Impact of Strengthening Resilience Training Program on Parents and Communication Skills of their Children with Autism Spectrum Disorder

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Abstract

Background: Families residing with autism spectrum disorders (ASD) face numerous difficulties, influence not only the child with ASD and their enhancement, but also quality of life and family functioning. A resilience training program for parents of autistic children has been known as a priority interference for this group that aims to improve or facilitate parental resilience and influence positive developmental outcomes for their children in communication and socialization. **Aim:** Evaluate the impact of strengthening resilience training program on parents and communication skills of their autistic children. **Research design:** the aim of this study was achieved through utilizing a quasi-experimental research design. **Sample** included fifty parents of children with ASD. **Setting**, this research was applied at the Outpatient Clinic for Children and Adolescents of the Minia Hospital for Psychiatric Health and Addiction Treatment. **Tools:** the data collection process involved the utilization of three tools; child's and parents' demographic data, Connor-Davidson Resilience Scale and the Children's Communication Checklist -second edition. **Results:** the study findings revealed that mean score of total resilience and the total score of children's communication increased post implementing the training program and at follow up. **Conclusion**: Based in the study findings we can concluded that the resilience training program strengthens parents' resilience and improves the communication skills of their autistic children. **Recommendations**: Continuous health education and counseling programs should be applied for parents related the care of their children with autism.

Keywords: Autism spectrum disorder, Resilience, Communication.

Introduction

A group of illnesses known as ASD are distinguished by challenges with social interaction and communication. Atypical sensory reactions, difficulty switching between tasks, and an extreme attention to detail are some of the unique behavioral patterns that people with ASD may display (**Ferguson et al., 2024**). Furthermore, according to **Vollmer (2024)**, ASD is a neurodevelopmental disease that affects roughly 1 in 36 (2.8%) children in the US. Since autism is a lifelong condition, behavioral therapies and rehabilitation programs are crucial for promoting the growth and welfare of autistic children (**Hirota & King, 2023**).

Numerous studies show that, in comparison to parents of child with other diagnoses or typically enhancing children, parents of child with ASD frequently face higher degrees of parenting stress, worse mental health, and lower physical health (**Gohari et al., 2024**). As parents strive to offer the resources and care their autistic kid needs, having a child with autism may also put a heavy financial and personal strain on them. Parents may find it challenging to forecast their child's conduct to the unpredictable nature of ASD and particular communication difficulties (**Higgins, 2023**). Additionally, ASD can have a significant influence on marital relationships and dynamics of the family, frequently resulting in fatigue and exhaustion that can interfere with the functioning of the entire family (**Clarke et al., 2024**).

According to **Savage** and **McConnell (2023)**, resilience is often known as a flexible process that allows people to positively adjust to their surroundings. It includes a range of individual convictions, abilities, and dispositions that enable people to overcome obstacles (**Stuntzner & Hartley, 2022**). Parental resilience, as defined by resilience theory, is the capacity to manage risk and protective factors when elevated child with ASD

(**Becker et al., 2022**). Though a number of risk variables, including the severity of symptoms, financial hardship, marital quality, and the presence of numerous autistic children, can affect parental stress and resilience levels, resilient parents are receptive to their children's ongoing needs (**Hayes & Watson, 2022**).

On the other hand, protective elements such as social support, which includes emotional support from family and financial support, increase parental resilience **Falk et al (2023).** However, parents who consider themselves capable of coping with parenting challenges report lower levels of stress, are able to maintain a functional family, and are better able to support their child **Hartley, (2023).** As parents become more resilient, their ability to cope with emotional and psychological problems may improve. Furthermore, by empowering children with ASD to persevere in the face of adversity, their creative, behavioral, and thinking skills are enhanced and may translate into stronger resilience capacities for the child **Davis & Carter, (2022).**

In order for young children to learn, comprehend their surroundings, form relationships, and communicate their thoughts and feelings, communication skills are essential to their psychological and socio-emotional development (**Cui et al., 2023**). Even small communication problems might have a detrimental influence on a child's health. The communication skills of children with autism vary greatly; some have excellent communication skills, while others have severe communication difficulties (**Genovese & Butler, 2020**). Furthermore, peer rejection and bullying are more likely to occur in autistic children, which might restrict their social relationships and lower their participation in social activities. Additionally, individuals frequently struggle to make and keep acquaintances, which results in a smaller social network overall (**Gabbay et al., 2022**).

A child's academic performance and their social, cognitive, as well as emotional enhancement can be adversely affected by poor communication skills. Communication problems can also lead to family issues for children with autism, including diminished emotional attachments, a lack of intimacy, increased family disputes, and poor problem-solving skills (**Field, 2020**). Because of its substantial and enduring consequences on children and their families, ASD is considered a serious secondary impairment. Resilience-building techniques, which seek to increase competence and lessen negative consequences, are in line with encouraging positive adaptation among parents of autistic children (**Ogletree, 2021**).

The aim of the resilience training program is to assist parents become more resilient while also helping their autistic children communicate better. It includes coping mechanisms and methods that encourage parents to adapt positively (**Yumpi, 2018**). Parent-child relationships are strengthened, behavioral issues are addressed, and parents' emotions are controlled with the aid of this approach (**Rovane et al., 2022**). Furthermore, it provides parents with the necessary information and abilities to assist their child's social exchanges, communication, as well as behavior control (**Marquis et al., 2020**). Parents can handle family difficulties more effectively if they concentrate on their strengths. Furthermore, it has been demonstrated that greater resilience helps parents deal with their child's autism-related communication challenges (**Serlin, 2020**).

The psychiatric nurse can be a competent caregiver for an autistic child, a coach for family members, and a counselor for parents of autistic child. In addition, the nurse plays an essential role in increasing the parents' resilience by helping them learn more about ASD symptoms, treatment options, expected and possible outcomes. Also, the nurse supports these families and identifies areas where their children's needs are not being met. Furthermore, the nurse teaches families the resilience training program to deal with their children's problems, reduce the negative effects of these problems, and teach parents behavioral strategies for communicating with these children (**Yates & Couteur, 2021**).

