

Feasibility Study of Music Therapy Based Autism in Children

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Abstract. With the significant increase in the number of children with autism in the last decade, it has attracted extensive attention from the society. Autistic children always have to bear a very high pressure of social opinion, while they themselves experience physical pain at the same time. At the same time, the families of autistic children need to bear very great financial pressure, and they need to pay high treatment costs and medication costs. The cost of time also increases as they need to spend more attention on the care of the autistic child. This is why autism treatment is especially important and relevant in today's society. The most common method used by healthcare providers today is the traditional applied behavior analysis (ABA) therapy. However, traditional applied behavior analysis (ABA) therapy have always ignored the uniqueness of each autistic child and how to integrate into society and increase communication skills. These shortcomings can be solved by the introduction of music therapy, and music therapy can help autistic children better control their emotions and soar in social skills. What is also not to be overlooked is that music therapy reduces the cost of therapy and has greater tolerance and possibilities for the therapeutic environment and equipment. This undoubtedly overcomes some of the drawbacks associated with traditional treatments and improves the efficiency of healthcare while reducing healthcare costs. This paper attempts to analyze the role of music therapy in the treatment of children with autism and to provide feasible recommendations. It also calls on the society to pay more attention to the group of autistic children and light up a light for them.

Keywords: Autism Spectrum Disorder, Children, Traditional Therapy, Music Therapy, Applied Behavior Analysis Therapy.

1. Introduction

In the last decade, the issue of children with autism is gaining attention. The harm caused by autistic children stems from several sources: economic pressure, family pressure, social pressure and educational pressure. According to the statistics of United States (Schiller, 2022), more than 75 million people worldwide are suffering from autism. Children are the most prevalent group, and most autism cases are genetically related [1]. The CDC (2022) indicates that autism spectrum disorders (ASD) begin before the age of 3 and can last a lifetime [2]. It affects about 1 in 160 children.

In terms of the dangers of the condition itself, children with autism have a higher risk of accompanying complications. According to the Cleveland Clinic (2023), these complications are mainly: depression, attention-deficit/hyperactivity disorder (ADHD) and epilepsy [3]. Also, some researchers (Berg et al., 2011) have also shown that children who have been diagnosed with autism will have a higher probability of subsequently developing epilepsy, and that the lower the intelligence, the higher the probability of developing epilepsy in children with autism [4].

From a financial point of view, each family has to pay high treatment costs, such as being evaluated in hospitals or rehabilitation facilities and undergoing different modalities of treatment, which are usually long-term. This, together with the cost of long-term medication and the costs of complementary treatments such as rental of accommodation, travel expenses and the hiring of a special caregiver, is a considerable sum of money.

Socially, these autistic children are more vulnerable to victimization and the need to accept public opinion from others. And they usually accept more public pressure and victimization. Often, autistic children also need special education in special schools. This is why therapy is so important and necessary for children with autism.

Current treatments include traditional ABA style therapy, which encourages desired behaviors and discourages undesirable behaviors to improve a variety of skills. The Arc of Loudoun (2021) demonstrates that ABA treatment focuses on treating disorders by identifying functional and maintenance variables that support learning or appropriate functional behaviors rather than maladaptive or inappropriate behaviors [5]. ABA therapy is not only an evidence-based practice for individuals with autism, but it has also been shown to be effective for other diagnoses (e.g., ADHD and depression). However, the benefits of music therapy far outweigh this traditional ABA therapy. Music therapy has lower costs and higher rewards, as well as training of more senses. It can be more efficient in training children with autism in attention and emotion management, and properly address co-occurring disorders.

This paper attempts to deal with the medical problems of children with autism from the perspective of music therapy by analyzing the causes of medical illnesses and related behaviors of children with autism and giving appropriate treatment suggestions.

