

A Review Study of the Impact of Music Therapy on Adolescent Mental Health

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Abstract. According to the latest national statistics, one in seven adolescents in primary and secondary schools around the world are suffering from mental disorders such as anxiety, depression and shyness. In recent years, a number of clinical data at home and abroad have reflected the obvious efficacy of music therapy in alleviating adolescent mental disorders. This has led many domestic scholars to pay attention to music therapy as a therapeutic method. From the viewpoint of educational psychology, the adolescent stage is an important period of human physiological and psychological development and 80% of the time in this period is spent in school every day. Therefore, combining social hotspots and inspiration from music psychology, this paper analyses domestic and international research data and literature, and explores the influence of different music styles in receptive music therapy, and the three most commonly used music therapies in China, namely, ethnic instruments and Orff music therapy, on adolescents' psychology from the perspective of the field of music. Instead of discussing them from a traditional medical perspective and music therapy theory, this paper presents readers with data on the impact of music materials, instrumentation, and forms of music therapy in primary and secondary schools on adolescents' psychological problems, and provides strong scientific evidence of their effectiveness. The aim is to find out what kind of music therapy is used in primary and secondary schools and what kind of music is suitable for the treatment of adolescents' psychological problems.

Keywords: Music therapy; Teenagers; Mental health.

1. Introduction

Nowadays, with the increase of social pressure, the number of adolescents with problems is increasing. 2023 February China National Mental Health Development Report shows that the number of adolescents with mental disorders is increasing year by year, and in 2023 it will account for 50 per cent of the total number of patients in all age groups. Therefore, it is crucial to study and solve the problem of mental disorders among adolescents.

Adolescence is a normal transition period of neurobiology, learning, adaptation and accelerated growth. Recent studies have shown that half of the patients with psychiatric problems manifest themselves before the age of 14, and that 75 per cent of the above-mentioned psychiatric disorders manifest themselves before the age of 24. In this respect, human adolescence is indeed an important period that influences the development of the individual as well as of society [1].

Music has a unique function of emotional expression and emotion regulation, which will alleviate adolescents' adverse emotions. Therefore, music therapy as a non-pharmacological intervention has gradually received attention from researchers. However, to date, research on the specific effects and mechanisms of music therapy in adolescent depression and anxiety remains limited. Music therapy is a cross-disciplinary subject, including musicology, medicine, psychology and education. Currently, there are three types of music therapy in the West, namely receptive music therapy, re-creation music therapy and improvisation music therapy. Among them, recreational music therapy requires a musical foundation for the audience group and is not applicable to the general primary and secondary school student groups, so this study mainly discusses receptive music therapy and improvisational music therapy.

This paper explores the effects of two types of music therapy on adolescents' emotional and psychological well-being in terms of musical style, instrumentation, and musical form. The main content includes analysing research data on common music therapies in adolescent groups and

summarising their effective impact on adolescents' emotional and psychological well-being, leading to recommendations for the scientific implementation of music therapy in primary and secondary schools.

2. Music Therapy and its Effectiveness

Receptive music therapy research, also known as listening music therapy, is commonly used in China. It is a therapeutic approach in which the therapist listens to specific favourite music and shares it with the therapist or group members, ultimately adjusting the patient's body and mind to achieve the goal of removing illness and fitness. The most common method is song discussion [2]. Positive understanding of music through sharing feelings with others, or through expression such as movement and singing [3].

The physiological mechanism of receptive music therapy is based on the auditory nervous system in the cerebral cortex. Through the brainstem, all auditory cells and sympathetic nerves can potentially be connected. According to the brain's information processing and memory associations, songs suitable for music therapy "indications" can form conditioned stimuli in the brain. Pavlov's "classical conditioning" experiments brought evidence for this theory [4]. Korean scholars through a research study using semi-structured in-depth interviews from one of the four aspects of the direction of investigation in a non-physical and positive way concluded that the positive emotions of adolescents can be evoked through the acceptance of music, especially classical music, in the face of academic stress [5]. Depending on the choice of music, the effectiveness of treating depressed individuals varies [6]. Some comprehensive studies on new ways music therapy can be used to treat other health problems [7]. Classical music has a strong influence on human thinking skills [8].

