IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 28, Issue 12, Series 8 (December, 2023) 01-12
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

The Impact Of Therapeutic Recreational Program On Learning Cooperative Behavior With Others In Children With Autism Spectrum Disorder

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Abstract:
The research consisted of five sections. The first section provided an overview of the introduction and the importance of the study. It highlighted that autism spectrum disorder is one of the behavioral disorders surrounded by much ambiguity, whether in terms of its causes or diagnostic methods. The significance of the research was manifested in two aspects: the theoretical aspect, as this study represented an addition to the educational heritage related to communication aspects, particularly among children with autism spectrum disorder, and the practical aspect, as the current study aimed to develop a recreational program based on cooperative behavior with others, such as auditory attention, visual communication, learning by modeling, visual motor coordination, expression of emotions, and understanding and distinguishing facial expressions. The program was intended to be used in developing social interaction skills among children with autism. Additionally, parents could also utilize this program. Regarding the research problem, the researcher believed that training in developing communication and social integration skills is necessary for these children to overcome this issue. Consequently, the main research question formulated was: What is the effect of the therapeutic recreational program on learning cooperative behavior with others among children with autism spectrum disorder? The research objective was to develop a scale for measuring the learning of cooperative behavior with others, referred to as the "Ali Ibrahim Scale." The research hypothesis stated that there would be statistically significant differences between the pre-test and post-test of the therapeutic recreational program in favor of the post-test scores among children with autism spectrum disorder. The research domains included the human and spatiotemporal domains of children with autism spectrum disorder in accredited centers in the province from October 27, 2021, to September 1, 2023. The second section presented the theoretical framework regarding autism, while the third section outlined the field research procedures. The fourth section included the presentation, analysis, and discussion of the results. Finally, the fifth section presented the conclusions and recommendations.

Keywords: *Therapeutic Recreation, Cooperative Behavior, Children with Autism Spectrum Disorder.*

Date of Submission: 18-12-2023 Date of Acceptance: 28-12-2023

I. Introduction:

Autism spectrum disorder is considered one of the behavioral disorders surrounded by much mystery, whether in terms of its causes, diagnostic methods, or treatment approaches. Psychological clinics in Arab countries, especially Iraq, suffer from a clear deficiency in diagnosing this disorder, as children may be misdiagnosed with intellectual disability, despite the fact that the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) does not classify autism under intellectual disability but categorizes it as a behavioral disorder. Thus, there are clear differences between intellectual disability and autism (Khalil, 1994).

For a long time, the lack of consensus on defining this disorder, determining its causes, and the absence of specific and explicit diagnostic criteria have made the diagnostic process significantly challenging. However, developments over the past twenty years have increased our understanding of autism, led to more agreement among specialists, and alleviated people's fears regarding the diagnostic process. Although the exact causes of

the disorder are still unknown, most experts agree that autism spectrum disorder encompasses a set of clearly defined behavioral disorders (Abdurrahman & Mohamed Ali, 2004).

Communication disorders in children with autism spectrum disorder are considered central and fundamental disorders that negatively affect their natural development and social interaction. These communication disorders include both verbal and non-verbal communication difficulties. Numerous studies have indicated that approximately 50% of children with autism spectrum disorder do not possess the ability to speak and do not develop language skills (Omar, 2002).

Therefore, this study aims to enhance the necessary communication skills for children with autism spectrum disorder in order to acquire social communication skills that assist them in expressing their needs, reducing their stress and emotional reactions, and alleviating symptoms of the disorder. The researcher believes that the impact of a therapeutic recreational program on improving cooperative behavior with others in children with autism spectrum disorder can contribute to enhancing their social interaction abilities and subsequently improving their performance in various activities.

The research holds both theoretical and practical significance. From a theoretical standpoint, it contributes to the educational heritage concerning communication aspects in children with autism spectrum disorder. This study expands our understanding of the unique communication challenges they face. It also aims to increase knowledge about these children, including how to identify them and provide appropriate services, ultimately leading to a better comprehension of this complex disability that necessitates further research.

On a practical level, the study endeavors to develop a recreational program based on cooperative behavior. This program incorporates various techniques such as auditory attention, visual communication, modeling, visual motor imitation, expressing emotions, and recognizing facial expressions. By implementing this program, the aim is to enhance social interaction skills in children with autism spectrum disorder. Furthermore, parents can also benefit from utilizing this program, providing them with valuable tools to support their child's social development and communication skills. Overall, this research bridges the gap between theory and practice by expanding our knowledge while offering practical solutions for the benefit of children with autism spectrum disorder and their families.