Significance of the study

Recent epidemiological studies indicate a rising incidence of ASD globally. Related to the 2012 global incidence report, 62 out of every 10,000 children were diagnosed with autism **(Andy, 2024)**. In Arab countries, the incidence of ASD is predicted to range between 1.4 and 29 per 10,000 individuals. However, in developing countries, only a limited number of studies have been published on the prevalence of autism. Notably, in Saudi Arabia, the prevalence of autism is slightly higher than in developed countries, with an estimated rate of 2.51%, and a male-to-female ratio of 3:1 **(Fombonne, 2020)**. In Egypt, regional variations in ASD prevalence have been observed. For instance, in Assiut Governorate, the incidence of ASD was found to be higher among males (72.3%) compared to females (27.7%), as reported by **Gamal et al.**

(2013). Similarly, in Sharkia Governorate, the incidence of ASD was revealed to be 5.4 per 1,000 children, according to a study by **Mohammed et al. (2021)**. These results highlight the requirement for continued evidence and targeted interventions to address the growing difficulties connected with ASD in diverse populations.

The high incidence of ASD underscores the approved challenges faced by parents of autistic child, who often experience heightened degrees of parenting stress, frustration, depression, as well as trauma in contrast to parents of children without autism. These parents also encounter difficulties in expressing themselves in various situations, further compounding their emotional and psychological burdens. In this context, resilience emerges as an essential concept for enhancing mental wellbeing and equipping parents with the necessary skills to navigate high-stress environments while maintaining their well-being. Despite its importance, there stays a paucity of evidence focused on enhancing resilience among parents of autistic children. To address this gap, the present research is designed to explore and strengthen the resilience of these parents, providing them with tools and strategies to better cope with the unique need of raising a child with autism.

Aim of the Study

The current research aimed to evaluate the impact of strengthening resilience training program on parents and communication skills of their children with autism spectrum disorder. **Subjects and Method:**

Research hypothesis:

H1:-Parents who will receive strengthening resilience training program will exhibit high level of resilience after implementation of the program.

H2:- Parents who will receive strengthening resilience training program will exhibit improvement in their children communication skills after implementation of the program

Setting:

The study was research at the Outpatient Clinic for Children and Adolescents at Minia Hospital for Psychiatric Health and Addiction Treatment. This clinic operates under the auspices of the Ministry of Health and is open to patients from 9 AM to 2 PM, Monday through Wednesday. Located in Minia City, the hospital is a two-story facility. The first floor houses the pharmacy, the women's inpatient unit, and the outpatient clinics, while the second floor accommodates the unit of men's inpatient, the addiction treatment center, administrative offices, and the nursing station. Serving the Minia Governorate and its nine districts, the hospital provides care with a total capacity of 53 beds for both male and female patients.

Subjects:

A convenient sample of 50 parents of autistic children were included in the research. The number of subjects was calculated by the **Isaac and Michael (1995).** Formula that is analyzed as (N= n x 30 / 100) in which (N = the size of Sample) and (n = All number of autistic children enter to Minia Hospital for Mental Health and Addiction Treatment at previous year which equals 166 autistic children). N= $\frac{166\ x\ 30}{100}$

Inclusion Criteria:

- Parents with the child was aged between six and twelve years and had been diagnosed with ASD based on expert evaluation using the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) as the diagnostic criterion.
- The parents had lived with the child for at least six months.
- Parent agreed to participate in the program
- Both gender

Exclusion Criteria: -

- Parents who struggle with mental issues.
- Parents who have participated in structured parenting programs in the past or present (to better aware the influence of the current program).
- The study would not include children with conduct, oppositional and deviant behavior, ADHD, or mental retardation.

Data collection tools:

Data would be collected through utilizing the following tools:

Tool I: - demographic questionnaire

This questionnaire was created by the researchers, which covers the personal data of studied parents and their autistic children as age, sex, employment status, level of education. As well as characteristics of studied children as age, sex, school grade.

Tool II: - Connor-Davidson Resilience Scale (CD-RISC)

This scale was designed by **Connor & Davidson, (2003)** which counted one of the most common instruments to assess resilience among caregiver. It is a self-applied tool of 25 items. According to the original study, there were five factors on the scale.: includes (one) describing the notion of personal competence, high standards, and tenacity (eight items); (two) relating to trust in one's instincts, tolerance to negative affect and the strengthening effects of stress (seven items); (three) relating to the positive acceptance of change and secure relationships (five items); (four) refers to control (thee items); and (five) concerns spiritual influences (two items). The scale was classified into five-point likert scale (zero for not at all true to four for true nearly all the time). According to the following, the total score goes from zero to one hundred, where higher scores indicate higher levels of resilience and lower scores indicate lower levels of resilience: (low level resilience = 0- 33), (moderate level of resilience =34 - 66 =), and (high level of resilience 67-100).

Tool III: - The Children's Communication Checklist -second edition (CCC-2)

Bishop (1998) created this checklist, which was updated for the second edition in 2003. The aim of the CCC-2 is to assess the communicative abilities of children with ASD aged 4 to 16. This checklist detects pragmatic language impairment in ASD, rates communication-related factors, and screens for general language. It has 70 items total, broken down into 10 subscales. These subscales A, B, C, & D evaluate articulation as well as phonology, language structure, vocabulary also the discourse. Subscales E, F, G & H address pragmatic aspects of communication. Subscales I& J evaluate behaviors commonly impaired in children with ASD. Each scale has seven items (five address difficulties, 2focuses on strengths). Every item is rated on four- Likert point (0 = never,1= occasionally,2= frequently, 3 always). The total score ranges from 0 to 210, with higher scores corresponding to typical functioning levels of communication and the lower score indicates a border line functioning levels of communication according to the following: (0- 70= border line), (71 - 140 = immediate levels of communication), and (141-210 typical functioning levels of communication).

Validity of the study tools:

The validity of the research tools was evaluated by panel of five psychiatric mental health nursing experts. The researcher translated the scales statements and then reviewed them by the five experts; they were scrutinized for comprehensiveness, item sequencing, clarity, relevance, format, applicability, and length. Minor changes have been done such as rephrasing of certain sentences based on the suggestions of experts.

Reliability

Internal consistency of Connor-Davidson Resilience Scale and Children's Communication Checklist were calculated utilize Cronbach's alpha coefficients test which was 0.935& 0.952, respectively which indicate good reliability.

