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The Effect of a Music-Based Movement Program on the Improvement of Fundamental Motor and Social Skills in Children with Autism Spectrum Disorder

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Abstract:

The study aimed to investigate the impact of a motor education program accompanied by music on improving fundamental motor and social skills among children with Autism Spectrum Disorder (ASD), To achieve the research objectives and verify the hypotheses, a quasi-experimental one-group design was applied using pre- and post-measurements ,The measurement tools included the Stanford–Binet Intelligence Scales (Fifth Edition), the Gilliam Autism Rating Scale, a basic motor skills evaluation form, and a social skills scale under study, The research materials consisted of selected motor activity models accompanied by music, The sample included four boys and one girl aged between 4–6 years at Al-Rayan Center, Beni Suef Governorate, Egypt, The results revealed a statistically significant positive impact of the motor education program accompanied by music in enhancing certain fundamental motor and social skills among children with ASD, with the effects sustained over time, In light of these findings, the study presented several recommendations.

Keywords:

Motor Education, Accompanied Music, Basic Motor, Social Skills, Autism Spectrum Disorder Children.

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تأثير برنامج تربية حركية بمصاحبة الموسيقى على تحسين بعض المهارات الحركية الأساسية والاجتماعية لأطفال اضطراب طيف التوحد

ملخص:

هدف البحث إلى الكشـــف عن مدي تأثير برنامج تربية حركية بمصـــاحبة الموســيقى على تحســين بعض المهارات الحركية الأســاســية والاجتماعية لأطفال اضـــطراب طيف التوحد، وللوصـــول لأهداف البحث والإجابة عن أســـئلة البحث والتحقق من صحة الفرضيات تم تطبيق المنهج شبه التجريبي **(ذو المجموعة الواحدة)** والذي يتفق مع الفرضـيات وتم تطبيق القياسـين القبلي/البعدي، وتمثلت أدوات القياس في اختبار ستانفورد بينية الصورة الخامسة ، مقياس جيليام ، استمارة تقييم المهارات الحركية الأساسية ومقياس المهارات الاجتماعية قيد البحث ، أما مواد البحث تمثلت في بعض النماذج الحركية بمصاحبة الموسيقي ، ولشتملت عينة البحث على(4) طفل وطفلة يتروح عمرهم (4 – 6) ســـنوات ، بمركز الريان ، محافظة بني ســـويف، جمهورية مصـر العربية ،وكشـفت النتائج التجريبية للبحث عن وجود علاقة ارتباطية أي أثر دال إحصـــائياً لبرنامج التربية الحركية بمصـــاحبة الموســيقى وتأثيرها الفعال والإيجابي في تحســـين بعض المهارات الحركية الأســـاســـية والاجتماعية لأطفال اضـــطراب طيف التوحد (عينة البحث) وبقاء أثره ، وقدم البحث في ضـــوء نتائجه بعض التوصيات.

الكلمات المفتاحية: التربية الحركية، الموســـيقى، المهارات الحركية، المهارات الاجتماعية، أطفال اضطراب طيف التوحد.

Introduction:

Autism Spectrum Disorder (ASD) is one of the developmental disorders that have emerged and remain ambiguous to this day, as its causes, factors, symptoms, and methods of treatment are complex and overlapping. It is considered one of the most challenging developmental disorders for the child himself, for his parents, and for the family members living with him. This is due to the disorder's distinctive ambiguity and the unusual patterns of behavior associated with it, as well as the overlap of some of its behavioral manifestations with symptoms of other disabilities and disorders. ASD affects children under the age of three. (p. 3)

Moreover, Autism Spectrum Disorder is regarded as one of the most complex and ambiguous developmental disorders in the field of special education, both theoretically and practically, From a theoretical perspective, the complexity arises from the multiplicity of approaches and frameworks that address it, while from a practical perspective, it stems from the diversity and differences among individuals with ASD, since each child within this category is considered a unique case, They are a heterogeneous group due to the disorder's impact on most behavioral, emotional, social, linguistic, communicative, cognitive, and sensory domains .(p. 48)

Autism is one of the complex developmental disorders that affect children, and it is among the most challenging disorders for both the child and his family. It typically appears during the first three years of life and hinders processes of communication, learning, and social interaction. Autism is characterized by ambiguity and unusual accompanying behaviors, in addition to delays in social, cognitive, and language development. Autism is also defined as a disability that impedes the development of social skills, verbal and non-verbal communication, as well as imaginative and creative play. It results from a neurological disorder that affects the way the brain gathers and processes information, causing difficulties in social skills, such as the inability to connect and establish relationships with others and the inability to engage in constructive imagination. Autism, therefore, is a disorder in which the child tends to choose isolation from

others, preoccupation with oneself, and repetitive thoughts. Its severity lies in its impact on various aspects of cognitive, social, psychological, and motor development (p. 42).

M. A. El-Sharkawy (2018) believes that autism is one of the most widespread disorders, characterized by severe delays in various developmental areas such as social interaction, communication skills, and language difficulties, as well as weak interests and activities. In addition, there are some behavioral disorders such as stereotypical movements, aggression, and self-harm. Moreover, many researchers have pointed out that developmental delay and poor social adjustment are considered the greatest problems faced by the autistic child. (47: 18–19)

Zakaria El-Sherbini (2004) indicates that autism is a developmental disorder that isolates the affected child from society without the child being aware of what is happening around him in the social environment. Instead, the child becomes absorbed in feelings, emotions, and behaviors that appear unusual or abnormal to those dealing with him, while the child experiences them permanently and continuously because they are the only means by which he expresses his emotions and feelings in his own way. (47)

The term fundamental motor skills is used in the field of physical education to refer to certain aspects of motor performance that appear in the early stages of physical maturation, such as crawling, walking, running, hopping, jumping, hanging, climbing, throwing, rolling, and others, These skills are considered essential for most sports activities of kindergarten children, They are called fundamental motor skills because they appear in a primary form in humans and are common among most children, representing aspects of physical maturation in the early childhood years, Fundamental motor skills are classified into locomotor skills, non-locomotor skills, and object-control (manipulative) skills. (57)

Social skills are considered one of the important factors in an individual's interaction with others and in his ability to sustain this interaction. The success of social interaction depends on the individual's verbal and non-verbal communication skills with others. These skills vary according to the circumstances of social

interaction and the strategies through which such goals are achieved, the lack of effective social interaction skills is one of the driving factors behind an individual's withdrawal and sense of isolation, which in turn weakens his ability to cope with stress. (32: 519)

According to Mohamed Qassem (2000), social skills are involved in every aspect of an individual's life and influence his adjustment and happiness throughout the different stages of life, they affect his ability to build social relationships and determine the degree of his popularity among peers, teachers, and significant adults in his life. Social skills are directly related to several forms of assertive behavior such as providing help to others, showing empathy, effective communication, and expressing emotions, and they are also influenced by these behaviors. The lack of such skills is directly associated with social deviance and is also linked to mental health problems in later stages of life; Therefore, weak social skills are considered a cause of behavioral problems experienced by individuals. (46: 6)

Music is one of the unique and distinguished activities practiced by humans at any time and place, regardless of their social or economic status, whether the individual is a performer or a listener, either alone or in a group, Therefore, music is considered an important part of human life from birth to death, It represents an extension of the natural and spontaneous desire of human beings to express themselves, their emotions, and their feelings, Musical activities help children develop their taste and discover their individual abilities and talents. They have an attractive, influential, and direct impact on the child's emotions, and are regarded as an educational tool with a comprehensive effect on all aspects of the child's development, including modifying and refining behavior and instilling many values. (52)

Music is considered to have great psychological and educational value, It is a subject that contributes to the development of the child by providing him with knowledge, facts, musical skills, aesthetic tendencies, and artistic attitudes. The role of music is not limited to the growth of one aspect of development, but rather it encompasses all psychological, physical, emotional, and social aspects across the different stages of development.

Music also works to develop the sense of hearing and sensory perception, as well as enhancing the ability to observe, concentrate, pay attention, perceive, and innovate, in addition, music attracts children from various groups and categories. (5)

A child's movement is a natural, instinctive, and innate phenomenon granted by God to help him cope with the demands of life and survival. Through movement, the child develops his observations, concepts, creative abilities, and awareness of dimensions and directions, such as the sense of balance, space, and time, He also acquires knowledge at all levels, becoming accustomed to logical behavior, problem-solving, and making judgments. Movement education has emerged as an approach that takes movement as an entry point for sound development in mind and spirit. It is one of the educational approaches aimed at nurturing the child in all physical, psychological, social, and intellectual aspects. Furthermore, movement education is considered one of the creative activities whose goals include fostering a sense of satisfaction and happiness. (20:14)

Movement education is a comprehensive educational entity that relies on educational motor experiences, from which all the fundamental original motor patterns emerge. These patterns form the foundation for more complex movements in various activities and serve as a basis for building the child's character and independent, distinctive personality. Movement education is one of the best educational approaches aimed at teaching and training individuals at different educational stages, especially in the preschool stage. The movement education approach aligns with the stages of motor development and physical growth that the child undergoes while learning and mastering different movements, with the goal of taking into account the child's abilities and physical as well as motor potential, in addition to his cognitive abilities. (20: 5–10)

Research Problem:

In recent years, autism has spread significantly and alarmingly in the Arab countries and in Egypt, without clear knowledge of its causes or methods of treatment, This has motivated the researchers to attempt to support this group through

a program that integrates sports and music to help overcome the challenges they face, most notably the lack of communication or weak communication skills, and the avoidance of social situations, Physical activity is considered one of the most effective educational means aimed at shaping a well-adjusted individual in society through the comprehensive development of physical, health, motor, psychological, social, and cognitive aspects, thereby contributing to preparing the individual to be a constructive member of society.

Autism is considered a disorder with specific characteristics, as individuals with autism often refuse to interact and communicate with others, Therefore, the researchers sought to design a program that combines sports and music, through which certain motor skills of children with Autism Spectrum Disorder (ASD) can be developed, Moreover, the proposed program may contribute to improving some psychological and social behaviors as well as enhancing certain communication skills among this group.

Several studies have indicated that children with autism spectrum disorder (ASD) experience various challenges, including deficits in motor skills and social skills. Among these studies is" **Hollander & Anagnostou" (2008, p.67)**. Furthermore," **Dakhil Abdullah "(2014**) points out that children with autism suffer from deficiencies in social skills, which are reflected in their inability to understand social situations, respond appropriately to others, and comprehend the nature of relationships and individuals. This, in turn, affects their interaction with the environment and their communication with others in social contexts.

The study by **Beaumont, R., et al. (2021, p.62)** also confirmed that deficits in social skills among children with autism spectrum disorder led to lower achievement in academic and professional domains, which in turn increases the risk of depression, anxiety, and other psychological disorders in this population.

Several studies and research, such as those by **Lord & McGee (2001, p.73), ASA (2007, p.61), Twarek et al. (2010,**

p.79), Zainab Mahmoud (2002, p.25), Ahmed Mohamed (2012, p.4), Nahed Al-Dulaimi (2008, p.54), and Abdel Fattah Matar & Abdel Razek Ibrahim (2016, p.35), indicate that children with autism spectrum disorder suffer from a significant decline in the level of basic motor skills, They also display weaknesses in motor orientation, coordination, and balance. Many children with autism exhibit abnormal movements while crawling, walking, sitting, rolling, and jumping, and these motor difficulties negatively affect the level of functional skills required to carry out daily activities.

Until now, there is no clear and definitive treatment for autism spectrum disorder; however, there are many approaches to alleviating symptoms and enhancing abilities, including sports and physical activities. This was the aim of the two researchers through the proposed program, which seeks to reduce the symptoms of autism and assist this group in overcoming the problems and difficulties they face, stemming from their duty toward this group and toward society.

Since sports and music are the gateway to children's happiness and represent a language that all children understand and love—and cannot be separated during practice, both can be used to teach various skills or languages, as well as to bring about changes in psychological and social behaviors. Sports and music are among the activities most enjoyed by children without boredom, and many recent studies have revealed their importance in treating autism, Based on this perspective, the present research seeks to contribute to addressing some of the social and motor problems of children with autism spectrum disorder through a motor education program accompanied by music, targeting certain motor and social skills of children with autism spectrum disorder.

Based on the aforementioned review, the research problem is defined in the insufficiency of programs designed to support children with autism spectrum disorder in acquiring certain motor and social skills and in attempting to modify inappropriate behaviors, this raises a central research question:

To what extent does the proposed motor education program accompanied by music impact the improvement and acquisition of certain motor and social skills among children with autism spectrum disorder?

Research Objectives:

The research aims to design a motor education program accompanied by music for children with autism spectrum disorder to examine its effect on:

1. Certain fundamental motor skills of children with autism spectrum disorder.
2. Certain social skills of children with autism spectrum disorder.
3. Identifying the appropriate social and motor skills for children with autism spectrum disorder.
4. Evaluating the relationship between the impact of motor education accompanied by music and the improvement and acquisition of certain motor and social skills of children with autism spectrum disorder.

Research Hypotheses:

1. There are statistically significant differences between the mean scores of the pre-test and post-test in favor of the post-test scores regarding the acquisition and improvement of certain fundamental motor skills of children with autism spectrum disorder.
2. There are statistically significant differences between the mean scores of the pre-test and post-test in favor of the post-test scores regarding the acquisition and improvement of certain social skills of children with autism spectrum disorder.
3. There are no statistically significant differences between the mean scores of the post-test and follow-up test in the fundamental motor skills of children with autism spectrum disorder.
4. There are no statistically significant differences between the mean scores of the post-test and follow-up test in the social skills of children with autism spectrum disorder.

Research Significance:

The significance of the research lies in the following:

1. The research derives its importance from employing motor education accompanied by music to create a stimulating educational environment for children, enabling the

achievement of a considerable part of the objectives of motor and musical education.
2. Establishing the foundation of motor education accompanied by music and clarifying its strategic impact on children.
3. The research may serve as a nucleus and a basis for future studies in both the motor and musical fields.
4. The research may contribute to outlining a practical roadmap for the development of motor education accompanied by music for children with autism spectrum disorder.
5. The research helps link motor education accompanied by music with enhancing the academic level of children with autism spectrum disorder.
6. Providing a training program that addresses the challenges faced by educators in educational institutions, based on motor education accompanied by music, to support children with autism spectrum disorder in the educational process.

Research Delimitations:

The delimitations of the research are as follows:

Human delimitations: Children with autism spectrum disorder (aged 4–6 years), consisting of four children (boys and girls), at Al-Rayan Center, Beni Suef Governorate, Arab Republic of Egypt.

Spatial delimitations: Al-Rayan Center, Beni Suef Governorate, Arab Republic of Egypt.

Temporal delimitations: The duration of implementing the motor program accompanied by music was (8) weeks, with (3) sessions per week, each session lasting (45) minutes, during the period from 26/2/2025 to 4/5/2025.

Research Variables:

1. **Independent Variable**: Motor education accompanied by music.
2. **Dependent Variable**: Motor and social skills.