Based on the understanding that therapeutic recreation is a fundamental human right for everyone, it is important to recognize that children with autism spectrum disorder are individuals with inherent social value. They have emotions, needs, and desires just like typically developing children. They possess the capacity to experience joy, contribute to the happiness of others, and enjoy life. Recognizing the significance of therapeutic recreational activities as a vital requirement for the adaptation and fulfillment of the child's personal needs, it positively impacts their social integration.

Therefore, it is their right to partake in recreational activities. These activities play a crucial role in promoting the well-being and quality of life for children with autism spectrum disorder. By providing therapeutic recreational opportunities, their individual needs and desires can be met, fostering a positive impact on their social inclusion and overall development. It is essential to acknowledge the value and importance of these activities in supporting the rights and well-being of children with autism spectrum disorder, enabling them to experience the joys of life and contribute to the happiness of others.

Autism spectrum disorder (ASD) is a complex developmental disability that affects children in their early childhood. It is a pervasive impairment that has a comprehensive impact on all aspects of a child's mental, social, emotional, and motor development. The social aspect is particularly affected in this disorder, as children with autism struggle to engage in social interactions and form relationships with their peers. The limitations in these areas result in various challenges, such as the child experiencing persistent isolation and loneliness.

Through working in the field of special needs, specifically with individuals on the autism spectrum, it has been observed that there is a deficiency in training individuals on how to collaborate with these children in civil society institutions, including non-governmental and governmental organizations.

Reviewing psychological heritage and previous studies reveals that the global prevalence of autism is estimated to be 5 cases per 10,000 births, and with expanded diagnostic criteria and associated traits, the prevalence can reach one case of autism per 1,000 births. The researcher has identified their study area in the field of communication, learning, and social integration, as communication poses one of the greatest challenges when dealing with these children.

The human life of children with autism is a unique life that requires attention, care, and research. There are numerous aspects that need to be explored, and they often contain mysteries. When parents discover that their child has been diagnosed with this condition, they become greatly distressed due to the widely known perception that there is no cure for autism. They gradually lose hope until they reach a stage of complete despair regarding recovery, contrary to reality.

Through scientific studies and research, it can be said that the child with autism becomes a source of troubles and psychological and social disturbances for the family due to their urgent need for constant care and continuous supervision. Since parents often lack experience in dealing with such cases and the required training

skills, it is essential for society as a whole to address these social problems that have a negative impact on both the individual and the community.

Therefore, the researcher believes that training in developing communication skills and social integration is necessary for these children to overcome this issue. Based on the aforementioned, we can formulate the main research question as follows:

What is the impact of therapeutic recreational programs on learning cooperative behavior with others for children with autism spectrum disorder?

Research hypotheses:

There are statistically significant differences between the pre-test and post-test measurements of the therapeutic recreational program in favor of the post-test measurements for children with autism spectrum disorder.

There are statistically significant differences between the pre-test and post-test measurements, and in favor of the post-test measurements, for learning cooperative behavior with others among children with autism spectrum disorder.

There are statistically significant differences between the pre-test and post-test measurements, and in favor of the post-test measurements, for learning cooperative behavior with others among children with autism spectrum disorder.

II. Materials and Method:

Research methodology:

The researcher employed an experimental method with a pre-test and post-test design using equivalent groups, as it is most suitable for the research procedures.

Research population:

The researcher selected a research population consisting of all male and female children diagnosed with autism spectrum disorder and registered in centers in Maysan Governorate. The total number of centers was eight, distributed across the districts of the governorate, as shown in Table (1). The total number of individuals with autism was 289, with 203 males and 86 females, distributed among all the centers.
Here is the distribution of centers and the number of affected children in each center:

Table 1: Distribution of Autism Centers and Number of Affected Children in Maysan Governorate

	Center's Name	**Center's Location**	**Affected Children**
1	Mazen Center	Al-Madina Al-Awashiya	42 children
2	Al-Hussein Center	Al-Madina Al-Awashiya	36 children
3	Al-Rahma 1 Center	Al-Madina Al-Daffas	50 children
4	Basmat Amal Center	Al-Madina - Sector 3	34 children
5	Al-Najah Center	Al-Madina-Hay Al-Mualimeen	30 children
6	Al-Rahma 2 Center	Al-Majr Al-Kabeer District	40 children
7	Intelligent Education Center	Al-Madina - Hay Al-Jamea	32 children
8	Al-Ibdaa Center	Qalat Salih District	25 children
Total			289 children

Research Sample:

The researcher selected the research sample using a purposive method, where two centers were chosen: Mazen Center and Intelligent Education Center. The total number of autistic children in these centers was 74, aged between 7 and 10 years, as indicated in Table (2). These centers were selected because they are part of the city center and are ranked first in the sequence of centers. They have facilities, equipment, and space, as well as dedicated playgrounds for children. They also have experienced teachers and trainers in this field and follow internationally recognized curricula. The researcher divided the sample into two equal groups using a random allocation method. The experimental research sample consisted of 70 individuals, with 40 males and 30 females, from the total sample. The survey sample consisted of 4 individuals, both male and female.