2. Literature Review

Often, the traditional treatment is applied behavior analysis (ABA). The Centers for Disease Control and Prevention (2022) stated that this treatment encourages desired behaviors and discourages undesirable behaviors to improve a variety of skills and to track and measure progress [6]. Two styles of ABA instruction are Discrete Trial Training (DTT) and Pivotal Response Training (PRT). DTT uses step-by-step instructions to teach a desired behavior or response. Lessons are broken down into the simplest parts and desired answers and behaviors are rewarded. Undesired answers and behaviors are ignored. PRT takes place in a natural environment rather than in a clinic setting. the goal of PRT is to improve a few "key skills" that will help people learn many other skills.

It is important to recognize that the modalities used in ABA therapy are very effective and targeted. But in a society where the most important thing is the ability to socialize and interact with others, music therapy is far more effective than traditional therapy. An example of a key skill is active communication with others. Typically, children with autism receive this type of special education treatment through group sessions and 1-on-1 counseling.

Instead, this article focuses on music therapy. The development speech and language training through music is usually a combination of singing and instrumentation, using musically appropriate materials and experiences to enhance the child's language development. So, this approach is not just for autism, it is aimed at a wide range of children with developmental delays and cerebral palsy, or children with learning disabilities and attention disorders.

On the flip side, these symptoms happen to be comorbidities that are most likely to accompany children with autism. If we make the goal of therapy language development, eye contact, and attentional connection, the benefits of music therapy definitely outweigh the benefits of traditional therapies. And, the autism spectrum is a social, communicative cognitive dysfunction caused by neurodevelopmental abnormalities. But the stimulation in music has a unique appeal to children with autism. The left inferior frontal gyrus of children with autism responds more to music than to speech. Therefore, responding to music can be used as an activation modality to promote language use and communication improvement.

Bharathi et al. (2019) assessed (using the TRIAD Special Skills Assessment (TSSA) criterion) the extent to which music therapy can improve social skills development among 54 ASD children (aged 6-12 years) from India and the longevity of those effects [7]. The study used randomized clinical trials (RCT), which is a qualitative experimental method involving pre-test (before intervention) and post-test (after intervention), and the latter also involved 3-month follow-ups to determine if the observed effects are long-lasting. The results demonstrated that music therapy does improve social skills among ASD children, evident in their improved communication: that is, "ability to understand, respond, and maintain their interaction with their peers" (Bharathi et al., 2019, pp.4-5). As its main limitation, the study did not compare music therapy's effects with other/traditional methods.

Also, Johnston et al. (2018) examine the effectiveness of music-based interventions for improving social-emotional interaction as well as communication among ASD individuals [8]. However, they distinguish between two music-based techniques: computer-assisted and traditional interactive music therapy approaches, and they aim to determine which would be more effective. By traditional interactive music therapy (IMT) they mean the use of acoustic instruments, but by computer-assisted music therapy they mean using computers to provide music (Johnston et al., 2018). Generally, Johnston et al. (2018) agree that music therapy can enhance ASD individuals' social-emotional and communicative abilities, but they champion computer-assisted approach since the difficulty in playing instruments can be a limitation to IMT. Importantly, they also observe that computer-assisted technique can be designed to be interactive, with the use of touch-screen device and motion-capturing technologies for the personalization of the approach. The article, therefore, brings into question the use of technology, which is important in age when technology has become ubiquitous in health and education sectors.

2.1. Contrasting forms and locations of treatment

With the popularity of music therapy, more and more authorities are getting on board with this form of treatment, including hospitals. Unlike traditional therapy, the location of music therapy will always be in a nursery-like setting or a therapy room with a virtual world set. The China Rehabilitation Research Center (CRRC) has set up its music therapy room as a children's virtual world, with a mini-supermarket and a mini-zoo, among other things. Situational simulation is used to bring children into a fun and relaxing environment. Putting objects that appear in the visual response into the lyrics of the song can boost the children's positive emotions and reduce their wariness of hospitals or treatment facilities, thus achieving better therapeutic results.

