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Music as a Tool to Help Children with Autism Spectrum Disorder Develop Social Skills

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Music as a Tool to Help Children with Autism Spectrum Disorder Develop Social Skills:

Literature Review

Capstone Thesis

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Abstract

Children diagnosed with autism spectrum disorder (ASD) have difficulty verbally communicating to others in their community. Due to high levels of engagement, music therapy has been proven to be a more effective method in enhancing verbal and non-verbal communication skills for children diagnosed with ASD. This literature review examines various research studies that seek to improve the social skills of children diagnosed with ASD through methods such as music therapy and speech pathology. In addition to this, it explores the clinical definition and standards of social skills society believe individuals need. Though more research needs to be conducted, the current literature suggests that music can be utilized as a tool to enhance social skills among children with ASD.

Music as a Tool to Help Children with Autism Spectrum Disorder Develop Social Skills

Introduction

From birth to adulthood, an individual's social skills are evaluated by clinicians based on their age and the speech milestones reached. Social skills are competencies acquired in order to interact with other people. This includes pragmatics on how to correctly speak or mannerisms on how to communicate. What happens when children do not reach the skill standards determined by clinicians? Children have been labeled due to lacking certain skills or associated with a disorder. Labeling or stigmatization can be significant especially with autism spectrum disorder (ASD). ASD is a disorder characterized by symptoms that affect the social and behavioral skills of the individual (American Psychiatric Association, 2013). Some of these symptoms include a lack of communication skills, trouble expressing emotions and difficulty building relationships. Due to stereotypes and past history of maltreatment in insane asylums, individuals with ASD have been stigmatized (Grinker, 2020). In the early 1900s, when ASD was first identified as a disorder, psychiatrists believed ASD to be a form of schizophrenia, which led to the development of stigmatization among the population due to negative symptoms such as behavioral outbursts, or what was thought to be hallucinations. Over many decades researchers have found various treatments to help children cope with ASD symptoms; some of these treatments include, speech and language pathology, music therapy, cognitive behavioral therapy, expressive therapies or applied behavioral analysis. As these treatments helped to alleviate symptoms and gain social skills, they also allowed for children with ASD to find their own voice. Since we are a very verbal oriented society, music therapy can give children with ASD a way to communicate in a more engaging and playful way.

Communicating can be difficult for a child diagnosed with ASD, music allows a child to cope with their emotions and social deficits through writing lyrics or playing an instrument. Music has been seen to stimulate the brain, which makes difficult tasks more engaging. For example, music therapists may write a song about how to brush your teeth which may help the client better understand how to complete the task (LaGasse, 2017). Through music therapy, a child is able to mirror a therapist or others and interact without needing the competencies society checks off our list. Mirroring the client allows them to feel validated, which may encourage basic skills (Birnbaum, 2008). The therapeutic relationship is important in order to influence change for the client and by cultivating engaging activities children are able enhance their social competencies. Mirroring and the therapeutic relationship are seen in an approach called Nordoff-Robbins music therapy (NRMT). NRMT is an approach based on the idea that everyone can find ways to develop and grow (Knight et al., 2018). The theory behind NRMT helps individuals focus on their strengths so they can reach their full potential (Knight et al., 2018). For children diagnosed with ASD, NRMT allows them to self-express their inner thoughts and emotions without the need to verbalize. Therapists are able to give children the space to communicate in their own creative way compared to what society believes. Music is a tool utilized by therapists to engage children diagnosed with ASD develop social competencies and express themselves.

Literature Review

Music Therapy through the Lens of ASD

Music therapy is a form of therapy that uses music as a therapeutic tool for treatment. Many researchers have found it is effective for various populations with different needs and that it is most beneficial with individuals diagnosed with ASD. As individuals with ASD can struggle building relationships, socially interacting and expressing emotions, music therapy has been

proven to improve symptoms and help increase life's necessary skills. Music therapy

interventions can help children with ASD improve communication skills, social-emotional

development, behavioral skills, gross and fine motor skills, and sensory skills (Srinivasan &

Bhat, 2013). LaGasse (2017) stated researchers have found that music therapy can "increase

social greeting routines, joint attention behaviors, peer interactions, communication skills, and

cognitive social skills" (p. 25). Like most other forms of therapy, music therapists go through a

process of referring, assessing, and treating the child. When treating a child with ASD, music

therapists set goals based on their needs. According to Hardy and LaGasse (2018), some

common skills that are addressed in sessions can include but are not limited to: communication,

social interaction, emotional skills, gross-motor skills, academics, sensory skills and processing,

attention regulation and self-regulation (p. 189). By utilizing music therapy techniques and

interventions, therapists are able to engage with clients. This is because music stimulates the

brain to become motivated or feel different emotions. Harvard Health Publishing (2011) wrote in

an article on music and the brain explaining that the "external ear collects soundwaves, and the

ear canal funnels them to the eardrum" (Harvard Health Publishing, para. 3). The eardrum then

vibrates bringing and connecting them to the cochlea, which is filled with fluid and tiny hair cells

called cilia. The vibrations then cause fluid waves which activates the cilia to move (Harvard

Health Publishing, para. 4). The cilia movements then activate chemical neurotransmitters to be

released which then activates the auditory nerves (Harvard Health Publishing, para. 4). These

auditory motions are then sent to the brain allowing it to react or stimulate various emotions or

feelings (Harvard Health Publishing, para. 4). Music can be utilized as a tool to engage children

with ASD and enhance various skills such as behavioral and social skills.

