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Early Effect of Parent-Child Intervention Model Based on Improvisational Dance Interaction on Social Communication Behavior of Children with Autism Spectrum Disorder

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Abstract. The Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that is marked by communication social problems and repetitive monotonous actions. Autistic children have the feature of widespread developmental differences as their core. They have high challenges in socialization and communication and this not only makes a change in personal life but also brings long term problems to their families. Early intervention plays a significant role in enhancing the social communicative skills of the ASD children. The proposed study will address how a parent-child intervention model using improvisational interaction on dance influences the social communication of young children with ASD. The results show that improvisational dance interaction as a body-oriented intervention method can be used effectively to facilitate early social communication behavioral patterns in children with ASD, which offers fresh information to family-based early intervention.

Keywords: Autism Spectrum Disorder (ASD), Improvisational Dance, Parent-Child Intervention, Social Communication, Early Intervention

1. Introduction

Autism Spectrum Disorder (ASD) is increasing worldwide, and the major symptoms of the disorder consist of the inabilities to communicate socially, limited interests, and repetitive stereotyped behaviors. The lack of social communication is one of the most significant issues that young children with ASD have and which strongly affect their social adaptation and development. Early intervention is said to play a critical part in the betterment of ASD outcomes especially, the golden window of interventions that would include kids between 2-4 years of age. Presently, there are specific intervention techniques associated with Applied Behavior Analysis (ABA) and the Early Social Development Model (ESDM) which seem to have shown some form of effectiveness, but they usually focus on well-structured training, which may overlook the emotional experiences and creative expression of children. During the last years, non-verbal therapy like Dance Movement Therapy (DMT), being able to facilitate emotional control and social interactions, became popular in body-oriented interventions [1]. Young children with ASD can create and learn through improvisational dance, where focus is on spontaneity, creativity, and interactivity, which is a low-stress and high-engagement social medium of learning.

This research study is, theoretically, a combination of the embodied cognition theory of movement therapy using dance as a crucial approach to therapy, the concept of synchrony of the developmental

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psychology, and social communication framework of early intervention in understanding mechanism of body-social response. In practice, it proposes some family-friendly dance intervention schemes to the parents and kids with the advantage of the ability to complement early intervention in ASD preschoolers with a low-cost, easily scaled and at the same time achieving good parent-child interactions [2].

2. Neuroplasticity in children with Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is like the continent of mystery in the mental map of the human cognition. Conventional approaches tend to consider it and a weakness that has to be remedied, but recent neuroscience and the developmental psychology is slowly exposing that that might not be a desert of barren region, but actually a more heterogeneous cognitive continent with its own rules. The spirit of childhood autism goes way beyond the term of social impairment; it deeply reflects the variety of neurodevelopmental patterns, which makes us have a single imagination of what a normal mind will be.

The fundamental peculiarities of autism express themselves in a unique system of thoughts. Children with autism cannot be deprived of emotions in social life, these are simply expressed and received more frequently than in most people [3]. They can have difficulty in decoding any minor facial expression or any elaborate social environment as they are working in a different social grammar. Linguistically, there is possible delay or abnormality in the development of language and other children may even obtain peculiar models such as echolalia. Such non-verbal communication as gestures and eye contact may have its own logic. The need to do everything in the same way, seem to be fixed on objects of particular interest and high resistance to the introduction of innovations is not a simple stubbornness, but the primary strategies individuals use to create order, find predictability, and remain psychologically steady in the world of information overload.

The etiology is a complicated combination of factors, revealed by its investigation. The role of genetic factors appears to be the foundational one, with hundreds of loci of the gene linked to it, even though isolated determinants are infrequent, and the impact of genetic factors is mainly polygenic. This genetic susceptibility may be altered by environmental factors, including the age of the parents at which they give birth to their children and pregnancy complications. Both brain scans and neurobiological studies have discovered that there is a manifestation of early theatrical overgrowth and deviant patterns of network connectivity in the brains of autistic children especially in functional connections such as the mentalization network that encompasses social cognitive behavior and the default mode network that handles information aggregate. This can be why their information processing attributes are this way; at times, it is acute perception of detail that overrides the merging of the entire context, it is like possessing a high-resolution sensor with various image processing software.

