The Effectiveness of Training Program Based on Playgroup Activities on Social and Communication Skills of Children with Autism

Sabah H. El-Amrosy[1]*, [2]Safaa Ibrahem Shattla[3], Doaa A. Zayed[4], Nagwa Ibrahim Doma[5], Shimaa AbdElhady Badawy[6], Elham Ramzy El Fiky[7]

[1]Faculty of Nursing, Menoufia University, Egypt

[2]Department of Nursing, Faculty of Applied Medical Sciences, Al Baha University, Saudi Arabia

[3]Assistant Professor of Psychiatric& Mental Health Nursing, Faculty of Nursing, Menoufia University, Egypt and King Khalid University, Faculty of Nursing, Khamis Mushait, Saudi Arabia.

[4]Lecturer of Pediatric Nursing Department, Faculty of Nursing, Menoufia University, Egypt.

[5]Lecturer of Family& Community Health Nursing, Faculty of Nursing, Menoufia University, Egypt.

[6]Lecturer of Pediatric Nursing Department, Faculty of Nursing, Menoufia University, Egypt.

[7]Lecturer of Psychiatric& Mental Health Nursing, Faculty of Nursing, Menoufia University, Egypt

Corresponding author:
Sabah H. El-Amrosy,
Email: sabahhssan2010@yahoo.com

Abstract

Autism affects the normal growth of the brain in social and communication skills, whereas children with autism often faced difficulties in verbal and nonverbal communication and social interaction as well as in the activities of entertainment. Autism causes difficulty in communicating with others and in connecting with the outside world. Nowadays, it is common to use play therapy for supporting children with autism. Play therapy is an active approach that helps a child to reveal his conscious and unconscious feelings through playing. The study aimed to examine the effectiveness of training program based on playgroup activities on social and communication skills of children with autism Setting: the study was conducted at Menoufia university hospital at Shebin El-Koom City, Menoufia Governorate, and Tanta University Hospitals, Tanta, Al-Gharbia Governorate, Egypt. Sample: A convenience sample of 60 autistic children were enrolled from the previously above-mentioned settings. Results: The mean age of the studied children was 7.86±2.01 versus 7.86±2.06 years for the case and control group with a mean age of 7.86 ± 2.02 years for both groups. Approximately most of the studied children (83.3%) versus (80%) for the control group were males, with no significant difference between cases and control group regarding Socio-demographic characteristics. There was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding total mean verbal communication skills, non-verbal communication, and social interaction score among cases and control groups pre-and post-intervention ($p<0.001$). Conclusion: It was concluded that a training program based on playgroup activities influences the social and communication skills of children with autism. Recommendations: application of a training program based on playgroup activities as complementary training with a medication regimen was recommended to improve the social and communication skills of children with autism.

keywords: communication skills, social interaction, Program Based on Playgroup Activities

1. Introduction

Autism spectrum disorder (ASD) is a complex neurological and developmental disorder that causes lifelong challenges (the national autistic society, 2012). It is characterized by impairment in the social-communication and behavioral domains, which are the two main domains (Hamdan, 2018). The prevalence of ASD has climbed to 1 in 54 children, according to the most recent data from the Centers for Disease Control and Prevention (CDC) in the United States. Public worry has been sparked by this disease's fast-increasing occurrence (Yang, S.et al 2021). There are over 800,000 autistic children in Egypt (Hegazi, 2021). Additionally, Yousef et al., 2021 demonstrated that 2.8% of children worldwide have an increased risk of ASD and ASD prevalence in the Sharkia Governorate of Egypt was 5.4/1000.

Genetic factor has come to light as a prominent

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cause of ASD, despite the lack of a clear explanation for its occurrence. Several studies have also connected ASD risk factors to metabolic, chemical, and environmental factors (Hamdan, 2018). These risk factors include the mother's health during pregnancy, the child's medication during the first year of life, the child's chronic medical condition, the child's connection to television, and the family history of psychiatric problems. Yousef et al., 2021).

The main characteristic of ASD is persistent difficulties in social interaction and communication as well as the existence of constrained, recurrent patterns of behavior, interests, or hobbies (American Psychiatric Association, 2013). Social communication difficulties become apparent in early childhood, and they include a lack of socio-emotional reciprocity and nonverbal communicative behaviors that are needed for social engagement. The lack of normal back-and-forth dialogue, the lack of display of interests and emotions, and the failure to initiate or respond to social interactions are examples of social-emotional reciprocity. Additionally, a lack of socially appropriate nonverbal communication may manifest as abnormalities in eye contact, body language, gestures, or a lack of facial expressions. The deficit in social interactions might also include difficulties with behavior modification, participating in imaginative play, developing friends, and showing no interest in peers (Watkins, et al.,2017).

