Spring 5-20-2023

Dance/ Movement Therapy as a Primary Therapeutic Intervention to Improve Social and Communication Skills of Children with Autism Spectrum Disorder: A Literature Review

Allyssa Millar
amillar2@lesley.edu

Dance/ Movement Therapy as a Primary Therapeutic Intervention to Improve Social and Communication Skills of Children with Autism Spectrum Disorder: A Literature Review

Allyssa Millar

Lesley University

GEXTH 7017: Thesis Seminar

Meg Chang

May 5th , 2023

Abstract

This literature review examines dance movement therapy as an intervention to help children with autism spectrum disorder strengthen social and communication skills. Social barriers due to autism include taking turns, making decisions, participating in joint attention, recognizing emotions in others, and recognizing social cues. Communication skills in children with autism can vary from being unable to verbally express wants and needs to only utilizing gestures to communicate. Dance movement therapy uses the strengths of the children to help develop a communication system that can be understood by those around them. Research studies help to show that use of dance movement therapy interventions and methods such as body awareness, kinesthetic attunement, mirroring, and rhythm help a child develop these skills that hinder their way of interacting in different environments. The research provided evidence that dance movement therapy is helping children develop skills which enhance their ability to create more meaningful interpersonal relationships. The numerous pieces of research found recommends the use of dance movement therapy as the primary therapy to help enhance social and communication skills in children with autism spectrum disorder.

Keywords: Dance movement therapy, autism spectrum disorder, communication skills, social skills, strengths-based

Dance/ Movement Therapy as a Primary Therapeutic Intervention to Improve Social and Communication Skills of Children with Autism Spectrum Disorder: A Literature Review

Introduction

How does one communicate with someone who does not use words? How does one connect with someone who would rather self-isolate? At my first internship one client I worked with was a four-year-old boy who did not use words to communicate, rarely responded when his name was called, and preferred to isolate. Utilizing rhythm, mirroring, attunement, and nonverbal gestures, we were able to make a connection that led to that boy looking at me and smiling as he sat next to me. This boy is a child with autism spectrum disorder (ASD). ASD is a neurodevelopmental disorder that shows deficits and difficulties in social and communication skills as well as in rigid and repetitive behaviors (American Psychiatric Association, 2013). One in every 44 children is diagnosed with ASD (CDC, 2018). However, there is not one primary psychotherapeutic approach utilized to increase social and communication skills in children with ASD (Hildebrandt et al., 2016).

Dance/ movement therapy (DMT) is defined as "…the psychotherapeutic use of movement to promote emotional, social, cognitive and physical integration of the individual" (ADTA, 2020). The use of DMT to strengthen social and communicative skills in children with ASD has shown positive results (Martin, 2014; Segupta & Banerjee, 2020). Focusing on the benefits of utilizing DMT to strengthen social and communication skills in children with ASD will help to bring congruence to care provided to these children.

Children with ASD are known to be detail-oriented, loving, charming, motivated, academic, and knowledgeable about topics that interest them (Clark & Adams, 2020). However,

children with ASD also have barriers that can often overshadow their strengths. Hildebrandt et al. (2016) explained that the social skills that are challenging to children with ASD include skills such as imitation, perspective taking, and empathy. These skills make it difficult for children with ASD to connect with others. The DMT intervention of mirroring has been utilized to strengthen social engagements to create a mutual relationship through empathetic reflection of someone else's movement (Koch et al.,2015).

Once the relationship has been built, communication skills can be strengthened utilizing movement while attuning to the other person (Koch et al.,2015). The level of communication skills children with ASD have can range (Scharoun et al., 2014). For example, one child could be nonverbal, and another child could be able to communicate the same way a neurotypical child at their age communicates. Communication skills include nonverbal communications that are done through body movement such as pointing, making eye-contact, waving, clapping, and more (O'Neil & Moore, 2016). Bringing awareness to the body through DMT can support a child to learn non-verbal gestures in the space that help them to communicate while developing language skills. Working with the body through basic nonverbal skills such as mirroring and imitating others can also strengthen skills needed to communicate nonverbally (Koch et al., 2014; Scharoun et al., 2014; Tortora, 2011). DMT is a strengths-based approach that utilizes what the child's interests or strengths are to start to communicate on the level of the child, otherwise referred to as "meeting the client where they are at" (Scharoun et al., 2014).

The American Psychiatric Association (APA) groups social and communication skills together when diagnosing the severity of ASD (APA, 2013). Communication barriers such as verbal delays, inaccurate nonverbal cues, etc. lead to the inability to express what one wants or needs due to misunderstandings of gestures or behaviors of the child (Samaritter et al., 2017;

Tortora, 2011). These barriers can lead to people feeling misunderstood, and this may cause them to disrupt social relationships by misreading someone's emotions or intentions, engaging in maladaptive behaviors, or reacting in tantrums when engaging with others (Samaritter et al., 2017; Tortora, 2011); these skills are connected. One can look at how both skills can help to inspire more research to be done around using body-based interventions with this population (Martin, 2014; Koch et al., 2014; Sengupta& Banerjee, 2020).

In working with children with ASD as my clients, I have experienced joy watching those with different strengths and barriers associated with ASD utilize movement to socialize and communicate what they want with others. Finding connection with those clients helps create communication through movement. The research shows that there are interventions in DMT that are working to strengthen these skills, but DMT is still not considered the primary therapy when working with children with ASD. In this thesis I will critically review literature about utilizing DMT with children with ASD to suggest that it should be used as a primary intervention to strengthen social and communication skills in children ages 3-10.

Methods

The literature reviewed consists of sources from academic journals, ADTA talks, videos, and academic textbooks. Utilizing the library, Google scholar, and Vimeo to find accurate resources helped to create a rich view of how DMT is utilized in enhancing social and communication skills in children with ASD. Key words such as dance/movement therapy, autism spectrum disorder, social skills, communication skills, creative arts, children and adolescents with ASD, body awareness, and mirroring were used to find sources to review and critique. Sources were chosen when they were peer-reviewed, were credible, had a case study attached, defined terms needed in the research, and added to the overall goal of the research.