The training Program:

The training program had been executed by undertaking the subsequent phases:

1-Assessment phase (early phase):

The aim of this phase was assessed resilience among parents and communication skills of their ASD children. Once offering a detailed discussion about the nature and aim of the study, every parent was personally interviewed to gather the important data. According to the results of the assessment in this phase, the program and media was prepared by the researcher in the shape of teaching methods such as lectures and discussion which reviewed by supervisors. Media that was used include visual materials such as posters, personal laptop, videos and booklets.

2- Planning (Preparatory phase):

The program's strategy, session's number, duration, teaching techniques, and supporting media were all designed during the planning phase. Additionally, the suitability of the program's facilities and the teaching environment was examined. The program comprised a variety of teaching methods, including lectures, group discussions, parents experience sharing, photographs, posters, and role playing. The program consisted of 10 sessions, held twice a week. Evey session lasted between 45 and 60 minutes, based on the level of explanation required. The teaching sessions were conducted in the specialist's room at the selected hospital.

3. Implementation of the program:

The participants were classified into 10 subgroups, with each subgroup consisting of five participants to encourage active interaction. The same training program was administered to all subgroups of parents. At the start of each session, the researcher welcomed the parents and obtained their consent to share in the research. Following this, the researcher discussed the aim and content of the session to ensure clarity and understanding. Throughout the training program, a variety of instructional techniques were employed, including group discussions, modeling, the use of booklets, and role-playing. To enhance engagement and motivation, the researcher utilized different reinforcement strategies, such as offering small rewards like sweets and other items for the children, as well as providing moral support through words of praise and encouragement. These efforts were aimed at motivating parents to actively participate during the sessions and effectively practice the skills being taught.

At the conclusion of each session, the researcher provided a summary of the session's content, addressed any questions from the parents, and informed them about the timing of the next session. Additionally, homework assignments related to the session were given to the parents to reinforce learning. After completing the program with one subgroup, it was subsequently implemented with the next group of five parents, continuing this process until all ten subgroups had participated. Each session began with feedback on the previous session and a discussion of the planned activities. The topics were introduced gradually and concisely, using simple and clear language to ensure understanding. Mutual interactions, continuous repetitions, and reinforcement were emphasized throughout the sessions to enhance comprehension and retention. The dynamics of group interaction were closely observed and documented during each session to monitor engagement and progress.

The subsequent sessions would cover the training program:

Session 1: This session began with an introduction to the program, outlining its goals, the location of the sessions, the duration of each session, and the content that would be covered throughout the program. Additionally, group rules were established to create a structured and respectful environment for all participants.

Session 2: his session provided a brief introduction to ASD. Key topics included the concept of ASD, its potential causes, and associated risk factors. The aim was to enhance participants' understanding of the condition and lay the foundation for subsequent discussions.

Session 3: Brief introduction about signs and symptoms of ASD and provide videos and pictures to illustrates these signs and symptoms.

Session 4: General overview about psychological resilience, types of resilience and characteristics of resilient parents. Also, the parents determine the ways of increasing resilience.

Session 5: Includes introduction about adaptive coping style and factors that influence of choosing coping styles. also, the parents determine how to face the stressful situation in a positive manner.

Session 6: This session includes applying the effective problem-solving skills that help the parents to deal with problems and stressful experiences of their autistic children.

Session 7: It aims to practice Practicing deep breathing and meditation exercise.

Session 8: This session about different styles of communication such as verbal and nonverbal communication.

Session 9: During this session practicing the communication skills of (prompting, imitation skills), the researcher explained to the parents the meaning and steps of each skill.

Session 10: During this session practicing the communication skills of (modeling, Visual schedule Communication System skills), the researcher explained to the parents the meaning and steps of each skill.

4-Evaluation of the program:

The program was evaluated three times using the same study tools. The first evaluation was conducted before the implementation of the program (pretest). The second evaluation took place after the program's completion (posttest), approximately two weeks later. The third evaluation occurred three months after the program's implementation (follow-up test). This multi-stage assessment was designed to verify the program's immediate impact as well as its long-term effectiveness in the future.

Pilot Study

A pilot of this research was conducted to assess the completeness, clarity, applicability, and time required to complete each section of the research tools. Data were gathered from five parents, representing 10% of the size sample. The findings of the pilot study were utilized to validate the data analysis and statistical methods outlined in the research. No change was made to the study tools depend on the pilot study findings. Therefore, the sample used for the pilot study was included as part of the main study sample.

Ethical considerations

Ethical approval was initially obtained in writing from the Ethical Committee of Minia University's Faculty of Nursing. A formal request for authorization to conduct the study in the previous hospital to secure their cooperation and approval. Before participating, parents were provided with a comprehensive discussion of the study's nature and objectives. Written consent was obtained from them after ensuring they understood the details. Parents were informed that their parents were entirely voluntary as well as that they had the right to withdraw from the research at any period without providing justification. Moreover, every parent was assured of the confidentiality of their information throughout the study.

Statistical Analysis

SPSS (version 28) was used to analyze and organize the collected data into tables. Data were presented numerically as mean and SD. The quantitative data were presented as percentages and frequencies. The t-test was used to compare the means of two variables in quantitative data, while the ANOVA test was used to compare the means of more than two variables. Another non-parametric technique for determining if samples are from the same distribution is the Friedman test, which is used to compare more than two percentages. More than two independent samples with the same or different sample sizes can be compared using it. Pearson correlation analysis was also used to examine the relationships between various numerical variables. Significant was defined as having a probability (p-value) of less than 0.05, and highly significant as having a p-value of less than 0.001.

Results

Table (1): Frequency distribution of the demographic characteristics of the studied parents (n=50).

Items	N=50	
	NO	%
Age		
• 20-30 year.	5	10.0
• 31-41 year.	33	66.0
• 42-55 year.	12	24.0
Mean ± SD	37.180± 3.456	
Sex		
• Male	20	40.0
• Female	30	60.0
Level of education		
• Read and write	5	10.0
• Secondary school	27	54.0
• University	18	36.0
Marital status		
• Married	47	94.0
• Divorce	3	6.0
Employment status		
• Worked	27	54.0
• Not Worked	23	46.0
Residence		
• Rural	31	62.0
• Urban	19	38.0

Table 1 shows that 60% of the parents in the study were female, and slightly over two-thirds (66%) were between the ages of 31 and 41. Furthermore, over half of them (54%) were employed and had completed

secondary school. Furthermore, 62% of the parents in the study reside in rural areas, and the bulk of them (94%) are married.

