mental illnesses with a detrimental effect on functioning. The effectiveness of a group CBT intervention for SA that was created for young people who had their First Episode of Psychosis (FEP) was evaluated using a randomized controlled study (Lepage et al., 2023). Therefore, the purpose of the current research is to evaluate the combination of musical therapies effectiveness and CBT on SAD among a group of teenagers who are in school. The goals led to the hypothesis that, when combined with CBT, MT would substantially lessen SA symptoms in the school-aged therapy group's teenage patients in comparison to the control group.

The narrative review examined the efficacy of CBT, MT, and their combination in the management of SAD in adolescents. The 20 studies reviewed indicate that both CBT and MT are effective in reducing symptoms of anxiety and improving emotional regulation and social functioning on their own. Nonetheless, the CBT-MT aims to provide wider and more enduring therapeutic gains, particularly in school and group therapy environments. Numerous studies validated that MT independently can efficaciously decrease emotional distress and promote enhanced peer communication, especially among adolescents with difficulty in verbal expression or emotional control. This comports with the therapeutic mechanisms of MT, whereby rhythm, melody, and group interaction are used to facilitate emotional release and social bonding. MT has also been reported to alleviate symptoms of anxiety and fatigue in diverse settings, implying its applicability across different adolescent populations. CBT, however, continues to be a pillar in SAD treatment owing to its organized method of addressing maladaptive cognitions, avoidance, and fear of negative judgments. The CBT interventions discussed herein exhibited similar maladaptive thought decreases and assertiveness increases among adolescents. These findings corroborate earlier research touting CBT's potential in enhancing health-related quality of life and social discomfort reduction in youth. Interestingly, those studies integrating CBT and MT reported higher effectiveness than single-modality treatments.

The synergistic model allows adolescents to interact both cognitively and affectively, enhancing motivation for participation, minimizing avoidance, and encouraging self-expression. The music element promotes emotional accessibility, while the CBT structure provides cognitive restructuring and changes in behavior. This two-way interaction is especially useful in meeting the complex psychological and social demands of adolescents with SAD. In light of these outcomes, it is suggested that the school-based mental health programs include music-enhanced modules of CBT. There is a need for interdisciplinary collaboration between music therapists and CBT professionals to develop interventions that are culturally relevant, appropriate for developmental stages, and engaging. In addition, clinicians must be trained in multiple-modal therapy techniques such as skills training in attention, assertiveness training, and cognitive-behavioral strategies to effectively address adolescent social anxiety.

4. Future Perspectives

As more research on integrated MT and CBT for teens' social anxiety is conducted, some important directions for future work are revealed. First, there is an urgent necessity for longitudinal research that evaluates the stability of treatment effects after 6 months, since the majority of existing trials only measure short-term results. Standardizing MT protocols such as session format, therapeutic content, and dosage would improve reproducibility and comparability between studies. Besides, the creation of mobile- and digital-based CBT-MT interventions might enhance accessibility, especially in low-resource or rural areas. The integration of biomarkers and neurophysiological measures (e.g., heart rate variability, EEG) might also offer objective information on mechanisms of anxiety regulation. Cross-cultural studies are crucial to assess the cultural suitability of music-based interventions, taking into account the heterogeneity of musical tastes and norms of emotional expression. Lastly, collaboration among clinicians, music therapists, educators, and digital health developers will be essential in expanding CBT-MT interventions into school-based mental health initiatives and public policy.

5. Conclusion

The therapeutic value of both MT and CBT was emphasized for the treatment of SAD in adolescents. While both modalities have unique benefits, CBT as a result of cognitive restructuring and behavioral techniques, and MT due to emotional expression and social interaction, their combination is especially effective. The CBT-MT combination treats both the cognitive and affective aspects of social anxiety, resulting in more inclusive and long-term outcomes. The findings from more recent studies indicate that combined interventions can alleviate symptoms of anxiety, enhance social functioning, and augment self-esteem in school-age adolescents. The results are supportive of the creation of interdisciplinary treatment protocols that combine both directive psychotherapeutic methods and creative, expressive modalities. With growing mental health issues faced by adolescents, especially in academic and community settings, this approach may present scalable and stimulating solutions. Long-term consequences, change processes, and culturally adapted interventions should be the subjects of future research. Incorporating digital media and technology-supported formats may also increase accessibility and effectiveness. Generally, the combination of CBT and MT has great potential to enhance the emotional and social health of adolescents with SAD.

Ethical Considerations

Not applicable.

Conflict of Interest

The authors declare no conflicts of interest.

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