Literature Review

History of ASD

Autism is a very misunderstood disorder that has evolved from being classified as one of five pervasive developmental disorders to being classified as a spectrum that has seen a steady increase in the number of children that are diagnosed with autism spectrum disorder (ASD) (APA, 2013; Samaritter & Payne, 2016; Sharma et al., 2018). When diagnosing ASD there are three main areas that show one to be on the spectrum, and they are deficits in communication, socialization, and rigidity in routines (APA, 2013; Samaritter &Payne, 2016). Social and communication skills are examined together when determining the level of support a child may need in their life, which makes it important to find therapies that enhance their skills and way of living (APA, 2013; Koch et al., 2014).

The cause of ASD is not fully known. Links have been made to a high-risk for ASD due to family history of psychiatric disorders, pre-term births, genetics, and the use of drugs during pregnancy (Sharma et al., 2006); however, there is no known direct cause of ASD, which leads parents to feel shame, guilt, confusion, and denial (Friedman et al., 2022; Sutton, 2006). A child can be diagnosed as early as two, at which early interventions can be utilized; however, many parents miss reporting delays in development due to denial, and the child may have a later diagnosis, making it harder to fully benefit from treatments (Friedman et al., 2022; Rai & Rahman, 2022). The research shows that the earlier interventions are utilized, the more likely the skills will strengthen more rapidly (Sharma et al., 2018).

History of Dance/Movement Therapy with Children with ASD

When working with children with ASD I have seen that children who prefer to isolate, only communicate non-verbally, struggle to make eye contact, lack awareness that there are others in

the space, and typically do not do well in a group setting. When I met with these children individually, I found that they were able to allow me into their world by my attuning to their movement, mirroring their postures, and creating rhythms together. Beth Kalish-Weiss (1997) utilized this method as well and found that she could modify a structure inspired by Marian Chace's work. Marian Chace was a dance movement therapist who believed "dance is communication, and this fulfills a basic human need" (Levy, 2005, p.21). Chacian-based sessions relied on the importance of an empathetic therapeutic relationship through kinesthetic attunement, mirroring, use of rhythm, symbolism, and group rhythmic movement relationships to support expressing emotions (Levy, 2005).

Kalish-Weiss (1997) utilized the belief that, though there are barriers faced by children with ASD, these children have strengths to build upon. Kalish-Weiss (1997) also believed utilizing the children's own movements to communicate with them and show them their body in relation to others through mirroring and modifying their movements will strengthen the ability to do it on their own. Mirroring can be described as embodying the full movement of another, including shape, form, quality, and tone felt in their movement actions (Martin, 2014). It is stressed that mirroring and imitating interventions will show the most benefit to the child in the early symbiotic phase (the stage in which children are learning to utilize gestures and sounds to communicate), so the child can start to recognize the movements as their own on another person, in turn bringing awareness to their own body (Scharoun et al., 2014; Tortora, 2011).

Janet Adler (1970) also did some early work through mirroring with children with ASD. Janet Adler's DMT work with children with autism has highlighted the strength of utilizing the child's movement to create a relationship (Adler, 1970; Adler 2003). Adler worked with children who have ASD through use of observation, reflection, and attunement to their movement

(Martin, 2014; Adler, 2003; Adler 1970). Adler would build the relationship through mirroring and utilizing rhythm to attune to the child and in turn strengthen the child's ability to make a social connection with her through their own way of communicating (Martin, 2014).

Suzi Tortora (2011) recognizes that DMT can help strengthen a child's sense of self, physical development, cognitive development, and creativity. The bond between caregiver and infant is important in helping the child to feel safe, co-regulate, and utilize their interactions to begin finding a sense of self (Daniel et al., 2022; Tortora, 2011). Without this bond that offers safety and regulation the child can become dysregulated, resulting in behaviors such as avoidance, sensory seeking, fight/flight, shut down, and agitation (Daniel et al., 2022). To help enhance the understanding of a child's communication through movement, Tortora created an assessment tool and treatment approach called Ways of Seeing (Tortora, 2011). Ways of Seeing helps to observe a child's patterns, allows the DMT to attune to the child, and creates a communication system between caregiver and child that can help to strengthen their social and communication skills with each other (Tortora, 2011).

Social Skills

Children with autism have their own way to socialize, and thinking of how to help strengthen their skills by looking at how they naturally socialize is a good place to start (Adler, 1970). In my own sessions with children with ASD, by attuning to how the children like to socialize and recognizing their nonverbal communication such as turning their back to others, walking away from a peer, or simply sitting on my lap as their way to show they do or do not want to have a social interaction, I can create a relationship with the children. A strengths-based approach is effective when working with children with autism because the children feel that they are being supported to their fullest potential, instead of forcing normalization of autistic children to fit into

the neurotypical environment (Houting, 2019). Utilizing the child's own movements, sounds, rhythms, postures, and ways of being can create an intimate therapeutic relationship that can be built upon to strengthen the social engagement as well as the ability to communicate with others (Kalish-Weiss,1997; Scharoun et al., 2014). Learning how to help strengthen social skills in a way that is natural and beneficial to the child has been exciting, for example, utilizing interventions to help a child who prefers to isolate sit in a group to eat lunch or helping a child who prefers to only discuss Marvel characters engage in conversation about a new topic with me. As I strengthen the relationship with clients through mirroring their movements and creating a rhythm of interaction, I can find a way to interact with them in a way that they enjoy. This helps create a safe space where they feel more comfortable to try new things, such as joining the group for lunch or discussing things other than their interests. The research examined below can support or refute my own experiences in social skills with children with ASD.

Some therapeutic approaches, such as applied behavioral analysis (ABA) used with children with ASD, tend to focus on developing social skills and interactions through the lens of a neurotypical brain development (Granpeeshe et al., 2009), whereas DMT focuses on body-informed exchanges to focus on the child's strengths to enhance skills (Samaritter et al., 2017; Houting, 2019; Aithal et al., 2021). The social cognition skills that tend to be a barrier for children with ASD are recognizing the emotions and thoughts of another person and interpersonal interactions such as taking turns, decision making, and utilizing joint attention (Samaritter et al., 2017; Lee &Schertz, 2022).