Table (2): Frequency distribution of the demographic characteristics of autism spectrum disorder children (n=50).

Items	N=50	
	NO	%
Age		
• 6-8 year.	38	76.0
• 9-12 year	12	24.0
Mean ± SD	7.280± 1.023	
Sex		
• Male	43	86.0
• Female	7	14.0
School Grade		
• Grade one	35	70.0
• Grade two	5	10.0
• Grade three	2	4.0
• Grade four	3	6.0
• First grade of preparatory	5	10.0

Table (2) demonstrates that, more than three quarters 76% of ASD children were in the age group of 6 – 8 years, while 86% of them are males. Concerning school grade, about 70% of the ASD children were in grade one of primary school, while (10%) of them were in first grade of preparatory school.

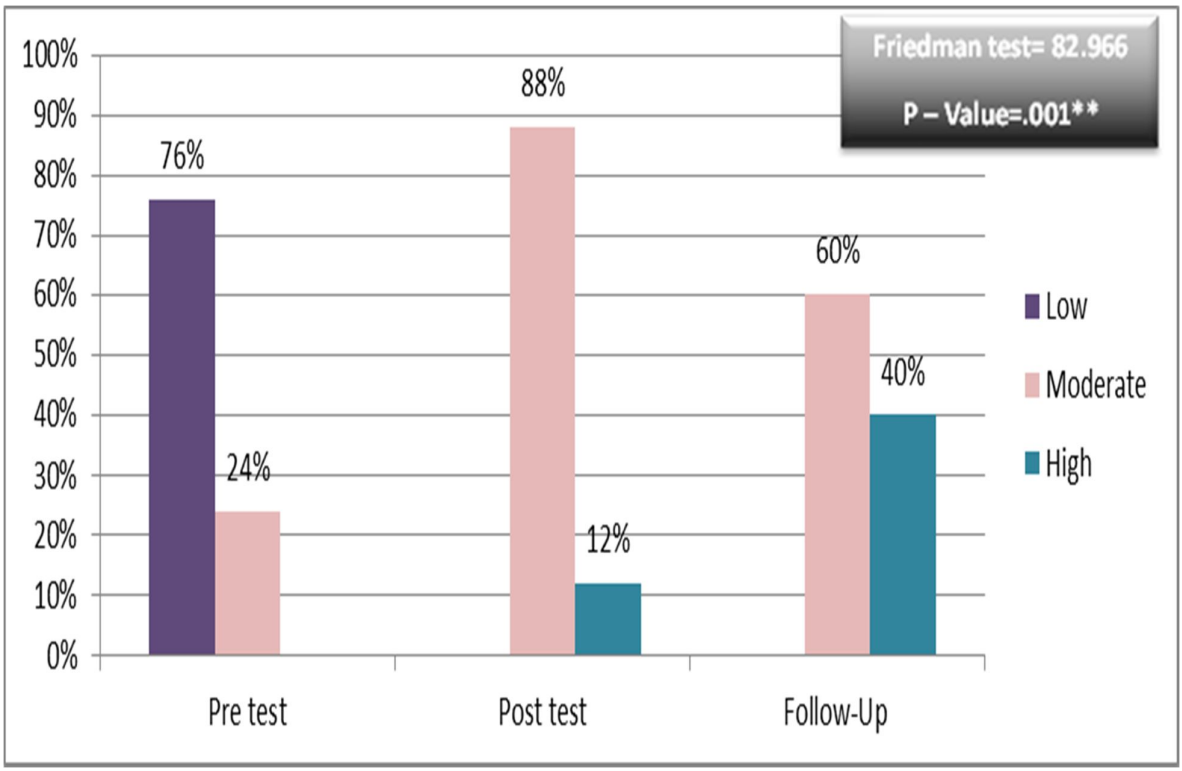

Figure (1): Total resilience among the studied parents at pre-post test and follow- up (n=50)

Figure (1) illustrates that, the pre-test revealed that roughly 76% of the parents in the study had low resilience and 24% had moderate resilience. Immediately post-test, it was seen that 88% of the parents in the study had a moderate level of resilience, while at follow-up this percent decreased to 60%.

Table (3): Variance differences of total resilience as well as their factors among the studied parents at pre-post test and follow- up (n=50)

Items	Pre-test	Post-test	Follow-Up	ANOVA	
	Mean ± SD	Mean ± SD	Mean ± SD	F	P
Personnel competence	10.18± 3.45	18.34 ±3.31	23.74 ± 2.74	229.239	0.001**
Tolerance of negative effect and strengthening against stress	8.38 ± 3.17	15.90 ±3.73	19.76 ±2.83	156.656	0.001**
Positive acceptance of change	5.82± 2.30	9.66± 2.82	12.04± 2.43	76.974	0.001**
Self-control	3.50± 1.44	5.54 ± 1.47	6.80±1.94	51.613	0.001**
Spiritual influences	2.420± .94	3.40 ± 1.38	4.20 ± 1.70	20.850	0.001**
Total resilience	30.30±10.67	52.840±111	66.54 ± 10.2	146.936	0.001**

No significant difference (p value >0.05) *: Significant difference (p value ≤ 0.05) **: highly significant difference (p value ≤ 0.001)

Table (3) demonstrates that there were highly statistically significant differences between the pre-posttest, and follow-up regarding total resilience as well as it's all factors with (p-value 0.001) ** In addition, at the pre-test, the highest mean score was related to the personnel competence factor with M±SD (10.18± 3.45), while they are increased at post-test to (18.34 ±3.31) and follow-up to (23.74± 2.74). Regarding the total resilience, mean score was (30.3±10.67) at the pre-test, while they are increased at post-test to (52.8±11.11) and (66.5 ± 10.20) at the follow-up.