Depending on the severity and potential co-occurrence of other diseases, ASD has varying effects on children (Sanz-Cervera et al., 2018). Additionally, a child with autism may have changing abilities and demands over time. Although some autistic children may live independently, others have severe disabilities and need ongoing care and assistance (WHO, 2021). Furthermore, poor adaptive and social functioning, such as difficulty forming friends and depression in adulthood, are long-term effects of the social and communicative challenges faced by autistic children (Magiati et al., 2014) and (Rai et al., 2018).

Although social and communication difficulties are thought to be the main diagnostic criteria for ASD (American Psychiatric Association, 2013), they have difficulties in social play (Gibson et al., 2011). Additionally, they differ significantly from children with various cognitive or developmental impairments and children with average development in terms of both the frequency and nature of play behaviors (Boutot et al., 2005; Francis et al., 2019). Furthermore, autistic children may exhibit qualitative differences

Play is frequently characterized as voluntary, non-literal, enjoyable, or rewarding acts (Miller, 2017). Play can take many different forms, including pretending, engaging in physical activity, participating in sports, and playing video games. It has also been conceived as a dispositional quality or stage, i.e. "playfulness" (Fink et al., 2020) A therapist who has received training in play therapy is thought of as having a dynamic interpersonal relationship with the child. In addition to providing carefully chosen playthings, the therapist helps the child and parent establish a secure bond. For the child's best growth and development, this relationship enables the complete expression of self (feelings, thoughts, experiences, and behaviors) through play (Schottelkorb et al., 2020)

The importance of play is reflected in the development of communication and social skills. (Gibson, 2021). Interventions aimed at improving social communication skills are therefore considered a priority for children with autism and their families. Additionally, effectively correcting these impairments may enhance both short- and long-term outcomes, as well as the quality of life for those who do so (Myers, 2021) Practitioners, have therefore developed a variety of play-based interventions to promote these skills in children with autism (Gibson, 2021). Furthermore, early childhood play is considered to be the most effective evidence-based psychosocial approach for increasing social communication skills and decreasing disruptive behaviors in autistic children (Watkins et al. al., 2017.)

Therefore, the current study aimed to examine the effectiveness of a training program based on playgroup activities on the social and communication skills of children with autism.

2. Material and Methods

Aim of the study

The present study aimed to examine the effectiveness of training programs based on playgroup activities on the social and communication skills of children with autism

Research hypothesis

1. Autistic children who receive training programs based on playgroup activities will demonstrate better communication skills on the posttest compared to the pretest than those who receive only routine rehabilitation care.
2. Autistic children who receive training programs based on playgroup activities will demonstrate better social skills on the posttest compared to the pretest than those who receive only routine rehabilitation care.
3. Autistic children who receive training programs based on playgroup activities will demonstrate better total Autistic child's communication skills and social interaction on the posttest compared to the pretest than those who receive only routine rehabilitation care.

Materials

Study design

To achieve the aim of the study Quasi-experimental (study and control group pre/post-test) research design was used.

Setting

The study was carried out at Tanta University

Hospitals in Tanta, Al-Gharbia Governorate, Egypt, and Menoufia University Hospital in Shebin El-Koom City, Menoufia Governorate.

Subjects

During a period of data collection, 60 autistic children were enrolled from the previously indicated settings as a convenience sample. The autistic children were divided into study and control groups using A simple random sample. The following formula was used to get the sample size: N= 2 SD2(Zα/2+Zβ)2 / d2 at power 80% and confidence level 95%, the margin of error 5%.

Study group: Involved 30 autistic children, they received atraining program based on playgroup activities sessions (verbal communication skills, nonverbal communication skills, social etiquette skills, and social participation skills).

Control group: Involved 30 autistic children. The autistic children did not receive any intervention only routine rehabilitation care.