Joint attention is the act of connecting with someone visually in order to share an experience with an event or an object, such as following someone pointing to an object or following someone's gaze at an event (Lee& Schertz, 2022). Joint attention leads to the social interaction

through a shared interest of an object or occurrence happening, and skills such as turn taking can strengthen joint attention skills (Lee &Schertz, 2022). A strengths-based approach to working on these skills would recognize that each person processes the world differently, and utilizing the patterns of interaction of the neurodiverse person will help strengthen the therapeutic relationship, enabling more strengthening of the social skills to occur (Samaritter et al., 2017). Manders et al. (2021) found in their study that DMT nonverbal interactions increase the number of high-level engagements such as joint attention in children with ASD.

Turn-taking is a social skill that requires acknowledging that there is one object and multiple people who want to use the object (Lee &Schertz, 2022). When teaching this social skill, dance movement therapists focus on a creative means to teach relating to others and how others' actions may make them feel, as opposed to teaching a set of rules for the child to follow (Manders et al., 2021). For example, in a group session a dance movement therapist could play a game of "Dance Star," where one child leads the movement for one minute and the other children follow. After one minute the leader switches with another child and starts to follow the new leader's movement, and this would go on for as long as the therapist saw fit. In this example, the children are attuning to and mirroring another's movement while learning to take turns and focus on the same activity (Manders et al., 2021). The children also are able to see what their movement looks like on another, strengthening their sense of self in the space (Manders et al., 2021).

Creating a relationship with the client allows the therapist to work on additional skills, such as turn taking, recognizing emotions, etc., so finding what interests the client can enhance that relationship (Samaritter et al., 2017) In the film *A Time to Dance: The Life of Norma Canner*, Norma Canner worked with a 12-year- old boy with ASD who is interested in destruction

(Brownell & Wilcoxon, 1998). Canner utilized tissue paper to allow the boy to cause destruction through movement in a safe way (Brownell & Wilcoxon, 1998). Canner found how the boy liked to communicate, created safe movement to do together, and was able to make a deeper therapeutic relationship, and the boy's mother mentioned that she had never seen him interact with another person so quickly (Brownell & Wilcoxon, 1998).

Parents of children with ASD can often focus in on the lack of social skills, asking, "Why doesn't he have any friends?" or "Why won't he play with anyone else?" due to the confusion and lack of support the parents may feel from society (Friedman et al., 2022). Parents echo the idea that utilizing their child's strength can help to generalize what interventions may work for their child (Clark & Adams, 2020). Clark and Adams (2020) conducted a study asking parents what strengths their children with ASD had and how different environments affected the presentation of the strengths. Parents acknowledged that if treatment focuses on the strengths and interests of their child, the child achieves their goals sooner (Clark & Adams, 2020). DMT is known to use kinesthetic attunement to embody the clients' strengths and interests to reach their goals in socialization, communication, and other deficits due to their disorder (Samaritter et al., 2017; Koch et al., 2014; Hildebrandt et al., 2016). For example, as the therapist, if I observe the client's movement and try to embody what their movement is, I can feel a sense of how my own body reacts and how they may be feeling according to what my body says.

Communication Skills

Communication is defined as "a way which information is exchanged between individuals through a common system of symbols, signs, or behavior" (Merriam-Webster, n.d.). There is a high focus from parents on children with ASD to be able to talk, which can stem from the perception from society that they are unable to control their children's behaviors. This may stem

from the inability to communicate (Friedman et al., 2022). Martin (2014) mentions three different parts of communication, including paralinguistic, linguistic, and pragmatic functioning. These functions connect to socialization skills as well, such as the use of gestures and speech, which is considered paralinguistic, and links how those two things can be utilized to communicate if it is in a socially appropriate way (Martin, 2014). In this pre-symbiotic phase children are learning to utilize intentional gestures such as pointing, clapping, raising their arms to be picked up, and beginning to make sounds which later evolves to words (Vaiouli &Andreou, 2018). Children with ASD all communicate in different ways (Vaiouli & Andreou, 2018); some children point, some children pull others to what they want, some children use a picture-based system known as PECS, and some children with words (Vaiouli & Andreou, 2018). It is also common with children with ASD to have regression of skills, such as being able to say "mamma," "dadda," "hi," and "bye" at one time and then losing that ability (Vaiouli & Andreou, 2018).

Children with ASD often utilize scripting and echolalia, which can inhibit their ability to be understood in what those things may be signaling (APA, 2013; Dalimunte et al., 2022). Echolalia is a way that children with ASD use to try to strengthen their cognitive and verbal ability by repeating a phrase back to others right after it is said or after time has passed (Dalimunte et al., 2022). For example, if a caregiver said, "How is your pizza?," instead of answering with "good or bad" the child with ASD would answer, "How is your pizza?" Scripting is repeating phrases or scenes from a show or movie and can also appear as the child talking in whispered tones to themselves (APA, 2013; Dalimunte et al., 2022). Utilizing observation tools to look at the body movements or behaviors when a child is scripting or utilizing echolalia can help determine if the child is signaling being overstimulated or dysregulated in their environment (Dalimunte et al.,

2022; Tortora, 2011). The ability to discover what the gestures, scripting, echolalia, or behavior may be signaling what the child needs, such as food, a toy, or a sensory need is an important part of strengthening their ability to communicate effectively (Vaiouli & Andreou, 2018; Tortora, 2011).

When a child primarily communicates nonverbally, using movement observations such as Laban movement analysis (LMA) to find out the meaning of the movements is a relational, based way to create interventions with the child (Tortora, 2011). Ways of Seeing is an assessment tool and holistic approach that utilizes a Laban movement analysis (LMA) type of observation to use nonverbal movement to see where the child is developmentally (Tortora, 2011). For example, a child with ASD may be five years old, but based on their observed movement, the child may present as if they were three years old. Nonverbal communication can present as subtle; therefore, using an assessment tool that can observe an individual's ways of communicating will help create interventions to help them communicate more with others (Tortora, 2011).

In the film, *Looking for Me,* Adler (1970) found that children with autism had their own unique language and in group settings it was very difficult to communicate with each child individually. Utilizing body movement, mirroring of movement, and letting the child communicate in their language, one can reach them emotionally to create a connection with the child (Adler, 1970; Levy, 2005). In the film, Adler works with two girls who have autism and have not found meaningful relationships with others, but Adler is able to employ mirroring of their movement to create a safe space and eventually people see the relationship grow and the girls approaching Janet more each session (Adler, 1970). Applying mirroring in individual sessions with children who are nonverbal allows the movement to become the way we

communicate due to a deepened connection between the child and therapist, affirming Adler's work (Adler, 1970).