Research Terms:

Motor Education: A form of physical education programs for children aimed at teaching fundamental movements, acquiring physical, motor, cognitive, emotional, and social fitness by stimulating their cognitive and motor abilities, and using the individual exploration method within the limits of their capabilities and potentials. (26:40)

Autism : "Mahmoud Abdel Rahman El-Sharkawy", "citing Suleiman" "Abdel Wahed Youssef" (2010), defined autism as one of the complex developmental disorders that appear during the early years of a child's life and have a comprehensive impact on all aspects of their mental, emotional, and social development, accompanied by a clear deficiency in verbal communication, repetitive and intense stereotyped behaviors, and it usually appears more frequently in males than females. (24:47)

Social Skills: A set of behavioral patterns that manifest as positive interactive responses, appearing through performing multiple roles in the external environment, consistent with the nature of the social situations encountered and aligned with the social values and norms of the community. (53:38)

Theoretical Framework:

Autism Spectrum Disorder (ASD) is a developmental disability that affects how a person communicates with others and understands the world around them, and its impact varies from one individual to another; while some autistic children can live independently, others require special support. Children with autism are often characterized by sensory difficulties related to sound, touch, taste, smell, and light. About 50% of parents can recognize signs of autism in their children between 12 and 18 months of age, which are manifested in delayed speech, lack of eye contact, limited smiling, absence of imitation, failure to respond to their name, lack of interest in others, reduced emotional expression, poor joint attention, repetitive behaviors such as clapping, head shaking, and spinning, as well as limited pretend play. Furthermore, around 25% of children with autism experience regression and deterioration in previously acquired skills and abilities, particularly language skills (66: 268–269).

Despite the advancement of science, modern therapeutic methods, and medical and technological devices, the main cause of this disorder is still unknown, some studies have attributed it to psychological and social factors, while others have confirmed biological causes. Certain studies have also pointed to genetic factors, pregnancy and childbirth conditions, while others have suggested environmental pollution, vaccinations, and viruses as possible reasons. However, up to now, there are no clear and specific causes for autism disorder.

Autism is a long-term condition that can improve over time through appropriate education, These individuals require great effort to reach a stage of adaptation, as training programs help reduce inappropriate behaviors in people with autism and develop their skills to interact with family and society, Dealing with an autistic child should be based on the idea that they are a living being whose disorder characteristics can be changed by strengthening the positive aspects and trying to reduce the negative ones. (56:150)

"Kabot and colleagues" (2003) pointed out that autism disorder can be identified through three interrelated domains that appear simultaneously:

- It is a neurological disorder associated with brain development,
- A psychological disorder that involves cognitive, emotional, and behavioral development.
- A developmental disorder in the social domain, manifested in severe deficits in social relationships and communication, and a failure to interact with the social environment.

From this, it is evident that a child with autism spectrum disorder is unable to respond to sensory stimuli, has severe deficits in language and speech development, and exhibits purposeless stereotypical behaviors. These disturbances usually appear within the first three years of the child's life. (70: 26–33).

The American Psychiatric Association defines autism as a type of developmental disorder that appears during the early years of a child's life and results from neurological disorders that affect brain functions, which in turn impact various aspects of

development, This makes children with autism experience difficulties in social communication, respond more to objects than to people, and become disturbed when any change occurs in their environment, They also often repeat bodily movements or words in a mechanical and repetitive manner. (60:4)

Autism spectrum disorders include many types according to various references and studies, However, the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) identified five disorders under autism spectrum disorders in children, which are:

1. Autistic Disorder
2. Asperger's Syndrome
3. Rett's Disorder
4. Childhood Disintegrative Disorder
5. Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS) (47:42)

A study by **Oday Mousa Mohammed, Hassan Hassan, and Ziyad Falah (2023) (37)** aimed to design an obstacle gymnastics program to examine its effect on certain motor abilities and social skills among children with autism spectrum disorder, The researchers used the experimental method with a single experimental group, as it was suitable for the nature and objectives of the study, The research population consisted of 43 children with autism spectrum disorder at the Wasan Center for Autism and Special Education in Irbid, Iraq, The research sample was deliberately selected and consisted of 10 children with autism spectrum disorder during the period from January 5 to March 8, 2020. The researchers used a motor abilities scale and a social skills assessment scale, The main findings revealed a positive effect of the proposed obstacle gymnastics program on improving certain motor abilities and social skills in children with autism spectrum disorder, However, the study also indicated that the program had no effect on the shuttle run test in developing social skills, The researchers recommended the necessity of applying motor activity programs in centers for the care of individuals with disabilities and children with autism spectrum disorder.

A study by **Khaled Saeed Al-Nabi and Mohamed Kamal Abu Al-Fotouh (2018) (22)** aimed to develop certain basic skills such as (balanced walking, passing accuracy, ball catching, shooting accuracy, and two-footed jumping) and to examine their effect on some functional skills related to daily life activities among children with autism, The researchers used the experimental method with a two-group design, as it was appropriate for the nature of the study, The research sample consisted of 10 children with autism spectrum disorder at the Human Development Center (Obour) in Jizan, Kingdom of Saudi Arabia, The researchers employed measurement tools such as the Stanford-Binet Intelligence Scale, the Social, Cultural, and Economic Level Scale for Saudi families, the Basic Motor Skills Scale for children with autism, and the Functional Skills Scale related to daily life activities, The main findings indicated a statistically significant improvement in the level of basic motor skills of children with autism spectrum disorder, as well as an improvement in the level of functional skills related to daily life activities.

A study by **Hamada Mohamed Saeed (2023) (21)** aimed to design a training program using music to examine its effect on improving receptive and expressive language skills among preschool children with autism spectrum disorder, The researcher used the quasi-experimental method, and the study sample included 10 children with autism spectrum disorder aged 3–6 years. Several measurement tools were used, most notably the Stanford-Binet Intelligence Scale, the Gilliam Autism Rating Scale to measure the severity of autism, the Receptive and Expressive Language Skills Scale for children with autism spectrum disorder, and the music program designed by the researcher, The results demonstrated the effectiveness of the proposed program and the use of music in enhancing language skills in children with autism spectrum disorder.

A study by **Birevan Abdullah (2015) (17)** aimed to investigate the effect of a motor program based on play in improving motor and social aspects among children with moderate autism, The researcher adopted the experimental method with a pre–post measurement design, using a battery of motor skill tests

and a social skills scale, The study sample consisted of 6 children from the Autism Center in Erbil, The results revealed statistically significant differences in favor of the post-test in both motor and social skills, confirming the effectiveness of the motor play program in developing the abilities of this group. The study recommended the necessity of employing motor play in therapeutic programs for children with autism, involving parents, and providing suitable environments and tools.

The Concept of Motor Education:

Motor education is an educational system primarily based on the naturally available psychomotor abilities of the child (40:26)

According to the researcher, the concept of motor education involves preparing the child physically, psychologically, socially, and mentally through movement.

Objectives of Motor Education:

1. Developing health and physical fitness.
2. Developing motor skills is useful for life.
3. Acquiring knowledge and concepts related to human movements for successful participation in physical and sports activities.
4. Achieving social and emotional growth (40:122–124).

Fundamental Motor Skills:

Fundamental motor skills are the basic skills associated with certain aspects of early physical maturity. Since these motor patterns initially appear in humans in their primary form, some refer to them as fundamental motor skills (40:207).

According to **Hassan Abdel-Salam, Naglaa Fathy, Fatma Awad, Mofty Ibrahim, Abu Al-Naga Ahmed, and Ibrahim Abdel-Razek,** the classification of fundamental movements is as follows:

1. Transitional movements
2. Non-transitional movements
3. Control and manipulation movements
4. Balance and stability movements

5. Transitional movements: walking, running, hopping, jumping, landing, sliding, crawling, rolling, hanging, swimming.
6. Non-transitional movements: standing, hanging, arching, twisting, shifting body weight, swinging, kneeling, turning, curling, stretching, swaying.
7. Balance movements: static balance, dynamic balance.
8. Control and manipulation movements: grasping, throwing, catching, kicking, striking, hitting, lifting, receiving, picking up, collecting, pulling, pushing (20:99), (40:51), (1:45).

Music is composed of several interconnected elements such as tone, melody, rhythm, harmony, timbre, and linguistic dynamics, It has been found that children's brains prefer processing musical patterns because they are easier to perceive compared to random language, This is because music stimulates cognitive processes that contribute to the comprehension and production of language, highlighting the importance of musical rhythm in learning verbal language, Thus, there is a strong relationship between music and language (72:182).

Music plays a major and vital role in all aspects of development—cognitive, physical, mental, psychological, and social—across all ages and levels. It contributes to the development of physical aspects by enhancing the sense of hearing through training the ear to distinguish and judge different sound similarities, and it helps develop motor-muscular coordination, creating harmony in physical activity. Music also fosters children's cognitive development through sensory perception, enhances observation, concentration, and attention, and develops both melodic and rhythmic memory, as well as creativity, while enriching their knowledge and expanding their learning outcomes, Moreover, music contributes to the development of emotional aspects by helping children control their emotions, reducing stress and anxiety, and serving an important role in both medical and psychological therapy as a non-verbal means of communication. Its role extends to the social dimension as well, through various activities in small or large groups, fostering cooperation, love, and acceptance of others,

promoting collective awareness, and supporting the achievement of social maturity and integration (5:220–221).

Ali Abdel-Salam (2001) (38) defines social skills as a set of learned behaviors that help individuals interact effectively with others, such as the ability to initiate conversations, listen, manage conflicts, and express emotions appropriately, they include verbal and non-verbal communication skills, emotion management, and cooperation within work environments.

Social skills are considered among the most important variables that contribute to an individual's adaptation to their professional and social environment, as they represent a set of learned behaviors through which a person expresses themselves in different interactive situations, These skills include the ability to build positive relationships, express emotions in an acceptable manner, practice effective listening, negotiate and manage conflicts, in addition to controlling emotions in stressful situations, Several researchers have indicated that the development of these skills enhances an individual's opportunities for achieving psychological and social adjustment, reduces conflict and tension in the workplace, and increases the effectiveness of communication among employees,From this perspective, the present study addressed the role of social skills in relation to emotional behavior of anger, considering that a lack of such skills often leads to misunderstandings or maladaptive emotional responses, while a high level of these skills contributes to regulating emotions and expressing them in more positive ways.
Rego, as cited in Soheir Fahim and Ahmed Hanafi (2017) (32), stated that social skills are divided into six skills that fall under two main categories: emotional communication skills and social communication skills.

A. Emotional Communication Skills:

- Emotional expression: refers to the individual's skill in non-verbal communication, i.e., the ability to accurately express their feelings and emotional state.
- Emotional sensitivity: the ability to perceive and interpret forms of non-verbal communication with others.

- Emotional regulation: the ability to control and organize non-verbal emotional expressions and conceal emotions under a mask that suits the social situation.

A. **Social Communication Skills:**

- Social expression: refers to the individual's ability to express verbally and participate with others in social situations.
- Social sensitivity: refers to an individual's ability, sensitivity, understanding, and awareness of the norms and rules governing acceptable social behavior.
- Social regulation: focuses on the skill of role-playing, social presence, performing multiple social roles, and adapting to different social situations (32:520–521).

Research Plan and Procedures:

First: Research Method:

The researchers used the quasi-experimental method with a single-group design by conducting pre-test and post-test measurements, as it is suitable for the nature of the study.

Second: Research Population and Sample:

The research population consisted of children with Autism Spectrum Disorder (ASD) at centers in Beni Suef Governorate, Arab Republic of Egypt, totaling twenty children, From this population, five children were deliberately selected as the research sample, representing 25% of the original population; however, one participant was excluded due to an IQ score below average (IQ = 80), The main study sample therefore consisted of four children with ASD (2 males, 2 females), aged between 4 and 6 years, affiliated with Al-Rayan Center in Beni Suef Governorate, The diagnosis of ASD behavioral manifestations was verified through certified medical reports and standardized diagnostic tools, The selected children belonged to families with relatively similar socio-cultural and economic levels. Age homogeneity was ensured by selecting children within a close age range, and general intellectual ability homogeneity was ensured by applying the Stanford-Binet Fifth Edition Test, standardized by Dr. **Mahmoud Abu El-Neel**, to all four cases. The main characteristics of the four children, including gender, age, and IQ scores (based on the

Stanford-Binet Fifth Edition Test), were documented for further analysis.

Table (1)
Description of the Four Study Cases in Terms of Gender, Age, and IQ

Student ID	Gender	Age/ Month	Intelligence IQ
1	Male	58	92
2	Female	67	102
3	Female	54	95
4	Male	64	98

From the results presented in the previous table, it is evident that the chronological age ranged between 54 and 67 months, The IQ scores ranged between 92 and 102, indicating that the four cases were relatively similar in terms of intellectual ability, and all fell within the average IQ level. Additionally, the autism severity scores ranged from 30 to 40, which corresponds to mild autism according to the CARS scale. The statistical indicators for chronological age and IQ for the entire study sample can be presented in Table (2) be

Table (2)
Statistical Indicators of the Study Sample Scores in Age and IQ

Statistical Indicators	Age/ Month	Intelligence IQ
Number of Cases	4	4
Range of Scores	13	10
Minimum Score	54	92
Maximum Score	67	102
Mean	60.75	96.75
Standard Error	2.926	2.136
Standard Deviation	5.852	4.272
Skewness Coefficient	-0.166	0.292
Kurtosis Coefficient	-2.786	-0.684

From the results shown in Table (2), it is evident that the mean chronological age of the study sample reached (60.75 months), which is approximately (5 years), Additionally, the mean general intellectual ability (IQ) of the four cases, according to the Stanford-Binet Fifth Edition scale, was (96.75), a value that falls within the average IQ level.

Sample Selection Criteria:

- Children do not suffer from any other diseases.
- Parental consent for their children's participation in the study.
- Children do not do any sports activity.
- Age ranges from (4 to 6 years).

Reasons for Selecting the Center:

- The center administration welcomed the study.
- The required sample was available at the center.
- Availability of appropriate space and facilities for conducting the study.

Third: Data Collection Tools

The researchers used the following to collect data for the study:

1. Reference Survey:

The researchers reviewed numerous studies and scientific references that addressed designing programs for children with autism, they also examined various reference studies in motor education and autism, including **Ibrahim Abdullah (2004) (1), Hassan Abdel Salam & Naglaa Fathy (2013) (20), Fatma Awad (2006) (40), and Mahmoud Elsharkawy (2018) (47).**

2- Expert Opinion Questionnaires:

- Expert opinion questionnaire (Appendix 2) regarding the appropriate motor skills for children with autism spectrum disorder and the proposed program.
- Data Recording Forms: Appendix (1).
-Motor Skills Assessment Forms: Prepared by the researchers (Appendix 7).
- Social Scale: Appendix (11).

Tools and Equipment Used in the Study:

- Stopwatch for measuring time

- Adhesive tape
- Balls
- Baskets
- Mats
- Balloons
- Cones

Tests Used in the Study:

- Stanford-Binet Fifth Edition Test.
- Social Scale.
- CARS (Childhood Autism Rating Scale).

Fourth: The Proposed Program

Program Objective:

The program aims to determine the effect of the proposed program on improving some motor and social skills among children with autism spectrum disorder (ASD).

