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**The Effectiveness Of The Motor Rhythm
Program In The Development Of Non-
Verbal Communication Skills In Autistic
Children With High- Level Functional
Performance**

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Abstract:

Autism disorder is a comprehensive developmental disorder that is still surrounded by a lot of ambiguity in all its aspects. Despite the many difficulties that the child suffers from, and the severe deficiencies in many areas of skills and behavior.

As a result, they need psychological intervention to improve their skills especially in communication skills with others. The purpose of this study is to examine the effectiveness of the motor rhythm program in developing the non- communication skills of autistic children with high-level functional performance which the researcher prepared. The sample of the study consisted of (8) children with high- level functional performance (6)girls and 2 (boys) (4- 6 years).

The result showed that the motor rhythm program significantly improves the non- communication skills of those children. The discussion focused on the importance of a motor rhythm program to improve non-communication skills on them.

Keywords:

Motor Rhythm, non- verbal communication skills, Autistic children with high- level functional performance.

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Introduction:

Autism spectrum disorder (ASD) is considered as one of the Pervasive Developmental Disorders that happens in the early childhood stage which starts from the age of (30-42) months. This disorder is difficult to diagnose due to several reasons firstly: there are big similarities between ASD, emotional disorder and schizophrenia, Sheitman et al. (2004). Secondly: Autistic children suffer from the isolation which causes the difficulty in applying standards, Al Khatib (2007).

The third reason is that the researches made on the ASD in the developmental countries started recently. ASD is a behaviorally defined condition and it has many reasons, whether due to genetic reasons in many cases or due to a number of different known and unknown biologically based brain dysfunction. Autistic children grab attention due to their different ways of processing information such as perceiving, processing and interpreting information. Also Autism is a neurodevelopmental disorder. Matson and Sturmey (2011); Al- Othman (2014). In 1991, British scientist "Frith" published a book on autism and Asperger, which led to the emergence of Asperger disorder as one of the comprehensive developmental disabilities in the fourth statistical manual of mental disorders. In 1994, this disorder was considered an independent disorder and was called "high performance autism" or "mid autism" by the international classification of disease and that is because of the simplicity of its symptom programs and its rapid response to therapeutic intervention Myles et al. (2005). These children have a range of characteristics such as:

- Strangeness of social relations, which are often crude or clumsy when compared to the relations of ordinary children.
- The naivety and integrity of intention.

- The difficulty of starting and continuing in a conversation with others, Myles and Simpson (2002).
- The speed of discomfort due to any changes in their environment or routine actions such as the change of place or daily activity programs.
- They have difficulty in understanding the feelings of others.
- Their conversations and interests revolve around specific topics with no attempt to change them such as (weather- TV channels- geographical maps)
- They become restless, they keep vibrating and they become more anxious, especially when they are put in a state of attention and concentration.
- Lack of ability to understand others or put themselves in their place.
- The impossibility of making friends and therefore they always suffer from isolation.
- Suffering from difficulties in the tactile perception, spatial perception and abstract thinking, Christensen et al. (2019).

This characteristic agrees with what was shown in the Mind theory “Baron Cohen”, which showed that ASD children find it difficult to perceive others’ feelings, mental state, perspectives, as well as their intentions, Baron-Cohen et al. (2000). The problem of high- performing ASD children is concentrated in their ability to communicate and interact socially with the people around them. They live in social isolation and experience loneliness. Although they are aware of the existence of others, We find their efforts useless to talk to them, the lack of their ability to social interaction and crudeness and heavy manner in the initiation, and focusing on their interests and needs and to

continue to talk about topics that do not interest others makes it difficult to establish friendships with their peers and also lead to their negative behavior, El Adous (2015) confirmed that these children suffer from a clear deficiency in verbal or visual and auditory communication, Kamel (2015) also confirmed on the importance of developing the communication skills among children with autism, because it helps in exchanging information, feelings and ideas. Psychologists classify communication into two basic types verbal communication and non- verbal communication. Verbal communication is considered as a language skill that helps to achieve common understanding and leads to the satisfaction of needs through the use of words or language with the same meanings during the mutual interaction between the sender and the receiver. Verbal communication involves both receptive and expressive skills. On the other hand, Non- verbal communication does not depend on verbal language in achieving the goals of the communication process as it depends on the use of the language of the lips or body organs, Alawi (2010); Al-Zabbi (2015); Al- Dulaimi (2016).