Body Awareness

In order to cope and understand the outside environment, children must be able to understand their own body and how it can move in the space (Martin, 2014). Children with autism that I have worked with seem to have a lack of body awareness in which they will bump into someone or something as if they did not see the thing in their path. Children with ASD are also known to come very close to others, as they lack the social understanding of personal space in certain situations (Hildebrandt et al., 2016). When utilizing movement songs such as "Head Shoulders, Knees and Toes" applying touch of those body parts the child can feel where their body is in the space. Adler used something similar called "Body Painting" to help children feel their body in the space and how it connects to them to find some body awareness (Adler, 1970). Adler claimed that the first awareness of self comes from the touch of a caregiver; therefore, utilizing touch in practice such as "Body Painting" or "Head Shoulders Knees and Toes" can help to bring awareness to the body and self (Adler, 1970).

Children learn how to navigate their body around the space through developmental movement sequences that are learned by attuning in early relationships (Martin, 2014; Tortora, 2011). Children with ASD are delayed in learning those skills due to the neurological differences in their Mirror Neuron System (MNS) (Martin, 2014). Hildebrandt et al. (2016) use an embodied approach to ASD which operates under the assumption that body awareness is the start of cognition. Perception of the objects around us is connected to how our body is going to move in the environment (Hildebrandt et al., 2016). For example, when a person is walking through their kitchen, they should be able to see the table and move their body around it. However, if there are

any changes in perception or in our brain activity there would be a change in how our body moves in the space (Hildebrandt et al., 2016). In this example, the person moving through the kitchen would not have the perception of where the table is in relation to their body, so the person would run into the table. Children with ASD are known to have differences in their perception of objects and social cues that have been linked to the MNS, which affects how we take in and put out information (Hildebrandt et al., 2016; Matsuno, 2020). This disconnect affects the children's awareness of their body in a space which can affect social interactions because of their lack of awareness of self in relation to others (Hildebrandt et al., 2016). For example, a child with ASD could see an object that they want and start to move toward that object, but if another child was in the path to the object, the child with ASD would not move around the other child; they would run into the child. Additionally, if the child who was hit got mad at the child with ASD, the child with ASD would not understand the connection between the hitting and the child becoming mad. Awareness of self comes from the realization that the body is not only a shape but has a function such as walking, gesturing, etc. (Winnicott, 1972 as cited in Tortora, 2011). Having a sense of self makes the connection between the body and mind that is emphasized in embodied practices (Winnicott, 1972 as cited in Tortora, 2011).

The somatic skill of empathy through awareness of the child's own body to another's is impaired in children with ASD and has been connected to the decrease in social awareness (Koch et al., 2014). The body can be utilized as a resonance tool for children with ASD, which can help them find actions in their body that react to others' emotional states or perceptions through non-verbal gestures and movements (Koch et al., 2014). The use of the body as a resonance tool allows children with ASD to be more sensitive to sensory inputs such as noise, touch, textures, etc. (Koch et al., 2014). For example, a client told me due to her sensory

differences she could feel the vibrations of people's voices when in a large crowd. This sensitivity to sensory inputs can lead to children with ASD becoming overstimulated in an environment, which causes a decreased awareness of their own bodies in space (Koch et al., 2014). An example of this is one child who has ASD who would begin to run in a circle around the room and run into objects, walls, and other children with no recognition of where his body was in the space because the room had too much sensory input for the child, and he became overstimulated and dysregulated. When a child with ASD becomes overstimulated, it is difficult for them to have awareness of their own body in the space, which leads them to running into or hitting others (Koch et al., 2014). The lack of physical perception of their body to another person's body relates to their difficulty with having empathy and reacting appropriately to others' emotions (Koch et al., 2014).

ASD is known for its core deficits (deficits specific to ASD) as those in social/ communication skills (Martin, 2014). However, motor skills such as arm movements, coordination, and stability are also part of core deficits and are intertwined with social and communication skills, such as imitation and mouth movements with sounds (Martin, 2014). The ability to understand others' emotions or *theory of mind* in children with ASD is affected due to the lack of connection to their body in space (Martin, 2014). Utilizing movement interventions such as attunement, movement interactions, rhythm, and mirroring can help to strengthen the motor skills and, in the process, bring more awareness to the body (Matin, 2014). Creating a relationship with the dance/movement therapist through movement creates a safe space for the child to explore their own body in space to bring more body awareness to themselves (Tortora, 2011).

Mirroring

Children I have worked with have shown variable feelings on the use of mirroring or copying their actions in sessions. Adler (1970) found that sometimes if she was too close to a child she was working with when mirroring their movement, the child would move away from her. I had a client who preferred isolation, but when I would mirror his body posture, such as when he was lying on his back with his feet on the wall, he would look and smile at me and then change his position and look to see if I copied. On the other hand, I had a client who yelled, jumped up and down, and threw objects when I copied his actions. It was his way of communicating that maybe he felt uncomfortable or that he did not like what I was doing. I have found mirroring can help create a leveling of the therapeutic power difference and is a way to form a strong relationship with my clients. We can now investigate the literature to see if what I have experienced is confirmed or refuted.

In research found regarding DMT interventions used with children with ASD, mirroring is utilized in strengthening social and communication skills (Adler, 1970; Kalish-Weiss, 1997; Samaritter et al., 2016; Koch et al., 2014; Tortora, 2011). The intimacy that comes from matching one's movements can create the strong therapeutic relationship that has been mentioned throughout the literature (Martin, 2014; Scharoun et al., 2014; Levy, 2005). Feeling safe in a space is important to being in relation to another person, and children with ASD frequently have over-responsive nervous systems that can often lead to dysregulation (Martin, 2014). Utilizing the client's own movements that they feel safe doing to create a connection between the child and therapist can lead to more progress in sessions because they feel safe.

