Special Education [SE] e-ISSN: 2821-3017
Volume 2, Issue 1, 2024
DOI:https://doi.org/10.59055/se.v2i1.18

THE USE OF MUSIC THERAPY IN INSTRUCTION COMPLIANCE FOR STUDENTS WITH AUTISM

Nur Hajati Anwar*[1], Mohd Hanafi Mohd Yasin[1]

[1]Faculty of Education, Universiti Kebangsaan Malaysia,
43600 UKM Bangi, Selangor Darul Ehsan, Malaysia.

*Corresponding author: Nur Hajati Anwar (p116595@siswa.ukm.edu.my)

ABSTRACT

Autism spectrum disorder is a neurological disorder that occurs in children that causes their neurodevelopment to be disturbed. Most studies show that autism spectrum disorder causes individuals to experience deficits or problems in terms of language and communication, social skills and behavioral patterns. This study aims to examine the effectiveness of music therapy in behavioral modification for students with autism. The study is a Single Subject Research Design and uses the ABA design. The sample of this study consists of two students, a male student and a female student who are between 11 and 13 years old. Both study samples are students with special needs in the autism category and have the same characteristics of behavioral problems. The research instrument used in this study is a questionnaire using Strengths and Difficulties Questionnaire (SDQ) and direct observation methods as well as pre and post-tests used for the data collection process and analyzed using Microsoft Excel. The findings of this study show that music therapy is effective in changing student behavior with the pre-test showing that both samples reached the baseline set for 10 minutes and the post-test showing an increase in the average time of both samples following learning activities for more than 20 minutes and the overall min is 9.6 minutes. The use of various methods in music therapy intervention is important to see its suitability for each student. The use of effective intervention is seen to affect the potential and development of students in terms of cognitive, social and emotional. The implications of this study are seen to have an impact on social skills, self-expression and communication on autistic students and can help teachers and therapists in implementing music therapy as one of the therapy options in schools. therefore, music therapy if applied in the right way and according to the suitability of an autistic individual will have a positive impact on their behavior.

Keywords: autism; behavioral problems; music therapy

1. INTRODUCTION

Autism spectrum disorder is a neurodevelopmental disorder that affects both children and adults. As outlined in the DSM-5, autism spectrum disorders are distinguished by two main domains of symptoms: deficits in social communication and social interaction and restricted patterns of behavior, interests, or repetitive activities. Autism is also seen as a condition in which neural development affects fundamental aspects of human function, including the formation of interpersonal relationships. This condition is a multiple disorder that affects the cognitive and linguistic capacity of the individual and persists until adulthood. Stall (2005) also supports this

disorder, which involves three categories: abnormal social interactions, stereotyped behavior patterns, and rigid interests.

A report from the World Health Organization (WHO) estimates the global prevalence of children with autism reaches 0.76 percent (Hodges et al., 2020). Roughly, this figure represents only at least 16 percent of the global child population. Hodges et al., (2020) also state that this situation can happen to anyone, regardless of the background, culture, and economic level of a society or individual. Early diagnosis should be carried out on children who are showing symptoms to enable appropriate intervention planning to be implemented. However, due to side factors such as access to the health system, therapy, socio-economics, and a lack of knowledge related to autism, some children fail to receive appropriate interventions and education.

The spectrum disorder experienced by children with autism affects social interaction, understanding social cues, making eye contact, and being difficult in two-way communication. Individuals diagnosed with autism, regardless of age, often show a tendency to engage in social interactions. However, they may face challenges in initiating and maintaining social interaction effectively due to a lack of knowledge of appropriate social engagement strategies or deep concern about new situations to be encountered. Furthermore, the majority of individuals with autism exhibit repetitive behaviors such as flapping, swaying, and sorting things and have limited interests, as stated by the American Psychiatric Association (2013). Sensitivity to their sensory stimuli, on the other hand, is likely to be excessive or less sensitive. This includes conditions that involve the light, sound, smell, and texture of a surface or object that will cause discomfort to them.

According to Rowland (2020), the traits of autism are derived from a primary source called hyperfocus. This hyperfocus causes a diverse sensory load in children with autism. Apart from sensory overload, excessive text on a page and prolonged exposure to it can lead to confusion and cognitive impairment, which in turn can manifest as disruptive and undesirable behavior. It is common to know that autism cannot be cured, but consistent therapy can help modify behavior. The goal of therapy is to help people with autism socialize and reduce unwanted behaviors (Rowland, 2020).

Behavior involves the actions and attitudes shown by an individual. The behaviors that coexist with autism are categorized as those that are the cause of non-compliance with social norms, such as harassing, being destructive, or injuring. Belardinelli and Raza (2016), in a study conducted by Mattila et al., (2011), showed that behavioral issues are the most common condition to be found in children with autism. Kurzius-Spenser et al., (2018) show that many behavioral issues, atypical fear responses, and eating disorders have been reported, in addition to being accompanied by other intellectual disabilities at the same time.

The behavioral problems experienced by children or students with autism cause difficulties in understanding and obeying instructions, getting along with friends, and working with other friends. This condition also causes their learning to be interrupted, making it difficult to live in everyday life like other typical students. Difficulties in this indicated behavior require help, whether severe

or complete, in their daily activities and learning. Early intervention, therapy, and other support services are needed to help them achieve their maximum potential.