There are types of non- verbal communication

Skills Visual communication skills:

Autistic children avoid visual communication in order to escape or to avoid social and communicative interactions, they do not focus on anything, and they can't understand other's facial expressions and gestures jabaly.H (2016)

Imitation skill:

The skill of imitation is an important skill that helps ACD children in learning.child imitation of the behavior without his knowledge of the rules and skills of performance in this behavior. Sometimes children imitate

the behavior immediately after watching s is called immediate imitation or if they imitate the behavior after watching it with minutes, hours or days this is called deferred imitation. The ACD children find self- difficulty in imitating others, but with time and training it can be gained through many ways, like gaining the love of the child, the gradation of tasks from easy to difficult, the use of reinforcement, the use of the of repetition in the training on this skill, Vivanti and Hamilton (2014); Bololoi and Rizeanu (2017).

Shared Attention skills:

Shared attention is the focus of both the child and the adult on the same event or object through a gesture, or eye gaze. This skill is one of the important skills that should children with autism be trained on, it helps them to express their needs, and improve their social communication skills, Hannah (2009); Eissa (2015).

The facial expressions

ASD children suffer from a lack of ability to express feelings of sadness, joy, anger and fear therefore they need to be trained because facial expressions are the best way to express humans' feelings especially in personal communication, Tell (2009).

Signal skill:

Signal skill is a skill that supports speaking language skills and may replace language, Kamel (2016) but the researcher sees that training on this skill is aimed to support speaking language not to replace it because It is also useful in developing communication skills in autistic children.

Autistic children find it difficult to understand and use communication channels that include the use of facial

expressions, body language, and visual communication, and consequently they have difficulty in interpreting non-verbal messages. Many studies and programs tried addressing communication deficiencies in autistic children, but so far there is no single method agreed to be effective for building communication with those children. To find this way or this beginning we had to ask ourselves how to speak their language so we can communicate with them. The only global language is the language that is communicated through our bodies and through our movements, Grönlund et al. (2005) "Piaget" emphasized the importance of playing and its rhythmic motor activities to help children to explore the world around them and to understand concepts, meanings and symbols. Also they help them to form a mental image of their bodies and promotes the development of their communication skills, Khouly (2016), Al- Fakhrani (2017).

The current study sees that communication through the body eventually leads to the acquisition of automatic verbal expression skill. Because motor rhythm activities include movement and playing, which help to develop social interaction in these children. It's also a source of happiness and pleasure for these kids. Unlike other developmental disorders, autism disorder is a stressful and more difficult developmental disorder for parents, The researcher sees that the motor rhythm activities can help and support Autistic's parents in developing a warm and satisfying emotional relationship with their children.

Research objectives:

- To design the motor rhythm program for autistic children with high- level functional performance.
- To develop non- verbal communication skills in autistic children with high- level functional performance.

Methods PARTICIPANTS:

The sample of the study consisted of (8) children from the Two learn academy center and smart children center in Giza, (6) girls and (2) boys, who get the highest scores on the (C.A.R.S) assessment scales, The mean ranking was (20.1) which indicates the homogeneity of the sample in terms of variable rate of diagnosis of autism. Their ages ranged from 4- 6, the mean ranking of age was (30.1). Their intelligence ranged between (110- 120), according to Stanford bine scale forth picture. The mean ranking was (2.3) the previous result indicates the homogeneity of the sample in age and intelligence variables. The mean ranking of nonverbal communication skills was (2.5) this indicates that the homogeneity of the sample also in the non- verbal communication skills.

Study Tools:

The study used a variety of tools for the purpose of obtaining data for sample members and those tools are Data collection tools

Preliminary data collection form for autistic children. (Researcher preparation).

Preferred child support form. (Researcher preparation)

Gilliam scale for Diagnosis of Autism Disorder (GARS) James Gilliam, Translation and localization Abdallah (2006),

Stanford Binet Scale IV, A measure of children's intelligence (prepared by: Masry Hanoura,2006)

Measurement tools:

A scale to measure the non- verbal communication skills (Researcher preparation) consists of 31 sentences which contain five dimensions, (Visual communication, Imitation skill, Shared Attention skills, Facial expressions,