Mirroring itself has been connected to the brain through the mirror neuron system (MNS) (Scharoun et al., 2014). Within the theory of embodied simulation, mirror neurons in the brain's MNS are the neural basis responsible for social-cognitive processing, including empathy,

understanding other people's emotions, and ability to guess other people's intentions (Schmidt et al., 2021; Tortora, 2011). It is hypothesized that children with ASD have a dysfunction of their MNS, which causes the delay in ability to understand others' emotions and strengthen social skills associated with the MNS (Matsuno, 2020). Amos (2013) explained that children with ASD are able to take information in, but there is a barrier in the ability to make intentional use of the information. Amos (2013) pulls from a self-advocate Nick Pentzell, who describes his experience processing information as someone with ASD as that of a "computer short" (p.3), and explains, "I know what I want to do, but my body gets confused, and it does not correctly carry out the order my brain sends it. I take in information, but my body scrambles the output" (p.3). Therefore, those with ASD can imitate other people's gestures but need help to strengthen that skill of processing the information in an effective way. Children with ASD show less automatic imitation of basic motor skills, and there is no conclusion to how the MNS is affecting this disconnect (Hildebrandt et al., 2016). There is a connection that physically imitating actions in others is related to being able to understand how others are feeling (Hildebrandt et al., 2016). Since children with ASD have a delay in the ability to copy others physically immediately, it can be hypothesized that the MNS is negatively affected, leading to misreading emotions in others (Hildebrandt et al., 2016).

Winnicott's work with communication through mother and baby looks at how in that relationship the baby utilizes the mother to see their true self through mirroring their actions (Winnicott, 1958 as cited in Tortora, 2011 p. 5-7). Winnicott's work was one of the first that connected the body to the psyche, which laid the groundwork for DMT theories to emerge (Tortora, 2011). Tortora (2011) expanded on Winnicott's work by showing that nonverbal communication between a baby and caregiver comes through attuning, mirroring, and observing

each other, which are all tools that DMT uses to create connections and strengthen social and communication skills. This idea of relationship between mother and infant is created through nonverbal communication, which translates into therapeutic sessions as a primary way to create relationships (Levy, 2005). Tortora utilizes different rhythms and movements to strengthen the relationship while mirroring and attuning to clients to continue to learn what the clients are trying to say (Levy, 2005).

The information found from the discovery of the MNS has given more purpose to the role of the body experience and its connection to body and mind in relation to the development of social and emotional skills (Tortora, 2011).Tortora (2011) explains that dance/movement therapists find insight on clients through moving and observing their nonverbal communication in sessions, and the MNS functions provide an explanation of what the therapist and client may be feeling through the movement work. Tortora emphasizes the importance of self-reflection so the therapist can see how their body and movement feels in relation to what the client is bringing into the session (Levy, 2005). This research has found that through the signals in the MNS, DMT can create a strong connection through movement, which can be linked to the functions in the brain connecting the mind and body (Tortora, 2011).

Use of Rhythm

In my own work with children with ASD the use of rhythm in my movement and also in music that I used to enhance the movement helped create relationships and also worked on communication skills. Norma Canner (1998) introduces herself to the client and his family by having them rhythmically clap out their names. Canner (1998) shows the help rhythm and drumming can bring to creating a relationship. Taking lead from Canner, I utilized clapping a client's name to get him to respond to it when normally if his name was said he would not

answer. With another client who always walked on his toes or was found jumping up and down a drum was utilized in session. This client used his hands, fingers, and feet to find a sense of his feet fully on the ground and his body in the space. Some clients who may show signs of dysregulation and stimulatory behaviors (referred to often as stimming), such as pacing back and forth, spinning in circles, tapping objects on their body and other surfaces, or using other stimming behaviors have slowed the stimming behaviors when rhythmic music such as drumming, or the use of a metronome has been played in session. In group sessions with clients, I found that utilizing rhythmic movement interventions such as musical chairs; ready, set, go; or a parachute song helps to create a space where even the most isolated client could join in on the movement. Looking deeper into the literature will help confirm the observations made in my own sessions to see if rhythm in DMT is a valid intervention to help strengthen communication and socialization skills with these children.

Morris et al. (2021) state, “Rhythm is a naturally intrinsic part of our basic human physiology” (p.2). Rhythm can help to utilize the whole body to work as one system to move through the world by the regular reoccurrence and natural sequencing of elements or one’s movement, speech, or musical creation (Daniel et al., 2022; Meriam-Webster, 2023). Human brains have multiple parts that process rhythms, making humans naturally ready to create, respond to, and process all sorts of rhythms (Morris et al., 2021). DMT utilizes rhythm of movement patterns and in music practice, as there is theory to creating rhythms in the body that create the timing for movement in relation with others (Morris et al., 2021). Children with ASD display synchrony that is atypical in their motor timing individually and when interacting with others (Daniel et al., 2022). A lot of rhythm of movement in children who have ASD appears as repetitive behaviors or stimming such as hand flapping, finger flicking, jumping up and down,

etc. (Daniel et al., 2022). Rhythm along with mirroring as interventions can transition from a DMT session to the child's everyday life (Morris et al., 2021). Skills in communication and socialization that have been shown to be improved by using rhythm-based interventions are skills such as self-regulation, an increased number of verbalizations attempted and co-operation with others (Morris et al.,2021).

Relationships are known to have a certain timing and rhythm that relate to how we communicate with one another and the social timing in a relationship, which some call the dance of relationship (Amos, 2013; Martin, 2014). Merriam-Webster (2023) defines this type of rhythm as "an ordered recurrent alternation of strong and weak elements in the flow of sound and silence in speech." The relationship people have with children with ASD has more fluctuation in their daily states of being that can cause them to become out of sync with others disrupting the rhythm of relationships (Amos, 2013; Martin, 2014). Rhythm and timing of communication is important with the caregivers and child with ASD, but since children with ASD process the world differently if they become dysregulated in their environment it makes it harder for the caregivers or others in the space to match the rhythm at which the children are communicating leads to an inability to effectively communicate (Amos, 2013; Martin, 2014).

Amos' (2013) research examines what in the brain and body may affect the ability of children with ASD to find a communicative rhythm that matches with others. Looking at the systems within the brain, 11 to 39 % of people with ASD experience seizures, which are a disruption of the peripheral nervous system (Amos, 2013). This disruption can be linked to the ability to find a conversational rhythm that matches others in conversations and non-verbal gestural exchanges (Amos, 2013). Seeing the way children with ASD process the environment through their body and how they create a rhythm finding ways to communicate through their

rhythm and experience of the world is more beneficial to creating relationships then trying to change their way of moving through the world (Amos, 2013). Dance/movement therapists follow this idea of finding connection through the child's rhythm by attuning to the child and utilizing rhythm interventions to help create interactions and communication (Martin, 2014).