Program Construction Principles:

The researchers considered the following principles when designing the proposed program:

- The program content should align with its objectives.
- The program content should match the abilities of children with autism spectrum disorder (ASD) and account for individual differences among them.
- The program should be flexible during practical application to allow adjustments as needed.
- The program should progress from easy to difficult.
- The implementation of the program should consider safety and security factors.
- The program should be simple, varied, and comprehensive to meet the children's needs for movement and activity.
- Select simple and calm musical pieces suitable for children with autism.
- Include many small and recreational games appropriate for the age group.
- Music should accompany all parts of the units and the program.
- Units should vary between individual and group activities to achieve the program objectives.

Fifth: Program Content Organization.

The researchers presented a questionnaire to experts in the fields of motor and music education, as well as curricula and methods of teaching physical education, to determine the program's timeframe in terms of the number of weeks, units, and duration, in accordance with the school's schedule. The program comprised a total of (8 weeks), with (2 units per week), each unit lasting (45 minutes).

Table (3)
Experts' Opinions on the Time Frame of the Program (N = 10)

The Time Frame		Agree	Agree dis	Percentage
Number of weeks	8 weeks	10	-	%100
Number of units per week	3 units	10	-	%100
Unit duration	45 Minutes	10	-	%100

Table (3) illustrates the experts' opinions regarding the time frame of the program, where the approval rate reached (100%).

Table (4)
Experts' opinions regarding the time distribution of the educational unit contents within the educational program

Time Allocation		Agree	Disagree	Percentage
Warm-up	10	10	-	%100
Physical Preparation	10	10	-	%100
Main Part	20	10	-	%100
Closing Part	5	10	-	%100

Table (4) illustrates the experts' opinions regarding the time distribution of the instructional unit contents; The results indicated a 100% agreement rate among the experts.

Unit Components:

1. **Warm-up:** This part aims to prepare the body for movement through a series of exercises with and without equipment.
2. **Physical Preparation**: This stage focuses on developing physical fitness components that support the skills to be practiced in the main part.
3. **Main Part:** This section includes explaining the skill and demonstrating a model performance in order to create a mental image of the basic motor skills under study in the children's minds, followed by learning and practicing the skills.
4. **Final Part**: The aim of this part is to help children return to their normal state, or as close to it as possible. It includes swinging and vibration exercises for the arms and legs, as well as some recreational games.

Sixth: The General Framework for Implementing the Proposed Program Units

Table (5)

N	Statement	Time Allocation
1	Total number of program units	24 units
2	Number of units per week	3 units
3	Unit duration	45 minutes
4	Program implementation period	2 months

Seventh: Determining the Resources for Implementing the Program:

The researcher utilized the following resources to implement the program: educational tools, balls, educational cards, balloons, mats, cones, ropes, and play areas.

Eighth: Determining and Selecting the Appropriate Teaching Methods for Implementing the Proposed Units:

- Simulation and imitation methods.

- Drama method.
- Movement stories.
- Discovery and problem-solving methods.

Ninth: Evaluation Methods Used in Implementing the Proposed Units:

The researchers used the following:

The researchers used the following:

- Skill assessment forms for the skills under study prepared by the researchers.
- A scale for social skills.

First: Skill Assessment Forms for the Skills under Study, Prepared by the Researchers (Appendix 7)

The researchers designed an assessment form for the skills under study, based on reviewing references, as follows:

A. Determining the Purpose of the Form: In light of defining the research objectives, the purpose of the form was determined, which is to evaluate the technical performance and measure the level of learning of the skills under study.
B. Determining and Analyzing the Technical Stages of Motor Performance.
C. The technical stages of the skills under study were identified, and their components that should be observed during performance were clarified. Determining the Total Score for Each Skill Measurement is carried out by a committee of three expert judges, and the score is obtained from the average of the total scores of the three judges.
D. Scientific Procedures for the Skill Assessment Form

The researchers conducted scientific procedures for the skill assessment form during the second semester, from 10/2/2025 to 24/2/2025.

Scientific Procedures for the Skill Assessment Forms:

1. Expert Validity:

After designing the skill assessment form for the fundamental motor skills of children with autism spectrum disorder, the researchers presented it to a group of professors specialized in physical education and music to determine the face validity of the form's content. This was done to verify the suitability of the items

for each of the eleven basic motor skills (walking, running, hopping, forward jump, low balance beam, motor balance, forward roll, one-hand ball throw, two-hand ball catch, overhead ball throw, and kicking with the foot) according to the characteristics of the study sample, which included children with autism aged 4 to 6 years, The experts' agreement on the items of the form ranged between (90% and 100%), which are high percentages indicating that the items of the form are valid for measuring the eleven fundamental motor skills in the study sample of children with autism.

2-Internal Consistency:

Internal consistency of the fundamental motor skills assessment form refers to the extent to which each item aligns with its corresponding dimension or skill, as well as the consistency of the sub-skills or axes included with the overall required motor skill. The researcher verified the internal consistency of the fundamental motor skills assessment form for children with Autism Spectrum Disorder as part of the current study procedures after applying it to the standardization sample (n = 15 children), This was done by calculating the correlation coefficient between the score of each item and the total score of the skill it belongs to, as shown in Tables (6), and by calculating the correlation coefficient between the total score of each sub-skill and the overall total score of the fundamental motor skills assessment form, as shown in Table (7).

Table (6)
Correlation Coefficients between Items and Fundamental Motor Skills for Children with Autism

1	**Walking**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.743**	0.655**	0.793**	0.589**	0.533**
2	**Running**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation	0.613**	0.782**	0.768**	0.527**	0.744**

		Coefficient					
3	**Hopping**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.625**	0.699**	0.738**	0.576**	0.702**
4	**Forward Jump**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.681**	0.598**	0.523**	0.775**	0.552**
5	**Low Balance**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.753**	0.689**	0.598**	0.776**	0.521**
6	**Motor Balance**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.714**	0.633**	0.787**	0.568**	0.545**
7	**Forward Roll**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.735**	0.660**	0.724**	0.595**	0.779**
8	**One-Handed Throw**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.537**	0.512**	0.790**	0.648**	0.738**
9		**Item No**	**1**	**2**	**3**	**4**	**5**

	Catching with Hands	**Correlation Coefficient**	0.699**	0.504**	0.626**	0.771**	0.710**
10	**Overhead Throw**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.589**	0.552**	0.683**	0.521**	0.750**
11	**Kicking with Foot**	**Item No**	**1**	**2**	**3**	**4**	**5**
		Correlation Coefficient	0.573**	0.791**	0.632**	0.507**	0.754**

From the results presented in Table (6), it is evident that all correlation coefficients between the score of each item and the score of its corresponding motor skill were statistically significant at the 0.01 level, This indicates that each item effectively measures the same aspect as the overall corresponding skill, reflecting the consistency of all items or sub-skills included in the Fundamental Motor Skills Form with their respective dimension or associated skill.

Table (7)
Correlation Coefficients between Sub-Motor Skills and the Total Score of Fundamental Motor Skills

Walking	**Running**	**Hopping**	**Forward Jump**	**Low Balance**	**Motor Balance**
0.986**	0.929**	0.711**	0.778**	0.746**	0.738**
	Kicking with Foot	**Overhead Throw**	**Catching with Hands**	**One-Handed Throw**	**Forward Roll**
	0.788**	0.710**	0.701**	0.795**	0.779**

From the results presented in Table (7), it is evident that the correlation coefficients between the scores of the sub-motor skills

in the Fundamental Motor Skills Form and the total score of the form were all high and statistically significant at the 0.01 level, indicating the consistency of the sub-skills with the overall objective of the Fundamental Motor Skills Form. Thus, it can be concluded that the Fundamental Motor Skills Form for children – prepared as one of the tools for the current study – demonstrates a high degree of internal consistency, both in terms of items, sub-skills, and the main motor skills composing it

Reliability Coefficients:

The researchers verified the reliability of the Fundamental Motor Skills Form prepared for the current study by calculating the Cronbach's alpha coefficient for the sub-skills as well as for the entire form, After administering the prepared form to the calibration sample (n = 15 children), the Cronbach's alpha coefficient was calculated for each of the eleven motor skills comprising the form, as well as for the form as a whole. The results are presented in Table (8)

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Table (8)
Reliability Coefficients of the Fundamental Motor Skills Form for Children

N	Motor skilles	Reliability Coefficient
1	**Walking**	0.858
2	**Running**	0.876
3	**Hopping**	0.799
4	**Forward Jump**	0.865
5	**Low Balance**	0.799
6	**Motor Balance**	0.889
7	**Forward Roll**	0.831
8	**One-Handed Throw**	0.822
9	**Catching with Hands**	0.884
10	**Overhead Throw**	0.877
11	**Kicking with Foot**	0.860
Total Score of the Fundamental Skills Form		**0.952**

From the results presented in Table (8), it is evident that the reliability coefficients for the eleven fundamental motor skills comprising the form ranged between 0.749 and 0.889. Furthermore, the reliability coefficient for the Fundamental Motor Skills Form reached 0.952. All these high values indicate that the form demonstrates a high degree of reliability.

:4-Discrimination Coefficients:

The discrimination coefficient of an item or skill refers to its ability to differentiate between individuals with high and low levels of the ability or motor skill that the item or skill measures in general, The researchers calculated the discrimination coefficients for the sub-skills, the eleven fundamental motor skills, as well as for the entire form, after administering the prepared form to the calibration sample (n = 15 children). This was done to assess the discriminative power of each sub-skill, fundamental skill, and the form, Data analysis using SPSS (version 28) yielded the results presented in the following table.

Table (9)
Discrimination Coefficients of the Items in the Fundamental Motor Skills Assessment Form for Children with Autism

N	Skills	Item No. / Discrimination CoefficienT	Item Numbers and Discrimination Coefficients for the Sub-Motor Skills					Discrimination Coefficient of the Fundamental Skill	Discrimination Coefficient of the
1	Walking Running	Item No	1	2	3	4	5	0.654	
		Discrimination CoefficienT	0.629	0.612	0.693	0.584	0.752		
2	Hoping	Item No	1	2	3	4	5	0.647	
		Discrimination	0.541	0.707	0.661	0.546	0.781		

	Forward Jump	**CoefficienT**						
3	**Low Balance Motor Balance**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.674**
		Discrimination CoefficienT	0.693	0.518	0.773	0.627	0.759	
4	**Forward Roll One-Handed Throw**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.609**
		Discrimination CoefficienT	0.530	0.578	0.645	0.689	0.602	
5	**Catching with Hands Overhead Throw**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.614**
		Discrimination CoefficienT	0.655	0.524	0.633	0.691	0.566	
6	**Kicking with Foot Walking**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.616**
		Discrimination CoefficienT	0.603	0.716	0.599	0.521	0.640	
7	**Running Hopping**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.654**
		Discrimination CoefficienT	0.679	0.751	0.591	0.732	0.518	
8		**Item No**	**1**	**2**	**3**	**4**	**5**	**0.635**

	Forward Jump Low Balance	**Discrimination CoefficienT**	0.604	0.794	0.566	0.690	0.523	
9	**Motor Balance Forward Roll**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.624**
		Discrimination CoefficienT	0.636	0.552	0.613	0.783	0.534	
10	**One-Handed Throw Catching with Hands**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.617**
		Discrimination CoefficienT	0.706	0.668	0.576	0.628	0.508	
11	**Overhead Throw**	**Item No**	**1**	**2**	**3**	**4**	**5**	**0.673**
		Discrimination CoefficienT	0.646	0.774	0.719	0.589	0.635	

From the results presented in Table (9), it is observed that the discrimination coefficients for all sub-skills in the Fundamental Motor Skills Assessment Form prepared for the current study ranged between 0.508 and 0.794. The discrimination coefficients for the eleven fundamental skills of the form ranged between 0.609 and 0.674. The discrimination coefficient for the Fundamental Motor Skills Form as a whole was 0.638. All these high values indicate a strong discriminative power of the form, both in terms of the sub-skills, the main skills, and the form as a whole.

Second: The Social Scale (Appendix 9)

The researchers utilized a social scale developed by the researchers (**Tahani Mohamed Othman, Zeinab Reda Kamal El-Din, Mai Ahmed El-Morsi, 2024**) and re-standardized it to suit the study sample in order to measure the extent of improvement in social skills. Accordingly, the following steps were undertaken: :

1- Determining the objective of the scale: Considering the research objectives, the purpose of the scale was defined as assessing the extent of improvement in the social aspects under study through the proposed program.

2- Modifying the scale: Some social skills included in the original scale were removed to suit the age of children with .autism spectrum disorder in the study sample

3-Expert review: The social scale was presented to experts for . evaluation

4-Conducting scientific procedures: Reliability and validity procedures were applied to the scale used in the current study.

After reviewing the Social Skills Scale for children with autism spectrum disorder, the researchers removed some items that were inappropriate for the age group under study. The revised scale was then presented to a group of specialists in education and psychology to determine the face validity of its content and to verify the suitability of the items and questions for the characteristics of the study sample, consisting of children with autism aged 4 to 6 years. The experts' agreement rates on the scale items ranged from 90% to 100%, indicating high validity and the appropriateness of the items for measuring the social skills of children with autism, The main modifications based on the experts' feedback included revising the wording of certain items and phrases, removing some statements from the three main domains of the scale (social interaction, coping with bullying, and self-regulation) to cover a wider range of behavioral manifestations for each domain, and ensuring a relative balance in the number of items measuring each domain

Internal Consistency:

The researchers examined the internal consistency of the Social Skills Scale for children with autism within the procedures of the current study, after applying it to the pilot sample consisting of(15) children (n = 15), This was done by calculating the correlation coefficient between each item's score and the total score of its respective domain for each of the three domains, as shown in Tables 10, 11, and 12. Additionally, the correlation coefficient between each domain score and the total score of the overall Social Skills Scale was calculated, as presented in Table(10)

Table (10)
Correlation Coefficients between the Items of Domain 1 (Social Interaction) and the Total Score of the Domain

Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient
1	0.693**	11	0.625**	21	0.452**	31	0.538**
2	0.582**	12	0.463**	22	0.548**	32	0.676**
3	0.491**	13	0.160**	23	0.667**	33	0.580**
4	0.668**	14	0.549**	24	0.473**	34	0.482**
5	0.617**	15	0.532**	25	0.663**	35	0.459**
6	0.529**	16	0.584**	26	0.623**		
7	0.479**	17	0.486**	27	0.457**		
8	0.672**	18	0.690**	28	0.495**		
9	0.505**	19	0.598**	29	0.606**		
10	0.459**	20	0.535**	30	0.616**		

The results shown in Table (10) indicate that all correlation coefficients between each item's score and the total score of the Social Interaction domain were statistically significant at the (0.01) level, suggesting that each item measures a behavioral aspect of social interaction skills in children. The only exception was Item (13), which had a correlation coefficient of (0.160) with the total Social Interaction score, a low and statistically non-significant value. Therefore, these results indicate that all items of the Social Interaction skill are consistent with the overall construction that the domain aims to measure.