Inclusion Criteria

a. The children were selected based on the following inclusion criteria:
b. Children who have been given a moderate-to-severe ASD diagnosis.
c. Children between the ages of 6 and 11 years old

Exclusion criteria comprised of

a. Children with a history of neurological disease and/or psychotic disorders
b. Children with hearing and vision impairments
c. Children who taking any medication affecting the central nervous system during the previous six months

Study Instruments

-Two instruments were utilized for data collection:

Instrument one: Demographic characteristics of autistic children

It was developed by the researchers and used to obtain information about the children's gender, age, number of family members, thestart of diagnosis, and family income.

Instrument two: Autistic child's communication skills and social interaction scale

This scale Arabic version was developed by (Abdul Ghani,2013). An observational checklist designed to measure verbal & nonverbal communication skills and social interaction among autistic children. The scale in its final form consists of 36 statements divided into 3 dimensions which are the verbal communication skills represented in items (1,4,7,10,13,16,19,22,25,28,31,34), nonverbal communication skills represented in items (2,5,8,11,14,17,20,23,26,29,32,35), and social interaction represented in items (3,6,9,12,15,18,21,24,27,30,33,36). Respondent's rate using a 3-point scale (Always= (3); Sometimes = (2); rarely = (1). Based on this, the total maximum scores are (180) scores and the total minimum scores is (36) scores. the maximum scores are (36) scores and the minimum score is (12) scores for each dimension. Higher scores on the scale indicate greater verbal and nonverbal communication skills and social interaction in autistic children and lower scores on the scale indicate lower verbal & nonverbal communication skills and social interaction in autistic children.

Method

Validity and Reliability of the tool

- The validity of the tool was done by (Abdul Ghani,2013). The researchers presented the scale to five professors specialized in the fields of psychology, mental health, psychiatric mental health nursing, pediatric nursing, and pediatric medicine.

- The reliability of the tool was done using test-retest reliability by **Abdul Ghani** reliability at 0.837.

Ethical Considerations

Written informed consent was taken from the parents. The study was harmless and voluntary and confidentiality of response would be respected. All parents had the full **right** to refuse to have their children **included** in the study and withdraw at any time. Subjects were informed that their responses would be used for research purposes only.

Pilot Study

The instruments were tested for applicability, practicability, consistency, clarity, and feasibility on 10% of the study sample (6 autistic children) after they were established and before the data collection began. Additionally, the time required to complete the instruments was estimated.

Procedure

Written permission

After sending an official letter to the dean of the Faculty of Nursing at Menoufia University outlining the purpose of the study and the procedures for data collection, approval was officially acquired from the directors of the chosen settings to carry out the study. To get permission for conducting the research and to describe the objectives and anticipated results, meetings were initially held with the directors of the settings.

Data collection (assessment phase)

Data were collected over 6 months starting from October 2021 to March 2022. It was collected from the two groups about the demographic data, verbal & nonverbal communication skills, and social

interaction at the same time.

Conducting aprogram based on playgroup activities sessions

Considerations that were considered when designing the program

1. Before applyingfor the program, it should be offered to the mother of anautistic child, to find out what interests the child, what angers him, and what favors him.
2. Group play activities are graded from easy to difficult so that a child can understand them
3. The play activities are characterized by excitement, suspense, and motivation for autistic children so that they do not feel with boring.
4. Group play activities help children express themselves and social interaction.
5. The group play activities should be suitable for the child's abilities and tendencies.
6. Providing the child with feedback as correcting the wrong behavior that they committed during the play.
7. Providing a safe environment for anautistic child during play activities
8. Participation of the child's mother in the program as she is the most familiar person with the child's condition, requirements, tendencies, and interests

The stage of the program

The program consisted of 20 sessions over 10 weeks, two sessions/per week. Each session for 45 minutes, divided into an introductory part (5-10 minutes), the main part (35) minutes, and the final part (5-10) minutes.

The first stage

This is the preparation stage aimed to create a spirit of intimacy and affection between the researcher & the children and identify the most important reinforcements for the child. It included choosing children and identifying them by collecting health and diagnostic information through family and personal interviews. This stage was two sessions; the duration of the session is 45 minutes.

The second stage

This stage aims to improve the verbal communication skills of autistic children. It included animitation of verbal sounds, words, phrases, and sentences. Also, following verbal-linguistic commands, such as touching the eyes, nose, table, or cups. This stage was four sessions; the duration of the session is 45 minutes.