There are many song styles commonly used at home and abroad, among which the effects of pop and heavy metal music on mental health and mood disorders in some adolescents are controversial, while the research data of classical music are significantly positive, as shown in Figure 1 [9].

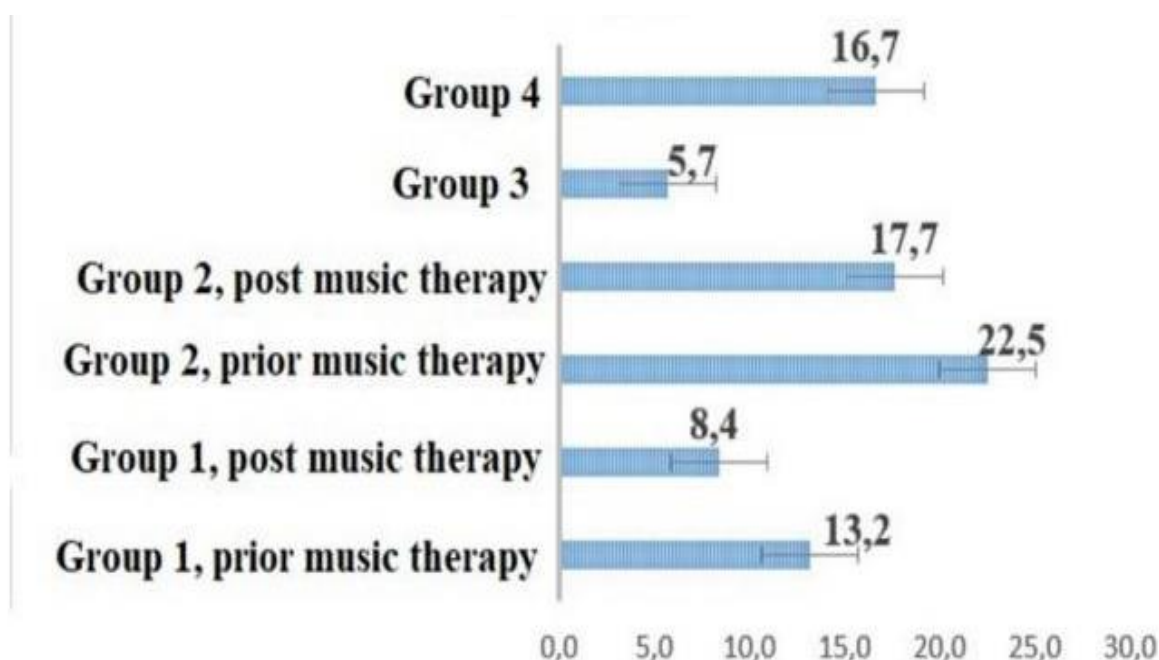


Fig 1. Average BDI scores before and after a study group of depressed adolescents listened to classical music and black metal music.

Mean depression scores of depressed patients after listening to classical music were significantly reduced by a factor of 1.5-2.0 ($p = 0.001$). In light of the results of this article, classical music is recommended as a complementary therapy for the treatment of mild and moderate depression. The

average score for black metal music listeners was 16.7, which is comparable to the score for people with moderate depression. Music therapy had a positive effect on the first and second groups of patients, reducing their level of depression. Moderately depressed patients responded 1.2 to 1.3 times more to music therapy. Therefore, it is best for primary and secondary school music therapy teachers to select either classical music repertoire or soothing pop repertoire when treating adolescents. For music therapy for adolescents, music materials with a strong sense of melody and insignificant rhythmic changes should be selected for long-term playing and performance. This is because at the initial stage of therapy, if the tempo changes are too obvious, it is easy for children to resist and then reject the therapy. In contrast, choosing musical material with insignificant rhythmic changes and a strong sense of melody allows the paediatric patients to better enter the therapeutic state, as well as to maintain their concentration for a longer period of time [10].