It is necessary to implement behavioral changes in order to assist these children and prevent any disruptions to their learning. This behavioral modification is a psychological framework that focuses on the alteration of unwanted behaviors while fostering the development of advantageous habits. Behavior modification offers several advantages for children with autism, including the ability to specifically target certain behaviors, decrease maladaptive behaviors, enhance relationships with others, promote self-regulation of behavior, and facilitate lasting improvements in behavior. Hence, the purpose of this study was to examine the use of music therapy in behavior modification, with the specific goal of determining its effectiveness in altering the behavior of students with autism.

2. LITERATURE REVIEW

Often, children who have special educational needs, particularly those with autism, are closely associated with the therapeutic interventions they must receive in order to mitigate the effects of their challenges. Students with autism may exhibit aggressive behavior, lack of focus, frequent tantrums, restlessness, excessive shyness, and other similar issues when they experience stress.

Various initiatives have been implemented to support students with autism in their education, such as therapies administered in hospitals, therapy facilities, or schools. Among the therapies that are often performed to students with autism in school are elements of the application of music therapy to the subjects studied. Music has a therapeutic influence on communication, personal and interpersonal responsibility, and playing ability (Schwartzberg & Silverman 2013; Simpson & Keen 2011; Whipple 2012). Music can additionally facilitate the creative and imaginative expression of student's emotions and self-perception, as well as their perception of the surrounding environment.

The utilization of music as a therapeutic intervention is not novel, although this form of treatment has been extensively employed since ancient times. Music therapy is a professional field that uses music for the recovery, conservation, and improvement of an individual's mental and physical health. Landrek et al., (2005) and the American Association of Music Therapy (2006) stated that music therapy is a dynamic process that allows children with disabilities to interact with their peers and environment. Cognitive, social, and emotional changes can be achieved with certain musical techniques. It can be seen that music therapy has a beneficial effect on social interaction, adaptability, and social-emotional reciprocity. In addition, music therapy leads to an increase in the onset of behavior and the improvement of verbal communication skills (Gassner et al., 2021).

Utilizing music as a pedagogical tool has been a longstanding practice among educators, but not many of the educators themselves know about music, which is one of the agents of transmitting information and knowledge. According to Chan (2003) children with a musical training background remember and can memorize more words compare to those who do not practice music. The application of rhythmic elements in teaching and learning helps students to focus more on

ongoing activities and minimizes other disorders that occur in the student's emotions, and subsequently, facilitating improved social engagement with teachers and peers.

Based on a study conducted by Clements-Cortes (2014) in Sharma (2021), children and adolescents are the most significant in terms of music consumption and are seen to have a significant relationship with and value music more. For students with autism, the rhythm of music can calm emotions, and singing activities can improve their ability to memorize and pronounce letters and numbers more easily, besides making teaching and learning more enjoyable for students and teachers.

Music exerts a beneficial influence on an individual's mental state, imparts knowledge, and facilitates the discovery of natural human qualities such as compassion and generosity while playing an important role in human education (Achildieva, 2023). This element of entertainment, such as music, if formed as best as possible, can help trigger a calm atmosphere to receive new knowledge or information in the mind. Music can play a more significant part if the teacher integrates it effectively. Teachers can use music therapy activities before starting lessons to calm students in advance. This activity will not only help students stay calmer, but it will also help them focus more on the information that is being conveyed.

In some previous studies, there has also been evidence that the application of music in children's lives helps in addressing behavioral, emotional, motivational, and focus issues experienced by children with special needs and children with autism. Music provides benefits in modulating mood transitions, altering and managing behavior (Jackson, 2003; Adamek and Darrow 2005; Rickson, 2006). This effect was seen when music was used with children with autism in previous studies. Meanwhile, the American Association of Music Therapy (2006) also argues that participation in music increases attention and self-participation in learning activities.

The variety of interventions and the types of music used in music therapy also help children with autism to focus and follow instructions. The World Music Therapy Federation also states that music can be performed in some situations during controlled music therapy sessions. These include singing, playing musical instruments, listening to music, moving to music, and producing new music (Birkenshaw, 1994; Schmidt-Peters, 2000; Wigram et al., 2002). Meanwhile, Wang et al. (2021) stated in their study that children with autism spectrum disorder can benefit from music therapy in terms of their overall attention deficit, including giving joint attention, as well as being able to attract these children more effectively.

In conclusion, numerous studies have shown how music therapy can influence the behavior of children with autism. The use of music is seen to improve social skills, improve concentration, and reduce levels of anxiety and stress in addition to rhythm, melody and movement are often incorporated into music therapy sessions. Music therapy is also an effective tool for addressing the behavioral issues of children with autism. The use of music combined with other therapeutic elements can provide creative, engaging, and effective ways to promote positive behavioral change, improve social skills, reduce anxiety, and improve the emotional well-being of children with autism. As more research is carried out and more evidence accumulates, music therapy has the potential to be a more important component of a comprehensive autism intervention plan.