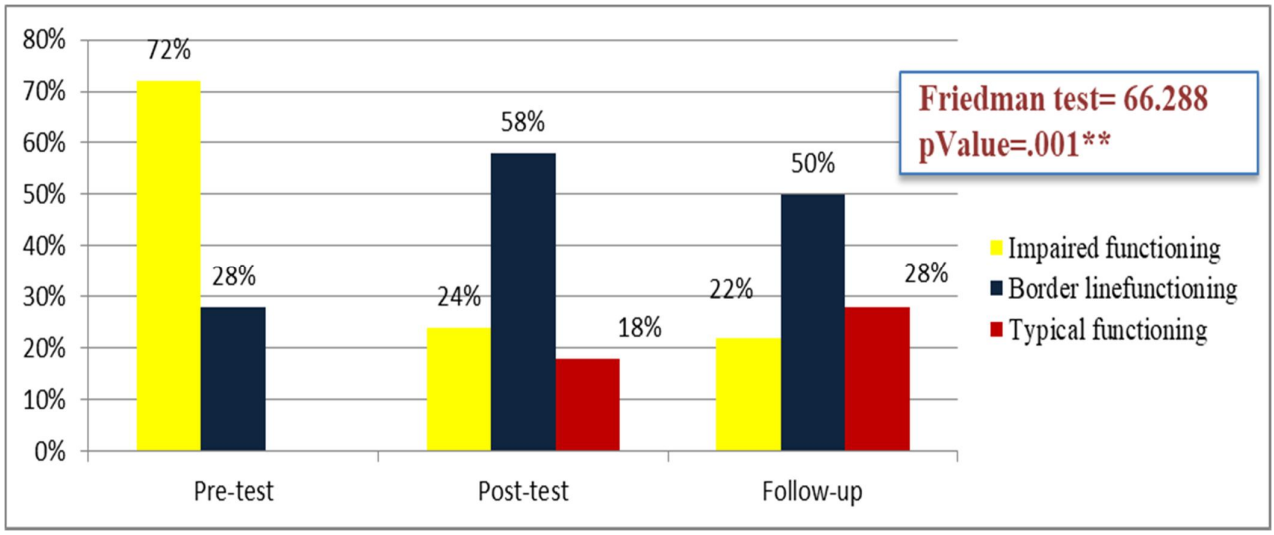

Figure (2) Total children's communication skills at pre-post test and follow up (n=50).

Figure (2) demonstrates that at the pre-test, it was found that 72% of the ASD children have impaired level of communication skills. While, at the post-test, less than one quarter (24%) of them have impaired level of communication skills and, at follow-up this percent decreased to 22%. Additionally, about 18% of the ASD children with a typical level of communication at the post test, while at follow-up this percent increased to 28%.

Table (4): Variance differences of total children's communication skills as well as their subscales at pre-post test and follow up (n=50).

Children's communication and it's subscales	Pre-test	Post-test	Follow-Up	ANOVA	
	Mean ± SD	Mean ± SD	Mean ± SD	F	P
1-Total language structure	25.62±17.44	38.18±18.56	41.96± 20.04	10.445	0.001**
a-Speech	6.14± 4.37	8.80± 4.86	9.70± 4.85	7.753	0.001**
b-Syntax	6.40± 4.51	9.20± 4.88	10.44± 5.66	8.408	0.001**
c-Semantics	6.64± 4.36	10.26± 4.75	11.020± 5.20	11.968	0.001**
d-Coherence	6.44± 4.55	9.92± 4.69	10.80± 5.20	11.391	0.001**
2-Total aspect of communication	25.62±17.24	44.20±13.21	49.06± 14.74	33.298	0.001**
a-Initiation	6.46± 4.28	12.52± 3.30	13.64± 3.42	54.553	0.001**
b-Scripted language	6.02± 4.31	9.640± 3.92	10.64± 4.21	17.096	0.001**
c-Context	6.50± 4.52	10.00± 3.90	11.22± 4.67	15.629	0.001**

Children's communication and it's subscales	Pre-test	Post-test	Follow-Up	ANOVA	
	Mean ± SD	Mean ± SD	Mean ± SD	F	P
d-Nonverbal communication	6.64± 4.47	12.04± 3.81	13.56± 3.89	39.878	0.001**
3-Total behaviors of Autism	10.92± 8.91	21.70± 7.02	23.88± 7.32	39.583	0.001**
a-Social relations	5.32± 4.51	11.14± 3.42	12.180± 3.67	44.926	0.001**
b-Interests	5.60± 4.42	10.56± 3.93	11.700± 3.98	30.989	0.001**
Total	**62.16±42.80**	**104.08±37.48**	**114.90±40.84**	23.72	0.001**

No significant difference (p value >0.05) *: Significant difference (p value ≤ 0.05) **: highly significant difference (p value ≤ 0.001)

Table (4) shows that there were highly statistically significant variance between the pre-post, and follow up test regarding total children's communication skills, and it's all subscales with p-value 0.001. Moreover, at the pre-test, mean score of total language structure was (25.62± 17.44) which increased to (38.18±18.56) at the post test and (41.96±20.04) at the follow up. In addition to at the pre-test, semantics subscale was (6.64± 4.36) which increased to (10.26± 4.75) at the post test and (11.020± 5.20) at the follow up.

Table (5) Relation between demographic characteristics of the studied parents regarding Conner-Davidson resilience scale (n=50).

The demographic characteristics	Pre-test			Post-test			Follow up		
	Mean ±SD	Anova test	*P* value	Mean ±SD	Anova test	*P* value	Mean ±SD	Anova test	*P* value
Age / years									
20-30 years	26.60 ± 15.01	.853	(.432NS)	66.00±12.30	5.113	(.010*)	71.40± 7.23	2.703	(.077NS)
31-41 years	29.72 ± 9.32			50.39± 8.94			64.21± 9.42		
42-55 years	33.41±12.45			54.08±12.80			70.91±11.78		
Marital status									
Married	29.91± 10.58	.535	(.589NS)	52.59±11.08	.374	(.690NS)	66.40±10.22	.734	(.486NS)
Divorce	28.00± 0.00			48.00± 0.00			60.00± 0.00		
Educational level									
Illiterate or read and write	31.80± 10.89	.134	(.865NS)	55.40± 8.79	.145	(.865NS)	66.60± 8.38	1.052	(.357NS)
Secondary School	30.66± 10.89			52.66±10.88			68.33±10.28		
University	29.33± 10.83			52.38±12.43			63.83±10.4		

Table (5) shows that there is significant relation between parent's resilience mean score and their age at post test at p-value (.010*). Moreover, the age group 20-30 had the highest mean score during post and follow up test with M±SD was (66.00±12.30, 71.40± 7.23) respectively. Also, it was found that the resilience mean score was the highest among married parents which was (29.91± 10.58) at pre-test compared to (52.59±11.08) and (66.40±10.22) at post-test and follow up respectively.