Table (11)

Correlation Coefficients between the Items of Domain 2 (Coping with Bullying) and the Total Score of the Domain

Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient
1	0.629**	7	0.667**	13	0.519**	19	0.644**
2	0.690**	8	0.655**	14	0.454**	20	0.612**
3	0.468**	9	0.499**	15	0.695**	21	0.129**
4	0.587**	10	0.602**	16	0.589**	22	0.461**
5	0.471**	11	0.524**	17	0.621**		
6	0.527**	12	0.690**	18	0.470**		

The results shown in Table (11) indicate that all correlation coefficients between each item's score and the total score of the Coping with Bullying domain were statistically significant at the (0.01) level, suggesting that each item measures a behavioral aspect of children's ability to cope with bullying, The only

exception was Item(21), which had a correlation coefficient of (0.129) with the total score of the Coping with Bullying domain, a low and statistically non-significant value. Therefore, these results indicate that all items of the Coping with Bullying skill are consistent with the overall construct that the domain aims to measure.

Table (12)
Correlation Coefficients between the Items of Domain 3 (Self-Regulation) and the Total Score of the Domain

Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient	Item Number	Correlation Coefficient
1	0.697**	7	0.538**	13	0.599**	19	0.623**
2	0.478**	8	0.457**	14	0.464**	20	0.653**
3	0.536**	9	0.693**	15	0.685**	21	0.545**
4	0.620**	10	0.550**	16	0.531**	22	0.478**
5	0.473**	11	0.475**	17	0.171	23	0.697**
6	0.662**	12	0.689**	18	0.486**	24	0.590**

The results presented in Table (12) indicate that all correlation coefficients between each item score and the total score of the self-regulation dimension were statistically significant at the 0.01 level, This suggests that each item measures one of the behavioral aspects of self-regulation in children, The exception was item number (17), whose correlation coefficient with the total score of the self-regulation dimension was (0.171), a low value that was not statistically significant, Therefore, these results indicate the consistency of all items of the self-regulation skill with what the dimension aims to measure as a whole.

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Table (13)
Correlation Coefficients between Dimensions and Total Score of the Social Skills Scale

Social Skills Scale Dimensions	Total Score Correlation Coefficient
Social Interaction	0.732**
Bullying Confrontation	0.784**
Self-Regulation	0.686**

The results presented in Table (13) indicate that the correlation coefficients between the scores of the three dimensions of the Social Skills Scale and the total scale score were all high and statistically significant at the 0.01 level, this suggests that the three dimensions are consistent with the overall objective of the Social Skills Scale.

Thus, it is evident that the Social Skills Scale for children—developed as one of the instruments for the present study—exhibits a high degree of internal consistency

: 3-Reliability Coefficient

The researchers verified the reliability of the Social Skills Scale developed for the present study by calculating Cronbach's alpha coefficient for the three dimensions as well as for the scale. After administering the scale to the calibration sample (n = 15 children), Cronbach's alpha was calculated for each of the three dimensions, and the reliability coefficient for the entire scale was also computed. The results are presented in Table (14)

Table (14)
Reliability Coefficients of the Social Skills Scale for Children

Dimensions	Reliability Coefficient
Social Interaction	0.717
Bullying Confrontation	0.724
Self-Regulation	0.735
Total score	**0.847**

The results presented in Table (14) indicate that the reliability coefficients for the three dimensions (Social Interaction, Bullying Confrontation, and Self-Regulation) of the Social Skills Scale

ranged between 0.717 and 0.735. The reliability coefficient for the overall scale reached 0.847. All these values are high, indicating that the Social Skills Scale exhibits a high degree of reliability.

3-Discrimination Coefficient:

The researchers calculated the discrimination coefficients for the Social Skills Scale after applying the prepared scale to the calibration sample (N = 15 children). This was done by computing the discrimination coefficient for each item within each of the three dimensions, as well as the discrimination coefficient for the total score of each dimension. The aim was to identify the discriminative power of both the sub-skills and the three core skills constituting the overall Social Skills Scale. Data analysis was conducted using SPSS (Version 28), and the results are presented in the following table.

Table (15)
Discrimination Coefficients for the Items of the First Dimension Social Interaction

Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient
1	0.583	11	0.485	21	0.599	31	0.476
2	0.471	12	0.522	22	0.414	32	0.527
3	0.596	13	0.194	23	0.528	33	0.589
4	0.389	14	0.547	24	0.45	34	0.398
5	0.556	15	0.458	25	0.497	35	0.583
6	0.439	16	0.511	26	0.464		
7	0.472	17	0.566	27	0.538		
8	0.532	18	0.437	28	0.408		
9	0.46	19	0.386	29	0.476		
10	0.578	20	0.491	30	0.573		
Overall Discrimination Coefficient for the First Dimension (Social Interaction) = 0.497							

The results presented in Table (15) indicate that the discrimination coefficients for all items of the Social Interaction dimension were generally high, ranging from 0.386 to 0.599,

except for item number 13, which had a low discrimination coefficient of 0.194. The overall discrimination coefficient for the Social Interaction dimension was 0.497, which is considered high. These results, therefore, indicate that the Social Interaction dimension exhibits a high level of discrimination, both at the item level and for the dimension.

Table (16)
Discrimination Coefficients for the Items of the Second Dimension (Bullying Confrontation

Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient
1	0.446	7	0.38	13	0.534	19	0.404
2	0.562	8	0.59	14	0.392	20	0.56
3	0.47	9	0.439	15	0.547	21	0.074
4	0.511	10	0.549	16	0.417	22	0.436
5	0.427	11	0.502	17	0.572		
6	0.496	12	0.462	18	0.453		

Overall Discrimination Coefficient for the Second Dimension (Bullying Confrontation) = 0.484

The results presented in Table (16) indicate that the discrimination coefficients for all items of the Bullying Confrontation dimension were generally high, ranging from 0.380 to 0.590, except for item number 21, which had a low discrimination coefficient of 0.074. The overall discrimination coefficient for the Bullying Confrontation dimension was 0.484, which is considered high. These results, therefore, indicate a high level of discrimination for the Bullying Confrontation dimension, both at the item level and for the dimension.

Table (17)
Discrimination Coefficients for the Items of the Third Dimension (Self-Regulation

Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient	Item No.	Discrimination Coefficient
1	0.491	7	0.502	13	0.561	19	0.399
2	0.396	8	0.589	14	0.538	20	0.597
3	0.515	9	0.45	15	0.412	21	0.47
4	0.465	10	0.542	16	0.476	22	0.537
5	0.517	11	0.429	17	0.108	23	0.356
6	0.396	12	0.487	18	0.495	24	0.583

Overall Discrimination Coefficient for the Third Dimension (Self-Regulation) = 0.490

The results presented in Table (17) indicate that the discrimination coefficients for all items of the Self-Regulation dimension were generally high, ranging from 0.356 to 0.597, except for item number 17, which had a low discrimination coefficient of 0.108. The overall discrimination coefficient for the Self-Regulation dimension was 0.490, which is considered high. These results, therefore, indicate a high level of discrimination for the Self-Regulation dimension, both at the item level and for the dimension.

Tenth Program Implementation Leaders :

The researchers implemented the program units with the assistance of some colleagues from the Faculty of Physical Education and the Faculty of Early Childhood Education at Beni-Suef University, as well as staff members at the center in Beni-Suef Governorate. They were briefed on the research aspects and objectives, how to administer the tests, and the measurement methods. The assistants' responsibilities included helping the researchers in executing the program units and conducting pre- and post-tests during the implementation of the units.

Eleventh Pilot Study :

The researchers first ensured the homogeneity of the research sample in the variables (age, intelligence, and degree of autism). Then, the pilot study was conducted on 10/2/2025 on a sample of 15 children from the same research community in

centers within Beni-Suef Governorate, but outside the original sample. The aim was to identify:

The pilot study was aimed at:

1. Test the suitability of the equipment, tools, and location used for implementing the experiment.
2. Calculate the scientific coefficients of the tests under investigation.
3. Ensure the students' comprehension of the tests and data collection instruments used.

The objectives of this study were to identify:

1. The validity of the tools and equipment used in applying the program.
2. The suitability of the location for conducting the program.
3. The potential errors that might occur during implementation in order to avoid them in the main study.

The results of the pilot study indicated:

- Verification of the suitability of the location designated for implementing the program.
-Verification of the validity of the tools and equipment used in applying the program.

Twelfth Steps for Conducting the Main Experiment:

Pre-Test:

The pre-test was conducted at Al-Rayan Center in Beni-Suef Governorate on the research variables, using the research tools prepared by the researchers (Motor Skills Assessment Forms – Social Scale) on 25/2/2025.

Programming Implementation:

The researchers implemented the proposed program at Al-Rayan Center in Beni-Suef Governorate, Arab Republic of Egypt. The motor program with musical accompaniment lasted for (8) weeks, with (3) units per week, each unit lasting (45) minutes.

Post-Test:

After completing the specified duration of the program, the researchers conducted the post-tests on the research sample for the skill and social variables on 4/5/2025. The researchers ensured that the post-tests were conducted under the same conditions as the pre-tests.

Thirteenth: Statistical Treatments:

To verify the psychometric properties of the study tools, namely the Basic Motor Skills Assessment Form for Children and the Social Skills Scale, as well as to examine the results of the four research hypotheses, the researchers relied on a set of statistical methods as follows:

1. Descriptive Statistics: including mean, standard deviation, standard error of the mean, range, minimum score, maximum score, skewness, and kurtosis.
2. Correlation Coefficient: to determine the strength and direction of the relationship between two variables.
3. Discrimination Coefficient: to identify the discriminative power of the items and dimensions comprising the study tools.
4. Reliability Coefficient: using Cronbach's alpha to test the reliability of the study tools.
5. Mann-Whitney Test: to determine the significance and direction of differences between the mean ranks of two independent groups.
6. Wilcoxon Test: to determine the significance and direction of differences between the mean ranks of two related groups.
7. Effect Size (r): to assess the practical significance of the effect of the independent variable (the proposed program) on the dependent variables (basic motor skills and social skills).

Presentation and Discussion of Results:

First Hypothesis

The first hypothesis states that there are statistically significant differences between the pre-test and post-test mean scores in favor of the post-test scores regarding the acquisition and improvement of some basic motor skills for children with Autism Spectrum Disorder, To verify this hypothesis, the researchers conducted three procedures: calculating the statistical indicators for the basic motor skills of the study sample in both the pre-test and post-test; using the Wilcoxon Test to compare the mean ranks of two related samples in order to identify the significance of differences between pre-test and post-test scores for the eleven basic motor skills (walking, running, hopping, forward jump, low

balance, motor balance, forward roll, one-hand ball throw, catching the ball with both hands, overhead ball throw, and kicking the ball with the foot), as well as for the total score of all basic motor skills; and calculating the effect size (r) to determine the practical significance of the effect of the independent variable (the proposed program under the current study) on the dependent variable (basic motor skills), The statistical analysis of the data was performed using SPSS (Version 28), and the results are presented in the following tables.

Table (18)

Statistical Indicators of Basic Motor Skills for Children in the Pre-Test

Motor Skill	N	Score Range	Min Score	Max Score	Mean	Standard Error	Standard Deviation	Skewness	Kurtosis
Walking	4	1	4	5	4.5	0.289	0.577	0.0	-6.0
Running	4	1	4	5	4.5	0.289	0.577	0.0	-6.0
Hopping	4	1	2	3	2.5	0.289	0.577	0.0	-6.0
Forward Jump	4	1	4	5	4.25	0.25	0.5	2.0	4.0
Low Balance	4	1	2	3	2.5	0.289	0.577	0.0	-6.0
Motor Balance	4	1	4	5	4.75	0.25	0.5	-2.0	4.0
Forward Roll	4	2	1	3	1.5	0.5	1.0	2.0	4.0
One-Hand Throw	4	1	3	4	3.75	0.25	0.5	-2.0	4.0
Two-Hand Catch	4	2	1	3	2.0	0.408	0.816	0.0	1.5
Overhead Throw	4	1	4	5	4.5	0.289	0.577	0.0	-6.0

Instep Kick	4	1	3	4	3.5	0.289	0.577	0.0	-6.0
Total Motor Skills Score	4	3	37	40	38.25	0.75	1.5	0.37	-3.901

Table (19)
Statistical Indicators of Basic Motor Skills for Children in the Post-Test

Kurtosis	Skewness	Standard Deviation	Standard Error	Mean	Maximum Score	Minimum Score	Range	N	Motor Skill
-6.000	0.000	0.577	0.289	8.50	9	8	1	4	Walking
-6.000	0.000	0.577	0.289	8.50	9	8	1	4	Running
-6.000	0.000	0.577	0.289	7.50	8	7	1	4	Hopping
4.000	-2.000	0.500	0.250	7.75	8	7	1	4	Forward Jump
4.000	2.000	0.500	0.250	8.25	9	8	1	4	Low Balance
-6.000	0.000	0.577	0.289	8.50	9	8	1	4	Motor Balance
-1.289	-0.855	0.957	0.479	8.25	9	7	2	4	Forward Roll
4.000	2.000	0.500	0.250	8.25	9	8	1	4	One-Hand Throw
4.000	2.000	0.500	0.250	8.25	9	8	1	2.000	Two-Hand Catch
-6.000	0.000	0.577	0.289	8.50	9	8	1	0.000	Overhead Throw
-6.000	0.000	0.577	0.289	8.50	9	8	1	0.000	Instep Kick
-2.478	-0.561	4.646	2.323	90.75	95	85	10	-0.561	Total Motor Skills Score

Table (20)
Wilcoxon Test Results and Effect Size for Detecting the Significance of the Program's Impact on Improving Basic Motor Skills for Study Participants with Autism Spectrum Disorder

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.	Effect Size (r)	
							Value	Level
Walking	Negative Ranks	4	2.50	10.00	-1.841	0.066	0.921	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Running	Negative Ranks				-1.841	0.066	0.921	Very High
	Positive Ranks							
	ties							
	total							
Hoping	Negative Ranks	4	2.50	10.00	-2	0.046	1.000	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Forward Jump	Negative Ranks	4	2.50	10.00	-1.857	0.063	0.929	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Low Balance	Negative Ranks	4	2.50	10.00	-1.89	0.059	0.945	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	Total	4						
Motor Balance	Negative Ranks	4	2.50	10.00		0.066	0.921	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.	Effect Size (r)	
							Value	Level
	Total	4			-1.841			
Forward Roll	Negative Ranks	4	2.50	10.00	-1.841	0.066	0.921	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
One-Hand Throw	Negative Ranks	4	2.50	10.00	-1.857	0.063	0.929	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Two-Hand Catch	Negative Ranks	4	2.50	10.00	-1.841	0.066	0.921	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Overhead Throw	Negative Ranks	4	2.50	10.00	-1.841	0.066	0.921	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	total	4						
Instep Kick	Negative Ranks	4	2.50	10.00	-1.857	0.063	0.929	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	Total	4						
Total Motor Skills Score	Negative Ranks	4	2.50	10.00	1.826	0.068	0.913	Very High
	Positive Ranks	0	0.00	0.00				
	ties	0						
	Total	4						