Table 2: Distribution of Selected Centers and Number of Affected Children

	Center Name	Center Location	Affected Children	Age
1	**Mazen Center**	Al-Madina- Al-Awashiya Center	42	From 7 to 10 years old
2	**Intelligent Education Center**	Al-Madina-HayAl-Jamea	32	From 7 to 10 years old

Total	74	

From Table (2), it is evident that the researcher selected the measurement sample using a purposive method, including Mazen Center with a total of 42 affected children and the Intelligent Education Center with a total of 32 affected children. The overall total of the measurement sample became 74 children, with ages ranging from 7 to 10 years. The measurement sample represented 39.5% of the total original population. These centers were chosen due to their proximity to the researcher in the city center and the availability of all the necessary resources, including qualified staff, educational and training materials, healthcare facilities, and other amenities required by affected individuals, such as playgrounds.

Homogeneity of the Research Sample:

The researcher conducted the process of homogeneity and equivalence for the research sample, which consisted of 70 children from Sunday, January 15, 2023, to Tuesday, January 16, 2023. This was done prior to implementing the program to control for variables that could impact the research results. The criteria for homogeneity included:

First: Age Range:

All children in the research sample represent a single age stage, which is the late childhood stage (7-12 years).

Second: Intelligence Quotient (IQ):

The percentage of children's IQ ranged between 65 and 72 on the Stanford-Binet Intelligence Scale.

Third: Autism Spectrum Disorder (ASD) Severity:

To achieve equivalence among the experimental group in terms of ASD severity, the researcher relied on the diagnoses of psychologists in Mazen and Intelligent Education Centers, located in the Awashah and Hay Al-Jamea areas, respectively. The diagnoses were based on the established measures for diagnosing autism followed in these centers. The scale used in both centers, and adopted by the researcher, was the Gilliam Autism Rating Scale (GARS). The GARS scale has been translated into Arabic in Egypt and was developed by Abdelrahman, Mohamed, Hassan, and Mona Khalifa (2004). It is applied to individuals with autism spectrum disorder ranging in age from 3 to 22 years. The scale assists doctors, psychologists, and teachers in determining the likelihood of autism spectrum disorder in children. It has international significance and demonstrates good validity and reliability as it is built upon the definition of autism prepared by the American Autism Society and the diagnostic criteria for autism spectrum disorder presented by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). The scale also possesses excellent psychometric properties, proving its effectiveness in identifying individuals with autism. Table (3) illustrates the characteristics of the study sample regarding age range, autism severity, and IQ for the experimental group.

Table 3: Profile of Children in the Study Sample: Age, Intelligence Quotient (IQ), and Autism Severity

	Group	Children Number	Age	Intelligence Quotient (IQ)	Autism Severity
1	First	10	7 years old	66 %	30 %
2	Second	15	8 years old	65 %	31 %
3	Third	26	9 years old	71 %	32 %
4	Fourth	19	10 years old	72 %	33 %

The table 4 presents the normal distribution for the Control Group, also the descriptive statistics of the variable "Collaborative Behavior with Others" measured in degrees. The data provides insights into the central tendency, variability, and distribution of scores related to collaborative behavior among the participants. The statistics include the mean, standard deviation, median, skewness, variability, and significance. These measures offer a comprehensive understanding of the characteristics and patterns of collaborative behavior exhibited by the participants in the study.

Table 4: Normal distribution for the Control Group

	Variables	Measurement Unit	Mean	SD	Median	Skewness	Variability	Sig
1	Collaborative Behavior with Others	Degree	37.029	7.238	38.000	0.218-	19.546	Homogeneous

Table 4 presents the normal distribution characteristics of the Control Group for the variable "Collaborative Behavior with Others." The mean score of 37.029 degrees indicates the average level of collaborative behavior exhibited by the participants. The standard deviation of 7.238 reflects the variability in scores around the mean, suggesting diversity in collaborative behavior among the group. The median score of 38.000 represents the midpoint of the distribution, indicating an equal number of participants with scores above and below this value. The slightly negative skewness of 0.218- suggests a minor leftward deviation in the distribution, potentially influenced by a few participants with lower collaborative behavior scores. The variability score of 19.546 indicates the overall spread of scores within the Control Group. Overall, the Control Group demonstrates an average level of collaborative behavior with some variability, but is considered homogeneous in terms of collaborative behavior scores.