3. STUDY METHODOLOGY

This study was conducted to examine the effectiveness of music therapy in compliance with instructions for students with autism. The study used a single-subject case study design *(Single Subject Research Design).* Cakiroglu (2012) and Mastropieri et al. (2009) in Zanuttini (2020) explain that the design of a single subject case study is an alternative to group design, often associated with the field of special education, and has a tendency to produce more appropriate conclusions than traditional research methods in education.

The design used in this study is an ABA design. The design in this study is the most basic study design for a single-subject case study and is used to show whether independent variables affect dependent variables. During the initial phase (A), a baseline for the dependent variable is established. In the second phase (B), a non-dependent variable is introduced, and in the third phase (A), a non-dependent variable is removed to determine whether the variable leans back to its basic level or not. This pattern can be repeated as often as necessary to show effect or otherwise to answer the question of the study (Smith, 2012).

The researchers chose Pitas district, Sabah, as the location of the study. A national school became the preferred place for researchers to conduct a study, which placed six classes under the Integration Special Education Programme. The school is located in a rural area and is the first primary school in the district to have an Integration Special Education Program. The respondents selected by the researcher were Special Education Needs Students, who differed in age, gender, and cognitive level but had similar behavioral characteristics and problems. Both respondents had behavioral problems that made it difficult for them to follow the instructions given by the teacher. The researchers selected these two respondents based on the need for the study to be conducted, and they wanted to see a change in the behavior of both respondents after the intervention was carried out on them.

A sample of the survey was selected by one female respondent and one male respondent. These two respondents came from two different classes. The study participants' age ranged from 11 to 13 years. Respondent A was an 11-year-old male student and was diagnosed with autism spectrum disorder. The respondent can communicate with limited words and only use English as a daily language of communication, either with teachers, parents, or friends, as well as being able to understand simple instructions. The gross motor and fine motor skills of the respondent are at a decent level. The respondent exhibited disruptive behavioral issues and frequently engaged in outbursts that resulted in self-harm and harm to others. The respondent additionally experiences difficulty remaining seated in the classroom and frequently engages in aimless wandering in the teacher's room.

Respondent B is a female student who is 13 years old and was diagnosed with autism spectrum disorder. This respondent did not use verbal or spoken language as a medium of communication and used body language to express their needs to the teacher. The respondent also understands simple instructions and needs the help of physical gestures to convey instructions. The respondent's gross motor skills are at a good level, but her fine motor skills are still at a moderate level. Respondents also had disturbing disruptive behavior problems and often cried and screamed for

no reason. Nevertheless, the behavior of the respondent does not result in self-inflicted harm or harm to others. This respondent was challenging to handle as she frequently exhibited noncompliant behavior by leaving the classroom and displaying a lack of motivation to complete the assigned tasks.

3.1. Study Instruments

Study instruments are used as a basis for obtaining data as requested by the researchers to achieve the objectives of the study. Among the instruments used in this study was a questionnaire using the Strengths and Difficulties Questionnaire (SDQ) to see the behavior of each respondent. This questionnaire is filled out by the teacher who teaches the respondent, as the respondent has limitations on filling out the questionnaire on their own. The researcher also used two checklist forms to see changes in students' behavior based on how often respondents complied with instructions and recorded pre and post implementation test data on respondents.

3.2. Collection Procedures and Data Analysis

The study used questionnaires, observation, pre-testing, and post-testing methods for data collection. Data is collected and recorded in data collection forms. The questionnaire will be filled out by parents and teachers who teach both respondents. Meanwhile, observations will be conducted directly by the researcher to see the level of compliance for each respondent before and after the intervention is given. The researcher also used pre- and post-tests to see the results of whether the music therapy interventions carried out improved the level of compliance of both respondents.

The researcher will conduct direct observations during the course of teaching and learning activities without implementing any interventions in order to examine respondents' behavior and obtain a baseline of student compliance levels based on their existing behavior. This baseline will be the benchmark for the goals in this study. Pre-tests and post-tests will be conducted five times and carried out during school hours and during teaching and learning. The music therapy interventions used by the researcher involved voiceless music, music with sound, and the utilization of percussive musical instruments. The use of music or musical instruments as therapy is prescribed by the researcher during the intervention with the respondents according to the respondent's current *mood*. Testing lasts throughout teaching and learning activities. Meanwhile, the use of music therapy can be used during induction sets, in teaching steps, or at the end of a teaching and learning session, or it can be incorporated throughout the entire duration of the session.

The researcher will evaluate the obtained data using Microsoft Excel to create data. The findings will be presented using tables and line graphs to provide a comprehensive and detailed picture of the progress of each responder before and after the study.

4. FINDINGS

The determination of the level of behavioral difficulties and compliance of respondents was carried out using the Strength and Difficulties Questionnaire (SDQ) instrument developed by Robert Goodman and provided by the researchers to parents and teachers to be filled in to assess the level of behavior of the study respondents before the intervention was given to the respondents. The scale of the score in this instument ranges from 0 to 40. The higher the score achieved by the respondent will show a level of bad behavior, and the lower the score of the level of behavior indicates good behavior by the respondent. As for the prosocial behavior score, the higher the score achieved, the better the respondent's behavior.