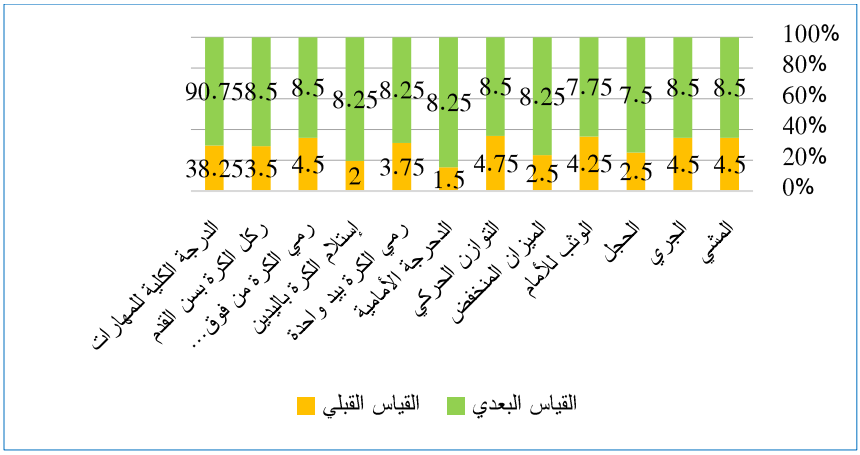

Figure No. 1
Differences Between Pre-Test and Post-Test in Basic Motor Skills

From the results shown in Tables (18, 19, 20) and illustrated in Figure (1), the first hypothesis is supported. The mean scores in the pre-test and post-test for all eleven basic motor skills (walking, running, hopping, forward jump, low balance beam, motor balance, forward roll, one-hand ball throw, two-hand ball catch, overhand ball throw, and foot kick), as well as the total score of basic motor skills, indicate significant differences between the pre-test and post-test means for all skills. Although the differences between pre-test and post-test scores for all skills, according to the Wilcoxon test, did not reach statistical significance ($p < 0.05$) due to the very small sample size (only four participants), the effect size values—which reflect the practical significance of the independent variable (the program under study) on improving the dependent variable (basic motor skills)—confirm substantial improvement in all eleven basic motor skills and the total score of basic motor skills. The effect size values for these variables were (.921, 0.921, 1, 0.929, 0.945, 0.921, 0.921, 0.929, 0.921, 0.921, 0.929, 0.913), all falling within the very high effect size range, indicating a very strong impact of the program in enhancing basic motor skills among the four children with autism spectrum disorder in the study sample

The researchers attribute the improvement in the children's levels to the careful planning of the proposed program, the appropriate selection of games, activities, songs, and musical pieces, and the clear determination of objectives, which helped in selecting suitable content and educational tools within the learning environment, The diversity of educational units, combining individual and group activities, was designed to match each child's abilities and capacities, The researchers also attribute the progress to the effective cooperation of parents with the researchers and the training of children in home-based activities, which helped maintain the learning impact and stimulated the musical activities to engage the senses and minds of children with autism spectrum disorder. This is supported by **Vaiouli & Andreou (2018),** whose analytical study indicated that music stimulates the operation of multiple senses and motor functions in the brain, Through music, the cortical centers responsible for processing sensory information can reorganize themselves in response to musical stimuli, Moreover, providing intensive music therapy at an early stage leads to brain changes that facilitate information processing in children with autism.

The researchers also attribute this positive outcome to the children's love for physical activity and music, which greatly helped them break free from routine and stress while learning useful and diverse skills. The program relied on motor, recreational, and musical activities, as well as small games—activities that are generally enjoyable for people of all ages and characteristics. Children with autism spectrum disorder responded particularly well to singing and were naturally drawn to it, as they found it enjoyable, uplifting, and a means of self-expression and emotional enhancement.

This was further confirmed by **Tawfiq Samie (2012),** who emphasized that sports significantly help children with autism alleviate the disorders they experience. The study concluded that the benefits of physical activity for children with autism are multifaceted: it promotes development and maturation in the psychomotor and cognitive domains, as well as growth in communication and social relationships. Additionally, the study

noted that children with autism tend to prefer individual activities.

In this context, **Janzen & Thaut (2018)** also noted that children with autism spectrum disorder retain the skills they acquire through music and show greater interest in it, they possess intact—and sometimes even superior—abilities compared to typically developing children in pitch processing, melodic memory, understanding musical harmony, and rhythm. The hypersensitivity observed in some children with autism spectrum disorder is not in the auditory pathways but rather in the cortical processing systems, Therefore, all these children can benefit from music therapy .

The researchers also utilized visual aids, educational cards, pictures, and musical clips, thereby providing a supportive learning environment for children with autism spectrum disorder, they incorporated a mix of individual and group units to accommodate the characteristics of children with autism. Additionally, the researchers ensured proper training and adhered to training principles to make the program effective. This approach is supported by **Tawfiq Samie (2012),** who emphasized that activities should be continuous and consistent, with ongoing observation, appropriately tailored to the characteristics of children with autism, accurately designed, and supervised by both a sports specialist and a psychology specialist.

This was also recommended by the study of **Asil Suleiman (2024)** during the International Scientific Conference titled "Theory and Practice in Adapted Physical Education," held in Sharjah, United Arab Emirates, on 4/3/2024. The study highlighted several recommendations, most notably the need to emphasize the role of assistive technologies in enhancing the experience of students with autism spectrum disorder in adapted sports and to provide appropriate training for physical education teachers on how to effectively use these assistive technologies during PE classes.

The researchers also attribute the improvement in motor skills among children with autism spectrum disorder to the way music captures their attention and motivates learning. This was supported by Hamada Mohamed (2023), who noted that children

with autism spectrum disorder are more attentive to auditory stimuli, making them more engaged with music and learning through it. When music was used with children with autism in his program, they responded particularly well to singing and were drawn to it because they found it enjoyable and pleasurable. Music also serves as a form of self-expression, reinforces emotions and attitudes, and helps children communicate, build relationships, and interact with others.

Al-Sheikh Safi (2024) (9) also emphasized the effectiveness of the proposed sports program, noting that the suggested educational units contributed to the improvement of basic motor skills in children with autism. The researcher recommended giving attention to training programs provided to children with autism in their specialized centers to help facilitate their integration into society. This recommendation is supported by studies such as those by Samer Youssef and Amira Sabry (2012) (26) and Suha Ali (2016) (29). .

The researchers also attribute the effectiveness of the program to its inclusion of motor games, which had a positive impact on the motor aspect of children with autism spectrum disorder. In addition, improvements were observed in social interaction, visual attention, and balance among the research samples.

This finding aligns with previous studies, such as those by **Khaled Saeed Al-Nabi and Mohamed Kamal (2018), Faten Zakaria and Amal Mohamed (2004), and Enas Ghanem Mohamed (2002),** which highlighted the role of recreational games in enhancing motor achievement motivation in preschool children, The use of small recreational games has been shown to support the development of motor skills in children with autism and improve their functional abilities related to daily life activities.

Mohamed Al-Fawzan (2000) and **Suha Ahmed (2002**) indicate that selecting appropriate games for children with autism is crucial, as games are highly beneficial and have a significant impact on guiding desirable behaviors in children with autism. Play serves as the primary means through which a child expresses themselves; it is the language they use to communicate about

themselves and interact with the surrounding world, Play is considered essential and necessary, just like food and drink.

Mahmoud El-Sharqawy (2018) also emphasized that play is essential for children with autism because it is the best means of communication between the child and the teacher, It increases the child's engagement, helps release emotions, and can address certain problems and disorders the children may experience, Play provides appropriate developmental experiences, offers opportunities for parental involvement in therapy, facilitates social interaction and expression, serves as an effective tool for individualized education and accommodating individual differences, and stimulates physical, motor, and cognitive abilities.

The researchers also observed that the improvements from the program were not limited to motor skills but extended to physical, health, psychological, and cognitive domains. This is supported by **Jiayuli and Weide Shao (2022)**, who emphasized that physical activity plays a crucial role in developing physical fitness and mental health in children and adolescents. Physical activity leads to a series of positive adaptations in physiological responses, primarily by improving the cardiovascular and muscular systems, Furthermore, it enhances psychological aspects of mental health and helps children and adolescents integrate into society.

The researchers recognize the importance of physical activity for children in general and for children with special needs in particular. Therefore, they developed a program that combines sports and music due to their countless benefits across various domains. This is supported by Uday **Mousa, Hussein Hassan, and Ziyad Falah (2023),** who emphasized that physical education is an integral part of the general educational system, providing humanitarian and educational services for children with disabilities. It aims to include them, develop their motor skills, build their self-confidence, and boost their morale. Additionally, it prepares them physically, psychologically, and socially to overcome the negative effects of their disabilities. Sports for children with special needs have witnessed notable progress thanks to state efforts for this group and their participation in local

and international competitions, reflecting commitment to their inclusion and integration into society.

This was also confirmed by **Somaya Bin Abbas (2023) (27)**, who emphasized that sports have an impact on the psychological and motor aspects of children with autism. Sports help regulate their behavior and reduce tension and anxiety, as well as decrease stereotypical movements and sounds. Additionally, they contribute to physical development, such as acquiring balance while walking, improving agility, enhancing the respiratory and circulatory systems, and combating obesity.

Sadiq Mustafa et al, believe that adapted physical activity is one of the most successful and effective means of integrating children with autism. It helps them overcome feelings of disability and inadequacy, significantly contributing to individual distinction and success in their academic and professional lives. Through educational play therapy, it is also possible to reduce behavioral disorders and anxiety, while promoting the development of basic motor skills, as well as cognitive, social, and language abilities.

The researchers also attributed the success of the program to the use of music during the education and training of children in the study program, as it helped children with Autism Spectrum Disorder (ASD) to isolate negative factors affecting them, focus on what they were learning, and harmonize with the music, This aligns with **Najat Issa (2018)**, who emphasized that music can serve as a complementary therapy for children with ASD alongside psychological and rehabilitative treatments under the guidance of a trained specialist, providing opportunities for emotional expression, relaxation, and enjoyment. Moreover, music therapy assists children with autism in eliminating maladaptive behaviors, developing role-taking and social skills, reducing excessive motor activity, and calming the children, while also contributing to the development of their emotional, cognitive, and educational skills. The study recommended designing training, therapeutic, and guidance programs aimed at improving their skills and abilities, employing a variety of approaches, both individual and group-based, to foster a positive impact on the development of their competencies.

The results of Tables (18, 19, 20) are consistent with the research objective and confirm the first hypothesis, which states that there are statistically significant differences between the mean scores of the pre-test and post-test in improving some of the basic motor skills of children with Autism Spectrum Disorder (ASD).

Presentation and Discussion of the Second Hypothesis Results:

The second hypothesis states that "there are statistically significant differences between the mean scores of the pre-test and post-test, in favor of the post-test mean scores, in acquiring and improving some social skills among children with Autism Spectrum Disorder (ASD)," To verify this hypothesis, the researchers conducted three procedures: (1) calculating the statistical indicators of social skills for the study sample in both the pre-test and post-test; (2) using the Wilcoxon test to compare the mean ranks of two related samples, in order to identify the significance of differences between the pre-test and post-test in social skills (social interaction, coping with bullying, self-regulation) across their three dimensions, as well as the total social skills score for the study sample children; and (3) calculating the effect size (r) to determine the practical significance of the independent variable (the designed program under study) on the dependent variable (social skills), The results of the statistical data analysis, performed using the Statistical Package for the Social Sciences (SPSS, version 28), are presented in the following tables.

Table (21)
Statistical Indicators of Children's Social Skills Scores in the Pre-Test

Social Skills	N	Score Range	Min Score	Max Score	Mean	Standard Error	Standard Deviation	Skewness	Kurtosis
Social Interaction	4	2	38	40	39.00	0.408	0.816	0.000	1.500
Bullying Confrontation	4	4	27	31	29.25	0.854	1.708	-0.753	0.343
Self-Regulation	4	9	29	38	32.75	2.056	4.113	0.701	-1.653
Total score	4	9	98	107	102.50	2.327	4.655	0.000	-5.546

Table (22)
Statistical Indicators of Children's Social Skills Scores in the Post-Test

Social Skills	N	Score Range	Min Score	Max Score	Mean	Standard Error	Standard Deviation	Skewness	Kurtosis
Social Interaction	4	5	89	94	91.00	1.080	2.160	1.190	1.500
Bullying Confrontation	4	3	48	51	49.50	0.645	1.291	0.000	-1.200
Self-Regulation	4	6	50	56	52.75	1.377	2.754	0.323	-3.033
Total score	4	8	177	185	181.50	2.062	4.123	-0.200	-4.858

Table (23)
Wilcoxon Test Results and Effect Size for Detecting the Significance of the Program's Impact on Improving Social Skills of Study Participants with Autism Spectrum Disorder

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.	Effect Size (r)	
							Value	Level
Social Interaction	Negative Ranks	0	0.00	0.00	-1.826	0.068	0.913	Very High
	Positive Ranks	4	2.50	10.00				
	ties	0						
	total	4						
Bullying Confrontation	Negative Ranks	0	0.00	0.00	-1.841	0.066	0.921	Very High
	Positive Ranks	4	2.50	10.00				
	ties	0						
	total	4						
	Negative Ranks	0	0.00	0.00	-1.841	0.066	0.921	Very High

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.	Effect Size (r)	
							Value	Level
Self-Regulation	Positive Ranks	4	2.50	10.00				
	ties	0						
	total	4						
Total score	Negative Ranks	0	0.00	0.00	-1.826	0.068	0.913	Very High
	Positive Ranks	4	2.50	10.00				
	ties	0						
	total	4						

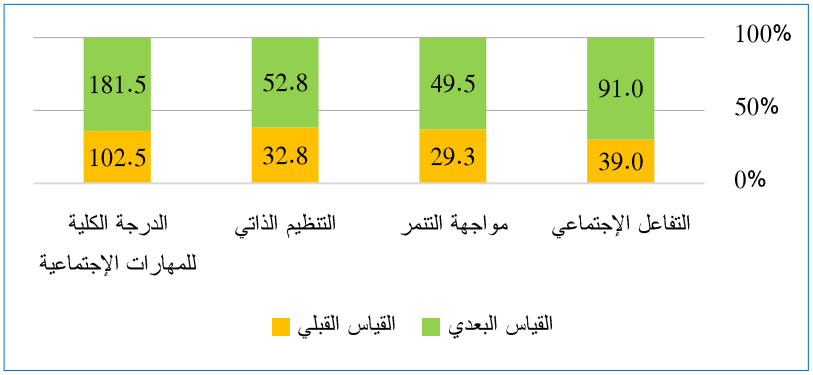

Figure (2)
Differences Between Pre-Test and Post-Test in Social Skills

Based on the results presented in Tables (21, 22, 23) and illustrated in Figure (2), the second hypothesis is supported. The mean values in the pre-test and post-test for all social skills (social interaction, bullying confrontation, self-regulation) as well as the total social skills score show substantial differences between the pre-test and post-test mean scores across all social skill domains and the overall social skills score. Although the significance of these differences between the pre-test and post-test for all social skills, according to the Wilcoxon Test results, did not reach the level of statistical significance ($p < 0.05$) due to the very small sample size (only four participants), the effect size values, which reflect the practical significance of the independent variable (the program under study) in improving the targeted dependent variable (social skills), confirm a substantial improvement in the three social skills (social interaction, bullying confrontation, self-regulation) as well as the overall social skills score. The effect size values for these variables were 0.913, 0.921, 0.921, and 0.913, respectively, all of which fall within the very high level of effect size, indicating a very strong impact of the program in enhancing the social skills of the four children in the study sample.