Table 5 provides an overview of the normal distribution characteristics for the Experimental Group, specifically focusing on the variable "Collaborative Behavior with Others." This table includes measurements such as mean, standard deviation, median, skewness, variability, and significance, which offer valuable insights into the participants' collaborative behavior within the context of the study.

Table 5: Normal distribution for the Experimental Group

	Variables	Measurement Unit	Mean	SD	Median	Skewness	Variability	Sig
1	Collaborative Behavior with Others	Degree	39.343	5.610	40.000	0.092-	14.258	Homogeneous

The mean score for collaborative behavior with others in the Experimental Group is 39.343 degrees, indicating the average level of collaboration exhibited by the participants. The standard deviation of 5.610 suggests a relatively low degree of variability or dispersion of scores around the mean, implying a more consistent level of collaborative behavior among the group. The median score of 40.000 represents the midpoint of the distribution, indicating that half of the participants have scores above 40.000 and half have scores below it. The positive skewness value of 0.092- suggests a slight rightward deviation in the distribution, implying that a few participants may have higher collaborative behavior scores, causing the distribution to lean towards the right. The variability score of 14.258 reflects the overall spread of scores within the Experimental Group. A lower variability indicates a narrower range of collaborative behavior scores among the participants. Additionally, the term "Homogeneous" in the significance column indicates that the Experimental Group demonstrates homogeneity in terms of collaborative behavior scores, suggesting that there is no significant difference or variation in collaborative behavior among the participants.

Note that the values of the skewness coefficient, which is one of the characteristics of the normal distribution curve, indicate that the test follows a normal distribution if the skewness coefficient of Pearson falls within the range of ±1. This confirms the suitability of all tests for the research sample level.

After ensuring the normal distribution within each group, the researcher employed the homogeneity method using the Levene's test and the equality method using the t-test. The researcher used the t-test to determine the type of difference between the means. The results indicated no significant differences between the means of the control and experimental groups. This is illustrated in Table (6).

Table 6: Homogeneity and Equality of Research Sample Individuals

Variables	Control Group	Experimental Group	t-value	Significance Level	Levene's Test	Significance Level
Collaborative Behavior with Others	37.029	39.343	1.495	0.139	0.028	0.868

In the provided table, different variables and measures of central tendency and dispersion are presented for the control and experimental groups. The variable under study is "Collaborative Behavior with Others." The results show that the mean for the control group is 37.029, while the mean for the experimental group is 39.343. The t-value of 1.495 is used to assess whether the means of the two groups differ significantly. The associated significance level for this t-value is 0.139, indicating that there is no significant difference between the two groups. Furthermore, the Levene's test is used to evaluate the homogeneity of variances between the groups. The result of this test is a significance level of 0.028, suggesting that there is a significant difference in variances between the groups.

Measures:

The scale of the educational aspect of collaborative behavior with others among individuals with autism spectrum disorder (ASD): This scale was developed by the researcher to assess the level of interactive

behavior and collaborative behavior with others among a research sample of children with Autism Spectrum Disorder (ASD) in the age range of 7-10 years. The participants in the study were diagnosed with mild Autism Spectrum Disorder. The scale is used for both pre- and post-program measurement purposes.

Instructions for Applying the Collaborative Behavior Learning Scale:

The researcher used the five-point Likert scale to assess the children's response through specialists and assistants answering the scale items while considering response validity. The response method involved selecting one response out of five options (Very High, High, Moderate, Low, Very Low). If the statement applies to the child, the corresponding responses would be assigned (1, 2, 3, 4, 5) for positive statements, and the scores (1, 2.5, 4, 3) would be assigned for negative statements. When studying the specific statements of the Collaborative Behavior Learning Scale and after applying the assessment by referees, experts, and specialists in this field, it became apparent that two statements were excluded from the total number of statements, which was 16.

Validity and Reliability of the Scale:

All necessary measures were taken to determine and achieve the validity and reliability of the scale. It was applied to a sample of 70 children ranging in age from 7 to 10 years.

Firstly: Validity:

Validity was calculated through:

1- Construct Validity:

The researcher previously mentioned the steps taken in preparing and constructing the scale. It is worth mentioning that the researcher did not directly quote some questions from previous Arabic and foreign scales for several reasons, which can be summarized as follows:

There are some differences in the dimensions surrounding the concept of learning and collaborative behavior with others, based on the adopted framework.

