Case study

Effects of Dance Movement Therapy on Children with Autism Spectrum Disorder

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Abstract

This case study will present the effectiveness of dance movement therapy on the development of communication, reduction of self-aggressive behavior, and improving eye contact in children with autism spectrum disorder (ASD). ASD is a complex neurodevelopmental disorder that covers all aspects of a child's personality (communication, motor skills, behavior, and learning).

People with autism have trouble understanding what other people think and feel. This makes it hard for them to express themselves through words or gestures, facial expressions, and touch.

Because dance movement therapy is based on non-verbal communication, it is a successful therapeutic modality for children with autism spectrum disorder whose behavior is non-verbal. Therefore, they can express themselves and communicate easily through dance and movement.

The study was conducted as a case study with an autistic girl through 30 sessions led by a dance movement therapy student.

An autistic girl (age 5) is entirely non-verbal with pronounced autoaggression. Body movements are predominantly made with hands, always in the same place in a dance studio. Although she makes eye contact with the DMT therapist, it is made only through mirrors. The sessions were held once a week with various dance movement therapy techniques.

This study showed the positive effects of dance movement therapy on the development of communication and the reduction of auto aggression in a girl with ASD. Eye contact was made without the use of a mirror. There has also been a slight shift in verbal communication. Auto aggression was reduced, full-body mobility was achieved, and the girl became aware of the sense of space in which the sessions took place.

Keywords*: autism, dance movement therapy, children, autoaggression, (verbal and non-verbal) communication*

1. Introduction

Becoming aware of movement, that is, becoming aware of the body and bringing it into harmony with the mind, is the essence of dance movement therapy. The body and the mind are inseparable. The basic premise of dance movement therapy is that body movement reflects inner emotional states and that change in movement behavior can lead to changes in the psyche, thus promoting health and growth. Helping individuals – those who are generally healthy as well as those who are emotionally or mentally disturbed, physically or mentally disabled – to regain a sense of wholeness by experiencing the fundamental unity of the body, mind, and spirit is the ultimate goal of dance therapy (Levy, 1988).

Dance movement therapy (DMT) is creative therapy that uses various art forms for the purpose of therapeutic action and offers a client the opportunity to find a new way of expression other than the verbal one. It is especially suitable for detecting the unconscious that lies behind the language. In DMT, the focus is not on the result, such as choreography, but on the internal creative process aimed at new insights or behaviors.

What makes dance movement therapy different from other therapies is the use of the body through a creative process in establishing a balance between body and mind. There is no mental condition that does not reflect on the body, just as there is no physical condition that does not affect the mind. Through the unity of the body, mind, and spirit, DMT provides a sense of wholeness to all individuals. The body refers to the “discharging of energy through muscular-skeletal responses to stimuli received by the brain. The mind refers to “mental activities (...) such as memory, imagery, perception, attention, evaluation, reasoning, and decision making.” The spirit refers to the “subjectively experienced state of feeling in engaging in or empathically observing dancing" (Hanna, 2007).

2. Methods

This research was conducted as a descriptive case study with an autistic girl. The girl was five years old when the study began. She lives with her parents and an older brother (9 years old). She regularly attends daycare with peers who are not on the autistic spectrum. She also attends various therapies such as neurofeedback, occupational therapy, speech therapy, and therapeutic horse riding. She is included in a dance class with a group of children in a dance studio. Her parents are actively and carefully involved in all her therapies.

She is non-verbal and communicates only by hand movements and symbolic cards showing her needs. She displays pronounced self-aggression in moments of discontent. She has firm body movements, especially in the arms. She is able to make eye contact with people she knows well, but at the beginning of the research, the eye contact with the dance movement therapist in training was only through the mirror. She understands directions and loves being among children and listening to recitals.

This case study was based on 30 therapy sessions conducted in the period between September 2018 and July 2019. The sessions took place in the dance gym once a week and lasted between 30 and 45 minutes.

The goal was to explore the effects of dance movement therapy on children with autism spectrum disorder (ASD).

More specifically, the aims were:

- to explore if dance movement therapy could reduce self-aggression in an autistic child,
- to see if verbal communication in an autistic child can be improved using dance movement therapy,
- to verify if dance movement therapy can affect the possibility of a child making eye contact outside the mirror,
- to observe if dance movement therapy helps a child to use their whole body in the space.