A way that dance/movement therapists may use observations of children's movement in order to find connection with their bodies' natural movement rhythms is through body movement observation frames such as Laban Movement Analysis (LMA), Kestenberg Movement Profile (KMP), Ways of Seeing, and others (Samaritter & Payne, 2017; Tortora, 2011). KMP is employed frequently in work with children on the spectrum as it measures different rhythms from movement patterns and looks into what the function of a movement may be, as well as seeing if the movement is telling people what may be affecting a child in their environment (French, 2018).

Utilizing rhythm through attunement not only starts a line of communication, but also helps the client organize their own thoughts and feelings through their chosen rhythm (Levy, 2005). Manders et al. (2021) show that rhythmic synchronicity is important throughout other interventions, such as mirroring to help teach the social skill of turn-taking with someone else. There is an interactional synchrony is that being strengthened when there is an interaction through words or gestures in a relationship, and learning how to find the right rhythm to have with children with ASD will strengthen those interactions (Amos, 2013; Manders et al., 2021).

When exploring the use of rhythm as an intervention of DMT with children with ASD, types of music were used to see how they may affect a session due to different rhythms in the music. In Morris et al.'s (2021) study a large number (98%) of registered DMT's stated that rhythm is very important in sessions and 52% of those DMT's stated that the music's rhythm

was beneficial in their sessions. Utilizing music with rhythm can help to unify the child with the therapist to build social skills, and the music also brings attention to the child's inner bodily rhythm which could help with their ability to move and utilize communicative gestures (Morris et al., 2021). Adler (1970) found that working with children with ASD was challenging in a group because the of children's need for individual attention. However, dance/movement therapists found that rhythm can bring the children together and is highly important in group DMT sessions with children with ASD (Morris et al., 2021). One of Marian Chace's theoretical standpoints was organized as "group rhythmic movement relationship" (Levy, 20015, p.22). The use of rhythm in group sessions could not only create a space to discuss emotions but could bring more awareness to the client's body-language and gestures and help them to modify their own behaviors (Levy, 2015) For example, when using a movement song such as "Listen and Move," the children with ASD are invited to do certain movements (walk, run, tip toe, etc.) to corresponding music that has a different rhythm. When the children attune to the rhythm of the music all together it creates a connected group where all the children are moving together. This leads to the children making social connections through moving with different rhythms. Morris et al. (2021) built upon this use of rhythm in groups and found that DMT's utilize music in group sessions with children with ASD to act as a "non-verbal unifier." The music helps to create a safe environment in the space, and the children can communicate through the rhythmic movements of their bodies to the music (Morris et al., 2021).

In exploring rhythm as an intervention, some cross-over to mirroring has been identified (Daniel et al., 2022). In communication, there are certain rhythms individuals have with others in the way they interact together (Daniel et al., 2022); therefore, in an embodied approach that utilizes specific rhythms in one's movement when mirroring a child with ASD creates a deeper

connection (Daniel et al., 2022). The rhythm used to create that connection emerges from attuning to the child in order to create a safe space where the child does not feel judged or forced to communicate in a socially normalized way (Daniel et al., 2022). When mirroring, choosing a specific movement and rhythm of that movement can be beneficial in finding the purpose or reasoning behind it and discovering what the child may be communicating (Daniel et al., 2022). For example, a child I worked with enjoyed dropping and throwing things and would sometimes increase the speed and frequency of throwing. Through mirroring his rhythm of the throwing movements, I was able to find that as he increased the frequency and speed of throwing, he was becoming overstimulated and I was able to give him breaks, a weighted blanket, and other regulating interventions to help slow his rhythm down.

Discussion

Findings in the Literature

The use of DMT can strengthen the social and communication skills separately, but also finds the two skill sets interrelated (Hildebrandt et al., 2016; Koch et al. 2014; Samaritter et al 2014). Children with ASD may have interests that they would like to talk about all the time that disrupt the social standard for an interaction that flows as two people attune to the other's rhythm (Amos, 2013; Tortora, 2011; Manders et al., 2017). DMT takes the knowledge of the children's interests, and uses that to help the children relate to others in a way that is comfortable to the children. Strengthening communication skills by utilizing the child's strengths in preferred movements and gestures can allow the child to connect socially to another person (Adler, 1970; Hildebrandt et al., 2016; Koch et al., 2014; Manders et al., 2017). Focusing on social skills such as turn taking, joint attention, and decision making to enhance the child's ability to recognize

others in the room and how those people may feel through embodied creative activities concentrates on the interests of the child to enhance the skill rather than a behavioral approach (Manders et al., 2017).

Body Awareness

The importance of children finding awareness of their bodies and how they move through space, and their ability to connect the body to mind helps the children find social connections (Tortora, 2011; Kalish-Weiss, 1997; Adler, 1970). Bringing awareness to the child's body in space allows them to recognize that their movement is their own and can be utilized to connect with others (Hildebrandt et al., 2016). Due to the deficit in the mirror neuron system (MNS) in children with ASD, the perception of their body in space is affected, making it hard to avoid running into others (Hildebrandt et al., 2016). This makes it hard for children with ASD to navigate around objects and keep a comfortable distance from other people (Hildebrandt et al., 2016). I have found that using touch as an intervention with nonverbal children using songs such as "Head, Shoulders, Knees, and Toes," has led to the children mimicking the sounds sung, while also finding their body in space. An increase in body awareness can lead to more awareness of how one child's actions can affect another child's (Hildebrandt et al., 2016) The body awareness also helps children with ASD strengthen skills in empathy and emotional identification (Hildebrandt et al., 2016).

Mirroring

Mirroring can help children with ASD find their sense of self and recognizing how their body moves through space (Koch et al., 2014; Adler, 1970; Tortora, 2011; Martin, 2014). Making use of the children's own movements can help the therapist discover what the possible meaning of the movement is, while also creating a safe space where the children can feel

comfortable with the therapist (Tortora, 2011; Martin, 2014). The safety that is created in mirroring movement connects the children and therapist and deepens the relationship that can then translate to helping the children connect with others (Adler, 1970).