Table 5 (cont.)

demographic characteristics	Pretest			Posttest			Follow up		
	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value
Sex									
Male	31.15± 9.71	.456	(.651NS)	52.05±11.14	.407	(.686NS)	66.30±10.94	.134	(.894NS)
Female	29.73±11.40			53.36±11.25			66.70± 9.87		
Residence									
Rural	28.58±10.36	1.471	(.148NS)	52.77± 9.49	.053	(.958NS)	67.80 ± 9.49	1.124	(.267NS)
Urban	33.10±10.86			52.94±13.63			64.47±66.54		
Employment status									
Worked	31.59±10.13	.926	.359NS	52.33±12.47	.346	(.731NS)	65.29±10.79	.932	(.356NS)
Not worked	28.78±11.32			53.43± 9.52			68.00± 9.49		

Table (6) Relation between the demographic characteristics of the studied parents and children's communication skills (n=50)

The demographic data	Pre-test			Post-test			Follow up		
	Mean ±SD	Anova test	*P* value	Mean ±SD	Anova test	*P* value	Mean ±SD	Anova test	*P* value
Age / years									
20-30 years	54.40±48.85	.915	(.408 NS)	95.60± 46.41	3.345	**(.04*)**	102.00±48.18	2.307	(.111 NS)
31-41 years	67.96±42.56			113.15±32.62			123.51±34.75		
42-55 years	49.41±41.44			82.66± 39.98			96.58± 49.08		
Marital status									
Married	63.08±43.16	.435	(.650 NS)	105.55±37.39	.752	(.477 NS)	115.89±40.70	.379	(.687 NS)
Divorce	54.00± 0.00			77.00± 0.00			104.00± 0.00		
Educational level									
Read and write	69.40±38.84	3.207	**(.04*)**	105.00±38.02	1,475	(.239 NS)	113.20±40.90	1.622	(.208 NS)
Secondary School	48.88±37.37			96.22± 40.17			106.25±45.18		
University	80.05±46.42			115.61±31.65			128.33±31.34		

No significant difference (p value >0.05) *: Significant difference (p value ≤ 0.05)
**: highly significant difference (p value ≤ 0.001)

Table (6) presents that there were statistically significant differences between children communication mean score with parent's age and educational level at the pre-post test at p - value (.04) *. Additionally, the highest mean score of communication among parents with age group 31-41 at pre, post test and follow up with M±SD (67.96±42.56, 113.15±32.62, 123.51±34.75) respectively. Concerning the educational level the highest mean score of communication among parents with university education at pre, post test and follow up with M±SD (80.05±46.42, 115.61±31.65, 128.33±31.34) respectively.

Table 6(con.)

The demographic data	Pretest			Posttest			Follow up		
	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value
Sex									
Male	62.35±42.56	.025	(.980NS)	100.45±39.87	.555	(.581NS)	114.85±43.93	.007	(.994NS)
Female	62.03±43.68			106.50±36.29			114.93±39.41		
Residence									
Rural	46.12±35.20	3.824	**(.001**)**	93.70± 39.53	2.648	**(.01*)**	104.09 44.33	2.515	**(.01*)**
Urban	88.31±41.92			121.00±27.06			132.52±27.14		
Employment status									
Worked	66.37±42.55	.750	.457NS	105.85±36.75	.359	(.721NS)	119.22±39.04	.808	(.423NS)
Not worked	57.21±43.51			102.00±39.04			109.82±43.17		

Table (6) illustrates that there were a differences statistically significant between children communication mean score with residence at the pre-test, posttest and follow-up at p - value (.001,.01) respectively. Additionally, the highest mean score of communication among females at post test and follow up with M±SD (106.50±36.29, 114.93±39.41) respectively. Also, the highest mean score of communication between working parents at the pre-test, posttest and follow-up with M±SD (66.37±42.55, 105.85±36.75, 119.22±39.04) respectively.

Table (7) Relation between the demographic characteristics of ASD children and communication (n=50)

The demographic characteristics	Pre-test			Post-test			Follow up		
	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value	Mean ±SD	t-test	*P* value
Age /year									
6-8	59.81±43.26	.685	(.496 NS)	101.73±38.2	.783	(.437 NS)	113.73±41.24	.355	(.724 NS)
9-12	69.58±42.25			111.50±35.3			118.58±41.10		
Sex									
Male	66.06±41.87	1.628	(.110 NS)	105.95±36.5	.874	(.387 NS)	117.02±40.49	.909	(.368 NS)
Female	38.14±43.62			92.57± 44.12			101.85±43.76		
School Grade	**Mean ±SD**	**Anova -test**	***P* value**	**Mean ±SD**	**Anova -test**	***P* value**	**Mean ±SD**	**Anova -test**	***P* value**
Grade one	57.80±43.95	1. 794	(.134 NS)	100.60±39.1	1.120	(.364 NS)	110.82± 42.5	.893	(.494 NS)
Grade two	37.80±35.55			84.40± 40.82			98.6± 51.5		
Grade three	59.50±14.84			118.50± 2.12			130.0± 1.4		
Grade four	87.66±22.27			122.33±17.9			141.0± 16.09		
First grade of preparatory	85.00±00.0			120.00±00.0			140.00±00. 0		

Table (7) illustrates that, the highest mean score of communication among ASD children of age group between 9-12 years with mean± SD (69.58±42.25) (111.50±35.30) (118.58±41.10) at pre-test, post-test and follow-up respectively. In addition to, the highest mean score of communication among male children with mean± SD (66.06±41.87, 105.95±36.5, 117.02±40.49) at pre, post-test and follow-up respectively. Moreover, the highest mean score of communication among grade four of school with mean± SD (87.66±22.27, 122.33±17.9, 141.0± 16.09) at pre-test, post-test and follow-up respectively. Also, it was noted that there is no significant relation between the demographic characteristics of ASD children and communication skills.

