



The impact of music therapy on symptoms of autism spectrum disorder and the comparisons of several music therapy approaches

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Abstract

Music intervention is commonly used in the treatment of children who have Autism Spectrum Disorder (ASD). Music is an instrument used to meet the patient's needs hence plays a crucial role in autism management. The aims of the study were: To pinpoint the distinct kinds of music therapy used for autistic children, identify the various effective method of music remedy for autistic children and, lastly, recollect the advantages of music therapy for autistic children. Orff therapy, Creative music therapy, VibroAcoustic therapy, guided imagery, Drum circles and the Bonny method of music have all proven to be useful as established by the study. All methods were established to be effective for treating symptoms of ASD; however, depending on the goals of the therapies, some may be more beneficial than others. A wide range of people with an autism spectrum disorder can use musical intervention. Researches have demonstrated that music therapies are valid as they offer patients a sense of encouragement and security leading to more human interactions. However, many autistic children are limited from using the treatment due to the high costs and unavailability.

Keywords: Autism spectrum disorder (ASD), music intervention, therapy, creative music therapy, vibro acoustic, drum circles, Orff therapy.

Introduction

Autism Spectrum Disorder (ASD) is an intellectual and developmental disability signaled by difficulty in social interactions and diligent communication shortfall that restrict an individual from utilizing adaptive behaviors and social skills. Symptoms of ASD can manifest even before the first three years of life, and they differ depending on the extremity of the disorder; however, research shows that 25 to 61 percent of those with autism lack development of functional speech¹. Those who do speak often have restricted linguistic ability. An additional 25 to 50 percent of those diagnosed with ASD have IQs lower than 50; therefore, ASD is often associated with intellectual challenges that prevent autistic children from functioning well in a standard classroom setting. However, many people with ASD are also found to have above average IQs and grow to become renowned mathematicians and musicians. Due to the broad range of neurodevelopment severity surrounding ASD, there is a variety of therapy options available for those with autism. One increasingly prevalent therapy is music therapy, which is also composed of several distinct approaches.

Music therapy, also called musical intervention, has become a frequent treatment method for children who have ASD. Intervention through music is often systematic, with clients using artistic expression to promote communication and create relationships with others. The World Federation of Music Therapy defines music therapy as a medical, educational, and practical intervention defined by the involvement of music or

elements of music². It is used in a range of different situations, from individual therapy sessions aiming to change specific behaviors to community-wide sessions that focus on improving the quality of one's life through the improvement of one's social, emotional, and communicative abilities. The appeal of music therapy has risen due to cultural, political, and societal influences, which has led to higher professional standards being created for the intervention. These professional standards continue to produce valid research and intensive clinical training and education of music therapy.

Individual branches of music therapy work more broadly; for instance with special education, where music therapists work with patients lacking learning abilities, social skills, or the presence of comorbid psychological conditions. Other branches involve specific behaviors that therapy intends to change. Therefore, music therapy emphasizes the way music is used: as a tool for meeting a patient's needs³. To be considered qualified and competent to practice music therapy, music therapists are required to have earned a degree in music therapy and have adequate training on the subject; this is according to the American Music Therapy Association. Of importance is the identification of the most effective type of music therapy for children with autism as there exist so many forms of music therapy. As its primary objective, this research focused on identifying the different types of music therapy used for autistic children, its most effective method for the autistic children, and the benefits it offers to the autistic children.

Methodology

The primary source of information toward this study was a literature review; the researcher looked at various books, journals, and articles regarding the topic of study. Selection of the sources was made from databases of musical therapy, psychology, and medicine. The research involved a review of 23 sources, which were chosen by merit of keywords. Further, the sources were selected based on time relevance; therefore, only sources dated as from 2000 to the current year were utilized. Noteworthy, the extensive time coverage was to ensure no bias in the results since the sources of information used covered various studies. This study also included the comparison of the data from the multiple sources under review in coming up with a realistic and focused analysis of the correlation between music therapy and ADS.

Results and discussion

In the United States, there are specific requirements that all music therapists must meet. They include; a bachelor's degree or above in music therapy, over 72000 minutes in clinical training, and proper qualifications from the Certification Board for Music Therapists⁴. Apart from the United States other countries such as Germany, South Africa, Great Britain, Canada, New Zealand, and Australia, require completion of clinical training customarily done during an undergraduate or even graduate program. Besides, significant countries need that music therapists undertake proper government registration before practicing. The rise in rules and regulation of music therapists indicates the growing popularity of music therapy and as a result, necessitates more regulation. There are examples of various techniques of music therapy; unconfined improvisation, designed improvisation, the accomplishment and recreation of music, musical composition, and engaged music hearings. Free improvisation provides a musical environment with no boundaries for clients to express themselves, while structured improvisation contains more parameters and instructions regarding improve and music. Improvisation via pre-composed songs is particularly useful when children with autism are involved due to the inadequacy of literacy skills required for song composition. However, the composition becomes an available therapy method if one can develop literacy skills as an adolescent. Conversely, receptive listening methods are not commonly used because the stimuli are passive, rather than active. Active incentives better engages the mind, which is vital for autistic patients who are less inclined to participate in this behavior. The target and aim of music therapy differ widely based on the personal needs of the client and therefore are very strenuous to synthesize.