4.1. Pre-Tests and Post-Tests

Pre-tests are carried out without the use of intervention, and learning progresses as usual. The researcher will record the time and frequency of students' behavior in complying with the instructions given by the teacher. Post-tests were carried out after the intervention was included by the researchers to see an improvement in students' compliance within 30 minutes of teaching and learning. The researcher also set a baseline for these two tests to be 10 minutes per session.

Table 1: Findings of pre- and post-implementation test scores of music therapy.

Test	Pre-Test		Post Test	
	Respondent A	Respondent B	Respondent A	Respondent B
1	5	5	7	10
2	7	5	10	10
3	7	7	17	17
4	10	9	25	22
5	10	10	28	25
Mean	7.8	7.2	17.4	16.8

Table 1 shows the pre-test scores and post-music therapy test scores for respondent A and respondent B. The researchers conducted a total of 5 tests for each pre-test and post-test to see changes in the respondent's behavior in complying with the teacher's instructions. The researchers set the baseline for this test to be 10 minutes for each respondent to be in the classroom and perform assignments and activities with teachers and friends.

The pre-test 1 showed respondent A sat in the classroom for 5 minutes during the duration of the teaching and learning period. Increased time can be seen on the pre-test 2 and the 7-minute pre-test 3 when the student is in the classroom. On pre-tests 4 and 5, respondents recorded 10 minutes of being in the classroom with teachers and friends within 30 minutes of the teaching and learning sessions. The data collected from Table 1 also showed that the average time for respondent A was 7.8 minutes.

Special Education [SE] e-ISSN: 2821-3017
Volume 2, Issue 1, 2024
DOI:https://doi.org/10.59055/se.v2i1.18

Respondent B recorded a pre-test 1 and a 5-minute pre-test 2 in the classroom following teaching and learning activities. While the pre-test 3 shows a slight increase of 7 minutes, for the pre-test 4, the respondent recorded a time of 9 minutes and a pre-test 5 of 10 minutes. Based on the table, the average pre-test time for respondent B was 7.2 minutes.

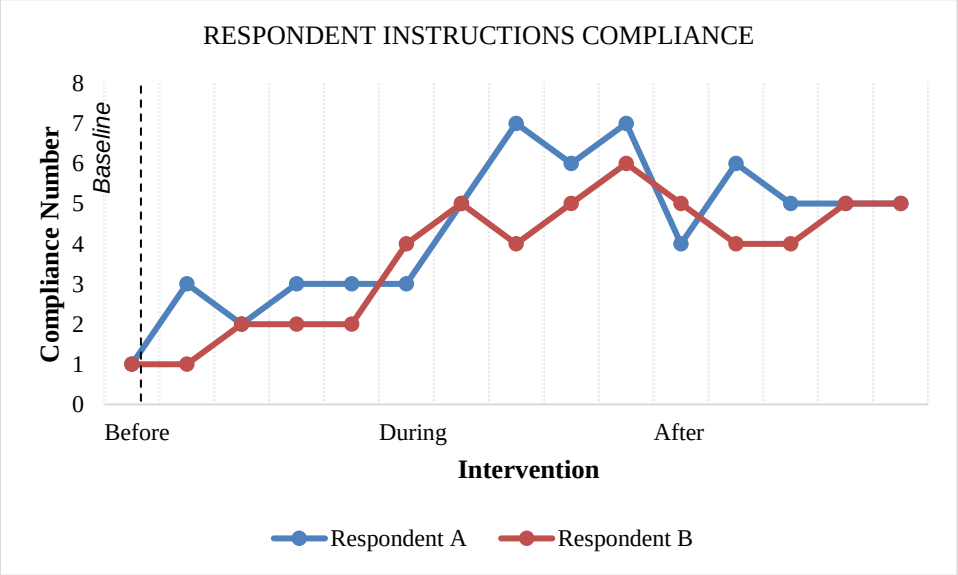
The post-test was conducted by implementing the intervention on each participant five times. The music therapy interventions used by the researchers included the use of musical sounds as well as musical instruments according to the respondent's suitability. Respondent A recorded a time of 7 minutes and a time of 10 minutes on the post-1 test. The post-test 2 showed an increase in the time both respondents were in the classroom, and according to the learning activity lasted for 10 minutes, while the post-test 3 lasted for 17 minutes.

On the post-test 4, respondent A recorded a time of 25 minutes while respondent B's recorded a time was 22 minutes. The last test showed respondent A recorded a time of 28 minutes and respondent B recorded 25 minutes out of the 30 minutes of maximum time set by the researchers. The average (mean) time recorded by respondent A was 17.4 minutes compared to the pre-test of 7.8 minutes, while respondent B was 16.8 minutes compared to the pre-test of 7.2 minutes. This change in the behavior of students can be clearly seen from the record of the time they were in the classroom and carried out the activities given.

4.2. Increased level of student compliance

The implementation of the intervention using music therapy to both respondents was carried out in groups and individuals according to the current emotional suitability of the respondent. The findings from the data analysed showed an increase in the number and frequency of compliance recorded by each respondent. The trend of improving student compliance can be seen in fig. 1.