The researchers attribute this improvement in social skills and behaviors to the proposed program, which integrated sports and music, both of which have a positive and effective impact on enhancing human behavior, This is supported by several studies, such as **Suha Ali (2011) (30), Suha Ali (2015) (31), and Jia Yuli & Weide Shao (2022) (67**), which confirmed the positive outcomes of a motor education program accompanied by music for children with Autism Spectrum Disorder, as well as the effective influence of physical activities on promoting positive social behavior among children and adolescents.

The researchers also attributed this improvement in social skills to the creation of a new and supportive environment through the proposed program, which allows children with Autism Spectrum Disorder to learn motor skills, acquire positive behaviors, and enhance communication, Numerous recent studies have highlighted the importance of sports and music in autism intervention, particularly the use of music-accompanied activities and games that enhance attention levels, promote active

engagement in the learning process, and employ educational play strategies to build an engaging and stimulating learning environment, This approach represents a modern therapeutic method adopted by many centers, relying on the integration of movement and interactive learning. The researchers carefully aimed to achieve these objectives throughout the proposed program.

Studies have shown that physical exercises improve social interaction, reduce aggressive behaviors, and decrease stereotypical behaviors in children and adolescents with autism, Recently, it has been established that joint physical training enhances restricted and repetitive behavior patterns as well as social skills in children with autism spectrum disorder. Furthermore, physical exercises have a positive impact on various symptoms and comorbid conditions, such as reducing physical motor impairments, Among these studies, **Nabila Ahmed et al, (2023) (55)** confirmed through their results the effectiveness of motor activities for children with autism spectrum disorder, as these activities helped stimulate the children, encouraged cooperative work, reduced isolation, and enhanced their observational, cognitive, and positive social interaction skills, Additionally, the activities contributed to health and physical benefits, as well as increasing the children's sense of happiness and enjoyment.

Sumaya Boualabbas (2023) (27) and Khalil Ehab (2007) (23) also emphasized that adapted physical activity affects the psychological and motor aspects of children with Autism Spectrum Disorder and helps them modify their behaviors and reduce stereotypical motor patterns. Adapted sports aim to improve the quality of life for individuals with disabilities by engaging in physical activity safely and effectively, enhancing physical fitness, and promoting overall health by reducing the risk of chronic diseases, Additionally, adapted sports contribute to the development of social skills, boost self-confidence, foster cooperation and communication, and encourage acceptance among peers for children with Autism Spectrum Disorder, thereby helping to address social deficits.

The results of the researchers' study regarding the improvement and acquisition of social skills are consistent with those of previous studies, which reported a significant reduction in social interaction problems among children with Autism Spectrum Disorder, these studies also indicated that structured physical education programs can serve as an effective complementary intervention for individuals with autism. Among these studies are those conducted by **Imam Mohamed (2003) (11), Adel Abdullah (2002) (34), and Ibrahim Abdullah (2004) (1)**, all of whom confirmed that adapted physical activity reduces isolation, enhances social interaction, fosters self-confidence, strengthens a sense of belonging, promotes communication with peers, and decreases selfish behaviors in children with Autism Spectrum Disorder. Additionally, such activities contribute to the children's sense of happiness and well-being, reduce temper outbursts, lower aggression, and increase the level of correct responses.

Laila Naji (2022) (42) also emphasized the role of adapted physical activity in achieving school inclusion for children with Autism Spectrum Disorder, highlighting its effectiveness in addressing various developmental deficits experienced by children with autism. Psychologically, such activities help reduce aggressive behavior, tension, and anxiety; socially, they improve communication, foster cooperation, encourage acceptance of others, decrease social withdrawal, enhance social interaction, and promote a sense of participation. From a motor perspective, adapted physical activity contributes to improving coordination in various bodily movements and helps children acquire a range of skills, including walking, stability, balance, jumping, and other motor abilities.

Physical education and adapted sports do not only contribute to the acquisition of motor and social skills, but also significantly impact the daily lives of children with Autism Spectrum Disorder by enhancing their functional life skills. There is a strong relationship between motor skills and functional skills related to activities of daily living, as improvements in daily functions are closely linked to the development and learning of basic motor

skills. Several studies have emphasized the role of physical and sports activities, motor education, and small recreational games in positively influencing the lives of children with autism. Among these studies are **Emmanuelle (2007) (63), Nahla Mohamed (2015) (58), Faten Zakaria & Amal Mohamed (2004) (39), Mervat Abdel Ghaffar (2004) (49), Marwa Ismail, Sadiqa Youssef, Samah Zahran (2013) (50), Amjad Abdel Latif (2006) (13), Ayman Mahmoud (2006) (15), Nasser Abu Zeid (2009), Enas Ghanem (2002) (16), Amani Kamal & Atef Mohamed (2010) (12), and Amir Abdelkader (2014) (14).**

The researchers also attributed the improvement in social skills to the careful selection of recreational games that are enjoyable for children. This finding aligns with previous studies, such as those by **Mervat Abdel Ghaffar (2004) (49), Amjad Abdel Latif (2006) (13), Ayman Mahmoud (2006) (15), Marwa Ismail, Sadiqa Youssef, Samah Zahran (2013) (50), and Nasser Abu Zeid (2009) (53)**, which highlighted the effectiveness of recreational games in enhancing social and psychological aspects. Studies that employed small recreational games for children also showed improvements in problem-solving, interpersonal skills, leadership abilities, safety and security concepts, and motivation for motor achievement.

The researchers also attributed the significant improvement in social skills to the use of music, which plays a clear and effective role in enhancing the sensory reception and development of acquired skills, This has been supported by studies conducted by **Caria, Venuti, & De Falco (2011) (62) and Witusik & Pietras (2019) (78),** which confirmed that children with autism possess natural abilities in musical processing. Music therapy is considered a cost-effective and structured intervention, whether through singing or listening, leading to improvements in receptive and expressive language skills as well as social skills, making it a promising treatment for this population, Additionally, **Williams et al. (2021) (77)** emphasized that music positively influences language development, a finding supported by neuroimaging studies showing that music enhances attention in children with Autism Spectrum Disorder.

Numerous previous studies have demonstrated the effectiveness and positive impact of music therapy for children with Autism Spectrum Disorder, considering it a logical, promising, and effective intervention for improving social, linguistic, and communication skills. Examples of these studies include **Koelsch et al. (2014), et al. (2016), Rania Farouk (2015) (24), Hiyam Saadoun (2017) (59), Ahmed Mahmoud (2019) (6), and Mohamed Samir (2022) (44),** which confirmed the effectiveness of their proposed music-based programs in developing certain communication skills. These programs positively influenced children with Autism Spectrum Disorder by enhancing social interaction, communication, and language acquisition, while also supporting the senses in effectively receiving and processing stimuli.

Sobhi El-Sharkawy, Rami Naguib, and Aziz Madi (2012) (33) also emphasized that singing is one of the musical activities most enjoyed by children. It serves as a means to enhance their knowledge by conveying valuable information through song lyrics, instilling healthy habits, and cultivating artistic taste. Songs attract children, transporting them into a world that appeals to their emotions and feelings, while simultaneously developing their physical, psychological, social, mental, and cognitive aspects. Additionally, singing helps children learn proper breathing techniques and voice production, which can be effectively used to convey a wide range of linguistic information.

Mahmoud Abdel Rahman (2018) (47) and Sravanti et al. (2023) indicated that music therapy reduces the activity of the autonomic sympathetic nervous system, thereby decreasing behavioral problems and enhancing emotional regulation in children, It also reduces aggressive behavior in children and adolescents and improves social skills and problem-solving abilities, They emphasized that music therapy benefits children with autism by developing social, emotional, and cognitive skills, promoting social interaction and communication, enhancing attention, and supporting the modification of social behavior. Additionally, it helps children feel valued and confident, facilitates language acquisition and development, and, when

combined with play and movement, aids in relieving emotional tension, conflicts, and stress, play activities also provide children with autism a sense of joy and satisfaction.

The results presented in Tables (21, 22, 23) are consistent with the research objective and support the second hypothesis, which states that there are statistically significant differences between the mean scores of the pre-test and post-test in improving and acquiring certain social skills in children with Autism Spectrum Disorder.

Presentation and Discussion of the Third Hypothesis Results:

The third hypothesis states that there are no statistically significant differences between the mean scores of the post-test and follow-up test in basic motor skills for children with Autism Spectrum Disorder. To verify this hypothesis, the researchers conducted two procedures: (1) calculating the statistical indicators of basic motor skills for the study sample in both the post-test and follow-up test, and (2) using the Wilcoxon test to compare the mean ranks of two related samples. This was done to determine the significance of differences between the post-test and follow-up test in eleven basic motor skills (walking, running, hopping, forward jumping, low balance beam, motor balance, forward roll, one-hand ball throwing, two-hand ball catching, overhead ball throwing, and kicking with the foot), as well as the total score of basic motor skills for the study sample children. The results of the statistical data analysis using the SPSS software package (version 28) are presented in the following tables.

Table (24)
Statistical Indicators of Children's Basic Motor Skills Scores in the Post-Test

Motor Skill	N	Score Range	Min Score	Max Score	Mean	Standard Error	Standard Deviation	Skewness	Kurtosis
Walking	4	1	8	9	8.50	0.289	0.577	0.000	-6.000
Running	4	1	8	9	8.50	0.289	0.577	0.000	-6.000
Hopping	4	1	7	8	7.50	0.289	0.577	0.000	-6.000
Forward Jump	4	1	7	8	7.75	0.250	0.500	-2.000	4.000

Low Balance	4	1	8	9	8.25	0.250	0.500	2.000	4.000
Motor Balance	4	1	8	9	8.50	0.289	0.577	0.000	-6.000
Forward Roll	4	2	7	9	8.25	0.479	0.957	-0.855	-1.289
One-Hand Throw	4	1	8	9	8.25	0.250	0.500	2.000	4.000
Two-Hand Catch	4	1	8	9	8.25	0.250	0.500	2.000	4.000
Overhead Throw	4	1	8	9	8.50	0.289	0.577	0.000	-6.000
Instep Kick	4	1	8	9	8.50	0.289	0.577	0.000	-6.000
Total Motor Skills Score	4	10	85	95	90.75	2.323	4.646	-0.561	-2.478

Table (25)
Statistical Indicators of Children's Basic Motor Skills Scores in the followp-Test

Motor Skill	N	Score Range	Min Score	Max Score	Mean	Standard Error	Standard Deviation	Skewness	Kurtosis
Walking	4	1	7	8	7.75	0.250	0.500	-2.000	4.000
Running	4	0	8	8	8.00	0.000	0.000	0	0
Hopping	4	1	7	8	7.50	0.289	0.577	0.000	-6.000
Forward Jump	4	1	7	8	7.25	0.250	0.500	2.000	4.000
Low Balance	4	2	7	9	7.75	0.479	0.957	0.855	-1.289
Motor Balance	4	1	7	8	7.25	0.250	0.500	2.000	4.000
Forward Roll	4	2	7	9	7.75	0.479	0.957	0.855	-1.289
One-Hand Throw	4	1	7	8	7.75	0.250	0.500	-2.000	4.000
Two-Hand Catch	4	1	7	8	7.50	0.289	0.577	0.000	-6.000
Overhead Throw	4	2	7	9	8.00	0.408	0.816	0.000	1.500

Instep Kick	4	2	7	9	8.25	0.479	0.957	-0.855	-1.289
Total Motor Skills Score	4	7	81	88	84.75	1.493	2.986	-0.423	-0.416

Table (26)
Wilcoxon Test Results for Detecting the Significance of Differences between Post-Test and Follow-Up Test in Basic Motor Skills for Children with Autism Spectrum Disorder in the Study Sample

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.
Walking	Negative Ranks	0	0.00	0.00	-1.732	Not statistically significant
	Positive Ranks	3	2.00	6.00		
	ties	1				
	total	4				
Running	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	total	4				
Hopping	Negative Ranks	1	1.50	1.50	0.000	Not statistically significant
	Positive Ranks	1	1.50	1.50		
	ties	2				
	total	4				
Forward Jump	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	total	4				
Low Balance	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	Total	4				
Motor Balance	Negative Ranks	0	0.00	0.00	-1.890	Not statistically significant

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.
	Positive Ranks	4	2.50	10.00		
	ties	0				
	Total	4				
Forward Roll	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	total	4				
One-Hand Throw	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	total	4				
Two-Hand Catch	Negative Ranks	0	0.00	0.00	-1.732	Not statistically significant
	Positive Ranks	3	2.00	6.00		
	ties	1				
	total	4				
Overhead Throw	Negative Ranks	0	0.00	0.00	-1.414	Not statistically significant
	Positive Ranks	2	1.50	3.00		
	ties	2				
	total	4				
Instep Kick	Negative Ranks	0	0.00	0.00	-1.000	Not statistically significant
	Positive Ranks	1	1.00	1.00		
	ties	3				
	Total	4				
Total Motor Skills Score	Negative Ranks	0	0.00	0.00	-1.841	Not statistically significant
	Positive Ranks	4	2.50	10.00		
	ties	0				
	Total	4				

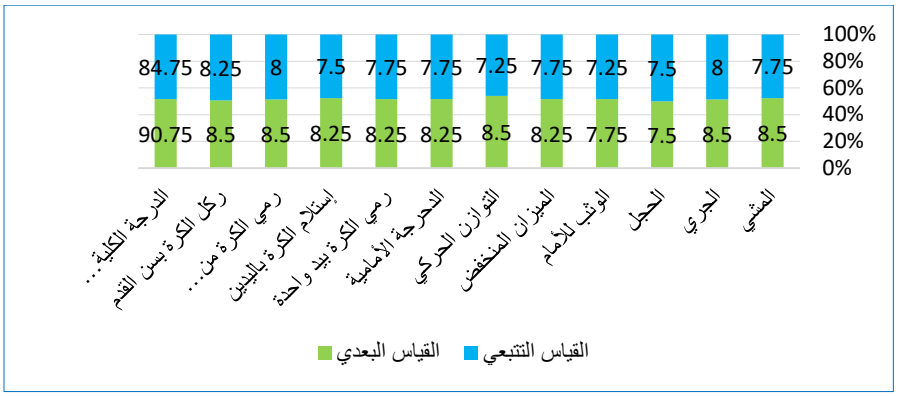

Figure (3) Differences between the Pre-Test and Post-Test in Basic Motor Skills

Based on the results presented in Tables (24, 25, and 26) and illustrated in Figure (3), the third hypothesis was accepted. It was found that there were no statistically significant differences between the mean scores of the post-test and follow-up test in all eleven basic motor skills (walking, running, hopping, forward jumping, low balance beam, motor balance, forward roll, one-hand ball throwing, two-hand ball catching, overhead ball throwing, and kicking with the foot), as well as in the total score of basic motor skills for the study sample. The calculated Z-values for the significance of differences in these variables were (1.732, 1.414, 0, 1.414, 1.414, 1.890, 1.414, 1.414, 1.732, 1.414, 1, and 1.841), respectively, all of which were non-significant. This indicates stability or consistency in the improvement rate of all basic motor skills among the study sample after receiving the program under investigation, even after a period of 30 days following the program completion and post-test evaluation. This, in turn, confirms the sustained effectiveness of the program in enhancing the basic motor skills of children with Autism Spectrum Disorder

The researchers attribute this result to the persistence of the learning effect and the effectiveness of the implemented program, whose impact remained even one month after the program had ended. This indicates the successful selection of motor and musical activities, as well as small games, which played a major role in stimulating the children and capturing their attention

toward learning according to their abilities and capacities. This, in turn, helped children with Autism Spectrum Disorder retain the acquired skills.