The general purpose of music therapy is to enhance language, communication, behavior and social skills of an individual, which aligns with many of the problems that those with autism face. Autism inhibits one's ability to communicate with others as well as engagement in social interactions⁵. Because autism is a spectrum disorder, the effects of the condition are observed at

different magnitudes. Autism has been linked with music therapy due to the often superior musical abilities of those with autism as well as the similar purposes behind music therapy and other therapies typically used for those with autism. Both music therapy and traditional therapy for those with autism focus on harnessing communication skills and social interaction. Compared to the average developing peer, those with autism are found to have an equal or greater aptitude for labeling emotions in music, pitch processing, and music preference. The compelling argument for the clinical benefits of music therapy for those with autism is also supported by an ample amount of communication and social-emotional based feedback.

Additional benefits of the effect of music therapy on children with autism are; increased speech output, compliance, adaptive peer interactions, decreased vocal stereotypy, and anxiety levels. Specific aspects of music therapy, such as rhythm, are found to be advantageous in motor rehabilitation, which is critical for those with autism who lack movement fluidity. The benefits of music therapy have become increasingly sought after as the diagnoses rate of autism has risen rapidly in recent years, doubling since 2000⁶. Currently, one in 68 children is diagnosed with autism in the US. Notwithstanding the familiar and growing constructive impacts of music therapy, the practice is underused due to a lack of those trained for music therapy and non-recognition from the Individualized Education Program (IEP). This comes in part due to music therapy being a relatively young practice. While there are over 250 programs certified for speech therapy in the United States, there are only 12 certified music therapy programs⁷. Costs of music therapy and speech therapy are comparable, with heartbeat music therapy being relatively the same cost as speech therapy, occupational therapy, and physical therapy. With insurance, music therapy is often cheaper than all speech, occupational, or physical therapy sessions. Therefore, music therapy is cost efficient as well as highly effective for treating the symptoms of ASD.

The social interaction aspect of music therapy is critical for children with autism as those diagnosed often lack the social skills to interact with peers. This often leads to exclusion in a mainstream school setting. Their limited ability to engage in social activities usually leaves children excluded from educational, social, and universal life experiences. In severe cases, adolescents with autism are more likely to commit crimes due to their inability to control aggression and their lack of understanding for others' emotions⁸. However, autism does affect not only the child who is diagnosed but also the family supporting the child. Family relationships are often strained, and financial instability is common. The parents of a child with autism commonly suffer from feelings of isolation, caused by the emotional and physical strain of raising a child that requires more attention than the average child or adolescent. Parents also acquire stress from their struggle for financial security, as raising a child with autism costs significantly more than raising the average child. Other parents leave their occupation to support their child, adding to the financial strain emotionally.

Music therapy and the social skills that are developed through this therapeutic intervention are often useful in bolstering social skills and reducing the negative emotional impact from having a child with autism.

With the help of an effective therapy program, children with autism can grow to become active members of their community. Children with autism together with their families benefit from highly communication therapies that improve their traditional social skills. Applied behavioral analysis (ABA) and pivotal response treatment (PRT) are good examples of such therapies⁹. PRT is known to improve language and communicative skills within in a naturalistic setting while ABA has similar results in more clinical and intensive settings¹⁰. However, music therapy offers several additional benefits compared to the ones stated for traditional communication therapies. Studies found music therapy to be useful due to the unprecedented activity setting created, one far different from traditional psychotherapy and play settings. Music becomes a motivator that encourages clients to change or develop new behaviors. Music therapy has additional benefits, including musical improvisation, which fosters flexibility and creativity for clients who were previously unequipped for the unpredictable nature of life. The jamming of music pertains to both musical and non-musical expression in clients and is successful in improving issues such as control, rigidity, and self-stimulation.

The success of music therapy is also rooted in the fluid structure of the approach, as changes are often made based upon the needs of the client. Music therapy utilizes the experience of music to create relationships promoting the health of a client¹¹. Health is advanced through the resolution of physical, psychological, and emotional challenges in an individual, as well as through the use of music as a catalyst that decreases or obstructs unhealthy or socially unacceptable behaviors. For example, interactive and improvisational therapies prove to be more exciting and useful alternatives to often monotonous communicative therapies in regards to boosting social communication and behavioral skills. These music therapies do not follow a rigid structure and allow clients to experience unpredictability, which is essential for assimilation into everyday life.