DMT as a strengths-based intervention can help strengthen social and communication skills because it finds out what the child's interests and strengths are and allows the child to lead where the sessions are going to go. Using a child's strengths, means the therapist enters the child's world through following the child's movement and language used to express their wants and needs (Adler, 1970; Koch et al., Houting, 2019). DMT does not try to force skills onto the child; Instead, DMT uses a creative embodied approach through movement activities, interventions, songs, and games to allow the child time to enhance their communication skills to allow more people into their world (Manders et al., 2021). Integrating DMT as the primary therapy into all practice can help to ensure that the client is being met at their developmental level and not being forced into a neurotypically correct way of socializing (Houting, 2019; Manders et al., 2021).

Children with ASD tend to isolate themselves, which makes group DMT sessions a challenge for them (Adler, 1970; Kalish-Weiss, 1997). The desire for children with ASD to isolate can come from the fear of being bullied, laughed at, or misunderstood because the way they can communicate is not the same as someone who is neurotypical (Sutton, 2006). In small groups, partnering activities, or individual sessions Adler (1970) found the children could allow others to attune to them and create their own language through the movement (Koch et al., 2014). In all sessions, the trust of the child must be gained from the therapist by attuning to what the child's gestures mean (Adler, 1970). If a group setting is being used, finding rhythmic synchrony with each other through the movement will help the group attune to each other and

create their own language together (Manders et al., 2021). Rhythmic intervention can help to ground children with ASD and help them practice the natural rhythm of conversations with others (Amos, 2013).

Limitations

There is a lot of literature surrounding the use of DMT on the negative symptoms of ASD; however, there are limitations in the specificity of population and symptoms focused on. Since ASD is a spectrum, there are children who present as higher functioning (children who needs little support) to lower functioning (children who needs full support), the literature available does not clearly define the levels of ASD to examine if these interventions and methods should be specified to children in a certain category. For example, the literature might study children with ASD ages 3-6 and their communication skills, instead of all children with ASD 3-6 who only point to communicate their needs. The last limitation is that due to the time constraints of this thesis, the literature found was mostly written from a neurotypical person's view and an ableist point of view as to what is an appropriate way to behave in society. Incorporating more research from the point of view of someone with ASD would be helpful to painting a full picture of how DMT can be utilized with children with ASD.

Though a literature review was informative to further this research, the ability to create a methodology would have enriched my own practice. Where I am interning currently is the place that Beth Kalish-Weiss practiced. However, there is no board-certified dance movement therapist (BC-DMT) on site to supervise my research. The lack of a BC-DMT's on-site supervision made a methodology for this thesis impossible and limited the furthering of this research. In future studies, more could be discovered through creating a methodology with a specific DMT

intervention, such as rhythm or mirroring. More resources from neurodivergent people and a more diverse sample of research would have added to an expanded thesis as well.

Conclusion

When the four-year-old boy with ASD who preferred to isolate smiled up at me for the first time after my using DMT interventions with him, I felt a desire to find more information about the benefits of DMT. DMT was shown in the literature to enhance social and communication skills through mirroring, attunement, strengthening body awareness, and using the strengths of the children. This strengths-based approach has shown that more progress can be made to help these children relate to their peers and feel accepted in a world that has not been created through their eyes. DMT has a history with children with ASD through the work of Beth Kalish-Weiss (1997), Janet Adler (1970), and Suzi Tortora (2011) that should signal to organizations treating children with ASD that to improve treatment of children with ASD, that more dance/movement therapists should be hired, but that is not what is happening. The research is evidence that DMT is highly successful with children with ASD which has left me more confused as to why DMT is not integrated into every therapeutic treatment.

Dance/movement therapists are not in every facility that treat children with ASD and after this thesis, I do not understand why. It is frustrating that other therapists I have worked with do not understand what DMT is or how it is beneficial to children with ASD when there is plenty of evidence- based research to support it. When reflecting on why this may be, one may look at the fact that there are only seven approved programs for DMT in the United States (US) (ADTA, 2020)., but there are more than 880 accredited counseling programs in the US (Stoffle, 2023). This signals there is not only a strong need for more education in the clinical field around what DMT is, but there is a need for more educational programs for people to become

dance/movement therapists. The point of this thesis was to suggest that DMT should be a primary intervention to strengthen social and communication skills in children with ASD. The research highly suggests that DMT does help children with ASD strengthen these skills, so now we are left to wonder why DMT is not already integrated into treatment facilities for children with ASD everywhere.

References

Aithal, S., Moula, Z., Karkou, V., Karaminis, T., Powell, J., Makris, S. (2021). Systematic review of the contribution of dance movement psychotherapy towards the well-being of children with autism spectrum disorder. *Frontiers in Psychology*. 12(1). https://doi:10.3389/fpsyg.2021.719673

Adler, J. (2003). American dance therapy association 37th annual conference keynote address: *From autism to the discipline of authentic movement*. American Dance Therapy Association. *25*(1)

American Dance Therapy Association. (2020). *Frequently asked questions.* American Dance Therapy Association. https://www.adta.org/faq

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Amos, P. (2013). Rhythm and timing in autism: Learning to dance. *Frontiers in Integrative Neuroscience. 7*(27). https://doi.org/10.3389/fnint.2013.00027

Bartlett, V. K.& Brock, N. (Director). (1970). *Looking for me* [Film]. Janet Adler.

Brownell, I., & Wilcoxon, W. (Director). (1998). *A time to dance: The life and work of Norma. Canner* [Film]. Accessible Arts.