There has been a large amount of research conducted on the benefits of music therapy for children with ASD. Studies have shown that music can be utilized to improve social behavior skills. Pater et al. (2021), conducted a study on the developmental progress of social behaviors in children with ASD. Some of the social behaviors examined included eye contact, maintaining focus for 5 minutes, coping with change, verbal communication, non-verbal communication, taking other people into account in a situation, taking initiative, and adapting behaviors to a situation. The study included 10 children (N=10) between four and 10 years old diagnosed with ASD. There were 20 music therapy sessions for a duration of 40 minutes to improve the children's social behavior. The therapists based each intervention around the child's strengths compared to their limitations. This was done through improvising with various instruments which helped the therapist establish rapport with the child (Pater et al., 2021). The researchers found the development of social behaviors had improved in seven out of 10 children, although they believed that greater progress could be achieved with other services in addition to music therapy. Pater et al. (2021), stated "the development we found in this study is in line with previous studies that indicate that music therapy has a positive effect on social behavior of children with ASD…" (p. 6). As music therapy has flourished in the last decade, researchers have found other benefits for children diagnosed with ASD.

An additional study also addressed improving communication skills in children diagnosed with ASD. Hayoung (2010), examined the development of speech and language production through music in children with ASD. This study consisted of 50 participants (N=50) between the ages of three and five years old diagnosed with ASD. All participants were evaluated prior to the study on language and level of function. There were three groups that were assigned to one of the following treatments: music training, speech training, or no treatment. The

music training contained watching a music video with six songs and pictures with 36 words. Similarly to the music training, speech training included the same details without the presence of music. Each participant was evaluated after the study, where the examiners measured the results based on a verbal production evaluation scale. The study showed that all the participants improved in their communication and social skills (Hayoung, 2010). Hayyoung (2010), states the research "suggests that both music and speech training are effective for enhancing speech production, including semantics, phonology, pragmatics, and prosody…" (p. 18). In addition to this, the results also suggested that music was proven to be an effective tool to improve "functional vocabulary acquisition and speech production in children with ASD" (Hayoung, 2010, p. 18). This shows that children with ASD are able to associate speech with the presence of music. Given the studies above, music has been proven to be an effective tool to improve behavioral and social skills in children with ASD. Music can be utilized as a proper intervention tool for children with ASD to improve behavioral and social skills.

Stigmas and ASD

In 1911, a German psychiatrist named Eugen Bleuler coined the term autism after thinking it was a severe case of schizophrenia (Evans, 2013). Due to Bleuler's discovery, ASD was originally viewed as a disease where individuals experienced childish thoughts or wishes to escape to avoid reality (Evans, 2013). As more psychiatrists began research in the 1960s, the ASD diagnostics evolved and they were described as mentally retarded (Evans, 2013). Like other disorders, those diagnosed with ASD have been stigmatized due to the symptoms and abnormal behaviors. According to Grinker (2020), "The asylum was not a hospital for treating illness but a separate world of discipline in which administrators used whatever tools they needed" (p. S59). Some tools workers used on patients included but were not limited too: cages, chains, or stakes

(Grinker, 2020). Grinker (2020) stated that, "Moral judgements about 'mental illnesses' reflect what… people consider the ideal society and person" (p. S56). Myths and stereotypes of disorders allows people to fear individuals with mental health disorders. This can allow the diagnosed individual to feel shameful making them want to keep their disorder a secret (Byrne, 2000). Ronald Braunstein carries a diagnosis of Bipolar Disorder and created the Me/2 Orchestra in Boston, MA. This orchestra was created to fight stigma against mental illnesses and is made up of individuals that carry a mental health diagnosis. In a WGBH interview with Ronald Bruanstein, the telecasters show a video clip of Dylan, double bass player for the Me/2 Orchestra, describing his experience living with mental illness. Dylan describes his experience by stating, "I told people I was a drug addict before I told them I had mental illness because they accepted that and weren't scared of that. I didn't feel like I was a part of the rest of the world…" (Greater Boston Staff, 2019). With more research being done on ASD and other mental disorders, it has been put on society to become more aware of person-first language. This means that when talking about a person with a mental disorder, it is important to always put the person first before the disorder (Office of Disability Rights, 2020). For example, instead of saying the person is autistic, say the individual has autism. Even though lots of research has been done on ASD and individuals have become more aware of the stigma surrounding the disorder, discrimination against individuals with mental disorders is still prominent in society.