Anatomy plays a crucial role in explaining the effectiveness of boosting autistic children's communication proficiency and in supporting them to assimilate into society. Music encourages vocalization without pressure and with considerably more enjoyment from clients. It is believed that the right region of the brain is connected with melody and rhythm while the left region is associated with language comprehension. Research suggests asymmetry within the two hemispheres of the brain, with lower activation reserved for the left hemisphere, in the general population. Those with autism appear to find greater comprehension and understanding through music rather than language due to higher activation in the right hemisphere. This explains why music is a strong motivator for children with

autism and why music therapy is effective in promoting communicative skills¹².

Discussion: Several forms of music therapy such as the Bonny method of music, Creative music therapy, VibroAcoustic therapy and guided imagery, Drum circles, and Orff therapy, have proved to be effective. VibroAcoustic therapy (VAT) pairs combinations of low-frequency vibrations with relaxing music. Sounds are directly transferred from specially equipped chairs or tables to clients and provide low-frequency waves. It is combined with speakers or headsets that play relaxing music. According to the international VibroAcoustic therapy society, sound waves transfer moving energy onto the body surface; therefore any matter therein vibrates as well; this causes molecules in the body to go in motion as waves vibrate the cells within the body¹³. An example of this phenomenon occurring is during body massages. The VAT is effective because organs such as the heart, lungs, nerves, glands, brain tissue, and blood vessels react well to the exposure of sound vibrations.

The VibroAcoustic methodology was first tested in the 1990s by Olav Skille when he developed a simulation for disabled children¹⁴. He played music from influential speakers, which created vibrations that pressed against beanbags that children were laying on. Many children experienced body relaxation, and soon Olav realized that this stimulation was particularly useful for those with autism, asthma, Parkinson's disease or cystic fibrosis. Currently, VAT is in practice worldwide after 30 years worth of studies found the most useful frequencies for specific health outcomes¹⁵. Results from VAT include an enhanced emotional reaction to music, reduced overt behavior, and reduced autonomic dysfunction. A disadvantage of this therapy is that its primary purpose is not to develop social and communication skills. VAT tends to focus on calming the body to reduce aggressive behaviors. However, a positive correlation to a calmer body and reduction in aggression is improved communication skills¹⁶.

Orff therapy, which involves imitation, improvisation, exploration as well as composition, works explicitly to give clients an understanding of their personality as well as a personal and interpersonal identity¹⁷. It is achieved through spontaneity in a warm environment as well as the encouragement of creativity. For example, a trained music therapist could play a song for their client with an instrument in a clinical setting. The therapist would then proceed to give the apparatus to the client and encourage them to play as well while the therapist also repeats the song to promote a response from the child.

The communication one requires for Orff therapy is based upon music and chants, which highlights the body's rhythmic beat and movement. Orff therapy, often a non-verbal therapy, is particularly helpful for those with ASD due to a significant number of those diagnosed not being able to speak. The intervention has been known to correct unwanted behaviors as

well as improve social skills¹⁸. Orff therapy also helps develop sharing skills and turn-taking in therapy sessions. The intervention's success lies in its flexibility, predictability, and achievement-oriented processes.

BMGIM an abbreviation of the Bonny method of music and guided imagery is a widely accepted form of music therapy, utilizing classical western music to stimulate the imagery experience. Developed in the 1970s, Helen Bonny found that her violin playing had healing effects and later discovered that the method was effective for treating disorders such as ASD¹⁹. With a master's degree in music therapy, Bonny combined her understanding of music with her training in therapy to create a methodology for her therapy²⁰. Music and imagery association created within BMGIM provides insight into consciousness exploration. BMGIM is said to developmental, physical, emotional, and spiritual wellbeing for clients.

Therapists utilizing the Bonny method take up to two hours to work through a session. While assessing a client's reason for visitation, therapists discuss the client's current life situation and establish a session by session objectives and focuses. Music is then played to induce guided relaxation, which opens up the ability to explore the subconscious. The music evokes feelings, memories, images, sensations, and other forms of awareness in the client that would have difficulty coming up otherwise²¹. During the session, music therapists implore patients to develop their imagery further. By the end of the session, therapists help clients come back into his or her conscious mind and reinforce insights that came up during the meeting. BMGIM brings forth creativity through personal feelings and relationships. BMGIM is not often associated with autism treatment; however, it is known to be effective when utilized.

Drumming and drum circles have become increasingly popular in the domain of music therapy due to the various physiological, emotional, and social benefits obtainable from the intervention.

According to music therapists, drumming is an effective therapeutic intervention for those with autism, with results including reduced tension, reduced stress and anxiety, a boost in the immune system, connectedness with others and self, a release of feelings and emotional trauma, and resonance with life's natural resonance. Socially, drum circles provide those with autism an opportunity to interact with others, which builds communication skills²². Another benefit to drumming is that it does not require any musical background or experience so even those with severe autism can participate in this therapy. Drumming creates a non-threatening environment that encourages group participation and comradely while still promoting motivation for the participant to continue with treatment.