The researchers also attribute the improvement in the basic motor skills under investigation, as well as the persistence of the learning effect as revealed in the follow-up measurement, to the researcher's focus on using visual aids, flashcards, and videos. These tools played a clear role in accelerating children's learning, capturing their attention, forming accurate mental imagery of motor skills, storing them effectively, and enabling their rapid recall at any time, thereby sustaining the learning effect. This finding is further supported by "**Nagwa Gomaa" (2018, p.57),** whose study confirmed the positive impact of visual perception training on improving motor skills among her research sample.

The researchers also attribute the persistence and stability of the learning effect to the integration of music throughout all parts of the program and unit. Music played a key role in helping children with autism spectrum disorder to relieve stress and tension, and to focus on acquiring the targeted motor skills and retaining their learning effect. This result is further supported by several studies, such as "**Afrah Thanoon" (2008, p.8),** which also confirmed the positive impact of using music accompanying physical exercises during physical education sessions.

The researchers also attribute the success of the program and the persistence of its impact to the use of imitation, role modeling, and movement stories accompanied by music, which are considered among the most effective methods in teaching children, These approaches provide a safe educational environment that fosters the child's holistic development in line with his or her abilities and individual interests through both individual and group activities. Such an environment encourages children to experiment and be creative, thereby enhancing their independence, increasing their problem-solving ability, promoting adaptation to their environment, and fostering self-confidence.

The results of Tables (24, 25, and 26) are consistent with the research objective and confirm the third hypothesis, which states that there are no statistically significant differences between the mean scores of the post-test and the follow-up test in

improving and acquiring certain fundamental motor skills among children with autism spectrum disorder.

Presentation and Discussion of the Fourth Hypothesis :

Results

The fourth hypothesis states that "there are no statistically significant differences between the mean scores of the post-test and the follow-up test in acquiring and improving certain social skills among children with Autism Spectrum Disorder." To verify this hypothesis, the researcher conducted two procedures: (1) calculating the statistical indicators of social skills in the study sample at both the post-test and the follow-up test, and (2) applying the Wilcoxon test to compare the mean ranks of two related samples, in order to detect the significance of differences between the post-test and the follow-up test in social skills (social interaction, coping with bullying, and self-regulation), as well as the overall score of social skills among the study sample. The statistical analysis of the data using the Statistical Package for the Social Sciences (SPSS, version 28) yielded the results presented in the following tables.

Table (27)
Statistical Indicators of Social Skills Scores for Children in the Post-Test

Social Skill	N	Range	Minimum	Maximum	Mean	Std. Error	Std. Deviation	Skewness	Kurtosis
Social Interaction	4	5	89	94	91.0	1.08	2.16	1.19	1.5
Coping with Bullying	4	3	48	51	49.5	0.645	1.291	0.0	-1.2
Self-Regulation	4	6	50	56	52.75	1.377	2.754	0.323	-3.033
Total Score	4	8	177	185	181.5	2.062	4.123	-0.2	-4.858

Table (28)
Statistical Indicators of Social Skills Scores for Children in the Follow-Up Test

Social Skill	N	Range	Minimum	Maximum	Mean	Std. Error	Std. Deviation	Skewness	Kurtosis
Social Interaction	4	15	71	86	79.0	3.082	6.164	-0.478	1.5
Coping with Bullying	4	4	47	51	48.75	0.854	1.708	0.753	0.343
Self-Regulation	4	6	49	55	52.0	1.291	2.582	0.0	-1.2
Total Social Skills Score	4	9	175	184	179.75	2.462	4.924	-0.036	-5.795

Table (29)
Results of the Wilcoxon Test to Examine the Significance of Differences Between the Post-Test and Follow-Up Test in Social Skills Among Children with Autism Spectrum Disorder in the Study Sample

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.
Social Interaction	**Negative Ranks**	0	0.00	0.00	-1.826	Not statistically significant
	Positive Ranks	4	2.50	10.00		
	ties	0				
	total	4				
	Negative Ranks	0	0.00	0.00	-1.732	Not statistically significant

Skill	Rank Type	N	Mean rank	Total rank	Z	Sig.
Bullying Confrontation	Positive Ranks	3	2.00	6.00		
	ties	1				
	total	4				
Self-Regulation	Negative Ranks	0	0.00	0.00	-1.732	Not statistically significant
	Positive Ranks	3	2.00	6.00		
	ties	1				
	total	4				
Total score	Negative Ranks	0	0.00	0.00	-1.841	Not statistically significant
	Positive Ranks	4	2.50	10.00		
	ties	0				
	total	4	0.00			

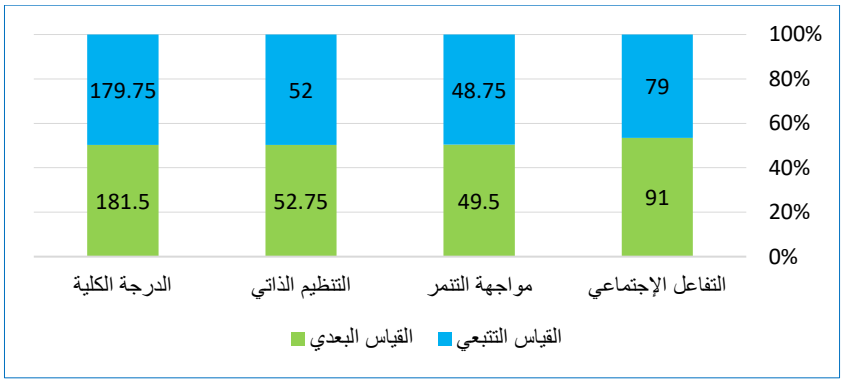

Figure (4)
Differences Between the Post-Test and the Follow-Up Test

From the results presented in Tables (25, 26, and 27) and illustrated in Figure (4), the fourth hypothesis was accepted. It was found that there were no statistically significant differences

between the mean scores of the post-test and the follow-up test in social skills across the three domains (social interaction, coping with bullying, and self-regulation), as well as in the overall score of social skills among the study sample of children with Autism Spectrum Disorder. The Z values for the differences on these variables were (1.826, 1.732, 1.732, and 1.841), respectively, all of which were non-significant. This indicates stability and consistency in positive social skills and the reduction of undesirable behaviors among children with Autism Spectrum Disorder after participating in the program under study. Moreover, this stability persisted after a period of 30 days following the completion of the program and the post-test evaluation, which confirms the sustained effectiveness of the program in improving and maintaining social skills among these children.

The researchers attribute these results, as well as the stability of the acquired social skills and the reduction of negative habits and behaviors, to the proper organization of the program, the careful selection of suitable activities and games for the children, and the variety of games accompanied by music. This, in turn, led to the acquisition and improvement of social skills, which not only manifested during the program but also persisted after its completion. This indicates the retention of learning outcomes and highlights the effectiveness and strong impact of the designed program on the lives of children with Autism Spectrum Disorder. In this regard, **Mostafa El-Sayeh (2007, p. 51)** emphasized that play has a significant contribution to children's development and personality building, as it is considered a developmental necessity and a means for catharsis and stress relief. He also confirmed the strong relationship between play and various aspects of growth—physical, cognitive, social, and emotional—as well as its role in fostering personality traits and modifying children's behavior.

In this context, "Amelie Gillies", as cited in "**Abou El-Naga Ahmed and "Hamdy Mohamed" (2005, p. 2**), stated that play is considered a means of treating children's emotional life, enhancing their levels of well-being, and reducing stress. They also pointed out that play greatly contributes to shaping the child's moral and ethical system. Through play, the child learns moral standards of behavior from adults, such as justice, honesty,

integrity, self-control, patience, and the ability to empathize with others.

The researchers also attribute the success of the program, the improvement of social skills, and their stability to the effective role of play in children's lives. They diversified the use of small games based on different tools that are appealing to children, helping them acquire positive traits and adjust social aspects in need of improvement. The researchers employed games that simulate real-life environments and encourage children to engage in participation, cooperation, love for others, independence, and self-confidence. This highlights the significant role of play in shaping the child's personality and fostering cognitive and social development.

This was also confirmed by"Abou El-**Naga Ahmed" and"Hamdy Mohamed" (2005, p. 2)**, who stated that play is a vital physical activity in a child's life. It develops muscles, strengthens the body, and helps release excess energy, Moreover, play contributes to the child's cognitive development, fostering creativity and innovation, and enhancing problem-solving abilities. Play also plays an important role in social life, as it teaches order, group spirit, and the establishment of positive relationships. Additionally, play has a significant moral and educational role by promoting good deeds, satisfying others, and showing respect for them.

The researchers also attribute the positive impact on social skills to the remarkable and effective influence of using calm musical pieces during the implemented program. They were keen to carefully select musical activities, games, and songs that help children relieve stress, fear, and tension, given the significant role of music in soothing children and engaging them emotionally, This finding is supported by the results of several studies, including those of "**Brivan Abdullah" (2015, p. 17), "Gordan, R." (2007, p. 64), "Stewart, E" (2002, p. 71), "Moes, D. & Frea, W." (2002, p. 70), and "Abdel Hady Nabil" (2004, p. 36),** all of which confirmed the effectiveness of their programs in improving motor, psychological, and social aspects, as well as sustaining these improvements over time.

The results presented in Tables (25, 26, and 27) are consistent with the research objective and confirm the fourth hypothesis, which states that there are no statistically significant differences between the mean scores of the post-test and the follow-up test in improving and acquiring certain social skills among children with autism spectrum disorder.

Through the presentation of these findings and the verification of the hypotheses, the researchers have effectively answered research questions regarding the impact of a motor education program on improving and acquiring certain fundamental motor and social skills among children with Autism Spectrum Disorder.

Conclusions:

1. The motor education program had a positive effect on acquiring and improving certain fundamental motor skills under investigation among children with Autism Spectrum Disorder.
2. The motor education program had a positive effect on improving and acquiring social skills among children with Autism Spectrum Disorder.
3. Stability was observed in the rate of improvement in all fundamental motor skills under investigation, which in turn confirms the effectiveness and lasting impact of the implemented program in enhancing these motor skills among children with Autism Spectrum Disorder.
4. Stability was also observed in social skills during the follow-up measurement, which further confirms the effectiveness and sustainability of the program's impact in improving and maintaining social skills among children with Autism Spectrum Disorder.

Recommendations:

1. The necessity of implementing motor education programs and physical activities in autism centers.
2. Educating parents about the importance of sports and motor education in children's lives in general, and for children with special needs in particular.
3. Organizing courses and seminars on the importance of sports and physical activities in the psychological, social, physical, and cognitive development of children with Autism Spectrum Disorder.
4. Raising awareness of the importance of social play in the lives of children with special needs.
5. Conducting further research on solving the problems of children with special needs, particularly children with Autism Spectrum Disorder, through sports and physical activities.
6. Adopting motor education programs, physical activities, and sports as complementary therapeutic approaches to address many behavioral, physical, and other problems.
7. Colleges of education should pay greater attention to including motor education programs and relying on physical activities and small games, given their active and effective role in psychological, physical, social, cognitive, and academic aspects.
8. Teachers of children with Autism Spectrum Disorder should rely on small games, physical activities, and recreational activities when working with these children.

References

Arabic References:

Aman Kamal Ali, Atef Mohamed Abdullah, (2006). "Effectiveness of a Proposed Program in Cellular Education to Develop Some Functional Skills in Kindergarten Children", Journal of Curriculum and Teaching Studies, 54, 122–157.

_____ **(2011).** "Effect of a Play-Based Educational Curriculum on Developing Language Communication for Children with Autism Spectrum ", Journal of Physical Education, University of Baghdad, Vol. 23, Issue 2.

_____ **(2015).** "Effect of Physical Exercises, Diet, and Oxygen Therapy in Reducing Some Behavioral Disorders in Children with Autism (Comparative Study) ", Journal of Physical Education, University of Baghdad, Vol. 27, Issue 1.

Abdel Fattah Matar & Abdel Razeq Ibrahim, (2016). "Motor and Physical Education for Individuals with Special Needs International Publishing House for Printing ", Publishing, and Distribution, Riyadh.

Abdel Hadi, Nabil, (2004). "Psychology of Play and Its Impact on Children's Learning", Dar Wael for Publishing and Distribution, Amman, Jordan

Abu Al-Naga Ahmed Ezz El-Din, Hamdy Mohamed Abdel-Fattah, (2005)."Small Games and the Racket", Shujaat Al-Durr Library, Mansoura.

Adel Mohamed Abdullah 2002 "Autistic Children (Diagnostic and Programmatic Studies) ", Dar Al-Rashad, Amman

Afrah Thunoon Younis, (2008). Effect of Music Accompaniment in Physical Education Lessons on some Physical and Skill Variables of Middle School Female Students", Journal of Faculty of Physical Education, University of Mosul, Vol. 14, No. 49, p. 33.

Ahmed Ibrahim Mayo, (2020). "Autism:" The Necessity of Early Diagnosis and Its Challenges", National Social Journal, Vol. 57, No. 2.

Ahmed Mahmoud Al-Hawamdeh, (2019). "Educational Methods and Strategies for Dealing with Autism Disorder",

Dar Ibn Al-Nafis Publishing and Distribution, Amman.

Ahmed Mohamed Abdel-Aal, (2012)."Effect of a Motor Skills Program on Basic Motor Skills and the Level of Motor Cognitive Competence in Preschool Children", Journal of Sport Science and Arts, 41, pp. 435–464.

Ahmed Mohamed Mohamed, (2011)."Music and Its Importance in Treating Behavioral Disorders in Kindergarten Children", Journal of Faculty of Education, Port Said University, Issue 9, Vol. 1, pp. 218–241.

Al-Abd Bin Sumisha, (2020). "Role of a Small Motor Games Program in Reducing the Degree of Autism in Children with Moderate Autism Aged 5–7 Years", International Journal of Sport, Humanities and Social Sciences, Vol. 7, No. 1, pp. 66–74.