Figure 1: Comparative graph of compliance with student instructions



Referring to figure 1, observations were made 15 times, five times before the intervention was given, five times during the intervention, and five times after the intervention was eliminated. Before the intervention was recorded, it was during the pre-test for both respondents. During the intervention, post-progression testing and music therapy interventions were given to both respondents. Next, after the intervention, the teaching and learning classes will go on as usual. Observations are carried out at this time to see whether the students' behavior in complying with the teacher's instructions will return to the original behavior or if there will be an improvement.

Based on figure 1, respondent A showed a frequency of 12 times complying with the instructions before the intervention was given, which was carried out 5 times during the pre-trial test. During the intervention, respondent A recorded 28 times in compliance with the instructions. This factor is due to the fact that the music therapy implemented can influence and interest the respondent. Next, observations carried out after the intervention showed that the respondent's behavior was still at a good level when recording the frequency of instruction compliance 25 times. Although the graph showed a decrease after the intervention, it did not show a drastic decrease and did not return to the record before the intervention was given.

For respondent B, the frequency of adherence to the teacher's instructions was eight times during the five pre-tests. Through the observations conducted, respondents often show unsteady anxiety and emotions that cause them to cry often and do not want to be in the classroom. Subsequently, while music therapy interventions were included in the respondents' learning, the improvement in instructional adherence was 24 times greater. This factor is due to the fact that the music therapy used gives the pupil a feeling of calm, and negative behaviors can be reduced. In the observation session after the intervention, respondents showed a frequency of adherence of 23 times lower than when the intervention was given. However, the decrease in compliance was very slight and did not affect the change in the respondent's behavior toward the instructions given.

In conclusion, the use of music therapy by both respondents showed positive results in improving adherence to instructions in addition to being able to control their behavior. Music therapy is a very effective way for individuals with autism to actively participate, communicate, and manage their emotions through interventions modified according to each individual's needs. The characteristics of regular music therapy activities create a sense of calmness and reduce anxiety, thus promoting the desired modification of behavior. The impact of this study also showed that the music therapy implemented can improve the well-being of the respondents with better management of social and emotional interactions. The combination of rhythm, melody, and sensory stimulation through musical instruments can create a comfortable and safe environment for respondents to express their feelings as well as cultivate other skills.

5. DISCUSSION

Music therapy has been used as a potential approach to improving the lives of individuals with autism spectrum disorder, especially in terms of behavioral management. The diverse and complex nature of music allows it to serve as a distinctive and influential intervention to channel therapeutic effects that can have a significant impact on the behavior and social interaction of individuals with autism spectrum disorders.

According to the findings of the study, students with autism have behavioral problems, are often out of class, and do not want to engage in learning activities. Various factors contribute to students leaving class, and these include personal circumstances, peer influence, and poor time management (Angelista, 2020). Students with autism who have concentration problems or hyperactivity cause their focus to be easily disturbed and bored. This is because students with autism spectrum disorder often face disorders in terms of concentration and attention (Banire et al., 2020). In terms of hearing, children with autism disorders often find it difficult to escape and distract from the sounds heard (Kheen et al., 2019). This is what makes it difficult for them to focus in the classroom due to noise disturbances from external factors and causes these students to miss out a lot on learning.

Students with autism spectrum disorder often cry for no reason and do not like to associate with other friends, making it difficult for them to concentrate during the teaching and learning sessions. Studies also show that these children experience difficulties in their emotional regulation (Lee et al., 2022). These difficulties in emotional regulation cause emotional and behavioral problems that cause them problems, especially in school (Hastings et al., 2021). The respondents' frequent emotions caused difficulties for teachers in teaching and involved children with autism in classroom activities, besides having difficulty getting good cooperation from them (Raudeliūnaitė, 2020).

When there is an unfulfilled or inappropriate desire, the expectations of the student or child with autism will make them feel ignored, and then there are negative emotions that lead to tantrums. Wang et al. (2021), in their study, also showed that music therapy has a positive effect and can reduce depression and stress in children with autism. One of the methods in the music therapy interventions used also reduced the negative emotions experienced (Wang et al., 2021). In addition, tantrums are also one of the ways in which they release emotions of dissatisfaction and exude displeasure towards a thing or environment.

Students also clearly showed better behavior after several intervention sessions were given. Interactive music system design can also increase engagement and interaction among children with autism (Ragone, 2020). The students also cried less and were calmer when carrying out the tasks given. The acoustic nature of certain music that involves the tonality and harmony of a type of music can also reduce the anxiety felt by children with autism (Parada-Cabaleiro et al., 2022). The music played throughout the students performing tasks, such as Mozart rhythm and classical music, clearly gives peace of mind to the respondents; besides, music is also a field for their social participation (Wu, 2019; Marsh, 2019). However, music with sound triggers emotions of displeasure and upsets students with autism. This is because the autism spectrum disorder experienced causes the respondent to be sensitive to sounds that are too loud.

The instructions given have also been followed and can be maintained for longer, even if they do not reach the maximum of 30 minutes per session. Ye et al. (2021) reported a significant reduction in aggressive behavior and an improvement in self-control in children and adolescents who received music-based interventions, primarily through music therapy. Music therapy not only reduces negative behavior but also shows a significant increase in the social interaction of children with autism (Ke et al., 2022). During therapy activities together with fellow students, they were

seen to interact better with peers. Classroom activities that require them to be in a group also cause them pleasure.