The researcher attempted to add, even if only a small part, but it was a sincere and scientific effort to measure learning and collaborative behavior with others among children with Autism Spectrum Disorder. This was due to the importance of accurately measuring their learning for their educational development and guiding them on the right track in the educational process.

2- Expert Validity:

The Collaborative Behavior Learning Scale was presented to 13 professors and specialists in psychology, special education, mental health, motor learning, educational and psychological measurement. Their valuable input was sought regarding various aspects of the scale. They provided their opinions on the suitability of the questions for measuring learning and collaborative behavior with others among children with Autism Spectrum Disorder. Additionally, they assessed the coverage of all four dimensions encompassed by the scale, ensuring that it effectively measures learning and collaborative behavior within this specific group of children. The experts also evaluated the appropriateness of the questions under each dimension, considering the age and specific characteristics of the sample of children. Any questions deemed inappropriate, either due to their content or the chronological and mental age of children with Autism Spectrum Disorder, were excluded. Furthermore, the experts provided valuable suggestions, modifications, and additions to enhance and enrich the scale, thereby strengthening its intended purpose and dimensions.

In the initial development of the scale, the researcher prepared a preliminary version consisting of 62 questions distributed across four dimensions. This version was presented to a panel of referees, including experts and specialists in the relevant fields. The questions that received a substantial level of agreement, with agreement rates surpassing 80-90% for each question, were retained. The valuable feedback provided by the referees highlighted a few key points. Firstly, there were observations regarding the practical application of the scale, prompting considerations for its implementation. Additionally, some questions underwent a process of rephrasing to enhance clarity and precision. Furthermore, previous remarks regarding specific questions led to the replacement of numerical values to address the identified concerns. The collaboration with referees, along with their input and suggestions, played a vital role in refining the scale and ensuring its validity and effectiveness.

3- Internal Consistency Reliability:

The internal consistency of the scale was assessed by examining the correlation coefficients between item scores and the total scale score. Table 7 demonstrates that all correlation coefficients for the scale are significant at the 0.01 level, indicating that all items are consistently measuring learning and collaborative behavior with others.

Table 7: Correlation Coefficients between Item Scores and Total Scale Score

Items	Correlation Coefficient with Total Scale Score	Items	Correlation Coefficient with Total Scale Score
1	0.74**	8	0.75**
2	0.85**	9	0.52**
3	0.42**	10	0.58**
4	0.77**	11	0.52**
5	0.74**	12	0.73**
6	0.56**	13	0.86**
7	0.69**	14	0.43**

Discriminant Validity:

Discriminant validity refers to comparing the upper group (more than 50% of the sample) with the lower group (less than 50% of the sample) in terms of their behavior in collaborating with others. Table 8 illustrates this comparison.

Table 8: Discriminant validity among the sample individuals in collaborative behavior with others.

No.	Dimension	Group	n	Mean	Standard Deviation	t-value	Significance Level
1	Collaborative Behavior with others	Lower Group	35	3.93	0.70	3.77	$p < 0.01$
		Upper Group	35	5.67	1.63		

It is evident from Table 8 that the t-value is statistically significant at the 0.01 level, indicating discriminant validity for learning collaborative behavior with others. This confirms the scale's suitability for application to the research sample.

Secondly, Scale Reliability:

The researcher calculated the reliability of the scale using two methods: Cronbach's alpha and split-half reliability. Table 9 displays the reliability coefficients.

Table 9: Reliability Coefficients for Collaborative Behavior with Others

Dimension	Cronbach's Alpha Coefficient	Split-Half Coefficient (Spearman-Brown)
Collaborative Behavior	0.68	0.86

III. Recreational Learning Program for Collaborative Behavior with Others:

The researcher developed a recreational learning program for teaching collaborative behavior with others to children with autism spectrum disorder in the Maysan Governorate, based on a review of scientific references in the field of recreation, such as the works of Helmy Ibrahim and Laila Farhat (1998), Tahani Abdel-Salam (2001), and Mohamed Al-Hamami and Ayda Abdel-Aziz (2007).

Steps for Developing the Recreational Program:

In developing the recreational learning program for teaching collaborative behavior with others to children with autism spectrum disorder in the Maysan Governorate, several steps were undertaken. First, specialized scientific studies and previous therapeutic recreational programs were thoroughly reviewed. Next, suitable locations for conducting the recreational activities were identified. The duration, number of program units, and time allocation for each unit were determined through an expert opinion survey. Expert opinions were sought from various fields, including training, recreation, therapeutic recreation, psychology, and sociology, to identify the most relevant recreational and therapeutic activities for children aged 7-10 years with autism spectrum disorder. Finally, the necessary devices and tools for implementing the program were identified and ensured to be suitable for the intended purpose.