Discussion

Repetitive patterns of behavior and interests, which typically appear in early childhood, and social communication difficulties are hallmarks of autism, a neurodevelopmental disease that lasts a lifetime. As a result, ASD affects both the parent and the child. Parents are required to actively participate in the overall management of their children and are regarded as significant stakeholders in the intervention services linked to autism. Furthermore, caregiving demands of ASD children appear to lead to parental ill health, increased parenting stress, lower parents' resilience, increase child-behavior problems, and financial burdens when compared with parents of both typically developing children **Sabina and Dorwin, (2024).** Therefore, the actual study aimed to evaluate the impact of strengthen resilience training program on parents and communication practices of their children with ASD.

According to the current study's findings about the demographics of the parents under investigation, slightly over two-thirds of them were in the age range of 31 to 41 (Table 1). This demonstrates that parents are mature enough to assume responsibility for their children's care at this age. This outcome is in line with the findings of **Idring et al. (2022)**, who discovered that 60% of the sample under study was between the ages of 30 and 40. **Al Ansari et al. (2021)**, however, disagreed with this finding. They conducted a study on 126 family caregivers of children with autism and discovered that almost three-quarters of the participants were between the ages of 31 and 60.

In terms of the sample's sex, the current study's findings predicted that over half of the parents under investigation were female. This might have something to do with the fact that moms are historically and culturally in charge of taking care of the home and the children. Similarly, women notice any changes in their children's behavior and devote some of their time and energy to meeting the requirements of medical care, such as regular trips to a mental health facility, timely drug administration, and monitoring the child's health. According to **Ansar and Khougar (2024)**, 70% of the parents in the study were female, which corroborated this finding. Furthermore, according to **Washington et al. (2023)**, over half of the parents in the study were female. However, according to a study conducted in Egypt by **Mansour in (2021)**, less than half of Egyptian caregivers of autistic children were women, and slightly more than half were men.

According to the current study, over 50% of the parents under investigation reside in rural areas. This outcome can derive from the particular difficulties that rural states encounter because of their geographic location. Among these are obstacles to diagnosis and treatment, which are partly caused by a lack of knowledge about mental disease. The majority of the parents in the study were from rural areas, which was consistent with the findings of **Ayubi et al. (2023)**. **Mohamed et al. (2020)** observed that three-quarters of the parents' locations of residence were in urban areas, which contradicted this finding.

In terms of the demographics of children with ASD, the actual study determined that three-quarters of these children were between the ages of 6 and 8 (Table 2). It might be because early childhood is where ASD starts, and this age is characterized by widespread developmental changes. This outcome was in line with **Charles's (2021)** discovery that the majority of the children with ASD were six years old. However, this result contradicts that of **Nik Adib et al. (2020),** who found that most autistic children fall into the 3–5 age range.

Additionally, the results of the current investigation showed that boys made up the majority of children with ASD (Table 2). This was consistent with the findings of **Maenner et al. (2020) and Lopata (2021),** who reported that most autistic children were boys. According to the findings of the current study, three-quarters of children with ASD attend primary school. **Abu El-Soud et al. (2020) and Fenton & Krahn (2021)** validated this finding and underlined that the majority of autistic children were enrolled in primary school.

More than three-quarters of the parents in the actual study had low resilience in the pretest, and less than one-quarter had moderate resilience, according to the study's findings (Figure 1). Parents of autistic children who face many obstacles may recognize this outcome. These obstacles include communication issues, handling tough behaviors, teaching fundamental life skills, protecting their child from harm, locating suitable treatment, and overcoming the cost of paying for services. Parents report higher stress levels and generally reduced resilience as a result of overcoming these difficulties that come with raising a child with ASD. This finding is in line with **Mumford (2023) and Tajalli et al. (2022)**, who discovered that one-third of parents of children with ASD showed moderate to high resilience, whereas two-thirds had

low resilience. The majority of the parents had a moderate to high level of resilience, according to **Lubelski (2024),** which was in contrast to this conclusion.

Moreover, the actual study results indicated that, at the posttest the majority of the participating parents exhibited a moderate level of resilience, and at the follow-up two-thirds of them maintained this moderate level of resilience (Figure 1). This might be associated with the resilience training program, which enhances parents' ability to learn effective coping mechanisms, thereby enabling them to exert greater control over specific events. Furthermore, the program facilitates parents' development of stress awareness and management techniques. Parents who are able to interpret situations positively tend to embrace adjustment and adaptation, fostering a sense of peace in the present moment. As a result, parents of autistic children who feel in control often experience a heightened sense of empowerment, increased confidence, and reduced stress, all of which contribute to improved resilience. **Laura et al. (2021)** support this conclusion. According to post-test and follow-up evaluations, most families with autistic children exhibited a moderate degree of resilience after putting an intervention program into place **(Gunty & Co., 2020).**

Regarding factors of the resilience scale, the results of the actual study demonstrated that the highest mean score was related to the personnel competence factor at pre, posttest and at follow up (Table 3). At the pre-test, the results might be influenced by the fact that most of the participants are educated. This suggests that parents with higher education levels may have a better understanding of the diagnosis, which could lead to increased hope regarding their child's condition and a greater sense of competence. Additionally, the beneficial effects of the resilience training program may have contributed to the parents' increased acceptance of change at the post-test and follow-up, and their religious beliefs may have also contributed to their more positive acceptance of the diagnosis. This outcome is consistent with the findings of **Abd Latif (2023)**, **Yaacob et al. (2022), and Ng (2022),** who reported that the section on personnel competency and positive acceptance of change had the highest mean score. However, according to **Seeridaram & Rashid (2023),** personnel competency had the lowest mean score.

Concerning the total mean score of resilience, the results of the actual study presented that, at pre-test, the total mean score of resilience was at a low level (Table 3). This could be attributed to the fact that difficulties in communicating and building social relationships of children with autism has been negatively connected with quality of life of parents', generating a sense of dissatisfaction within the family due to the lack of effective communication. This outcome is consistent with the findings of **Mojdeh (2022) and Bekhet (2022),** who observed that the overall mean score for resilience was low.