Signal skill) estimated by parent. The correction method was in a triple gradient (Usually = 3 degrees, often = 2 degrees, seldom =1 degree) high score indicates too high non communication skills. To prepare this measure the psychological heritage of the study subject has been reviewed Like Kamel (1015).The measure has been also revised by a number of the specialists from the faculty of psychology and mental health in the Egyptian universities who proposed the suitable phrases for the non-communication skills as well as the five dimensions which included the measure. The researcher also calculated the reliability of non- communication skills measure by using Alpha Cronbach formula. Reliability coefficient of alpha was (0.832). Reliability coefficient of the dimension of visual communication skills was (0.82) Reliability coefficient of the dimension of Imitation skill was (0.910) Reliability coefficient of the dimension of Shared Attention was (0.852) Reliability coefficient of the dimension of Facial expressions was (0.858) Reliability coefficient of the dimension of signal skill was (0.845). These values are 3

indicating a high reliability coefficient of Alfa. This indicates the reliability of the tool. The validity of the measurements was verified by exploratory factor analysis by Hotling Principal Component. The Eigen value was greater than (1) and the communalities were more than 0.3.The rotation by Virmixe has been used. The result reveals that the measure has a high validity and coefficient.

Experimental treatment tools:

Motor rhythm program (Researcher preparation) The program aims to develop non- verbal communication skills in autistic children with high functional performance according to a set of organized steps based on the foundations of the theory, techniques and principles of psychological counseling. The program was based on a

rhythm motor accompanied by music. In order to prepare this program Several studies on the subject have been reviewed like, Tell (2009); Eissa (2015); Scharoun et al. (2014) TEEACH program, LOVAAS program and Floor Time program. The program was implemented from 1/5/2019to 1/10/2019. The program included a range of Musical kinetic activities and rhythmic dances for 20 weeks, two sessions each week, the total for the program was 40 sessions.

The program relied on the use of a range of techniques such as reinforcement, Modeling, Prompting (physical prompt, sign prompt, gestural prompt, prompting & fading) and Imitation.

All the sessions'programs included music and relaxing exercises. They train children on recognizing their bodies' movements and linking between the music dynamic and the body's movement,as when the children were asked to walk fast on the tunes of fast music and to walk slowly on the tunes of slow music. From the exercises that enhance the eye visual communication skills, is when the trainer asks each two kids to stand face to face to each other, then they should open their legs, and tilt their bodies forward with their hands raised upwards and held together. Also another exercise is when the trainer massages each kid while focusing on the eye to eye contact between both of them, and after the trainer finishes massaging one kid she rings the bell, so that the next kid gets in.

Some sessions concentrate on the shared attention skills.In one of these sessions the trainer asks the children to walk on a drawn line on the ground, while concentrating on the balloon that the trainer holds at the end of the line, and while listening to the playing music, if a child stops looking at the balloon the trainer should stop the music. An example of the imitation skill exercises is when the

children are asked to imitate whatever the trainer does whether they are imitating dancing movements or certain types of animals and birds.

The researcher got help from a movement rhythm trainer.

Pilot Study:

The research conducted a pilot study on 10 children sample out of the basic research sample from 9/3/2019 to 10/4/2019 aiming at:

- Determine the number of program sessions.
- Select the time that could be spent on each session.
- Identify the method used to apply each activity in the program.
- Select the right tools for each session.
- Choose Training methods. The researcher used the method of individual training.
- Identify any constraints and try to avoid them.
- For optimal arrangement for measurements.

Result:

The Wilcoxon test was applied to identify the differences between the mean rank of autistic' s children in pre and post measurements on non- verbal communication skills scale (table1) the results revealed differences between the (pre, post) measurements of non- communication skills in favor of post measurement at the significance level (0.01) after applying program. The Wilcoxon test was applied to identify the differences between the mean rank of autistic' s children in (Post and follow) measurements of non- communication skills. The results revealed no differences between the (post &the follow) measurements of non- communication skills (table 2).

Table 1: Shows the results of the differences between the mean rank of autistic's children in pre and post measurements on non- verbal communication skills scale N=8.