One of the most known disorders in the *Diagnostic Statistical Manual of Mental Disorders Edition 5* (American Psychiatric Association, 2013) is ASD. Birtwell et al. (2016), define ASD as a "heterogeneous neurodevelopmental condition composed of a wide 'spectrum' of topographical characteristics and neuropsychological impairments" (p.19). The DSM-5 characterizes ASD with the following diagnostics: Lacks social communication and interactions

skills, repetitive behaviors and restrictions that can form a specific pattern, and develops in early childhood (American Psychiatric Association, 2013). The American Psychiatric Association (APA) also wrote that "symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning" (American Psychiatric Association, 2013, p. 50). Individuals diagnosed with ASD may develop major or minor symptoms depending on the severity of the disorder. Children with ASD may struggle physically when speaking and building relationships with other children due to society's overarching stigma. According to Paul et al. (2018), "there are at least two patterns of language development in children with ASD who talk: one in which language development is appropriate or superior for age, and a second in which language is delayed in a way similar to that seen in other children with developmental language disorders" (p. 333). Temple Grandin, a spokesperson for people with autism, discusses social deficits in children with autism by explaining, "About half of the people on the spectrum are not going to learn to talk… But then you get these smart, geeky kids with a touch of autism, and that's where you've got to get them turned on with doing interesting things" (TED-Ed, 2013). Not every person has the same experience with mental disorder symptoms. Similar to common colds or the flu, the human body reacts to symptoms in different ways. This being said, learning specific life skills such as language/communication may be more difficult.

There are various different methods and intervention options in the treatment of children with speech deficits. Typically speech deficits are treated through a speech pathologist, although can be co-treated with other services such as music therapy. Adams et al., (2012) conducted a study to examine the effectiveness of various speech therapy assessments for children diagnosed with ASD. With a total of 99 participants (N=99), the speech language therapists created interventions and set appropriate goals based on the children's needs (Adams et al., 2012).

Participants were assessed by various interventions and assessments. Adams et al., (2012) concluded that "with carefully targeted specialist intervention, there is potential for some change in some school aged children who have persistent pragmatic and social communication needs…" (p. 242). Despite speech language therapy being seen as a beneficial treatment for children, this study shows that the method utilized varies on the child and their needs. For example some clients may need longer or more sessions. Others may need a more engaging method in order to grasp attention.

Saladino et al., (2020) conducted a study to see how to enhance communication skills in adolescents diagnosed with ASD through cinematography. All the participants were between the ages of 10 and 13 years old diagnosed with ASD. The main goal in the research process was for the examiners to encourage social interaction and communication between the participants. Within this process, participants filmed and edited their videos, then towards the end they watched all the videos with their families. The study was measured on a scale between one and four by a psychotherapist. Saladino et al., (2020) concluded that all four participants improved communication skills throughout the study with not only the other adolescents but also the examiners and participants. Like the study shows, some clients may need a more engaging way to improve social competence such as cinematography or even by being around other children.

Temple Grandin, a spokesperson for people diagnosed with ASD through publications where she talked about autism and the unnecessary labels autism puts on people. Throughout her life, Grandin has gone through the ups and downs entailing her ASD diagnosis. She has taken time to work and "understand her own autistic mind, and to share that knowledge with the world, aiding in the treatment of individuals with the condition" (DeGroot, 2020, para. 2). Grandin did not speak until she was three years old. According to Table 1, her developing speech and

language were delayed compared to the average child. Due to her late speech development, Grandin went to speech pathology in order to catch up and eventually attend school. In Grandin's Ted Talk, *The World Needs All Kinds of Minds,* she said she "got social interaction through shared interests-- I rode horses with other kids, I made model rockets with other kids..." (TED-Ed, 2013). Through these social interactions Grandin was able to develop her social skills by listening and watching others around her. Grandin also discusses on her website how many children with autism struggle due to bullying in school. Some children are stigmatized because of their odd behaviors or appear unintelligent. Due to needing extra help in school or struggle with a speech impediment, children become labeled. Grandin speaks to labels on her website by saying "One of the problems today is for a kid to get any special services in school, they have to have a label" (Grandin, 2012, para. 7). As a child may constantly think about this label, there is a potential that it could "impede on their progress" (Grandin, 2012, para. 10) to gain a better understanding of their mind and to improve upon their speech skills.