Even, some specialized treatment rooms take to coming to children's homes for treatment. This is because usually all that is needed for music therapy is a guitar or tambourine. There are no excessive demands on the environment. If the therapy is conducted in an environment that is familiar to the child, they will be more relaxed to achieve better outcome.

2.2. Treatment costs

While both therapies, ABA and Music therapy, are designed to improve children's communication, social skills, and behavior, there is a significant cost difference between the two. Traditional ABA therapy, which typically involves one-on-one sessions with a trained therapist in a structured environment, can be quite expensive, ranging from \$40 to \$100 per hour, and requires multiple sessions per week. In contrast, music therapy offers a more affordable alternative, with session costs averaging \$50 to \$80 per hour.

In addition, music therapy can be provided in a variety of settings, including schools, community centers, and even in the comfort of your child's home. This flexible approach to music therapy allows families to choose a setting that is both convenient and affordable. In contrast, ABA therapy is usually delivered at specialized centers, which can require families to travel long distances and incur additional costs such as transportation and even rent.

Another cost advantage of music therapy is the ability to use instruments and equipment that are readily available or can be obtained at a lower cost, as well as designs that utilize everyday items, making it a cost-effective option for families. ABA therapy, on the other hand, usually uses specialized materials.

2.3. Therapeutic efficacy

One of the great strengths of music therapy is its ability to tailor interventions to the specific needs and preferences of each child. A music therapist can create an individualized treatment plan based on the child's interests and abilities, making the therapy more engaging and motivating. This individualized approach is especially beneficial for children with autism, a spectrum that inherently requires individualized attention. For example, one segment of children need music therapy to

stimulate language functioning, while another segment needs music for emotional relief to regulate emotions. Therefore, individualized music therapy can be more efficient in achieving therapeutic goals.

Additionally, music therapy encompasses a variety of methods and techniques, including singing, playing instruments, movement to music, and improvisation. This variety allows the therapist to choose interventions that are most appropriate for the child's developmental level and therapeutic goals, thus allowing for a high degree of structure and flexibility.

The efficacy of music therapy has also been significant in the area of social behavior. Pater et al. (2021) used a multiple case study approach to examine the long-term effects of music therapy on ASD children's progress in social behavior development [9]. Particularly, they sought to answer the question of whether the 10 involved ASD children (aged 4-6 years) would demonstrate improved and progressive social behavior development "during and after" a 20-week music therapy intervention (Pater et al., 2021). The results indicated positive effects of music therapy on ASD children's social behavior, who demonstrate better adaptation to situations, improved verbal communication, better focus, and better initiative-taking.

Moreover, these changes were observed to occur at much faster rate than pre-intervention period, and so the study confirmed much of what similar literature cites regarding the same correlations (Pater et al., 2021). The multiple case study approach is the key strength of the study, as it confirms methodological validity and reliability. Ultimately, it will add to the evidence cited in the planned study, particularly with regard to music therapy for social behavior development for ASD children.

3. Medical Advice

Medicine continues to advance, and the emergence of music therapy as a novel therapeutic approach represents a pioneering and progressive step in the field of treating children with autism. This paper would like to emphasize the importance of this new method of rehabilitation therapy. This treatment method can bring many contributions to the patient and the patient's family, to the medical organization and to the society.

3.1. Patients and their families

For children with autism and their families, music therapy is a non-invasive and enjoyable treatment that utilizes musical activities to engage and stimulate the patient. It creates a positive environment during the recovery process and the emotions have a powerful impact that can help the patient reduce the probability of complications such as stress, anxiety, and depression, as these are common emotions during the recovery process. In addition, music therapy often includes group sessions, which can provide patients with the opportunity to interact socially with others and improve communication skills.

What's even more noteworthy is that music therapy can be individualized to design a training program for each different child with autism. We know that children with autism are also categorized as high-functioning and low-functioning, as well as having different traits. Tailoring the program to each patient's specific needs and preferences allows for more efficient achievement of their unique rehabilitation goals. Lower costs and greater maneuverability are some of the benefits that music therapy can bring to families. So, as we face the almost insurmountable proposition of treating or even curing children with autism, experimentation with new, more efficient and less costly music therapy should be encouraged.