The third stage

This stage aims to improve the nonverbal communication skills of autistic children. It included training on eye-to-eye contact, imitation of some movements, facial expressions, and a smile. Also, expression of feelings of sadness and happiness, using the sign to express acceptance and refusal of commands. This stage was five sessions; the duration of the session is 45 minutes.

The fourth stage

This stage aims to improve social etiquette skills. It included training on knocking onthe door before entering, greeting by hand to welcome, and waving by hand to say bye. This stage was three sessions; the duration of the session is 45 minutes.

The fifth stage

This stage aims to improve social participation skills. It included training on waiting for the turn, playing with an adult, and participating in an organized activity with the children. This stage was four sessions; the duration of the session is 45 minutes.

The sixth stage

This stage aims to confirm what was trained in the previous stages. It included retraining the children who participated in the program on what was previously learned. This stage was two sessions; the duration of the session is 45 minutes.

c.Strategies used in the training program to reach the goal of the program

1. The researchers reviewed the directions of scientists and researchers that aim to educate autistic children on social and communication skills.
2. The researchers used visual aids such as cards and videos
3. The researchers used behavior modification strategies such as modeling, indoctrination, imitation, and reinforcement
4. The researchers repeated the educational activities in different situations in the child's natural environment
5. The researchers weekly checked what has been accomplished by the child by using the assessment card.
6. The researchers were giving instructions to the mother and suggested appropriate activities to train the child on skills in the child's natural environment

Reassessment Phase

To assess the impact of the intervention and to compare the two groups, a reassessment of verbal and nonverbal communication skills, as well as social interaction, was conducted using the research instrument (Autistic child's communication skills and social interaction scale)

Statistical analysis

To make the data acceptable for computer entry, the information was translated into a specially designed form and coded. Version 16 of the SPSS (Statistics Package for Social Science) statistical package was used for data entry and analysis. The Excel program. was used to create the graphics.

Quantitative data were presented as mean and standard deviation (X SD) and compared between the two groups using a t-test.

Qualitative data were expressed as numbers and percentages (No & %). It was analyzed by using the chi-square test (X^2), and Fisher's exact test (if the cell number was <5). Pearson correlation was used for explaining the relationship between normally distributed quantitative variables.

A P-value at 0.05 was used to determine the significance regarding

- P-value ≤ 0.05 was statistically significant.
- P-value ≤ 0.001 was highly statistically significant

3. Results

Table 1: This table portrays that the mean age of the studied children was 7.86±2.01 versus 7.86±2.06 years for the case and control group with a mean age of 7.86 ± 2.02 years for both groups. Approximately most of the studied children (83.3%) versus (80%) for the case and control group were males. Regarding the Number of family members, approximately two-thirds of them have 3-5 members (60%). More than half of the studied children discover the diagnosis of autism from 2-4years (63.3% & 60%) for the case and control respectively. In addition, about 86.7% of them had enough income level. There was no significant difference between cases and control groups regarding Socio-demographic characteristics

Figure (1) This figure illustrates that there was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding total mean verbal communication skills score among cases and control groups pre-and post-intervention (p<0.001).

Figure (2) This figure indicates that there was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding total mean nonverbal communication skills score among cases and control groups pre-and post-intervention (p<0.001).

Figure (3) This figure shows that there was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding total mean social interaction scores among cases and control groups pre-and post-intervention (p<0.001).

Figure (4) This figure displays that, there was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding total mean autistic child's communication skills and social interaction score among cases and control groups pre-and post-intervention (p<0.001). With high improvement among the case group post-intervention than pre-intervention (82.5% &67.8%) respectively with no change in the control group.

Table (2) presents that there was a highly positive correlation between verbal & nonverbal communication skills, social interaction, and total autistic child's communication skills found in both pre and post-intervention (< 0.001). While there was a negative correlation between the age of the studied children, the number of family members, and the total autistic child's communication skills and social interaction but not significant in both pre and post-intervention.

Table 3: This table shows that there was no significant difference between male and female children regarding pre or post-total autistic child's communication skills and social interaction while autistic child's communication skills and social interaction significantly difference between enough and not enough income in pre and post-intervention.

4. Discussion

Neurodevelopmental diseases known as autism spectrum disorders (ASDs) are very common. Repetitive habits, unusual movement patterns, sensory dysfunction, and difficulties in social interaction and communication are all characteristics of ASD diagnoses (El-Baz, Ismael, and Nour El-Din, 2011). Medical, mental health, and educational specialists are recommended Play-based interventions and therapies for young children with autism spectrum disorders (ASD) (Barton, Ledford, Zimmerman, and Pokorski, 2018).