Ali Abdel Salam, (2001). "Assertive Behavior and Social Skills and Their Relation to Anger Emotional Behavior Among Male and Female Workers", Psychology Journal, Cairo, Egyptian General Book Organization, Vol. 3, No. 57, pp. 122–141.

Al-Sheikh Safi, (2024). "Effect of Adapted Physical Activity on Basic Motor Skills (Running, Jumping, Throwing) in Children with Autism Aged 4–8 Years", Tafawa Journal of Physical and Sports Activity Sciences and Techniques, Vol. 8, No. 2, pp. 518–537.

Amir Abdel Kader Abdel Kader, (2014). "A Program of Motor Activities to Develop Some Safety and Security Concepts to Reduce Motor Injuries in Kindergarten Children (Ages 5–6) in Light of the National Standards for Kindergartens", Journal of the College of Education, University of Tanta, 54, 541–562.

Amjad Abdel Latif Ibrahim, (2006). "The Effect of Recreational Games on the Motor Abilities of Volleyball Players with Intellectual Disabilities", Journal of Sport Sciences and Arts, 24(2), 119–146.

Aseel Suleiman Al-Suhaibani, (2024). "Theory and Practice in Adapted Physical Education", Sharjah, United Arab Emirates; 4/3: Developing Adapted Physical Education Strategies for Students with Autism Spectrum Disorder and Utilizing Technical

Solutions (International Scientific Conference), Future Perspective.

Ayman Mahmoud Abdel Rahman, (2006). "The Effect of Some Sensory-Motor Activities on Sensory-Motor Awareness, Hyperactivity, and Adaptive Behavior of Preschool Children", Scientific Journal of Physical Education 84. ,79-113

Brivan Abdullah Al-Mufti, (2015). "The Effect of a Motor Curriculum on Developing Motor and Social Skills of Children with Moderate Autism", Journal of Studies and Research in Physical Education, University of Basra, Issue 45.

Enas Ghanem Mohamed (2002). "Effectiveness of a Proposed Motor Activity Program Using Small Recreational Games to Develop Basic Motor Skills and Motor Cognitive Abilities of Preschool Children", Journal of Inclusive Education Research, 1, 149–181.

Faten Zakaria Al-Nemr, Amal Mohamed Fawzi, (2004). "The Role of Recreational Games in Developing Motor Achievement Motivation for Preschool Children ", Journal of Educational and Social Studies, Vol. 10, No. 4, pp. 119–159 .

Fatma Awad Saber, (2006). "Motor Education and Its Applications ", Dar Al-Wafa for Printing and Publishing.

Hamada Mohamed Said, (2023). "Effectiveness of a Music Therapy-Based Training Program in Enhancing Receptive and Expressive Language Skills of Preschool Children with Autism Spectrum Disorder", Journal of the Faculty of Education, Beni-Suef University, Vol. 1, July Issue

Hassan Abdel Salam Mahfouz, Naglaa Fathy Khalifa, (2013). Motor Education System (Theories and Applications),"Al-Ma'arif Publishing, Alexandria.

Hiyam Sadoun Abboud, (2015). "Sports and Music in the Treatment of Autism. Annual Book of the Childhood and Motherhood Research Center ", Vol. 11, Childhood and Motherhood Research Center, Diyala University, pp. 193–198.

Ibrahim Abdullah Faraj Al-Zureikat, (2004). .Autism (Characteristics and Treatment)", Dar Wael, Jordan. "

Imam Mohamed Qazzaz. (2010). "Building a Scale for Diagnosing Autistic Behavior and Verifying I ts Effectiveness", Prince Sattam bin Abdulaziz University, Saudi Arabia,

Khaled Said Al-Nabi, Mohamed Kamal Abu El-Fotouh. (2018). "Effectiveness of Using Small Recreational Games in Developing Motor Skills in Children with Autism and Its Impact on Their Functional Skills Related to Daily Life Activities ", Educational Journal, Faculty of Education, Sohag University, Issue 51.

Khalil Ehab Mohamed, (2007). "Autism and Intellectual Disability ", Tiba Publishing, Cairo.

Lamia Ahmed Osman 2014 "Effect of Using an Early Intervention Program Based on Motor Activities to Develop Some Gross and Fine Motor Skills of Children with Autism", Journal of Childhood Studies, Vol. 17, p. 62.

Leila Nagi, (2022). "The Importance of Adapted Physical and Sports Activity in Integrating Children with Autism ", Scientific Journal of Special Education, Vol. 2, No. 4, pp. 233–249.

Mahmoud Abdel Rahman El-Sharkawy, (2018). "Autism and Its Treatment Methods", Dar Al-Ilm for Publishing and Distribution, DE souk, Kafr El-Sheikh.

Mahmoud Ali Aziz, (2022). "Joint Attention and Its Relationship with Communication in Children with Autism Spectrum Disorder", Journal of Educational Research and Innovation, Vol. 6, Issue 6.

Mai Mahmoud Amin. (2012). "The Role of Arabic Music in Developing Some Moral and Social Values in Kindergarten Children in Port Said Governorate", Journal of the Faculty of Education, Port Said University, Vol. 12, pp. 675–694.

Marwa Ismail, Sadeqa Youssef, Samah Zahran, et al, (2013). "Effectiveness of a Proposed Program to Develop Personal Adjustment Using Recreational Games for Preschool Children", Journal of Scientific Research in Education, Vol. 14, Issue 4, pp. 197–238.

Mervat Abdel Ghaffar El-Gohary, (2004). "Effectiveness of a Variety of Recreational Games Program on Jealousy and Its Relationship with Personality among

Primary School Girls. Journal of Sports Education Research “, Vol. 27, Issue 66, pp. 180–202.

Mohamed Abdel Razek Neama, (2019). "Designing and Standardizing Special Tests to Evaluate the Behavioral and Motor Status of Children with Autism Spectrum Disorder ", Journal of Studies and Research in Physical Education, Faculty of Physical Education, University of Basra, Vol. 29, No. 1, pp. 307–324.

Mohamed Bin Abdulaziz Al-Fawzan, (2000). "Autism (Concept – Education – Training): A Guide for Parents and Professionals, Dar Alam Al-Kutub for Printing, Publishing, and Distribution, Riyadh.

Mohamed Qasem Abdullah, (2000). "The Relationship Between Social Skills and Self-Esteem in a Sample of Syrian Children”, Arab Childhood Journal, Kuwait Association for the Advancement of Arab Childhood, Kuwait, Vol. 4, No. 11, pp. 6–23

Mohamed Samir Mohamed, (2022). "Effect of a Motor Education Program on Acquiring Some Numerical Skills and Social Communication in Children with Autism “, master’s Thesis, Faculty of Sports Sciences, Minia University.

Mostafa El-Sayeh Mohamed, (2007)."Encyclopedia of Small Games" Dar Al-Wafa for Printing and Publishing, Alexandria.

Nabila Ahmed Mahmoud, Marwa Ahmed Abdel Naeem, Shawq Ebada Ahmed, Amal Aouni Mohamed, (2008). "Employing Motor Activities to Develop Some Mathematical Concepts in Children with Autism Spectrum Disorder – A Proposed Concept”, Journal of Matrouh University for Educational and Psychological Sciences, Vol. 4, Issue 6, pp. 180–310.

Nagat Eissa Ensoura, (2023). "Autism Spectrum Disorders”, Dar Al-Kutub Al-Wataniya, Benghazi, Libya.

Nagwa Gomaa Ahmed, (2018). "Effect of Visual Perception Training on Developing Motor Skills in Kindergarten Children”, Childhood Journal, Issue 28.

Nahid Al-Dulaimi "Fundamentals of Motor Learning”, Dar Al-Dhiaa for Printing and Design, Najaf, Iraq.

Nahla Mohamed Mostafa, (2018). "Effectiveness of a Training Program Based on Using Sensorimotor Activities in Developing Some Daily Life Skills for Children with Autism", Unpublished Doctoral Dissertation, Faculty of Education, Benha University, Egypt.

Nasser Abu Zeid, (2009). "Effectiveness of Recreational Games on Reducing Administrative Stress Related to Competition among Tennis and Swimming Adolescents", Scientific Journal of Physical Education and Sports, Vol. 59, pp. 309–337.

Rania Farouk Abdel-Hafiz, (2015). "Effectiveness of a Speech Rehabilitation Program to Develop Some Language Communication Skills in a Sample of Autistic Children (5-6 years) Using Children's Literature Forms ", Unpublished PhD Dissertation, Higher Institute of Childhood Studies, Ain Shams University.

Samer Youssef & Amira Sabry, (2012). "Impact of Motor Exercises on the Development of the Most Common Motor Behaviors in Children with Autism Spectrum" , Faculty of Physical Education, University of Babylon.

Sobhi El-Sharkawy, Rami Naguib, Aziz Madi, (2012). "Applied Study on Using Songs to Teach Kindergarten Children New Concepts ", Journal of Humanities and Social Sciences, Vol. 39 (3), pp. 752-764.

Soha Ahmed Amin, (2001). "Effectiveness of a Therapeutic Program to Develop Language Communication in Some Autistic Children ", Unpublished PhD Dissertation, Higher Institute of Childhood Studies, Ain Shams University.

Soha Ali ,2(016). "Effect of Motor Games and Music in Attracting Attention of Children with Autism, Journal of Physical Education ", University of Baghdad, Vol. 28, Issue 2.

Soheir Fahim Al-Ghabashi, Ahmed Hanafi Mohamed, (2010). " Effectiveness of a Cognitive-Behavioral Program in Developing Some Social Skills in a Sample of Adolescents High in Schizotypal Traits ", Arab Studies Journal, Vol. 16, Issue 3, pp. 507-555.

Somaya Boulabbas, (2023). "Impact of Adapted Physical Education and Sports Lessons on the Psychological

and Motor Aspects of Children with Autism Spectrum Disorders – A Field Study ", Tafawa Journal of Physical Activities and Sports Science and Technology, Vol. 8, Issue 1, pp. 1808-1824.

Tahani Mohamed Othman, Zeinab Reda Kamal El-Din, Mai Ahmed El-Morsi, (2024) "A Scale for Assessing Social Skills in the SST Program for Children with Autism Spectrum Disorder Journal of Psychological Counseling, 78(4).

Tawfiq Samie. (2012). "Physical Education as a Therapeutic Activity for Children with Autism", World of Education Journal Issue 40, Vol. 2.

Uday Mousa Mohamed, Hassan Hassan, Ziad Falah, (2023). "Effect of an Obstacle Gymnastics Program on Some Motor Abilities and Social Skills of Children with Autism Spectrum Disorder", Journal, Vol. 32, No. 2, pp. 269–288.

Zainab Mahmoud Shaqir, (2002). "A Call from the Organically, Behaviorally, and Educationally Disabled Child – The Autistic Child, Special and Disabled Psychology Series ", Al-Nahda Al-Arabiya Library, Cairo.

English references:

American Psychiatric Association, (1999). "Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision)., Washington, DC: Author. p. 4

ASA:American Society of autism, (2007). A autism Profile an Autism: A Disorder of social Disconnect, http: // reading room, mind spec. d GuQPZW.

Beaumont, R,et al, (2021). "Randomized controlled trial of a video gaming –Based social skills program for children on the autism spectrum, journal of autism and development disorder ,51 (10), 3637 – 3650.

Cairia, A., Venuti, p., & De Falco,S. (2011). "Functional and dysfunctional brain circuits underlying emotional Processing of music in autism spectrum disorder ", Cerebral Cortex 21 (12), 2838 -2849.

Emmanuelle, J, (2007). Impact of sensory responses and motor skills of functional skills in activities of dialy living of pre – school children with autism spectrum disorder ", Anthesis submitted to the faculty of graduate

studied and research in partial fulfillment of the requirements of a master in rehabilitation science.

Gordan, R (2007). Social play and Autistic Spectrum Disorder perspective on Theory, Implications and educational Approaches, SAGE Journals ,7, 349.

Hojjati, M., & Khalilkhaneh, M. (2014) "Evaluate the ability of autistic children to use expressive language and receptive language," Journal of Pediatric Perspectives, (2)(8), 267–275.

Hollander, M.D. and Anagnostou, E. (2008). Clinical Manual for the treatment of autism. Washington, DC: London, England.

Janzen, T B., &Thaut, M H (2018). " Rethinking the role of music in the neurodevelopment of autism spectrum disorded " Music & Science 1, 2059204318769639.

Jiayuli, weide shao (2022). The Impact of Sports Activities on the Positive Social Behavior of Children and Adolescents: A Systematic Review of Literature." International Journal of Environmental Research and Public Health, Vol. 11, Issue 19.

Kabot, Susan, Wendy Masi, and Marilyn Segal. (2003). "Advances in the Diagnosis and Treatment of Autism Spectrum Disorders.", Professional Psychology: Research and Practice, 34, no. 1 (2003): 26–33.

Koelsch, S. (2014). "Brain Correlates of music –evoked emotion: Nature Reviews Neuroscience, 15 (3), 170- 180.

Lim, Ellis, E. M., & Sonnenschein, D. (2022). Effect of sing and speak4 kids: An online music – based speech and language game for children in early intervention, Child language Teaching andtherapy, 38 (2), 180-196.

lord, C. and McGee, J. (2001). ducating children with autism Washington, DC: National Academy Press.

Moes,D & frea, W. (2002). Contextualized behavioral Support in early Intervention for children with Autism and their families, JOURNAL of Autism and Developmental Disorder ,32 (6), 519- 530.

Sarvant I, L., Kommu, J.V.S., Suswaram, S., & YYadav, A, S. (2023). Musical preference of Indian children with autism spectrum disorder and acceptability of music therapy by their families ", An exploratory study in dustrial psychiatry Journal ,32 (1) ,176.

Sherwan saleh, farida Rasheed (2016). "The effect of an educational curriculum using gymnastic games on the development of some physical abilities ,basic motor skills and social development of kinder Garten children Journal physical Education Volume 28 (1).

Stewart, E. (2002). Autism, Retrieved on June 24. Caseated.

Suhad Hussein Abd alHamid, (2013). " The effect of rehabilitation program accompanying recreational games on the development of some motor abilities of children with autism, PHD, thesis department of physical Education, AL Mustansir Iya university, Baghdad, Iraq**.**

Twarek, M.; Cihon, T And Eshleman, J (2010). " The effect of fluent levels of Big 6+6 skills elements on functional motor skills with children with autism. Behavioral Interventions ,25,4,175-293, Dio: 10. 1002/bin .317.

Vaouli, P., & Andreou.G. (2018). Communication and language development of young children with autism, A review of research in music, Communication Disorders Quarterly ,39(2) ,323-329.

Williams, T. I., Loucas, T., Sin, J., Jermic , M., A slett,G., Knight, MM. & LLiu,F. (2021). A randomized controlled feasibility trail of music – assisted language telehealth intervention for minimally verbal autistic children – the MAP study protocol, Pilot feasibility studies, 7 (1), 1-9.

Witusik, A., & Pietras, T. (2019). Music therapy as a complementary form of therapy for mental disorders "Polski Mercurius L EKARSKI orange Polski ego Towery's Pekarsky, 47(282), 240- 243