According to the set aims, the hypothesis was that dance movement therapy is an effective intervention in treating *children with autism spectrum disorder (ASD).*

Various techniques were used during the treatment, such as mirroring, imitation, polarities, the use of props, and voice as an extension of the movement.

2.1. Description of Interventions

Intervention 1:
Mirroring and Establishing Eye Contact

Mirroring is a technique often used in dance movement therapy and appears nearly in every session. In it, two people stand face to face, with one person

mirroring the other's movement. The effect is almost the same as if one sees themselves in a mirror, but instead, they see their movements done by another person (Payne, 2006). This process improves social understanding and trust and builds relationships between individuals and therapists.

Through a mirroring exercise, an opening routine with the girl was established. The opening ritual included standing side by side in front of the mirror and mirroring her through the mirror. It involved repeating various gestures with face and hands while slightly swinging side to side (Figure 1).

Trust and a strong relationship were established using the technique of mirroring her movements in the opening ritual. It was essential to her that the therapist mirrors her. Initially, eye contact was made only through the mirror, but it was clear and direct. Over time, eye contact in the mirror evolved and moved to complete eye contact outside the mirror.

Figure 1 Opening routine in front of the mirror

Intervention 2: Play and Playfulness

Play helps children develop gross and fine motor skills, language and communication skills, thinking and problem-solving skills, as well as social skills. Autism spectrum disorder can affect how play develops. Children with autism spectrum disorder enjoy playing but find some types of play difficult. It's common for them to have very limited capacity to play; they play with only a few toys or play in a repetitive way.

Veronica Sherburne's developmental movement theory has a crucial role in understanding play in children's lives. Central to her theory is the belief that relating to oneself and relating to other people is essential for the satisfactory development of us all (Sherborne, 1990). Sherborne based her approach to the Development Movement mainly on Laban's theory and her experience working with children with intellectual dysfunctions.

This type of intervention will build social interaction in play with others, mainly because of the inability of verbal communication.

The opening routine was a great starting point. Because the routine was concentrated on movement with arms and gestures, the therapist slowly began to add leg movements. At first, it was a small step forward or backward that she followed without noticing it. Over time, this turned into a chasing game, neglecting the routine movements. It became a game of following the leader, where the role of the leader alternated.

Figure 2. Attempt to pronounce vowels with movement.

In this intervention, with occasional encouragement and motivation, she showed the highest level of involvement, as well as more extended focus and attention than usual. In this way, she implied that she found the intervention extremely interesting and stimulating and that using dance games for therapeutic purposes leads to greater interest and attention.

Intervention 3: Voice - an Extension of a Movement

Adding a voice to a movement has the purpose of encouraging a child to speak and express emotion. Gradually, the emotion of anger is redirected into voice instead of self-aggression.

The therapist used it as the opening ritual with the goal of adding voice to the movement. At the end of each phrase, a voice was added as an extension of the movement. For example, the long pronunciation of the vowel „A" is included with an extended hand movement. She expressed a desire to carry out the given instruction, but it all came down to opening her mouth without a voice (Figure 2).

Using the word „mom" in the opening ritual, she managed to add a long vowel „A" to her movement. The vowel was only heard when the word mom was

spoken. It meant approval and satisfaction with the performance of the routine and her strong bond with her mother.

As the voice was added to the movement, she focused on observing herself in the mirror. Sometimes, on her own initiative, she would sit in front of the mirror and try to speak. It looked and sounded like a mumble. She performed various gestures with her mouth and face; sometimes, she would look at the therapist and mumble something shortly. According to her mother, she did this only in dance movement therapy and with her speech therapist.

We were unable to move beyond the vowel "A" at this point.

Intervention 4: Use of Props

Props are used primarily as a self-regulation tool for the child and occasionally as a positive reinforcement for specific behaviors. Interactions with objects that offer repetition, pattern, and similarity combined with color and rhythm are regularly used with ASD children to reduce anxiety (Keay-Bright, 2006).

In this research, the purpose of the props was to stimulate curiosity and use them for body awareness. To encourage full body awareness, the girl was offered sensory objects with different textures and colors. These objects included balloons, scarves, various percussion instruments, yarn balls, soft pillow balls, stress balls, art supplies, stuffed toys, children's cloaks, etc.

When the box of props was put in front of her, she wouldn't even look at it. She paid no attention to the props, as if they were invisible.

When the therapist used props such as rattles and bells, the girl would come and only then started exploring the box. The first thing she took out was a scarf. She didn't keep her attention on the scarf for long, so the therapist took another one and tried to encourage her to interact by making movements with it. She mirrored these movements.