Early screening and treatment of children with autism is a game with time. Among them are: failure to smile at others socially at 6 months of age, failure to respond to names called at 12 months of age as well as little use of gestures, failure to pretend play at 18 months of age. But identification is not on radicalization, but to offer proper and prompt assistance. The contemporary interventions do not adhere to unilateral corrective methods, but adopt multi-faceted support systems utilizing evidence and supported by reliable research techniques like structured educations and behavioral analysis therapies. The essence of the goals is to facilitate communication, curb problematic behaviors, boost life skills and learning capabilities and provide full support to the families. More importantly, each and every intervention should be based on respecting neurodiversity, with a focus on empowering it, which should seek to exclude the differences rather than eradicate them.

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3. Effect of dance intervention on Autism Spectrum disorder dimensions in preschool children

3.1. Perception and movement level: basic engineering of constructing integrative body schema

Dance intervention is an advanced neural integration training program of the perceptual and motor development in children with autism, which focuses on the fundamental sensory integration impairment in children. Children with autism frequently have to cope with situation of disordered sensory world, in that, (they may have hypersensitivity (defensive), or rather under-responsiveness to proprioceptive and vestibular sensory signals). This causes their own bodies to act in a condition of disorderly sensory signals, and thus, it is challenging to develop a coherent and consistent body image (Body Image) and precise spatial cognition [1].

The important characteristic of dance is that it has been in an organized and enjoyable delivery of an adequate quantity of pleasant and organized sensory input. Developing rhythmic movements of the arms, movements of the steps or rotations of the body in a regular manner, the children specifically arouse their proprioceptive system (sense of muscle and joint position), and their vestibular system (sense of balance and space orientation). This stimulation is not solitary nor anarchic but is packaged as input in the temporal structure of music and the sequence of moves that has a logical order and helps the brain learn to filter, package and synthesize inputs of the various sensory channels. To take the example, a basic movement, that is, squatting to standing, with lifting the arms, combines the adjustments of weight-bearing (vestibular), muscle contraction (proprioception), visual tracking, and motor planning movements [4]. The repetitive drills on such integrative movements are successful to stimulate sensory integration, which gives children better cognitions of their body parts and would experience more control over their location and movement status relative to the anxiety and behavioral confusion through sensory dysregulations.

Dance has a strong effect on the improvement of motor coordination and action planning skills. Autistic children are likely to be jointly clumsy, unable to imitate, or display a disordered motor sequence arrangement of movement. During the decomposition, repetition and combination of the patterns of movement, dance breaks down the more complex motor activities into the units that can be learned and hence predicted. Children follow the guidance of therapists beginning with the imitation of individual motions, and with the gradual joining of these motions into brief phrases and finally with the creation of flowing dance patterns. The neural process enhances the relationship between the coordination activities of the cerebellum and the motor planning regions of the cerebral cortex. More to the point, the movements of dance are frequently symmetrical, rhythmic, and expressive, which does not only enhance the gross and fine motor development in children, but also links movement and internal sensations by the emotional aspect of action (e.g., heavy steps when depicting an elephant, light jumps when depicting a bird). This raises physical movements further than mechanical mimicry, and it is a vehicle of self-expression. Decades of involvement in the dance activities can enhance physical coordination, balance and postural control to a significant degree providing a strong physiological basis to the learning and social interaction that is more complex.

3.2. Communication and social interaction: building bridges for nonverbal dialogue and relationship

Among the fundamental problems of autism are impaired social communications (deficiencies in sharing and responding to non verbal social economies like facial expression, eye contact, gestures, tone of voice, etc.) and deficits in shared attention and turn taking. The dance in itself is a physical manifestation of communication and therefore, it offers an ideal medium of social communication

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with the body, physical movements, rhythm, and a relationship with space, thus, bypassing distorted verbal communication.