Our world is constantly changing and adapting to new ideas and ways of thinking every day. Many diagnoses are stigmatized by different populations all over the world. There is much discussion among society regarding whether people diagnosed with mental disorders should be feared. Saad & ElAdl (2019) discuss intellectual disabilities and how there has been "considerable controversy regarding the name of the disorder… In the DSM-IV, this disorder was called 'Mental Retardation'" (p.52). This term was previously utilized to define a person's low intellectuality (Saad & ElAdl, 2019, p.52). The *Diagnostic Statistical Manual of Mental Disorders Edition 5* (American Psychiatric Association, 2013) presents and defines a mental or psychiatric disorder with the following features: a) a behavioral or psychological pattern b) the individual is in distress due to the symptoms c) does not have to conflict with society's norms or

"social deviance" (Stein et al., 2010, p. 2-6) d) has one or more of the diagnostics presented to make it a valid diagnosis e) has the ability to be clinically treated in someway, and f) reflects a "psychobiological dysfunction" (Stein, et al, 2010, p. 2-6). Due to the effects a disorder has on an individual's mind and body, people and society gather false beliefs which develops a stigma. Rossler (2016) describes stigmas on three levels which include "cognitive, emotional, and behavioural, which allows us to separate mere stereotypes from prejudice and discrimination" (p. 1250). Another article suggests that there are two kinds of stigma based on the perspective of the disorder, including public stigma and self-stigma (Ben-Zeev et al., 2010). Ben-Zeev et al. (2010), define public stigma as "the phenomenon of large social groups endorsing stereotypes about and subsequently acting against, a stigmatized group" (p. 319). In addition to this they define self-stigma as "the loss of self-esteem and self-efficacy that occurs when people internalize public stigma" (p. 319). Being diagnosed with a disorder can lead to negative emotions that can affect the work effort of the individual's daily life (Ben-Zeev et al., 2010). As discussed earlier, Temple Grandin explains on her website that labels can affect the way children learn. Due to their diagnosis teachers may assume they do not understand certain concepts, which then leads to them being put in lower level courses or with paraprofessionals. In addition to this other students in the education system, may neglect or bully a child with ASD because they are different and act beyond society's norm. With giving a child these labels, they can develop self-stigma allowing the individual to develop negative emotions and have a lower self-esteem.

Due to a worldwide stigma against mental illness, various groups have created educational programs and campaigns. These programs and campaigns provide information about the stigmatization of mental illness by correcting misleading information or explaining false beliefs (National Academies of Sciences, Engineering, and Medicine, 2016). The Me2/

Orchestra, group based in New England, is an organization that supports individuals with a

mental illness diagnosis. The orchestra consists of individuals with and without a mental health

disorder in order to demonstrate unity and acceptance. According to the Me2/ Orchestra's

website their mission is to "erase stigma surrounding mental illness" (Me2/ Classical Music for

Mental Health, n.d, para. 2) through music. In addition to the Me2/ Orchestra, the See Me

campaign, in Scotland, "aims to correct inaccurate portrayals of mental illness in an effort to

normalize the public to mental illness" (National Academies of Sciences, Engineering, and

Medicine, 2016). Anti-stigma organizations, such as these, are able to help society understand

they should not fear mental illness. In addition to this, they also help those diagnosed with a

mental disorder find other peers who may be struggling with stigma. With organizations such as

the Me2/ Orchestra, they will be able to educate individuals on mental illness to eliminate

stigma.

Music is interchangeable to an individual who is either listening or playing. No matter the

person and their culture, music is a way to express identity, emotions and culture. Williams

(2013) states that "many genres of music are strongly associated with national identity that just a

few bars of music evoke a mental picture of the source culture" (p. 21). For some populations,

individuals with disabilities and/or diagnoses may find music as a form of self-expression. As

discussed earlier in this paper, individuals given a diagnosis or that have a disability can be

stigmatized by society. This creates a negative impact on their self-esteem and emotional well-

being. The Social Model of Disability explores life through the lens of an individual with a

disability (Purtell, 2013). Purtell (2013) states that the model "focuses instead on the barriers,

discrimination, and oppression that face disabled people" (p. 26). This model recognizes that the

label is the issue (Purtell, 2013). Labels make people feel low or as if they cannot perform

certain tasks or actions due to their disability. Music can help stigmatized individuals or populations find themselves. Lubet (2011), states "Musicality is viewed not simply as an ability, but an extraordinary ability. Music making… is regarded as requiring an exceptional gift within many social confluences" (p. 95). When improvising, listening or composing music, individuals can mold every note and melody for themselves.

Social Norms: Society Versus Reality

Communication is the key to a success in life. We are constantly needing to interact with other human beings in order to receive certain necessities. Interaction can make us feel joy, sadness or frustration, and interaction also can be comforting to know that even when you're far apart, another person is nearby. As human beings, we are continuously developing more skills that help improve our quality of life. While developing these skills, we are being assessed on how we complete certain tasks and interact with others. For example, in elementary school most children are taught the intricacies of the English language. When a child struggles, the teacher observes and assesses if or when they are lacking specific skills. There are many different ways to define social skills all varying on an individual and their abilities. Kavale and Fitness (1996) defined social skills as "...actions exhibited in specific social situations requiring competent performance" (p.227). Other researchers discuss social competence and how they are assessed in schools in the United States as "the degree to which students are able to establish the main and satisfactory interpersonal relationships, gain peer acceptance, establish and maintain friendships, and terminate negative or pernicious interpersonal relationships" (Bremer & Smith, 2004, as cited in Gresham et al., 2001, p. 1). Social competence is developed through building social skills. Most children learn and develop social competence through building relationships with their friends at school.