Program Objectives:

The main goal of the recreational learning program is to enhance the learning of collaborative behavior with others among children aged 7-10 years with autism spectrum disorder.

Program Selection Principles:

1. Select activities that align with the needs and abilities of children with autism spectrum disorder.
2. Consider the scientific principles when implementing the therapeutic recreational program.
3. Utilize a variety of tools and devices in program implementation.
4. Recognize and incorporate the artistic and skill-based capabilities of individuals with autism spectrum disorder.

5. Take into account safety and security factors when selecting recreational activities.
6. Emphasize the importance of change and diversity in recreational activities to prevent monotony or fatigue for children with autism spectrum disorder.

Program Content:

To achieve the program's objective, a content plan was developed, consisting of a set of units aimed at improving collaborative behavior learning among children with autism spectrum disorder. Each unit is divided as follows:

Preliminary Section:

This section aims to prepare and mentally and physically prepare children with autism spectrum disorder, instilling a sense of fun in them to create a positive impression. It includes various recreational activities and lasts for approximately 10 minutes.

Main Section:

This section aims to enhance collaborative behavior learning among children with autism spectrum disorder in Maysan Governorate, Iraq. It includes a range of diverse recreational activities and lasts for approximately 35 minutes.

Concluding Section:

This section aims to calm the body, relieve fatigue, and restore the body to its natural state. It lasts for approximately 10 minutes, as indicated in Table 10.

Table 10: Components of the Recreational Program

Sequence	Unit Parts	Duration
1	Preliminary Section	10 minutes
2	Main Section	35 minutes
3	Concluding Section	10 minutes
Total	Overall Unit	45 minutes

Steps for Building the Physical Activities Program:

To build the physical activities program, several steps are followed. Firstly, a thorough examination of therapeutic, psychological, and educational recreational programs is conducted, focusing on their scientific foundations for children with autism spectrum disorder. Additionally, extensive research on previous studies related to recreational and therapeutic programs, physical activities, and motor skills interventions for children with autism spectrum disorder is conducted. This research is used to gain insights and compare findings to inform our own study. Furthermore, collaboration and communication with specialized centers for children with autism spectrum disorder are established, allowing for a comprehensive understanding of their unique characteristics, behaviors, social interactions, and effective learning methods. Observing behavioral interactions related to fostering collaborative behavior with others is a key aspect. The formulation of essential program sessions is carefully considered, and the program is presented to a panel of experts, specialists, and reviewers in the fields of recreation, mental health, sociology, psychology, and physical education, as well as those responsible for the care and supervision of children with autism within autism centers in Maysan Governorate. Incorporating their valuable insights and feedback, the recreational program is then refined to ensure its effectiveness and alignment with expert recommendations.

Based on the aforementioned points, the researcher proceeded to implement the recreational program with the assistance of the support team, the majority of whom specialize in physical education and sports science, particularly in training and sports psychology. Additionally, they received support from two primary supervisors specialized in sports psychology and general medicine with a board certification in neurology.

The Timeframe of the Program:

Concerning the duration of the program, experts and specialists determined that the therapeutic recreational program would span three months, comprising 12 weeks and consisting of three weekly recreational units. This resulted in a total of 36 recreational units, with each daily unit lasting 45 minutes. The preliminary section of each unit was set at 10 minutes, amounting to a total of 360 minutes for all recreational units. The recreational section of each unit lasted 25 minutes, accumulating to a total of 1800 minutes for all recreational units. Lastly, the concluding section of each unit was 10 minutes, resulting in a total of 36 minutes for all recreational units. Consequently, the overall duration for all recreational units amounted to 2520 minutes.

Table 11: Duration Breakdown of Recreational Unit Elements

Sequence	Unit Elements	Time	Number of Units	Total Time (Min)
1	Preliminary Section	10 minutes	36	360 minutes
2	Recreational Activity	25 minutes		1800 minutes
3	Concluding Section	10 minutes		360 minutes
Total	Time per Recreational Unit	45 minutes		2520 minutes

From Table (11), it is evident that the total time for each recreational unit, as well as the overall time for the entire program, can be determined. Additionally, the number of days, weeks, and months can be calculated.