The incorporation of rhythms and melodies in this study is enjoyable. Students are provided with the chance to engage in enjoyable activities alongside their peers, fostering the development of social relationships. Dvir et al. (2020) also emphasize the role of similar movements, while music therapy can improve social skills. For example, teachers use children's songs that require students to sing and perform simple dances or movements according to the rhythm. While the sound of music has been considered to have healing properties and is used in various ways around the world (Shahrudin et al., 2022). The rhythm of soundless music, such as instrumental music, helps in reducing the anxiety and emotional stress faced by the students, even more so during the performance of tasks.

The use of musical instruments, such as percussion instruments, as a medium for music therapy attracts attention and improves compliance with students' instructions. Each musical instrument carries a different meaning to each individual, and this often makes music therapy sessions more effective (Gilboa and Hakvoort, 2020). Njudang et al. (2020) explained that the use of musical instruments in teaching activities can reduce maladaptive behaviors in addition to calmer pupils. Sivathasan et al. (2021) found that personality traits and openness to his typical musical experience will affect the relationship between a person's autistic characteristics and their emotional response to music. This statement is further strengthened by Pedregal and Heaton (2021), who support the beneficial effects on emotions and the overall development of individuals with autism spectrum disorder.

Consequently, the implications of this study are seen to affect social skills, self-expression, and communication in students with autism, as well as assist teachers in performing music therapy as one of the main therapy options. He and Deka et al. (2022) also showed the positive effects of music therapy on the behavioral training of children with high-functioning autism, with improvements in language, social, cognitive, and behavioral interactions. Meanwhile, Knapik-Szweda (2020) also reported positive results in verbal and non-verbal communication, behavioral patterns, and socio-emotional environments with the use of music therapy interventions.

The music therapy applied in this study was seen to have a positive impact on teachers. As stated by Metić and Slavina (2020), the use of elements of music therapy in music teaching, for example, gives positive results for the participation and development of students. With this in mind, teachers have the opportunity to explore new knowledge, as music-related studies are one example of a comprehensive educational strategy that prioritizes the social, creative, and cognitive development of students (C. Li, 2023). The teacher is able to use the knowledge gained to aid in the development of special education students' learning at school.

Additionally, through music therapy, teachers and students can build social relationships. Establishing a positive rapport between the teacher and student fosters an environment where the student feels at ease expressing their emotions and thoughts, while also cultivating a sense of trust in the teacher. Even a musical or non-musical experience will help in the professional and personal development of a teacher as well as the strengthening of good relations between colleagues and

students (Chua and Welch, 2021). This good relationship will lead to the enjoyment of the students following the classroom activities with the teacher while the teacher is able to control the negative behavior of the students from affecting their entire teaching time.

Parents are the ones who spend a lot of time with their children. Through this study, they were able to apply methods in music therapy interventions and implement them with students. Parents can control their child's behavior through music therapy with a more conducive environment and cheaper costs. The construction of parent-child relationships can also be leveled. Newman et al. (2022), in their study, also suggested the use of music interventions as a field for strengthening parent-child relationships, especially through singing activities. Parents will gain a deeper understanding of their children while simultaneously managing their own emotions and stress. This is clearly seen when parents use music therapy to foster their child's learning environment; the symptoms of depression and anxiety faced by parents will also decrease (Kehl et al., 2020; Annesley et al., 2020).

6. CONCLUSION

When music therapy is appropriately implemented and tailored to the specific needs of individuals with autism, it can effectively influence their behavior, especially their emotional state, in a positive manner. This is attributed to the fact that research has demonstrated that music is a significant factor in the lives of an individual, particularly someone with autism. Hence, music therapy should be implemented as a serious intervention, as it frequently serves as a catalyst for enhancing well-being and triggering significant emotional and behavioral transformations. Consequently, it becomes a valuable asset for the holistic development of children with autism, enabling them to lead lives comparable to those of neurotypical children.

REFERENCE

Annesley, L., Curtis-Tyler, K., & McKeown, E. (2020). Parents' Perspectives on their Child's Music Therapy: A Qualitative study. *Journal of Music Therapy*, *57*(1), 91–119. https://doi.org/10.1093/jmt/thz018

Attar, N. M. A., Al-Hroub, A., & Zein, F. E. (2022). Effects of Three Music Therapy Interventions on the Verbal Expressions of Children with Autism Spectrum Disorder: A Combined Single-Subject Design. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.819473

Banire, B., Al-Thani, D., Qaraqe, M., Mansoor, B., & Makki, M. (2020). Impact of Mainstream Classroom Setting on Attention of Children with Autism Spectrum Disorder: An Eye-Tracking Study. *Universal Access in the Information Society*, *20*(4), 785–795. https://doi.org/10.1007/s10209-020-00749-0

Becraft, J. L., Borrero, J. C., Sun, S., & McKenzie, A. A. (2020). A Primer for Using Multilevel Models to Meta-Analyze Single Case Design Data with AB Phases. *Journal of Applied Behavior Analysis*, *53*(3), 1799–1821. https://doi.org/10.1002/jaba.698