Society puts the ideal human beings on a pedestal and asks others to follow in their footsteps. When we stray, society then views us as abnormal. Hasegawa et al. (2007) states that the social expectation is the "... general mood of a society about what people should do…" (p. 180). Throughout life, we are given certain development milestones, and if these are delayed society begins adding labels to an individual's name. As children, psychologists label specific milestones that mark growth. From our first steps, words or the first time we eat solid food, caregivers will get celebrated by praising the child and then asking them to repeat the same action. Language in particular can mark a milestone where the child is able to more fluently communicate with their caregivers or other individuals. Deb Roy, a Canadian scientist and professor at MIT, started a research project to figure out how a child learns a language. Roy and his research team at MIT installed cameras around his home to track and collect longitudinal data. After tracing where the family gathered most frequently, researchers at MIT were able to track where Roy's son's speech developed. Roy and his team found that each word that was learned was based on the amount of times the caregivers utilized it in the presence of his son. Children can pick up a word and mimic it utilizing gestures and sounds. As time passes and the word is utilized more often in the child's environment, more complex words are formed (Roy, 2011). Roy used the example of his son learning the word water by playing a series of elapsed audio. Over a year and a half his son began saying "gaga" which slowly evolved into "water". Just like personality and behavior, our social skills are formed as the child grows older, they are expected to reach certain speech/language/social skill milestones in order to develop appropriately. According to Paul et al. (2018) speech pathologists measure the pragmatics of a child's social competence based on their age (Figure 1). At 12 months children are expected to utilize gestures to express certain needs, such as requesting or refusing specific objects, and play

communicative games (Paul et al., 2018). Paul et al. (2018) also suggests that a child should

increase their amount of word usage verbally or with gestures. This can include requesting

information, while also asking and answering questions (Paul et al., 2018). At 24 months,

children begin speaking in a more meaningful way as their communication and word frequency

is more common (Paul et al., 2018). The word expectancy for this age is around 200-300 words

known verbally, and with intention of their meaning. As the child grows older the more words

they know to verbally speak and understand. At three years old, a child is expected to start

asking why questions and to communicate more during play time (Paul et al., 2018). For

example, they begin making minor plots while playing with figurines and add detail to stories. At

four years old, children are expected to begin reasoning with adults and past events (Paul et al.,

2018). In many preschools teachers begin asking questions such as "what did you do this

weekend?" or "why do you feel sad today?". In addition to these conversations and play time are

more intentional in conversation. At five years old, children are expected to know their alphabet,

numbers and letter sounds (Paul et al., 2018). This is usually around the time children begin

reading and creating more complex stories through play time. In addition to this, children at this

age begin requesting more specific necessities with manners. For example, "may I have some

water please?" or "can we go to Dunkin Donuts?". As children grow older, their speech,

language and social skills are expected to increase.

Table 1.

Speech Development in Children 12 months- 5 years old

Age	Speech Development Milestones
12 months	Can express their intentions and needs by vocalizing or using gestures. Average vocabulary 3-50 words

24 months	Words become more frequent and meaningful. Communicate frequency increases and intentions become more advanced. Average vocabulary 200-300 words
3 years old	Child can discuss a topic by adding on new information or details. Use language more during play time Start understanding the use of questions, specifically "why".
4 years old	Children can reason, predict and discuss past events. They can maintain interactions with other humans and can narrate imaginary stories
5 years old	Children begin to address specific needs and requests. Requests can be hidden in their sentences. Begin to learn numbers, letters and letter sounds.

(Adapted from Paul et al., 2018)

Speech pathologists take on a similar role as therapists where they first assess the patient before treating. Important aspects of speech that should be assessed in a child with ASD include comprehension, phonology, production, syntax, semantics, and pragmatics (Paul et al., 2018). Another assessment technique utilized for this population is a parent interview. Since residing in a similar household, parents observe specific patterns in speech and behavior (Paul et al., 2018). There are various assessments that can be utilized for children and adults with various diagnosis or deficits. Some assessments that assess and measure social skills include the test of pragmatic language (TOPL), and the clinical assessment of pragmatics (CAPS). The TOPL analyzes social communication. This means speech pathologists examine how children between the ages of zero and six express their feelings, ask for specific needs and communicate their thoughts (Western

Psychological Services, 2018). Within the exam children are given verbal prompts and color illustrations by the clinician/examiner (Western Psychological Services, 2018). The CAPS is made to assess the social skills of children ages seven to eighteen years old diagnosed with psychiatric impairments as well as behavioral and emotional difficulties (Coufal & Westby, 2021). The exam consists of videos with six subtests and three indices (Coufal & Westby, 2021). These six subtests include: Instrumental performance appraisal (IPA), social context appraisal (SCA), paralinguistic decoding (PD), instrumental performance (IP), affective expression (AE), and paralinguistic signals (PS) (Coufal & Westby, 2021). The indices include: Pragmatic judgement, pragmatic performance, and paralinguistic (Coufal & Westby, 2021). Both these assessments help clinicians measure the speech and social skills children have and utilize the data to create treatment plans. Thomas (2018) wrote that clinicians can fall into viewing the client as means to collect information rather than seeing them as a whole being within the context of their treatment" (p. 8). As clinicians it is important to collect data, but we have to remember the purpose of these assessments are to cultivate a treatment plan for the client.