Creative Music Therapy (CMT) created by Nordoff and Robbins is the most well-known form of music therapy used for autism treatment. CMT highlights improvisation via music and

allows for flexibility within a therapy session for the child to explore. The therapist uses improvised music to communicate with a child and, in turn, the child develops emotional responses not developed through traditional communicative therapies²³. Rather than having only the therapist play music, the therapist and client collaborate to create music while also enhancing social and communication skills. The Music Therapy Communication and Social Interaction (MTCSI) scale measures improvements in social and communicative skills. The MTCSI scale works by recording therapy sessions and analyzing behaviors such as instrument use, vocalization, movement, eye contact, facial expression, joint attention, and turn-taking.

The flexibility, predictability, and success-oriented processes of music therapies are beneficial because they give clients a sense of encouragement and security, while also encouraging more spontaneous human interaction. However, the high price and limited availability of music therapy limits many autistic children from getting treated early on in their development. In schools, the teachers of children with autism develop an IEP to ensure that they are given certain services necessary for learning. IEP refers to a legitimate acquaintance designed by the parents, guardians, and caregivers of a child that describe the needs of the child which is approved by the IEP therapists committee and the school administration. Many schools do not offer music therapy in their curriculum as it is still a relatively new practice.

Improvisational music therapy has been considered as an effective treatment for autism in both short and long term communicative, social and behavioral aspects. There is ample amount of evidence in support of this. However, pessimists claim that the lack of current data on improvisational music therapy prevents from a real understanding of consequences and benefits. Many music therapists have skewed the philosophical foundation of the conventional perspectives of music therapy and therefore have supported the proposition that alternative views are possible. Treatments developed by medically trained professionals have been increasing the validity of musical treatment methods.

The analysis of various music therapy approaches shows that all methods are useful for treating symptoms of ASD; however, depending on the goals of the therapies, some may be more beneficial than others. Both VAT and BMGIM focus on expanding the consciousness through music to promote relaxation in the body. Those with autism are often hyperactive; therefore BMGIM and VAT are both critical for calming the shape of an autistic client- a calmer body leads to better communication, which is extremely important for those with autism. The downside of BMGIM and VAT is that communication is not the primary goal of the therapies. Orff therapy emphasizes development and changing individual behaviors according to the needs of a client. Most behavior changes revolve around enabling children to interact with others, which relates to communication skills. Drumming and

CMT solely focuses on enhancing socialization and communication for clients, which are the primary issues for those with autism. Drumming has similar effects to CMT; however, it is more limited due to the use of only one instrument and procedure. CMT utilizes musical improvisation to allow clients to form emotional responses to the music. When clients can express themselves non-verbally, they gradually develop communication skills. CMT is found to be the most effective musical treatment for ASD due to the flexible targets and mechanisms of the therapy. The evolution of communication and social expertise is noteworthy for those with autism, and because CMT's primary goals are the enhancement of these skills, it is the most effective for autistic clients.

Empirical data has shown that musical intervention can be used for a wide range of individuals with an autism spectrum disability. Music therapy has dramatically transformed since its birth in the 1940s¹³. Evidence-based national standards and practice models have been created for music therapy, and, regarding autism, the increased knowledge on ASD has helped improve therapy methods. ASD has been understood better due to national awareness, better diagnoses, as well as treatment research. The most effective music therapy discussed in this research is the creative music therapy which appears to be the most effective for those with autism. Characteristics of creative music therapy include improvisation and an unstructured environment, which is similar to the attributes of drumming. Even though creative music therapy and the improvisation surrounding it was found to be the most useful, all other therapies discussed in this review were also useful in developing the communicative and social skills of children with autism.

Conclusion

Music therapy is mainly used for the treatment of children with pervasive developmental disorder as it is used to encounter patients' needs. ASD patients experience social interaction and communication difficulties. Though there are diverse types of music therapy, the most effective ones for autistic children are guided imagery, drum circles, creative music therapy, Orff therapy, and the Bonny method of music, among others. However, their efficiency varies depending on the therapeutic goals of the patient. Improvisation via pre-composed songs is also effective due to the lack of literacy skills required for song composition.

Both music and traditional therapy focus on attaching social interaction and communication skills. Additionally, music therapy is offered in few institutions as it is new and helps in conferring patients a sense of security and uplifting. Besides being more involving and compelling, it is also cheaper compared to other forms of therapy. Therefore, the literature has demonstrated there is an excellent utility for music therapy to help with symptoms of ASD, and more research would be hugely beneficial to professionals who will be working with children and adolescents diagnosed with ASD.

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