Blair, B., & Mahoney, P. J. (2021). Creating Single-Subject Research Design Graphs with Google Applications. *Behavior Analysis in Practice*, *15*(1), 295–311. https://doi.org/10.1007/s40617-021-00604-5

Chicholkar, J., Thakur, R., Thampy, B. S., & Chicholkar, N. (2022). A Quantitative Report on Effectiveness of Music Therapy on Behavioral Changes Among Mentally Challenged Children. *International Journal of Research in Paediatric Nursing*, *4*(1), 46–48. https://doi.org/10.33545/26641291.2022.v4.i1a.89

Chua, S. L., & Welch, G. (2019). A Quantitative Study of Experiences Impacting Music Teacher Development. *Psychology of Music*, *49*(3), 445–461. https://doi.org/10.1177/0305735619873387

De Witte, M., Da Silva Pinho, A., Stams, G. J., Moonen, X., Bos, A. E. R., & Van Hooren, S. (2020). Music Therapy for Stress Reduction: A Systematic Review and Meta-Analysis. *Health Psychology Review*, *16*(1), 134–159. https://doi.org/10.1080/17437199.2020.1846580

Deka, S., Tiwari, P., & Sharma, R. (2022). Music as a Therapeutic Approach in Children with Autism Spectrum Disorder. *International Journal of Health Sciences (IJHS)*, 3225–3242. https://doi.org/10.53730/ijhs.v6ns5.9344

Gassner, L., Geretsegger, M., & Mayer-Ferbas, J. (2021). Effectiveness of Music Therapy for Autism Spectrum Disorder, Dementia, Depression, Insomnia and Schizophrenia: Update of Systematic Reviews. *European Journal of Public Health*, *32*(1), 27–34. https://doi.org/10.1093/eurpub/ckab042

Gilboa, A., & Hakvoort, L. (2020). Buy that Instrument: Graduating Music Therapists Equip their Imaginary Music Therapy Room – Theoretical and Practical Implications. *Nordic Journal of Music Therapy*, *29*(3), 255–270. https://doi.org/10.1080/08098131.2019.1703208

Hastings, S. E., Hastings, R. A., Swales, M., & Hughes, J. C. (2021). Emotional and Behavioural Problems of Children with Autism Spectrum Disorder Attending Mainstream Schools. *International Journal of Developmental Disabilities*, *68*(5), 633–640. https://doi.org/10.1080/20473869.2020.1869414

He, R. (2022). The Intervention of Music Therapy on Behavioral Training of High-Functioning Autistic Children under Intelligent Health Monitoring. *Applied Bionics and Biomechanics*, *2022*, 1–12. https://doi.org/10.1155/2022/5766617

Hodges, H., Fealko, C., & Soares, N. (2020). Autism Spectrum Disorder: Definition, Epidemiology, Causes, and Clinical Evaluation. *Translational Pediatrics*, *9*(S1), S55–S65. https://doi.org/10.21037/tp.2019.09.09

Ke, X., Song, W., Yang, M., Li, J., & Li, W. (2022). Effectiveness of Music Therapy in Children with Autism Spectrum Disorder: A Systematic Review and Meta-Analysis. *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.905113

Keehn, B., Kadlaskar, G., Keehn, R. M., & Francis, A. L. (2019). Auditory Attentional Disengagement in Children with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, *49*(10), 3999–4008. https://doi.org/10.1007/s10803-019-04111-z

Knapik-Szweda, S. (2020). The effectiveness and influence of Vocal and Instrumental Improvisation in Music Therapy on Children Diagnosed with Autism. Pilot Study. *The Journal of Education, Culture, and Society*, *6*(1), 153–166. https://doi.org/10.15503/jecs20151.153.166

Kurzius-Spencer, M., Pettygrove, S., Christensen, D., Pedersen, A., Cunniff, C., Meaney, F. J., Soke, G. N., Harrington, R. A., Durkin, M. S., & Rice, S. (2018). Behavioral Problems in Children with Autism Spectrum Disorder with and without Co-Occurring Intellectual

Disability. *Research in Autism Spectrum Disorders*, *56*, 61–71. https://doi.org/10.1016/j.rasd.2018.09.002

Lee, S., Eui-Jung, A., Yun, R., Chang, Y., & Chung, H. (2022). Emotional Regulation of Young Children with Autism Spectrum Disorders: A Systematic Review. *The Korean Association for Person with Autism*, *22*(3), 1–36. https://doi.org/10.33729/kapa.2022.3.1

Li, C. (2023). Research on The Influence Mechanism of Music Education on Preservice Teachers' Learning Ability. *International Journal of Education and Humanities*, *8*(2), 172–177. https://doi.org/10.54097/ijeh.v8i2.7811

Marsh, K. (2019). Music as Dialogic Space in the Promotion of Peace, Empathy and Social Inclusion. *International Journal of Community Music*, *12*(3), 301–316. https://doi.org/10.1386/ijcm_00002_1

Mayer-Benarous, H., Benarous, X., Vonthron, F., & Cohen, D. (2021). Music Therapy for Children with Autistic Spectrum Disorder and/or Other Neurodevelopmental Disorders: A Systematic Review. *Frontiers in Psychiatry*, *12*. https://doi.org/10.3389/fpsyt.2021.643234