Lacking social skills might be common in some populations, such as ASD. Speech pathologists examine and treat populations that lack in speech and language skills. Timler (2018) writes that speech language pathologists "address social cognitive deficits that impact conversational skills" (p. 161). Such deficits can be addressed by creating pragmatic language and social skill interventions. These interventions focus on specific social tasks and behaviors needed to have a peer conversation (Timler, 2018). Timler (2018) states "Pragmatic language-focused interventions typically address difficulties in topic management and turn-taking, monitoring awareness and repair of communication breakdowns, connecting ideas fluently across utterances… and appropriate modulation of loudness and prosody" (p. 159). When

implementing interventions, speech language therapists utilize a protocol called teaching

interaction procedure. This protocol describes skills and explains the importance of its purpose,

which then the therapist breaks down the skills sets into accessible steps (Timler, 2018). Dotson

et al. (2010), conducted a study to examine the effectiveness of the teaching interaction

procedure on adolescents with ASD. This study included eight adolescent participants, six

diagnosed with ASD, one with ADHD and one who was a peer model. All participants took part

in a social skills group that met twice a week for three hours. The examiners utilized the teaching

interaction procedure while focusing on three conservational skills including, providing positive

feedback to the individual speaking, answering and asking open ended questions, as well as

conversational basics (Dotson et al., 2010). Dotson et al., (2010) concluded the protocol to be

effective, while the participants maintained the taught skills even after the study.

For some children with ASD, improving speech or social skills is not a realistic option.

Due to this speech pathologists will assist and teach the child to utilize gestures, pictures or

devices in order to communicate (National Institute of Deafness and Other Communication

Disorders, 2020). Flores et al. (2012), conducted a study to compare the communication skills of

an Apple IPad versus picture cards for elementary school children diagnosed with ASD and other

developmental disorders. Researchers measured the study by counting the frequency of

communication behaviors (Flores et al., 2012). The picture based system was defined when the

child pulled the picture off the velcro and gave it to the facilitator, pointed to the picture, or put

picture cards into a sentence (Flores et al., 2012). The IPad was defined when the child touched a

picture on the IPad, touching the IPad as it generated and read speech (Flores et al., 2012).

Researchers found the results of the study to be mixed. Some participants were more successful

utilizing the IPad or the picture board, but neither method was claimed better than the other.

Flores et al., (2012), stated "the differences between the two systems may offer benefits, but they also may detract from communication" (p. 81). Other researchers suggest such devices are needed in the school systems. Waddington et al., (2014), conducted a study on three participants diagnosed with ASD to explore the use and need of IPads as a communication device. The study was measured based on how many times the children touched specific apps on the IPad screen and answered questions facilitated by the researchers. Waddington et al. (2014) concluded that "functional communication skills can be taught to children with ASD who have limited or no speech via an intervention approach that combines systematic instruction with IPad technology" (p. 66). As a clinician it is important to be open to various techniques and methods to help clients. Not every form of ASD is the same, which means clinicians need to be flexible and aware of the treatment options at hand.

Music Therapy and ASD

Music therapy is a beneficial treatment for children with ASD to improve their social and language skills. As social communication is a prominent symptom of ASD, music therapy has been seen to further engage children. LaGasse (2017), states that "the use of musical stimuli and musical engagement to provide a foundation for enhanced socialization in children with ASD, leading to improved non music social skills" (p. 24). Zorba et al. (2020) conducted a qualitative study to test how music therapy can influence children with ASD more easily share and communicate with their peers (p. 633). By utilizing mixed research methods, the participant attended 70 music therapy sessions that were all 30 minutes long. Examiners observed the effects of music therapy on his turn taking skills and emotional expression. Zorba et al. (2020) concluded that "... music therapy positively influences language skills of these children, their verbal and non-verbal communication, participation in games, playing together, and taking turns"

(p. 440). Other researchers such as Rabeyron et al. (2020) conducted a study on the effectiveness of music listening versus music therapy with children diagnosed with ASD. This random control study was conducted in 25 music listening and music therapy sessions with 37 participants (*N*=37) diagnosed with ASD between the ages of four and seven years old. Rabeyron et al. (2020) found that music therapy's Clinical Global Impression (CGI) scores improved by 63% where the music listening group improved 29%. Some of the ASD diagnostics they tested for were improvement in verbal versus non-verbal communication as well as relationship building with other participants. Rabeyron et al. (2020) concluded that "improvement in both groups suggests that joining a music group has a therapeutic effect but also has the special use of music within a structured music therapy program catalyzes such an effect" (p. 4). Both of these studies suggest that music therapy would be a valid treatment for children with ASD due to improved symptoms. Recent studies have shown that music can add a structure for learning and improving speech which activates the brain quicker and makes sessions more enjoyable (Geist, & et al., 2008). Geist et al. (2008), indicated through their study that "children who demonstrate a motivation to exhibit more communicative behaviors when music is present vs. when it is not will most likely benefit more from collaboration" (p. 315). In addition to music being a motivator for children, it can also be more stimulating making the activities and treatment more engaging.