According to the current study, both groups' mean ages were 5 years old, with the studied children's mean age being 7.86 2.01 years compared to the control group's 7.86 2.06 years. This may be because of the age at which autism was first diagnosed and the onset of symptoms. Paul et al. (2009) found that the median age of identification was 5.7 years in their study "Timing of identification among children with an autism spectrum disorder: findings from a population-based surveillance study,". Additionally, this finding was supported by a study by Katazyna et al. (2006), "autism spectrum disorder in the second year: Stability and change in syndrome expression," which found that although the majority of autistic children are not diagnosed until they are in preschool or elementary school, the earliest symptoms of the disorder frequently manifest before a child's second birthday. Moreover, Hegazy, Ragab, and El Hofey (2021), who investigated "environmental risk factors related to with children autistic spectrum disorders in Menoufia governorate," made similar observations. They discovered that there was no statistically significant difference between the studied groups regarding age.

On the other hand, the current study revealed that approximately most of the studied children were males. This supports the finding that boys are diagnosed with autism at a rate of 4:1 to girls. This result was in line with the findings of research by Itzchak et al. (2010), who found that 461 boys (81%) out of 564 individuals had autism. Additionally, this result was consistent with a study by Shu et al. (2000) entitled "The Mental Health in Mothers with Autistic Children: A Case-Control Study in Southern Taiwan Kaohsiung," which found that autism is more common in boys than in girls by a factor of more than 2, and that ratio rises to a factor of 5:1 for those with high levels of ability. Furthermore, the findings were

in line with those of Christernsen et al. (2019), who examined "Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 4 Years — Early Autism and Developmental Disabilities Monitoring Network, Seven Sites, United States." They concluded that boys were more likely than girls to have autism, and the male: female ratio was 3:1.

Research hypothesis (1)

Autistic children who receive training programs based on playgroup activities will demonstrate better communication skills than those who receive only routine rehabilitation care.

The goal of the current study was to determine how a playgroup-based training program affected the social and communication skills of autistic children. The findings of the present study showed that the total mean verbal communication skills score among the case and control groups differed significantly between pre-and post-intervention programs (Playgroup Activities). This might be a result of the playgroup activities' success and the commitment of the children to attend the sessions, do what is required of them, and practice verbal communication skill improvement during playtime. This result was consistent with a study by Yang, et al. (2021), who investigated the "effects of the mini-basketball training program on social communication impairment and executive control network in preschool children with an autism spectrum disorder." They revealed that a 12-week mini-basketball training program reduced the social communication impairment of preschool autistic children. Moreover, this result was in line with previous studies that demonstrated how exercises like mini-basketball (Wang, et al., 2020), aquatic programs (Pan, 2011), and judo programs (Rivera, Renziehausen, and Garcia, 2020) interventions can help children with ASD who struggle with social communication.

The current study demonstrated that there is a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) in terms of the total mean nonverbal communication skills score among cases and control groups pre-and post-intervention. This might be a result of the effectiveness of the playgroup activities and the commitment of the children to attend the sessions and implement what is asked of them and apply the practice of improving nonverbal communication skills during play activities. This finding was congruent with research by Parsons, Cordier, Munro, and Joosten (2019), who investigated "a randomized controlled trial of a play-based, peer-mediated pragmatic language intervention for children with autism." They found that the intervention was successful in enhancing non-verbal communication and overall pragmatic performance (POM-2) in autistic children during play-based interactions with a peer.

Research hypothesis (2)

Autistic children who receive training programs based on playgroup activities will demonstrate better social skills than those who receive only routine rehabilitation care.

Michael and Luke (2016) assert that "play is the language of children." The emphasis of the current study is on the importance of playgroup activities for children and how to enhance many of their skills. Therefore, our study indicated that there was a highly statistically significant difference in the total mean social interaction scores between the case and control groups before and after the intervention programs (Playgroup Activities). This could be attributed to the effectiveness of the playgroup activities and the commitment of the children to attend the sessions and implement what is asked of them and apply the practice of improving social interaction skills during play. This result was consistent with a study by Ware (2014) entitled "Play therapy for children with autism spectrum disorder: a single-case design," in which he found that play-based therapies are thought to be an efficient way to boost language and communication development in early ASD children. Additionally, this result supported research by Whether et al (2014) They found that parent-coached and/or modeled therapies have been shown to increase social communication, daily functioning, social skills, and receptive language in young children with ASD. They researched "parent-implemented social interaction for toddlers with autism."