The girl had difficulty jumping with both legs, and from one leg to another, so folding mats were used to encourage her to jump. The mats would be placed around the space as a polygon. She would only jump if she held hands with the therapist. She needed support and security to jump. She did not like to perform this interventiosn. Still, she did not express self-aggression and resistance during the performance, which showed the safety the girl felt in the session with the DMT therapist and her need for encouragement in an attempt to explore.

Intervention 5: Polarities

Influenced by Jungian Theory, Whitehouse, the DMT therapist, puts great stress on polarity and its effect on the mind and body. She reports that things are never black and white in life, and the decisions we do not make will stay in our unconscious mind and pull us in different directions (Levy, 1988).

Polarities were achieved through the "stop and go" game. The game was familiar to te girl because she was involved in a dance class with other children. She did not participate in the game at the dance class, and watched the other children without involvement.

Since this dance class game included a musical background (instrumental music with guitars and piano), when the music played, she was immediately attentive. During one part of the song, one should stand still in space, while during the other, one should move. Therefore, the first polarity was standing still or walking. After this polarity was successfully performed, various polarities were gradually added to alternate with the musical background. Some of the polarities used are moving up and down, moving only arms (upper body) and moving only legs (lower body), and widening and narrowing movements of the body on the floor. This intervention gave the possibility of developing movements of the whole body and a greater awareness of the body.

Intervention 6: Reducing Selfaggression

Children with autism spectrum disorder don't necessarily express anger, fear, anxiety, or frustration in the same way as other children. They can sometimes express these feelings through aggressive behavior towards other children. Sometimes, they are aggressive towards themselves, they exhibit self-harming behavior. They might hit, kick, throw objects, or engage in head-banging, pinching, plucking, etc.

Children with ASD might behave aggressively or hurt themselves because they:

- *have trouble understanding what's happening around them (e.g., what other people are saying or communicating non-verbally),*
- *cannot communicate their own will and needs (e.g., they cannot express that they don't want to do an activity or that they want a particular object),*

- *are very anxious and tense,*
- *have sensory hypersensitive (e.g., to noise or have a need for stimulation),*
- *want to escape from stressful situations or activities.*

Understanding what causes a child's self-injurious and aggressive behavior can help to change or reduce it. By recognizing and understanding the „triggers" for aggressive or self-aggressive behavior, we can teach a child to avoid the situations that trigger it and express their needs in a more positive way.

It has already been mentioned that the girl in this case study expresses dissatisfaction and anger through self-aggression: a strong punch to the chest. Sometimes, it would be a negative response to the demands placed on her, but sometimes, it would be an expression of helplessness.

To redirect her aggression to the outside, several interventions were examined.

The first intervention was redirecting the punch from herself to an object, such as a pillow or mat. When showing signs of self-harm behavior, a pillow was offered to the girl. However, this would result in even more aggression, this time towards the pillow, or in throwing the pillow on the floor, which wouldn't alleviate her aggression. In those moments, the therapist would go to the mirror and start performing the opening routine, where she would join and calm down. The opening routine was always a safe place to return to in moments of frustration and harmful tension

3. Results and Discussion

The **data related to establishing eye contact** with an autistic girl outside the mirror was the first to be analyzed. During the first session, the girl made eye contact with the therapist in training only through the mirror, and the data showed that eye contact was made in the middle as well as in the last session. In the first interview, the girl's mother shared the girl could make eye contact only with people she felt safe and relaxed with. The assistant also stated that she initially had difficulty making eye contact, but over time, she gained the girl's trust and managed to achieve eye contact.

According to this, we can confirm Hannah's claim that time and trust are crucial for establishing eye contact (2001). It is a non-verbal skill that many children with autistic spectrum disorder do not develop naturally. In fact, children with ASD may feel uncomfortable looking directly at you or not understanding how hard they are supposed to look, so care should be taken to build the skill gradually (2001).

A gradual increase was noted by **reviewing and analyzing the data related to the awareness of the whole body in the space**. As Keay-Bright (2006) explains, interactions with objects that offer repetition, pattern, and similarity combined with color and rhythm are regularly used by children with ASD as methods to reduce anxiety. We can confirm that using props reduces anxiety and thus allows children with ASD to become more aware of their bodies (Keay-Bright, 2006).

The data from the first session shows that the girl spent the entire session in front of the mirror. She used only her upper body, which was in an upright position. The hand movements were restricted, slightly swinging from left to right.