Discussion

Music allows individuals to communicate in another way. Like a language, a client can play an instrument anyway they prefer without the intention of others understanding. Improvisation is a piece music created spontaneously by the musician. The music created through this process can be intentional or unintentional depending on the individual creating the

music. Geretsegger et al. (as cited in Geretsegger et al., 2012) says that Improvisational Music

Therapy (IMT) is a "procedure of interventions that makes use of the potential for social

engagement and expression of emotions occurring through improvisational music making" (p.

260). There are two different forms of improvisation including musical improvisation and

clinical improvisation. According to Wigram (2004) musical improvisation is "Any combination

of sounds and sounds created within a framework of beginning to ending" (p. 37). On the other

hand, clinical improvisation is defined by Wigram (2004) as "The use of musical improvisation

in an environment of trust and support established to meet the needs of clients" (p. 37). The

music created can be inspired by anything the individual is considering in the moment. This

could include, but is not limited to current or past events, inner emotions, or the future (Wigram,

2004). With the improvisational process being unstructured, some populations may find it

difficult to maintain focus in a session. For children diagnosed with ASD, therapists can create a

basic framework to maintain their focus. For example, the improvisation could be based around a

familiar song or theme that engages the child. Like all sessions, the time spent revolves around

the client. Therefore, during the improvisation process the therapist follows the client based on

their behaviors and actions in the moment (Geretsegger et al., 2015). By doing this the therapist

can build rapport and trust with the client so they are comfortable releasing their inner

vulnerabilities in the space (Geretsegger et al., 2015). Wigram (2004) states that improvised

music is "specific to the person creating it, and the empathetic level of sharing that goes on

precise but is nevertheless truthful in reflecting moods, emotions and attitudes" (p. 35). Through

improvisation, children as asked to be at their most vulnerable by letting their inner self pour our

into non-composed music. This form of music therapy gives a child the opportunity to

communicate through self-expression.

Nordoff-Robbins music therapy (NRMT) is a theory and approach was developed by Paul Nordoff and Clive Robbins in 1972 (Our History, 2021). NRMT, also known as creative music therapy is based around the "belief that every individual can find pathways for personal growth and development through music" (Knight et al., 2018, p. 147). This form of music therapy tailors toward a client's needs and allows them to create music they want to hear. According to New York University, they describe NRMT as "An approach based on techniques that allow even the most disabled clients to become active and successful participants" (Nordoff-Robbins Center for Music Therapy, 2021). Knight et al. (as cited in Aigen et al., 2008) say that NRMT will "emphasize a focus on the individuals' strengths, enabling them to reach their full potential" (p.147). Unlike some music therapy techniques, NRMT allows the music therapy to fully be in the moment and space with the client without worrying about playing precomposed songs correctly. With this being said, NRMT is an improvisational method in which the music therapist follows the client's current needs by utilizing skills such as mirroring and matching through music. Wigram (2004) describes mirroring, or initiating, as an "empathetic technique where the music therapist intends to give a message to the client… meeting them exactly at their level and attempting to achieve synchronicity" (p.82). On the other hand matching is a technique that Wigram (as cited in Wigram, 1999) defines as "compatible… or fits in with the client's style of playing, while maintaining the same tempo, dynamic, texture, quality, and complexity of other music elements" (p. 84). Both of these improvisational skills help the music therapist meet the client where they are at and fulfill their therapeutic needs

A major emphasis in NRMT is the therapeutic relationship between the client and therapist. By building a relationship with clients, the therapist is able to gain trust. Within this special bond, the client then becomes comfortable which can later access the client's

vulnerability. As clients, children can be vulnerable and resilient making the bond between them and the therapist to be very important. Birnbaum (as cited in Nordoff & Robbins, 2007) defines the child-therapist relationship as "fundamentally an interactive relationship centering in and around making and experiencing music arising in the special circumstances of therapy" (p. 31). Making music with clients can be a very vulnerable place, especially knowing some children might feel they cannot play instruments or create music.