Centers for Disease Control and Prevention (2018). *Data & Statistics on Autism Spectrum Disorder.* CDC. https://www.cdc.gov/ncbddd/autism/data.html

Clark, M. & Adams, D. (2020). Parent-reported barriers and enablers of strengths in their children with autism. *Journal of Child & Family Studies.29*(9). 2402-2415. https://doi.org/10.1007/s10826-020-01741-1

Dalimunte, M., Daulay, S.H., & Adawiyah, R. (2022). Echolalia communication for autism: An introduction. *Journal Pendidikan. 14*(3) 3395-3404. https://doi.10.35445/alishlah/v14i3/740

Daniel, S., Wimpory, D., Delafield-Butt, J.,T., Malloch, S., Holck, U., Geretsegger, M., Tortora, S., Osborne, N., Schogler, B., Koch, S., Masiques, J., Howorth, M.C., Dunbar, P., Swan, K., Rochat, M.J., Schlochtermeier, R., Forster, K., Amos,. P. (2022). Rhythmic relating: Bidirectional support for social timing in autism therapies. *Frontiers in Psychology. 13*(1). https://doi10.3389/fpsyg.2022.793258

French, M.J. (2018) Kestenberg movement profile. https://kestenbergmovementprofile.org/

Granpeesheh, D., Tarbox, J, & Dixon, D.R. (2009) Applied behavior analytic interventions for children with autism: A description and review of treatment research. *Annals of Clinical Psychiatry. 21*(3) 162-173.

Hildebrandt, M. K., Koch, S., &Fuchs, t. (2016). We dance and find each other: Effects of dance/movement therapy on negative symptoms in autism. *Behavioral Sciences.* 6(4). https://doi.10.3390/bs6040024

Houting, J. (2019). Neurodiversity: An insider's perspective. *Sage Journals. 23*(2) 271-273. https://doi.org/10.1177/1362361318820762

Kalish-Weiss, B.I. (1997). Through dance/movement therapy to psychoanalysis. *American Journal of Dance Therapy. 19*(1)

Koch, S. C., Mehl, L., Sobanski, E., Sieber, M., & Fuchs, T. (2015). Fixing the mirrors: A feasibility study of the effects of dance/ movement therapy on young adults with autism spectrum disorder. *Sage Journals*. *19*(3), 338-350. https://doi.org/10.1177/1362361314522353

Lee, K., & Schertz, H.H. (2022). Association of turn-taking functions with joint attention in toddlers with autism. *Autism. 26*(5) 1070-1081. https://doi.org/10.1177/13623613211039945

Levy, F.K.(2005). *Dance movement therapy: A healing art.* National Dance Association.

Manders, E, Goodill, S., Koch, S. C., Giarelli, E., Polansky, M., Fisher, K., & Fuchs, T. (2021). The mirroring dance: Synchrony and interaction quality of five adolescents and adults on the autism spectrum in dance/movement therapy. *Frontiers in Psychology. 12*(7). https://doi.10.3389/fpsyg.2021.717389

Matsuno, N. T. (2020). The correlation between a dysfunctional mirror neuron system and autism spectrum disorder. *Impulse*. 17(1) 1-10 https://doi.tfl9pbo2

Martin, M. (2014). Moving on the Spectrum: Dance/ Movement therapy as a potential early intervention tool for children with autism spectrum disorder. *The Arts in Psychotherapy, 41*, 545-553. http://dx.doi.org/10.1016/j.aip.2014.10.003

Merriam-Webster Dictionary (n.d.) *Communication.Merriam-Webster.com dictionary*. Retrieved March 2023 from https://www.merriam-webster.com/dictionary/communication

Morris, P., Hope, E., Foulsham, T., & Mills, J. P. (2021). Dance, rhythm, and autism spectrum disorder: An explorative study. *The Arts in Psychotherapy. 73*. 1-12. https://doi.org/10.1016/j.aip.2020.101755

O'Neil, M.T., & Moore, K. D. (2016). Keeping my mind strong: Enabling children to discuss and explore issues relating to their perceptions of positive mental health through the arts. *Journal of Research in Nursing, 21*(7), 544–567. https://doi.org/10.1177/1744987116655594

Ren, H., Ren, G., Zhan, Y., & Jia, Z. (2022). Examining the efficacy of dance movement and

music mixed treatment on social communication impairment in children with autism-Based on family parent-child situation. *Frontiers in Psychology.* (23) https://doi.org/10.3389/fpsyg.2022.937564

Samaritter, R., & Payne, H. (2017). Through the kinesthetic lens: Observation of social attunement in autism spectrum disorder. *Behavioral Sciences. 7* (14), 1-14. https://doi.org/10.3390/bs7010014

Schmidt, S. N.L., Hass, J., Kirsch, P., & Mier, D. (2021). The human neuron system—A common neural bases for social cognition? *Psychophysiology.* 58 (1) 1-16. https://doi.org/10.1111/psyp.13781

Scharoun, S.M., Reinders, N.J., Bryden, P.J., & Fletcher, P.C. (2014). Dance/movement therapy as an intervention for children with autism spectrum disorders. *American Dance Therapy Association.* 36 (1), 209-228. https://doi.10.1007/s10465-014-9179-0

Sharma, R.S., Gonda, X., Tarazi, F.I. (2018). Autism spectrum disorder: Classification diagnosis and therapy. *Pharmacology & Therapeutics. 190*(1) 91-104. https://doi.org/10.1016/j.pharmthera.2018.05.007

Stoffle, A. (2023). *Counseling schools and program guide*. Counseling Degree Guide. https://www.counselingdegreeguide.org/schools/

Sutton, E. (2006). The Woman who thinks like a cow. [Video]. Vimeo. https://vimeo.com/110171277

Tortora, S. (2011). The need to be seen: From Winnicott to the mirror neuron system,

dance/movement therapy comes of age. *American Dance Therapy Associations. 33*. 4-17. https://doi.org/10.1007/s10465-011-9107-5

Tortora, S. (2011). The creative embodied experience: The role of the body and the arts in infant mental health. *The Signal. 19*(3), 1-8.

Vaiouli, P. & Andreou, G. (2018). Communication and language development of young children with autism: A review of research in music. *Hammil Institute on Disabilities. 39*(2) 323-329. https://doi.org/10.1177/15257401177051

THESIS APPROVAL FORM

Lesley University
Graduate School of Arts & Social Sciences
Expressive Therapies Division
Master of Arts in Clinical Mental Health Counseling: Dance/Movement Therapy, MA

Student's Name: __Allyssa Millar

Type of Project: Thesis

Title: _____Dance/ Movement Therapy as a Primary Therapeutic Intervention to Improve Social and Communication Skills of Children with Autism Spectrum Disorder: A Literature Review

Date of Graduation: _____May 20th, 2023_____
In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

Thesis Advisor:_____Meg H. Chang, EdD, BC-DMT, LCAT, NCC_____ _____