3.2. For health and social welfare institutions

For healthcare organizations, encouraging the integration of non-traditional music therapy into treatment services may be a valuable and innovative approach to enhancing patient care and well-being. Music has been shown to have stress-reducing and relaxation-promoting effects. Children with autism sometimes exhibit behaviors that are very avoidant of receiving therapy or communicating

with others, and even develop complications such as anxiety and depression. So incorporating music therapy into an organization's services can create a calm and soothing environment for autism and help them manage their anxiety. This type of therapy also promotes cognitive functioning and can stimulate memory recall, so for children with autism who suffer from cognitive impairment or attention deficit disorder, the addition of music therapy improves the chances of recovery for them.

And, for healthcare facilities, this article suggests adding group music therapy sessions to provide an environment for children with autism to go amongst each other to promote their social interaction and eye-to-eye physical communication skills. Finally, music therapy can complement other treatment modalities such as traditional therapy. The versatility of music therapy allows it to be seamlessly integrated into a variety of treatment programs.

Maienza (2021) recognizes, generally, the effectiveness of music therapy in improving the quality of life of ASD children, but his goal is to characterize what he believes to be the right approach in the intervention. In more of a narrative and review article – certainly not a research study – Maienza (2021) emphasizes that music therapy is not intended to serve as a remedy or cure in its own right – suggesting that it is not intended to replace other non-music interventions, but rather as a complementary intervention [10]. In this respect, he argues that music therapy's key advantages are to promote relational behaviors among ASD children, including social and communicative abilities. Ultimately, Maienza (2021) suggests disability studies perspectives for the intervention, with music therapy involving the normalization of the ASD, combined with medicalization and other non-medical 'disability' remedies.

3.3. For communities and society at large

This paper would like to take this opportunity to highlight the benefits of music therapy and encourage its integration into community health and well-being practices. Firstly, it is hoped that society will be more inclusive of the large group of children with autism and their families, and that appropriate benefits will be given, such as the inclusion of music therapy in the healthcare system.

Music is a universal language that crosses barriers and brings people together. Music therapy promotes inclusivity and creates a space for children with ASD and their families to connect and progress together. Even some adults with language function due to trauma can be efficiently rehabilitated through music therapy. Calling on the government and society to also provide support to the caregivers and researchers involved, this field needs to be taken seriously.

4. Conclusion

To summarize, music therapy, as highlighted in this article, is beneficial and harmless, both from the patient's and family's and society's point of view. Traditional ABA treatments have primarily combined Discrete Trial Training (DTT) and Pivotal Response Training (PRT). This therapy focuses more on the skills and response connections of children with autism. However, as an individual in society, children with autism need to strengthen their ability to fit in and control and use their emotions. Music therapy happens to fill the gap of traditional therapy perfectly.

For children with autism, this paper argues that the addition of music therapy can improve their language functioning, emotional management, and social functioning to a greater extent. For families, costs are reduced while hopes are raised. Music therapy is less restrictive in terms of where it can be practiced, which means it can help these families cut down on a lot of extra expenses. And families can try to learn some means of practicing, and strengthening and reinforcing the training during the day can better help the therapy. Healthcare providers who incorporate music therapy into traditional treatments also provide greater opportunities for recovery. Finally, this paper recommends that music therapy be promoted into the community to provide greater benefits to children with autism. Help this group of children to increase their attention and also use music therapy to enable them to better integrate into the society and realize their unique value of life. Going forward, the healthcare industry will also need to conduct in-depth research in this area of music therapy. The emergence of this

emerging treatment method has bridged the gap between traditional treatments and has fundamentally advanced the field of autism healthcare. This paper is also dedicated to making more people aware of this approach and the effects and well-being it brings, which is significant.

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