The existence of non-verbal common attention and interaction in a way forms the social value of dance. In the group work or duet dances, communication is not based on verbal cues but is followed by imitating movements, by responding, by using the help of a mirror, or by performing a pose together. As an example, activities such as "Follow me" or "Build a bridge with me" will make children attentive to the body language of the instructor or other children, look at their behavior, and change their actions accordingly. This unfolding process naturally results in the formation of the skill of joint attention the ability to share attention of the same event or object with other people. When children are able to fit in with their peer group, by way of imitation, they feel an unseen chemistry and connection with them. This positive social experience is an effective intrinsic reinforcer that drives one to do more socializing.

Dance is a protective playground of mastering societal standards and expression of feelings. The rules usually govern the activities of using dance: one should wait until music plays, take turns to be the lead dancer, on shared space, proper distance, and one should act with others listening to their moves. These are rules that are internalized through the fun/musical framework, which people can grasp and accept simpler than the social rule teaching that is abstract. At the same time, dance promotes the use of the body gestures to express itself in a specific way (jumping when happy, curling when sad) and training on how to recognize emotions expressed through the movement of the body of a person. Therapists can help children perceive: "Hmm, see how he is whirling around with his arms apart--he looks like he is having an awful good time! Such practice has a direct positive effect on children in terms of their capacity to read non-verbal social cues.

In short, dance breeds sincere sympathetic and emergence of collaboration. Primarily, conducting collaborative dancing activities when holding a collective scarf or making a lift together, the children should take into account the movements, rhythms, and strength of their classmates and change their own activity to reach the common goal. It is an event of physical coordination, which is the physiological basis of the more complex psychological terms of empathy and cooperation. Dance gives the child with autism a sense of we, which is based on the rhythm and motions, the child gets to be part of and contribute to the social relations, and not be an observer and disruptor, in a setting with a minimal verbal load and high physical activity levels.

3.3. Emotional and behavioral level: providing structured ventilation and rhythmic containers for self-regulation enhancement

The emotional recognition of children with autism is usually poor, hindered and poorly expressed as well as with low regulatory abilities and thus difficult to control behaviors (stereotyped responses, emotional outbursts, withdrawal) are expressed. Their affective experiences might be dramatic and chaotic but do not have effective management and externalization strategies. Dance in its own structural, rhythmic, and expressive means offers a harmless, fruitful, so to say, "emitting valve" and translator to the emotional world.

Dancing is a method of physical experience of recognition and expression of emotions. A great number of children with autism can hardly tie internal physiological arousal (e.g., increased heart rate, muscle tension) with particular emotional labels (e.g., excitement, anger) on the one hand. Moving by means of choreographed movement themes in specific emotional colors (one of them being A Tree in a Storm or A Calm Lake), the activities related to dance will help children to experience and shape given emotional state using their bodies. A child who is doing The Angry Lion may learn to stomp and roar, but, when encouraged by the therapist to notice this feeling in her body, the child starts knowing this body result as being angry. This direct relationship of the body and emotion circumvents the abstract explanations and so the cognitive becomes real and can be felt. At the same time, dance

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is a socially acceptable and constructive expressive mechanism of emotion, which substitutes potentially destructive emotional outbursts or self-enhancing behaviors [3].

The rhythmical and formative properties of dance has the inherent high ability to emotionally regulate. The predictable, rhythmic (music) and motions streams offer an external structure of order to the possible internal disorder and anxiety in autistic children. The monotonous action along with a fixed rhythm can serve as the soothing effect itself, just like the rhythmic inhalation during mindfulness. It is internalized in the form of an inner feeling of stability and assists children in decreasing the level of anxiety as well as in the improvement of their feeling of environmental control. During children's involvement in the rhythm of the dance, they usually notice the alleviation of stereotypic behaviors, because dancing provides a more practical and integrative alternative rhythmic movement [5].

4. Conclusion

Summing up, dance and children with autism express much more than the motions of the body. It is an in-depth non-verbal conversation, a beats-based neural control, and a gleeful learning process. The dance space helps autistic children to discover themselves, interact with others and the most instinctive means of expressing their inner world. This shows that those who support autism need not just technology, medicine, but perhaps above all, need to transfer back to the oldest and most vital forms of communication and healing known to the human species, finding common beats in common tunes and hearing the drumbeats of the other person in the inertia.

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