Research hypothesis (3)

Autistic children who receive training programs based on playgroup activities will demonstrate better total Autistic child's communication skills and social interaction on the posttest compared to the pretest than those who receive only routine rehabilitation care.

According to the current study, there was a highly statistically significant difference between pre and post-intervention programs (Playgroup Activities) regarding the total mean score of an autistic child's communication skills and social interaction between cases and control groups, with the case group showing greater improvement post-intervention than pre-intervention. This result was consistent with a study by Glover-Gagnon and Nagle (2004) that looked at the connection between preschoolers' social abilities and the interactive play activities they engage in with their peers. The study's findings highlighted the critical role that plays activities and peers communication play in children's social skill development and the need for play-based therapies for children with inadequate social skill development.

Moreover, this result was similar to Rye research (2008). who investigated "play therapy as a mental health intervention for children and adolescents" considered the impact of directed group play therapy on the improvement of social-emotional skills of preschool children and concluded that the play therapy method could be an efficient and all-

encompassing strategy in the training of children to establish communications, express their thoughts and feelings, and solve their problems.

According to the results of the current study, there was a statistically significant correlation between a child with autism's total communication skills, social interaction, and income before and after the intervention. This may be because those living in satisfying conditions may help them to receive essential care and facilitate many things for them and confirm the importance of enough income for and family. This finding was consistent with a study by Zhen-Huan et al. (2016), which assessed the reliability of QoL questionnaires currently in use for children with ASD. They illustrated that there were statistically significant differences in family income/month between autistic children and normal children.

5. Conclusion

It was concluded that a training program based on playgroup activities affected the social and communication skills of children with autism.

Recommendations: Based on the findings of the current study, we recommend using a training program based on playgroup activities as complementary training with medication regimens to improve the social and communication skills of children with autism.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest

The author declares that there is no conflict of interest.

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Table (1): Socio-demographic characteristics of the studied autistic children (N=60)							
Socio-demographic characteristics	Total (N=60)		Cases (N=30)		Control (N=30)		Sig.
	No.	%	No.	%	No.	%	
Age/years: ($\overline{X}$ ±SD) Range	7.86 ± 2.02 5		7.86 ± 2.01 5		7.86 ± 2.06 5		0.798
Gender: Male Female	49 11	81.7 18.3	25 5	83.3 16.7	24 6	80.00 20.00	0.739
The number of family members: 3-5 6-7	36 24	60.00 40.00	18 12	60.00 40.00	18 12	60.0040.00	1.000
Start of diagnosis from 2-4 years From 5-6 years From 7-8 years	37 7 16	61.7 11.7 26.7	19 4 7	63.3 13.3 23.4	18 3 9	60.00 10.00 30.00	1.000
Income: Enough Not enough	52 8	86.7 13.3	26 4	86.7 13.3	26 4	86.7 13.3	1.000

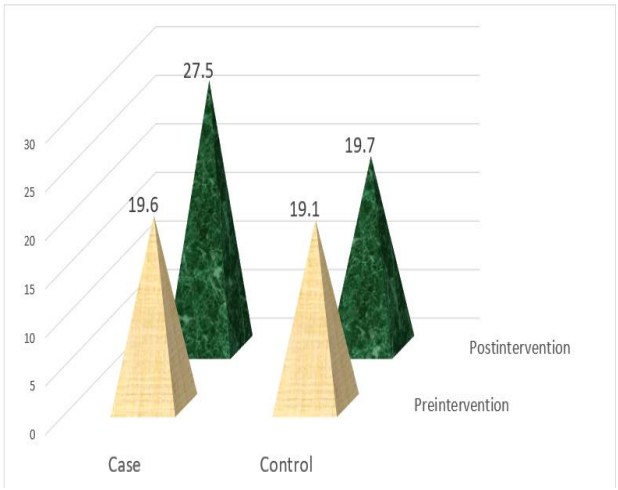

Figure (1): Total mean verbal communication skills score among cases and control groups pre-and post-intervention (N=60).