Metić, M., & Svalina, V. (2020). Potential use of Music Therapy Elements in Music Teaching. *Metodički Ogledi*, *27*(1), 149–173. https://doi.org/10.21464/mo.27.1.12

Mud, S. C., Sham, F. M., & Ali, M. M. (2021). Kaedah Pengawalan Tingkah Laku bagi Anak Mengalami Autisme. *Al-Irsyad*, *6*(2), 733–744. https://doi.org/10.53840/alirsyad.v6i2.228

Newman, L. J., Stewart, S. E., Freeman, N. C., & Thompson, G. (2022). A Systematic Review of Music Interventions to Support Parent–Child Attachment. *Journal of Music Therapy*, *59*(4), 430–459. https://doi.org/10.1093/jmt/thac012

Njudang, E., Ranimpi, Y. Y., & Prayitno, I. S. P. (2020). Pengaruh Metode Pembelajaran Musikal bagi Kemampuan Kognitif Anak Autis di SLB Negeri Manekat Niki-Niki. *JPK (Yogyakarta)*, *16*(1), 8–18. https://doi.org/10.21831/jpk.v16i1.31057

Parada-Cabaleiro, E., Batliner, A., & Schedl, M. (2022). An Exploratory Study on the Acoustic Musical Properties to Decrease Self-Perceived Anxiety. *International Journal of Environmental Research and Public Health*, *19*(2), 994. https://doi.org/10.3390/ijerph19020994

Pedregal, C. R., & Heaton, P. (2021). Autism, music and Alexithymia: A musical intervention to enhance emotion recognition in adolescents with ASD. *Research in Developmental Disabilities*, *116*, 104040. https://doi.org/10.1016/j.ridd.2021.104040

Ragone, G. (2020). Designing Embodied Musical Interaction for Children with Autism. *International ACM SIGACCESS Conference on Computers and Accessibility*. https://doi.org/10.1145/3373625.3417077

Raudeliūnaitė, R., & Steponėnienė, E. (2020). Challenges for Primary School Teachers in Ensuring Inclusive Education for Children with Autism Spectrum Disorders. *Pedagogika*, *138*(2), 209–225. https://doi.org/10.15823/p.2020.138.12

Rowland, D. (2020). Redefining Autism. *Journal of Neurology, Psychiatry and Brain Research*, *2020*(02). https://doi.org/10.37722/jnpabr.20202

Shahrudin, F. A., Dzulkarnain, A. a. A., Hanafi, A. M., Jamal, F. N., Basri, N. A., Sidek, S. N., Yusof, H. M., & Khalid, M. (2022). Music and Sound-Based Intervention in Autism Spectrum Disorder: A Scoping Review. *Psychiatry Investigation*, *19*(8), 626–636. https://doi.org/10.30773/pi.2021.0382

Sharif, M. H. M., & Jamil, N. A. (2019). Cabaran Ibu Bapa bersama Kanak-Kanak Kecelaruan Spektrum Autisme (Asd): Tinjauan Literatur. *Malaysian Journal of Social Science*, *4*(1), 33–43. http://journal.kuim.edu.my/index.php/JSS/article/download/477/404

Sharma, P. (2021). A Study of Effect of Listening Music and Various Types of Feelings. *Refereed Journal of Music*, *9*(2), 75–86.

Sivathasan, S., Philibert-Lignières, G., & Quintin, E. (2021). Individual Differences in Autism Traits, Personality, and Emotional Responsiveness to Music in the General Population. *Musicae Scientiae*, *26*(3), 538–557. https://doi.org/10.1177/1029864920988160

Sláviková, Z., & Kráľová, E. (2021). Emotions in Music and their Impact on the Emotions of Percipients: Research on Human Voice and Singing. *Review of Artistic Education*, *21*(1), 1–11. https://doi.org/10.2478/rae-2021-0001

Stegemann, T., Geretsegger, M., Quoc, E. P., Riedl, H., & Smetana, M. (2019). Music Therapy and Other Music-Based Interventions in Pediatric Health Care: An Overview. *Medicines*, *6*(1), 25. https://doi.org/10.3390/medicines6010025

Vugteveen, J., De Bildt, A., & Timmerman, M. E. (2022). Normative Data for the Self-Reported and Parent-Reported Strengths and Difficulties Questionnaire (SDQ) for ages 12–17. *Child and Adolescent Psychiatry and Mental Health*, *16*(1). https://doi.org/10.1186/s13034-021-00437-8

Wang, T., Chen, T., & Wang, J. (2021). Application of Music Therapy in Intervention Research of Autistic Children. *E3S Web of Conferences*, *253*, 03083. https://doi.org/10.1051/e3sconf/202125303083

Wu, H. (2019). Music's Role in Peacebuilding. *Journal of Aggression, Conflict and Peace Research*, *11*(2), 138–143. https://doi.org/10.1108/jacpr-08-2018-0372

Ye, P., Huang, Z., Zhou, H., & Tang, Q. (2021). Music-based Intervention to Reduce Aggressive Behavior in Children and Adolescents. *Medicine*, *100*(4), e23894. https://doi.org/10.1097/md.0000000000023894