This approach could be beneficial for various different populations, it has been seen to be most effective for children diagnosed with ASD. Within the NRMT approach therapists build the therapeutic relationship by attuning toward the client's emotions or actions. Birnbaum (2014) says, "NRMT and intersubjectivity are both active attunement that occurs through attentive listening and the unconscious communication that occurs between client and therapist" (p. 32). Children with ASD also are evidenced to struggle with communicating personal emotions. By attuning to the emotions or actions the child is presenting, the therapist is able to build trust with the client and allow them to feel safe being vulnerable. Birnbaum (as cited in Wayne, 2008) speaks towards the relationship between the client, therapist and music by stating, "the client may feel understood and be better able to achieve basic emotional equilibrium and self-cohesion" (p. 32). A New York University article by Eileen Reynolds, writes about a Nordoff-Robbins client Ethan Jones. Jones was described as a child that would hide under the piano during therapy sessions. At the end of his music therapy experience, Jones said he began to "'appreciate his unique qualities'" (New York University, 2016). By partaking in music therapy children are able to express themselves in a way that they feel is necessary. While self-expressing children are showing their true colors by adding their own creative spark as a communication tool.

Music brings out an individual's unexpressed self and emotions. It empathizes and validates an individual's inner thoughts and emotions. Musical self-expression has been defined in many ways and varies on the theory being utilized in the practice. Analytical Music Therapy (AMT), is a theory based on the idea that music can be symbolic for the thoughts, emotions and states of being of an individual (Epp, N.d). This being said, AMT believes musical self-expression is a way of the client interacting or communicating through their unexpressed emotions (Epp, N.d). According to Epp (N.d), by releasing these emotions through playing music "the client is able to achieve catharsis, releasing the energy that unexpressed emotion has blocked" (A Look at the Current Picture - the Self and Musical Expression section, para. 2). NRMT is another theory that emphasizes musical self-expression as a tool for communication. According to Edgerton (1994), Nordoff and Robbins utilized improvised music with various children diagnosed with ASD who increased progress in their "vocabulary, development of spontaneous and communicative speech, development of conversational jargon, and acceptance of change and novel situations" (p. 35). Another article suggests that in NRMT self-expression and music are inseparable (Epp, n.d). Epp (N.d), states that in NRMT "musical experiences motivated the client to become expressive in a distinctly musical way" (A Look at the Current Picture - the Self and Musical Expression section, para. 7). Despite the lack of social skills in children with ASD, music can be utilized as to enhance communication through self-expression.

The literature suggests that music therapy is a beneficial treatment to improve the social skills of children diagnosed with ASD. Music therapy gives the child freedom release energy through creativity and play which allows them to become fully engaged in the interventions presented. In addition to music therapy, speech pathology was another method recommended by the literature. Speech pathology focuses on the details relating to adequate speech, music therapy

also focuses on enhancing social skills through self-expression. As more research is conducted, it

is important to consider how society expects the general population to communicate to each

other and eliminate any stigma against mental illness, including ASD. By doing this, researchers

will be able to gain insight on how children can enhance their social skills through musical self-

expression. After reviewing the literature of how music can be a tool to improve the social skills

of children diagnosed with ASD, more research is still needed. Even though there are many

resources discussing the benefits of music effects on children with ASD and communication

skills, there is also a need for resources on how and if self-expression can lead to an

improvement in verbal communication. This being said music therapy may not be beneficial for

all children diagnosed with ASD. Other methods, such as speech pathology or behavioral

cognitive therapy, may be preferred depending on the client seeking treatment.

Conclusion

After analyzing the literature, music therapy has been found to help improve social skills

in individuals diagnosed with ASD. Some of these social skills include making eye contact,

taking others into account, taking initiative, and verbally and non-verbally communicating.

Throughout human development, clinicians measure our growth by identifying specific

milestones. When discussing social skills, clinicians look at how many words we know and

understand from birth to 18 years old. As society sets standards for how individuals should

interact with one another, this has also created a stigma against those who may find typical social

interaction difficult. With the history society has against mental illness, many individuals

diagnosed with ASD or other disorders may have self-shame. In addition to this, communities

may put labels on the individual because of the diagnosis they carry. People like Temple Grandin

talk about the unnecessary need for labels because it can change the way children are treated. For

example, a child diagnosed with ASD may receive special services in school without needing

them. By using music, children with ASD will be able to express and find themselves, as well as

develop their own way to communicating through self-expression. Even though society

overlooks the norms of how human beings should act and communicate, people should have the

flexibility to be themselves.

Music is a tool to help children with ASD enhance social skills. Though society sets

standards for social skill development, human beings should be free to utilize their own form of

communication. By utilizing music to self-express, children with ASD will have an easier

experience conveying their thoughts and emotions. By partaking in music therapy sessions that

utilize NRMT, children with ASD are given the opportunity to create through improvisational

methods while working with a licensed therapist. Some improvisational methods used include

mirroring and matching which allow the therapist to meet the client where they are in the

moment. This being said, children with ASD are more likely to open up and express themselves

through the trust of a therapeutic relationship. While playing music in the therapeutic space,

children have the freedom to be vulnerable through music. In this case, music acts as another

language where the child only understands the meaning behind each note and does not have to

inform anyone of the actions made. By creating and playing in a therapeutic setting, children

with ASD are able to express themselves in a more natural way. The need for children with ASD

to have adequate social skills may be expected by society, although guiding them towards

communicating through self-expression.

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THESIS APPROVAL
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In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

Thesis Advisor: Denise Malis