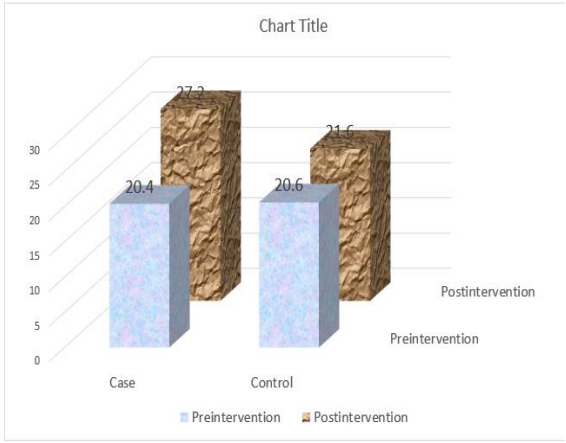

Figure (3): Total mean social interaction score among cases and control groups pre-and post-intervention (N=60).

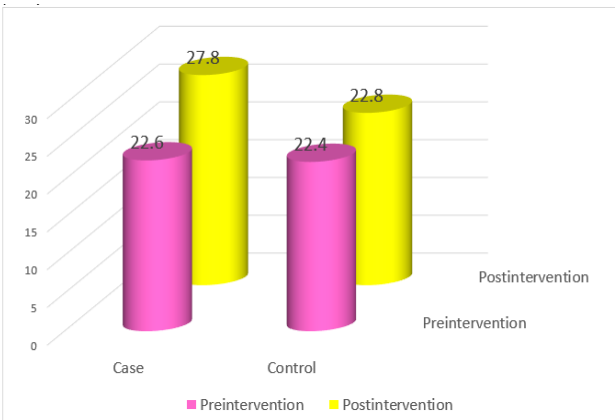

Figure (2): Total mean nonverbal communication skills score among cases and control groups pre-and post-intervention (N=60).

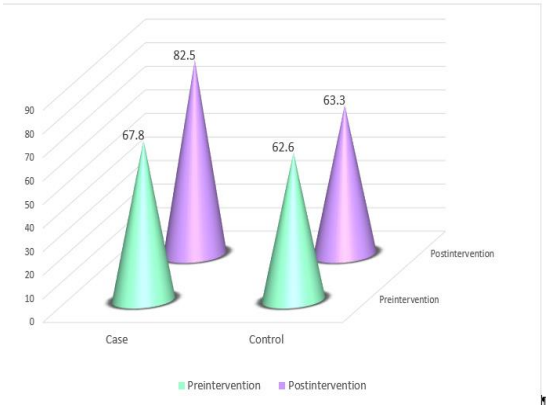

Figure (4): Total mean Autistic child's communication skills and social interaction score among cases and control groups pre-and post-intervention (N=60).

Table (2) Pearson correlation between verbal & nonverbal communication skills, social interaction, and total Autistic child's communication skills and social interaction				
Items	Pre		Post	
	R	Sig.	R	Sig
Verbal communication skills- nonverbal communication skills	0.410**	< 0.001	0.582 **	< 0.001
Verbal communication skills – social interaction	0.305 *	0.018	0.721 **	< 0.001
Nonverbal communication skills – social interaction	0.681 **	< 0.001	0.705 **	< 0.001
Verbal communication skills- total autistic child's communication skills and social interaction	0.761 **	< 0.001	0.875 **	< 0.001
Nonverbal communication skills- total autistic child's communication skills and social interaction	0.739 **	< 0.001	0.841 **	< 0.001
Social interaction- total autistic child's communication skills and social interaction	0.666 **	< 0.001	0.897 **	< 0.001
Age- total autistic child's communication skills and social interaction	- 0.163	0.212	-0.170	0.195
Numbers of family members - total autistic child's communication skills and social interaction	- 0.004	0.977	- 0.111	0.398

Table (3): Relation between total Autistic child's communication skills and social interaction and Socio-Demographic Characteristics of the Studied Group (N=60)				
Socio-demographic characteristics	total Autistic child's communication skills and social interaction			
	Pre (N=60)	p-value	Post (N=60)	p-value
	$\overline{X}$ ±SD		$\overline{X}$ ±SD	
Gender: Male Female	65.21±.8.73 65.29±7.19	t-test.226 0.822	71.41±.11.6 75.81±11.9	t-test 0.152 0.879
Income: Enough Not enough	63.62±.7.41 75.75±3.95	t-test - 4.508.000	71.63±.11.87 81.50±7.46	t-test -2.272 0.027