

The Use of Music Therapy in Autism

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Abstract: Autism is a developmental disorder that affects the ability to communicate and interact. Autism generally appears in young children, and because there is no cure, many therapies can only partially suppress rather than address the effects of autism. Music therapies have been proven to be helpful for autistic children. However, because music therapy is not standardized, different studies always yield different results. This paper, through the method of literature review, explores the different positive effects that music therapies have on autism, finds some benefits as well as shortcomings of current music therapies, and gives some suggestions on the future development of this field. The study finds that music therapies can enhance social skills, mitigate the effects of autism, and build tighter bonds between children and their parents. This essay aims to play a positive role in promoting the development of music therapy and providing help for more autistic children.

Keywords: Music Therapy, Autism, Social Skills, Models.

1. Introduction

Autism, or autism spectrum disorder, is a disorder centered on social communication and social interactions. The person with such disorders will have restricted, repetitive, and inflexible patterns of behavior and interest that are atypical to a normal person's context. Today's research claims that the development of autism starts in the early stage of a person's childhood, and environmental and genetic factors are the likely elements to cause autism [1-2]. Currently, there are no standardized treatments for such disorders, but many therapies, such as behavioral management therapy, cognitive behavior therapy, and early intervention, could minimize the effects [3]. Music therapy has been proven to be able to mitigate the reactions of autism as well. By incorporating musical techniques, such as improvisations, autism's effects could be suppressed.

The root of music therapy can be found in ancient Greece. Philosopher Plato discussed music education; Aristotle, in his famous book *Politics*, claimed that music features were believed to heal mania and other sicknesses; Pythagorean even analyzed two songs to prove the therapeutic catharsis of music for the soul [4]. Close to the more modern era, the first reference to music therapy appeared in an unsigned article in *Columbian Magazine* titled "Music Physically Considered" in 1789 [5].

Music and the right cerebral hemisphere proved to be related [6]. Since autistic people's cerebral hemispheres function differently than others, it is expected that they tend to perceive music in different ways [6]. One of the earliest reports that combining music and autism proved that music does play a more important role in autistic people, as the majority of autistic children are predominantly right-hemisphere processors, and this report is named *Cerebral Asymmetry* and the

Development of Early Infantile Autism by Edward G. Blackstock [7]. In the research paper, Dr. Blackstock conducts two different experiments. In his first experiment, he had the same lyrics on two different tapes. One tape is music, and the other is speech. This experiment showed that, with the same information, autistic people are more favored in music than people without autism. This early test demonstrates that autistic children are somehow more likely to connect with music than ordinary people, which laid the foundation for findings that autistic children have a superior pitch memory and recognition ability compared to normal controls.

Today's music therapists believe that music therapy helps social skills, motor skills, memory, and balance, and it can also uplift your mood. These features of music therapy are effective in alleviating the effects of autism because they provide clinical and evidence-based interventions within a treatment framework to target the physical, emotional, cognitive, and social needs of the individual. [8].

Modern studies on this topic are done chiefly by experimental studies and randomized controlled studies, and they prove that music therapy aids and abides with autism [8]. Studies on the effects of music therapies on autism can help provide another logic about possible solutions for autism.

This article uses the method of literature review to conclude the different effects of music on children with autism. We believe that this will help summarize the development of music therapy for children with autism and help standardize its future use.

2. Findings and advantages of music therapy

Based on the results of many experiments. It is known that music therapy can help prevent traits in the early stage, minimize the effects, improve social skills, and build a better relationship between parents and children.

2.1. Prevention of traits

Between 2014 and 2016, an experiment led by many researchers on the topic of music therapy's effect on autism reckons that antenatal music training, combined with maternal talk, could reduce the chances of children's autistic-like behaviors at around three years of age. Antenatal music training incorporates essential musical elements, such as harmony, melody, and rhythm, to simulate and positively impact the fetus.

After being researched and recorded, antenatal music training proves to impact the child with autism positively: when paired up with maternal talk, it becomes a factor that reduces the effect of autism by reducing autistic behaviors. This demonstrates that basic musical elements positively impact the child if incorporated appropriately. However, numbers also showed that without maternal talk, the chances of autistic behavior showing up in the child at the age of 3 would be increased. But even so, the result still shows that prenatal experience of music could impact the children's functional development. Other researchers also found that prenatal music stimulation could not only enhance a rat's brain development and spatial learning ability but also enhance mice's brain functions by improving their synaptic plasticity. These results from other experiments demonstrate that prenatal exposure to music affects the early development of the children's brain [9].