In the middle of the study process, she uses the whole body in interventions that do not involve a mirror. This also includes entering the space, using, and exploring the area. The girl would return to the mirror when she was not in the mood for interventions. At the beginning and the end of the sessions, in the middle of the therapeutic process, she would return to the mirror to the established pattern – the opening ritual.

The opening ritual is still performed in front of the mirror in the final session, while all other interventions are made in space. The girl uses the whole body and both low and high levels of space. Although she uses her entire body, the movements are restricted and sustained.

In the final interview, the mother described several movements she had not done at home before the research and which she now began to perform: movements with a scarf and a Pilates ball.

The assistant didn't notice a greater awareness of the body, but she noticed a shift in the use of the space – the girl was now using the space on her own initiative.

Data analysis **related to** the encouragement of **verbal communication** showed no major shift. A slight shift in verbal communication was achieved at a later session. It refers to adding a voice to a movement by pronouncing a long vowel „A". According to the written diaries of the therapist in training, in the last phase of the research, the girl used non-articulated voices in front of the mirror, observing herself. The mother indicated that she only did that in therapy with her speech therapist. In dance movement therapy, she managed to produce verbal expression only while looking at herself in the mirror.

Although there were no major changes in verbal communication, communication was achieved at another level. According to Marian Chace, empathic mirroring comes from her own intuitive experience of reflecting on her patients in her intent to get into their world. Communication was her goal. She let them know that she was available and interested in their feelings, movements, and thoughts (Chaiklin & Wengrower, 2009). This level of communication was built during this case study.

The last **data analysis referred to the reduction of self-aggression**. In the first session, the girl's self-aggression was expressed by punching herself with a fist on the chest. She would express aggression towards herself when she did not want to do something - it was her way of saying: "NO."

Observation of the middle part of the therapeutic process shows that self-aggression was still present in the same intensity. The last session showed reduced self-aggression. Although the results show a decrease in aggression, it should be emphasized that this is due to trustful and safe relationship between the girl and the therapist, because of familiarity with the girl's pattern of behavior, and the therapist's ability to predict situations which cause discomfort to the girl. It can be concluded that aggression is avoided by avoiding negative states.

The mother and the assistant did not notice a reduction or absence of self-aggression.

Nikolić (2010) explains that encouraging normal development, independence, and socialization, along with the weakening of harmful forms of behavior (aggression, stereotypes, self-aggression), are the main goals of treatment, upbringing, and education, i.e., the overall rehabilitation of a person with autism (2010).
With this in mind, implementing dance movement therapy over a more extended period would significantly impact the reduction of self-aggression in this case study.

4. Conclusion

Without the ability of verbal conversation to exchange ideas to create a shared experience, moving together was the primary means to see, experience, and get to know each other. By moving together and mirroring, a secure relationship and trust have been developed between the girl with ASD and the therapist in training. This relationship was key to making eye contact. We can conclude that by developing a connection and trust between an autistic girl and therapist, eye contact has been successfully achieved.

A slight improvement in verbal communication was also achieved. Using the intervention of adding a voice as an extension of the movement, the autistic girl was able to pronounce the long vowel „A" accompanied by a movement. In the last phase of the research, the girl used nonarticulated voices in front of the mirror, observing herself. Although slight progress in verbal communication was noted in the sessions, the mother and the assistant did not notice any improvement. It would be interesting to see what would change with further work in continuing to work with the verbal extension of movement, which would certainly be an implication for further research on the subject.

Body and space awareness has been achieved with various interventions of the dance movement therapy approach. Interventions like polarities, the use of props, and play helped a girl with ASD

to use and move her whole body. The mother noticed changes in movement at home, especially during play. However, the most significant shift in this part of the research was using the space.

At the beginning of the research, the space in front of the mirror was used most of the time during sessions, but in the last session this space was used only for the opening routine. After that, all interventions took place in the open space. The assistant did not notice a greater awareness of the body, but she noticed a shift in the use of space. The girl would use the space on her own initiative.

Self-aggression is still present, neither the mother nor the assistant did notice a reduction or absence of self-aggression. Although the results show a decrease in aggression in the last session, this is due to the carefully built relationship with the autistic girl, familiarity with the girl's pattern of behaviors, and ability to predict situations that cause her discomfort.

Given all the above, it can be concluded that dance movement therapy interventions affect children on the autism spectrum positively.

5. Resources

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