Through the case study the researcher found that selected listening to classical music material can be a better treatment for autism. The subjects were particularly sensitive to the musical elements when they started the treatment, especially in the rhythmic perception. Although choosing musical material is not easy and there are few means available for people with autism, it is common to initiate therapy through listening to music [11]. In his 2010 book, *Music Therapy for Children*, Naiwen Zhang mentions that although small children do not have a strong appreciation for music, musical materials like round dances and sonatas can be effective in treating people with autism [12]. Francis Rusche developed the theory of "music for IQ", which was also used in the treatment. The music he chose was Mozart's Sonata 331. The theme is repeated on average every 20 to 30 seconds. The rationale for this is to coincide with the length of human brain waves and the timing of certain activities of the central nervous system, so that the patient's attention is focused on the music and thus the therapy is therapeutic. The "Mozart effect" in music therapy mainly uses Western classical music, in addition, music written by composers such as Bach, Mozart, Handel, Haydn and others have been successively used in music therapy piano material [13]. However, in studies devoted to analysing the musical works of specific different classical music composers, no scholars have examined how various classical music works affect adolescent emotions.

Improvisation music therapy is a common and popular therapeutic method in Europe, and in some countries it has the same status as receptive music therapy. It is based on improvisation and is characterised by spontaneity, creativity and communication. In improvisational music therapy, music can be free of fixed forms, themes, or melodies as long as it is appropriate to the situation and meets therapeutic needs. Currently, the two main models are creative music therapy based on the inner self and free improvisation music therapy based on freedom [14].

In a currently published study on music therapy and autism spectrum disorders in adolescents, it was shown that; through music therapy, children with autism showed a reduction in autistic behaviours, began to have a sense of social engagement and were able to respond positively by expressing their emotions, and responding with social greetings to others. The scholar chose tracks that were similar or opposite to his emotional state, played them on a loop, and reinforced the autistic person's training in normal frequencies so that the adolescent research subjects' brains were balanced in their sensing of the various sounds, allowing them to calm their emotions and respond appropriately to their needs during prolonged periods of listening to the music. More detail is shown in Table 1 [15].

Table 1. Music therapy and autism spectrum disorders in adolescents.

Author	Size	Sex		Age	Time	Tool(s)/ Measures	Treatment modal	Population	Result
		ma le	female						
Eren (2015)	6	3	3	13-18	2 time a month 90 minutes Lasted 4 months for a total of 8 sessions	Playing; pair games; creativity activities	One-group pretest posttest	Social interaction and the communicati on skills	Improvements were observed in turn taking, eye contact, listening, self-expressing, coordinated, movement in the group, decision making with others, and acceptance of others' differences
Gooding (2011)	12	—	—	11-16	Once a week 50-minute Lasted 5 weeks for total of 5 sessions	Movement to music; drumming; instrument playing; improvisation activities; singing; music combined with poetic techniques	One-group pretest posttest	Displayed language and perceptual difficulties, attention and/or concentratio n deficits, organization al	Social behaviors increased while the occurrence s of both researcher prompted behaviors and off-task

The use of improvisation for children with autism There are two main models used in improvisational music therapy, namely the free improvisation model of music therapy and the creative music therapy model [16]. The therapeutic model of free improvisation in music performance was developed by the British music therapist Juliette Alvin, who called it "free" improvisation because the therapist does not restrict the rules, structures, themes, etc. of the patient's improvisation, but rather lets the patient use the instrument to "express themselves in any way" [17]. Creative music therapy was developed by Paul Clivenordoff, an American composer and pianist, and Robbins, a special educator trained in the United Kingdom, as an individual or group therapy using improvisation. They believed that everyone has an innate musical response within them, and that there is a music of the self within the personality structure of each individual [18]. Both music therapies emphasise improvisation and creative music. The main form of musical behaviour is improvised musical activity (singing or playing).

Improvisation-based therapeutic tools are beneficial in helping adolescents to vent their negative emotions. The model is based on receptive music therapy to help children with autism express their true thoughts and develop their musical skills. Unlike receptive music therapy, the subject of expression is changed from the therapist to the group of emotionally disturbed adolescents, and the main focus is on instrumental improvisation. This kind of improvisation requires the music therapist to reach a certain level of performance and teaching language, but the emotionally disturbed adolescents themselves are psychologically sensitive, so the therapist needs to be careful about what he/she says and how he/she teaches.