Dimension	Measurement Pre- post	Mean rank	Total rank	Z	Significance
Visual communication skills	Negative rank	4.5	36	2.5	0.01
	Positive rank 8				
	Equal rank				
Limitation skill	Negative rank	5.4	55	2.86	0.01
	Positive rank 8				
	Equal rank				
Shared attention skills	Negative rank	5.5	55	2.869	0.01
	Positive rank 8				
	Equal rank				
The facial expressions	Negative rank 1	4.85	33	2.266	0.01
	Positive rank 7				
	Equal rank				
Signal skill	Negative rank	4.5	36	2.538	0.01
	Positive rank 8				
	Equal rank				
Total degree	Negative rank	5.5	55	2.939	0.01
	Positive rank 8				
	Equal rank				

Table 2. Shows the results of the differences between the mean rank of autistic's children in post and follow measurements on non- verbal communication skills scale N=8

Dimension	Measurement Pre- post	Mean rank	Total rank	Z	Significance
Visual communication skills	Negative rank Positive rank 6 Equal rank 2	2.8	15	1.75	No significance
Limitation skill	Negative rank Positive rank 5 Equal rank 3	4.1	16	1.16	No significance
Shared attention skills	Negative rank Positive rank 6 Equal rank 2	2.8	15	1.75	No significance
The facial expressions	Negative rank Positive rank 6 Equal rank 2	2.8	15	1.750	No significance
Signal skill	Negative rank Positive rank 6 Equal rank 2	2.8	15	1.750	No significance
Total degree	Negative rank Positive rank 3 Equal rank 5	6.34	19.1	0.072	No significance

Discussion:

Referring to the positive results which revealed the effectiveness of motor rhythm program used in the study to improve the non- verbal communication skills for autistic-children, the researcher considers that Motor rhythm activities and Dance movement help children to stimulate the sensory system and help them to develop non- verbal communication, The participation of children together in performing a rhythmic dance means the concept of joining together to perform the movement as well as avoiding participation means rejection which is also a form of social communication. Touching the hand through the motor rhythm is an automatic greeting that occurs non- verbally and it helps to develop the word "Hello", Hartshorn et al. (2001) Tortora (2006).

As this result agrees with the theoretical frameworks that support that dance activities increase the communication skills of autistic children as the body contains a million neurons that divide the brain in half right and left, the right hemisphere of the brain controls the left side of the body and it is responsible for creativity, imagination, motor skills, rhythm and feelings. The left hemisphere of the brain controls the right side of the body and is responsible for language and mathematics. The body contains nerve fibers that stimulate communication and the cooperation between the hemispheres, Kohler et al. (2002); Keyzers et al. (2003).

Autistic children have abnormalities in these nerve fibers which facilitate the cooperation between the hemispheres; Movement and music which were in the program help to promote the cooperation between the two hemispheres. For example, when the music is running, children are directed to the movement and dancing. When the music stops, the children stop moving and dancing, the two hemispheres work together in this training, which

supports the importance of using motor rhythm with autistic children. This agrees with the results of Dapretto et al. (2006). Also the results of, Scharoun et al. (2014), emphasized that the motor rhythm and Dance movement enhance the memory of the sensitized sensation by mirroring, Two children face each other and make the same move simultaneously, When you watch someone throw the ball, The neurons will trigger the same active response. Although autistic children's responses do not appear to be exactly the same for the coach. But the response of neurons starts to activate the senses to provoke the body to perform movement or exercise, this makes these children benefit from motor rhythm activities.

This program is necessary to integrate the motor rhythm in the programs of education of children with autism to help them to develop non- verbal communication skills. The movement, accompanied by music, has been considered an instrument in raising the children's attention, communicating, sending and receiving the messages, and how they feel towards others. Dance activities provide opportunities for learning non- communication skills such as imitation, signal skill, visual communication, joint attention, and the facial expressions skills. While autism children are engaging in rhythm motor musical games, children will begin by imitating and synchronizing the actions of a social partner; however gradually they will develop an understanding of their partner's intentions and their emotions. The program included various motor activities combined with music which helped children to develop non- verbal communication skills without feeling stressed, or anxious.

This result is consistent with the theory of psychoanalysis that motor activities help children to get rid of painful experiences. This result is consistent with, Kern and Aldridge (2006); Kim et al. (2008); Porter (2012).

The results of the second hypothesis referred to that there are no statistically significant differences between the average grade levels of autistic children in the remote and sequential measurements (one month after the application motor rhythm program). The non- communication skills scale emphasizes that motor rhythm activities promote neuronal growth, improve memory and increase motivation for learning.

Recommendation

- Referring to The results of the research, the researcher recommends the following
- Implementation of the motor rhythm program on larger samples of autistic children to verify the possibility of use in all centers and different institutions
- Using of the motor rhythm program to develop other skills in autistic children like: Motor skills and sensory organization and coordination.
- Attention to the training of caregivers of children with autism in ways to design the activities of motor rhythm because of its positive effects on the development of skills of these children.

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