2.2. Improvement of social skills

Autistic people have deficits in social communication, which are believed to include unbalanced language development and repetitive or rigid language. Due to the missing solution for autism, these deficits in social communication are insoluble. However, with certain specific treatments and training, the effect of these deficits will be well suppressed, and music therapy is one of them. An experiment done by Professor Megha Sharda proved this. Around 2018, she asked 51 children aged 6-12 years

with autism to receive 8-12 weeks of music therapy and nonmusical intervention and then compared the results of each group. In the design, the music therapy they are using includes a child-centric mean. Children with autism will receive music therapy combining musical instruments, songs, and rhythmic cues to help enhance their communication skills, such as turn-taking, sensorimotor integration, social appropriateness, and musical interaction. After evaluating neurobehavioral outcomes and comparing non-music intervention with social communication and brain connectivity, music therapy proved to help enhance communication skills by improving functional brain connectivity [9].

The music therapy used above is not the only therapy model that helps enhance social skills for autistic people. In 2016, Professor Jenna Mendelson and her research team demonstrated that a program called Voice Together could improve the social skills of autistic children. The Voice Together program requires autistic children to work in groups and speak through singing. While one of them finishes speaking, others need to listen and respond, and they will repeat this process. Such treatment has proved to help build mature social skills for autistic children. Researchers found that this music therapy model works better with a longer time, which means the longer the time, the better the effect [10].

2.3. Bond between ASD children and their parents

In 2020, the research team led by Professor Miriam D. Lense found that integrated music therapy that includes parents and children with autism positively impacts the family. She created the music therapy model Serenade, a 10-week program that uses music as a joint to bring parents and children together. Parental music therapy will involve learning about and applying music therapy to their children during their time together, unlike other models. Parents will be taught behavior strategies for social interaction skills, such as attention to others, imitation, turn-taking, and emotion modulation. Besides this, parents and children will also attend a 30- to 40-minute music-making activity every week. This activity asks the children and parents to sing and react with their bodies to the music. This set of therapies has been proven to be successful in many different ways [11].

3. Discussion

3.1. Neglects and benefits

Music therapy can be primarily divided into two categories: receptive and active. Receptive music therapy involves listening to music, whereas active music therapy involves more engagement in music-making [12]. Most of the music therapy used for suppressing autism involves active music-making. With so many different results, it is clear that music can be used as a therapy to suppress the effects of autism. However, it is also clear that music therapy, especially when it comes to autism, does not have a well-established system, as different researchers tend to have different approaches for their experiments. For example, the experiment that combines the use of the instrument and the experiment combined with musical drama achieves the same effect on helping autistic children's social skills. This proved that music therapy has not developed a systematic treatment for autistic children.

Although music therapy for autism is still developing, it has some benefits. Compared to some medical treatments, music therapy does not have any side effects [13]. Furthermore, music therapy is also more convenient to use. According to Professor Miriam D. Lense's experiment, parents can learn the basic musical treatments and apply them to their children independently.

3.2. Future development

For music therapy for autistic kids to be mature, it needs to be systematic. According to all the sources in this article, most of them incorporate music into their treatment, and all achieve an effective outcome. However, the methods that each treatment uses are little the same; the big difference is that while some therapies use singing for communication, others require the playing of an instrument. There are also different age groups; some of the music therapies start at the stage of the fetus, and some others require kids at the age of 6-12. These different therapies are not summarized in a single paper but in different papers, which is enough to prove that music therapy has not yet established a complete system.

Just because there isn't systematic therapy today doesn't mean there won't be in the future, as music therapy does have the potential to become a standard therapy. According to the definition, standard therapy is a therapy that “medical experts consider a proper treatment for a certain type of disease, and health care professionals widely use.” This means that music therapy will be considered a standard therapy in the short term since there will be an increasing demand for this service, and this will create the need for music therapy to be standardized [14].

Music therapy has many potential research directions for autism. For example, the influence of music therapy on adults with autism, the effects of receptive music therapy on autism, and a comparison and summary of different music therapy options. All of these research directions will contribute to the future development of music therapy for autism.

4. Conclusion

Music therapy is a solution to a series of problems caused by autism, which can help prevent some autistic problems and help autistic children develop social habits. music therapy is also less costly and has fewer side effects than some other medications. However, music therapy is still a treatment option that has failed to have systemic therapy. The literature presented in this paper has obtained mixed results by different means. But that doesn't mean music therapy doesn't have potential. With the increasing demand, music therapy is likely to standardize in the future. Current research can also try to study the effects of music therapy on autism in some fields that are not well documented. For example, there is not much research on the development of music therapy for adults with autism.

There are areas for improvement in this essay. For instance, more essays and research are needed, as well as more peer reviews and interviews with the researchers. These will be my goals for the future study on this topic. The goal of this essay is to conclude some of the results of this newborn therapy for autism and discuss its future.

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