Many primary and secondary schools are now offering piano performance music courses, but from the perspective of music therapy for Chinese youth, piano performance therapy is not superior to guqin. Du Yang used EEG data analysis to conclude that guqin music has a relaxing effect [19]. Vina Zhu and other scholars also recorded behavioural potential data from Chinese subjects by using guqin music and piano music played to them in different cultural settings. The final data indicated that guqin was more favourable to Chinese individuals.

Secondly, Chinese scholars, such as Chen Liang, have found that the guqin can help to eliminate psychological barriers in children and improve their physical and mental health, according to the paediatric clinical diagnostic attributes and using the three rhythms of the guqin: Yang, Yin and Neutral [20]. However, there are no scholars in China who have studied the clinical data of playing specific different pieces of music on the guqin. The experiment also proved that if the adolescent is cheerful and outgoing, he or she can match soft water music and soothing wood music in music selection. If they are easy to be impatient and angry, they should match the water music in the music, and if they are gentle, they can choose the warm and elegant Gongyin. If its character is introverted and sentimental, good feelings in the music with the earth music. Therefore, Chinese primary and secondary school teachers have to "choose the music according to the type" in order to achieve the effect of regulating the body and mind when dealing with young people with psychological disorders.

Orff music therapy was developed in 1895 by the German music educator Carl. Orff put forward the concept. There are mainly two forms of group therapy and individual therapy, and at present, China adopts more Orff group therapy, which is mainly influenced by the founder Orff's philosophical thought [21].

In China, Orff music therapy is currently on the rise and is targeted at children and adolescents. According to a study conducted by Zhao Qiyi from Jiangxi Normal University in 2023, Orff group music therapy can help to improve the psychology of adolescents with social disorders. The research method used was semi-structured interviews and participant observation, 20 subjects were randomly screened from the third grade of a primary school, 10 of them as the control group did not receive group counselling, and the 10 students in the experimental group received Orff group lessons conducted by the Auxiliary Guidance Programme. Through the analysis of the results of Orff group therapy randomised control and experimental groups, it was finally clearly tested that Orff music therapy has a corrective effect on the psychology of adolescent social disorders. As shown in Table 2 [22].

Table 2. Psychological effects of Orff music therapy on adolescents with social disorders.

experimental group (N=10)		Control group (N=10)	t	p
activity ability	1.757±0.295	1.282±0.243	3.934	0.001
Social ability	1.831±0.141	1.139±0.056	14.388	<0.001
learning ability	1.737±0.336	1.277±0.255	3.450	0.001
Social dysfunction	1.173±0.141	1.654±0.066	-5.480	<0.001
social withdrawal	1.138±0.096	1.722±0.124	-4.664	<0.001

In conclusion, Orff group music therapy itself is an extension of the Orff music education system, which coincides with many methods of music therapy, such as the combination of music, language and movement methods, rhythmic training, creativity development, multi-sensory experience, and instrumental and polyphonic structure training [23]. Therefore, the viewpoint of this paper is that the Orff system can be effectively applied to music therapy in primary and secondary schools, which, together with the correct choice of style and repertoire, can produce positive guidance for adolescents with psychological problems.

3. Conclusion

Through the analysis of a large number of music therapy related literature data, this paper concludes that receptive music therapy of classical music style and improvisation guqin performance

music therapy and Orff music have corresponding positive effects on adolescents' psychological disorders. Therefore, according to the specific psychological problems of adolescents, different music therapies should be chosen: for example, improvisation accompaniment therapy for autism, receptive music therapy for anxiety and depression. In addition, music therapy for Chinese adolescents should preferably use classical light music or improvisation music therapy with ethnic instruments. The significance of this article is to summarise the latest research on the impact of music therapy on adolescents with mental disorders and to provide feasible options for treating adolescents with mental disorders with music in primary and secondary schools. When looking for the data and literature discussed in this article, it is obvious through comparison that the field of music therapy in China needs to be further deepened and developed. The number of adolescents with depression and anxiety is increasing, and schools and hospitals can co-operate in many ways to provide effective information resources for researchers in the fields of music, medicine, psychology, and so on, so as to make a more scientific and comprehensive research study to promote the development of music therapy in China.

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