Survey Experiments:

The First Survey Experiment:

The researcher conducted the first survey experiment on Wednesday, January 18, 2023. The sample consisted of (4) male and female individuals regarding the scale, as well as (4) children with Autism Spectrum Disorder from the "Mercy Center," located in the city center, who were outside the research sample. The purpose was to determine the suitability and validity of the scale and program through the prepared sessions of the recreational program and to explore the following:

1- The suitability of the items in the Cooperation Behavior Scale in relation to the age range of (7-10) among children with Autism Spectrum Disorder.

2- The suitability of recreational activities and various techniques for the Learning Cooperation Behavior program among autistic children.

3- The appropriateness of the program implementation location, such as playgrounds, yards, and halls.

4- The suitability of the time duration and period for implementing the program.

5- Identifying the children's desire with Autism Spectrum Disorder to continue engaging in activities and motor and skill exercises during the program, without experiencing annoyance, fatigue, boredom, or reluctance to continue.

6- Identifying the main problems, obstacles, and external factors that hinder work and execution, and attempting to find solutions and overcome them before starting the work and implementing the therapeutic recreational program.

7- Availability of all security and safety factors.

8- Based on the aforementioned points, and in light of them, some minor modifications were made to the program, equipment, tools, and the supporting team. All other necessary points were provided, and the program is now capable of being implemented in its final and ultimate form.

The Second Survey Experiment:

On Tuesday, January 24, 2023, the researcher conducted the second survey experiment to confirm the findings from the previous survey experiment regarding all the previous points. The same sample from the previous experiment was used to ensure the safety of the devices and tools and to verify the readiness of the supporting team and other personnel during the implementation. Additionally, the readiness of the venues, halls, and playgrounds, as well as the appropriate timing for the implementation, was assessed.

Main Experiment:

1- The pre-measurement of the Learning Cooperation Behavior scale was conducted on the primary research sample consisting of (70) teachers, trainers, parents of children with Autism Spectrum Disorder on Wednesday, February 1, 2023, in Maysan Governorate, Iraq.

2- The recreational program was implemented on the primary research sample consisting of (70) children with Autism Spectrum Disorder for a duration of (12) weeks, from Thursday, February 2, 2023, to Tuesday, May 2, 2023.

3- Post-measurement of the scale:

The post-measurement of the Learning Cooperation Behavior scale was conducted on the primary sample on Wednesday, May 3, 2023.

4- Post-measurement of the program:

The post-measurement of the therapeutic recreational program was conducted on the primary sample on Thursday, May 4, 2023.

IV. Statistical Analysis:

Statistical analysis was performed using the SPSS software version 21.

V. Results and Discussion

This chapter presents the research results, analyzes them, and discusses them after the researcher completed the data collection from the used tests, which were organized in tables. These tables facilitate the extraction of scientific evidence and serve as suitable illustrative tools for the research. They enable the achievement of research hypotheses and objectives in light of the field procedures carried out by the researcher.

1- Presentation, Analysis, and Discussion of Results of Learning Cooperation Behavior:

Presentation, Analysis, and Discussion of Results of Learning Cooperation Behavior for the Control Group:

Table 12: The differences between pre-test and post-test scores in Cooperation Behavior for the control group.

Variable	Measurement Unit	Pre-test	Post-test	Mean Difference	Standard Deviation	Difference Mean
Cooperation Behavior	Degree	37.029	7.238	42.171	4.134	-5.143

Based on the extracted data from the research sample, Table (12) illustrates the differences in the values of the dimensions and the scale of Cooperation Behavior between the pre-test and post-test. As shown in the table above, the nature of the sample individuals in the control group revealed significant differences between the pre-test and post-test using a paired samples t-test to extract the differences. The calculated value was (4.111) at a significance level of (0.000) and a degree of freedom of (34), indicating differences between the pre-test and post-test for the control group in favor of the post-test.

Presentation, Analysis, and Discussion of Results of Learning Cooperation Behavior for the Experimental Group:

Table 13: The differences between pre-test and post-test scores in Cooperation Behavior for the experimental group.

Variable	Measurement Unit	Pre-test	Post-test	Mean Difference	Standard Deviation	Difference Mean
Cooperation Behavior	Degree	39.343	5.610	51.429	3.592	-12.086

Based on the data extracted from the research sample, Table (13) presents the differences in the values of learning Cooperation Behavior between the pre-test and post-test. The analysis reveals significant differences within the experimental group, as indicated by a paired samples t-test. The nature of the individuals in the sample exhibited notable disparities between the pre-test and post-test, with a calculated value of (11.022) at a significance level of (0.000) and a degree of freedom of (34). These findings suggest that the post-test scores for the experimental group surpassed the pre-test scores, highlighting the effectiveness of the intervention in promoting the learning of Cooperation Behavior.

Presentation, Analysis, and Discussion of Results of Learning Cooperation Behavior for the Control and Experimental Groups:

Table 14: The differences between the control and experimental groups in the post-test scores of Cooperation Behavior.

Variable	Control Group	Experimental Group	T-calculated	Significance Level
Cooperation Behavior	42.171	51.429	10.001	0.000

In light of the data extracted from the research sample, Table (14) demonstrates the differences in the values of Cooperation Behavior in the post-test. As shown in the table above, the nature of the individuals in the control and experimental groups exhibited differences in the post-test, as determined by an independent samples t-test. The calculated value was (10.001) at a significance level of (0.000) and degrees of freedom of (68), indicating significant differences in the post-test scores between the control and experimental groups, favoring the experimental group.

According to the table, which includes the differences between the pre-test and post-test in Cooperation Behavior for the control group, it is evident that there are differences between the pre-test and post-test for both the experimental and control groups, favoring the experimental group. The reason behind this can be attributed to the therapeutic recreational program used in the study, which included a set of new recreational games that differed from the traditional recreational program. The proposed program by the researcher included additional group games aimed at integrating children with autism into the general community alongside neurotypical children of the same age, using different methods than other programs. The program was scientifically designed

to suit their abilities and proximity to the general community. It also incorporated elements of fun, affection, closeness, and cooperation among the children, helping them to bond and foster love, friendship, and mutual assistance. The researcher established a significant connection between himself and the children with autism and neurotypical children through explanations, demonstrations, storytelling, and performing gestures or signs in close proximity, using video presentations or through direct performance in front of them, sometimes utilizing educational dolls as teaching aids in the program.

Furthermore, during the implementation of the therapeutic recreational program, the researcher utilized various advanced and diverse devices, some of which were recreational and others therapeutic. The diversity and involvement of the different assisting team members led to increased enthusiasm and engagement by children with autism in participation and closeness, resulting in significant improvement in their performance and their continued active involvement in any activity performed by any child. Consequently, this had a noticeable impact on their development in the axis of communication behavior with others.

Based on the aforementioned, it aligns with what was mentioned by (Adel Mohammed Awad Abu Khousa, 2019, p. 130; Mohammed Hassan Alawi, 1998, pp. 17-19; Fathi Maabad and Mahmoud Salem, 1998, p. 40; Ahmed Fawzi and Tarek Badr El-Din, 2001, p. 41; Nizar Abdel Gawad, 2011, p. 58; Wafa Sadek, 2013, p. 16). All of these sources agree that it is naturally impossible for social interaction to occur between two or more individuals without communication. Communication through various means leads to the development of cooperative behavior.

VI. Conclusion:

The findings of the study indicate that the therapeutic recreational program had a significant positive influence on the cooperation behavior of children with autism spectrum disorder, emphasizing the program's effectiveness in fostering social interaction skills. Additionally, the implemented counseling program effectively targeted and addressed the cooperation behavior, underscoring the value and necessity of utilizing such programs for individuals with autism. Moreover, both individual and group counseling approaches employed in the research demonstrated success in not only motivating the participants but also aiding in the interpretation of social cues and the development of appropriate strategies and action plans. These results highlight the potential of therapeutic recreational and counseling interventions in promoting cooperation and social integration among children with autism.

VII. Recommendations:

Based on the research findings, several recommendations can be made. Firstly, it is crucial for teachers to acquire knowledge and familiarity with various therapeutic recreational programs. This will enable them to select the most appropriate program that aligns with specific educational situations and the needs of children with autism. By having a range of options at their disposal, teachers can tailor their approach to maximize effectiveness and promote positive outcomes.

Furthermore, it is recommended to implement the therapeutic recreational program as a scientific approach in teaching not only cooperation behavior but also other important skills such as cognitive and motor abilities. By utilizing this program beyond its immediate focus, educators can leverage its benefits to enhance overall development in various areas. This approach recognizes the potential of therapeutic recreational interventions to create a comprehensive and holistic learning environment, promoting growth and progress in multiple facets of a child's development.

In summary, teachers should expand their knowledge of therapeutic recreational programs and select the most suitable one for specific educational contexts. Additionally, the implementation of the therapeutic recreational program can extend beyond cooperation behavior, serving as a scientific approach to teach other crucial skills, including cognitive and motor abilities. These recommendations aim to support educators in providing effective and comprehensive interventions for children with autism spectrum disorder.

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