Concerning the total of resilience at post test and follow-up, the finding of the actual study revealed that, the total mean score of resilience among the studied parent was increased at post test and follow up (table 3). This might be attributed to the beneficial impact of the resilience training program, which enhances the resilience of the studied participants by teaching parents' meditation and deep breathing techniques. Furthermore, it aids parents in acquiring problem-solving abilities, coping strategies, and emotional expression, thereby increasing their likelihood of achieving their goals and meeting the needs and responsibilities of their autistic children. **Berkel et al. (2023),** who discovered that the study participants shown greater gains in resilience following the integrated intervention program, corroborate this finding. According to a study by **Zohreh (2023),** the intervention group significantly outperformed the control group in terms of family resilience scores for autistic children both immediately after the intervention and at a two-month follow-up.

The present study results demonstrated that there were highly significant statistically variation between pre-posttests, and follow-up regarding the total mean score of resilience as well as the resilience factors (Table 3). From the perspective of the researcher, this result might be due to the positive influence of resilience training program. Before the program the parent hadn't enough knowledge and skills about resilience. In addition, the post-program results may be linked to changes in parents' understanding of resilience, its components, and the factors that influence their performance in resilience following the implementation of the training program.

Bradford et al. (2020), who investigated the influence of fostering resilience in stress intervention interference for parents of children with ASD, support this finding by stating that, following the educational intervention, there was a notable improvement in the resilience of the parents' overall scores. In a similar vein, **Liu et al.**

(2022) found a significant statistically variation between the pre-test and the overall mean resilience score. Furthermore, research participants shown a notable increase in resilience when compared to the control group, according to **Alay & Kaçan (2024)**.

Concerning the total children's communication, the results of actual study revealed that, at pre-test less than three quarters of the ASD children had impaired functioning levels of communication, while more than one quarter of them had border line functioning levels of communication (figure 2). This result could be explained by the characteristics of autism, a developmental disorder that can range from extremely minor symptoms to serious difficulties with social skills, communication, and abnormal behaviors that impair one's capacity to operate independently and interact with others. According to **Bojan et al. (2022) and Geurts & Embrechts (2020)**, the majority of children with ASD showed impaired functional levels of communication, while only a small percentage had conventional functioning levels.

Moreover, the present study results revealed that lower than one quarter of the ASD children had a typical functioning degree of communication at the post test. while at follow-up one third of them maintained this typical functioning level of communication (Figure2). This means that the resilience training program has a significance influence on enhancing children's communication on the long term. In addition, through the resilience training program, the researcher provided the parents with the correct information about the ASD to help them change their negative beliefs and thoughts. Also, the parents were empowered with successful strategies and skills that can assist them to improve their children's communication skills, for example, skills of prompting, imitation skills, modeling, and visual schedule communication system skills which in turn support their daily coping with their children's difficulties. This result is confirmed with **Popich et al. (2020), & Clark et al. (2019)** who revealed that the percent of children had typical functioning level of communication increased after implementation of the intervention program.

The findings of the current study revealed that significant differences was found in the total mean scores of children's communication and its subscales across pre-test, post-test, and follow-up assessments. Notably, there was a significant increase in scores during the post-test and follow-up compared to the pre-test (Table 4). This suggests that the resilience training program positively impacted children's communication by enhancing parents' ability to provide appropriate care for their autistic children and effectively respond to their communication efforts, whether through language, nonverbal cues, or behavior. These results are consistent with the findings of **Qusailat (2020), Kamal et al. (2019), and Nayazak (2018)**, who also reported statistically significant differences in the total mean scores of children's communication across pre-test, post-test, and follow-up evaluations.

The findings of the present study indicated that, regarding the mean scores of children's communication subscales, the total language structure had the highest mean score at the pre-test, followed by the total aspect of communication, while the total behaviors of autism had the lowest mean score (Table 4). This outcome may be attributed to the deficits in structural language skills, which are a core characteristic of ASD, as well as impairments in social communication and the presence of restricted, repetitive behavioral patterns, as outlined in the DSM-5 criteria. Repetitive behaviors in autism may function as a form of communication, often arising from frustration when children face challenges in expressing themselves effectively through language. These findings align with **Boonen et al. (2020)**, who reported that the highest mean score in children's communication was associated with total language structure, while the lowest was linked to total behaviors of autism. Conversely, **Rogers S. (2020) and Chiang et al. (2018)** found that the total behaviors of autism had the highest mean score in their studies, as one in four autistic children was reported to display clinically significant aggressive behaviors.

Regarding the mean scores of children's communication subscales, the results of the present study revealed that at the post-test and follow-up, the highest mean score was associated with the total aspect of communication (Table 4). This improvement may be attributed to the impact of the training program on parents, which taught them to use the Picture Exchange Communication System (PECS) technique, potentially enhancing communication outcomes for children with autism. This finding aligns with **Sandbank et al. (2019)**, who also reported that the highest mean score at follow-up was related to the total aspect of communication following intervention.

The findings of the current study indicate that, at the pre-test stage, the overall mean score for children's communication was relatively low.

However, this score showed improvement at both the post-test and follow-up stages (as shown in Table 4). Prior to the intervention program, the low scores could be attributed to the fact that autistic children often lack verbal abilities and have not developed their language skills, nor do they typically compensate through non-verbal means such as gestures or mimicry. Following the program, the increase in scores may be linked to its positive impact, as it equipped parents with strategies to teach behavioral skills, including prompting and imitation techniques, which in turn enhanced their children's communication abilities.

This finding is further supported by **Brahimi (2023),** who investigated the level of communication skills in children on the ASD and reported that, at the pre-test stage, the overall mean score for communication was notably low. Likewise, a study conducted by **Goldstein (2020)** on communication interventions for children with autism revealed that the total mean score for communication significantly improved in both the post-test and follow-up assessments after the intervention.

The present study's findings revealed a significant relationship between the mean resilience scores of parents and their age at the post-test stage. Specifically, the highest mean resilience score was observed among parents in the age group of 20–30 years, both during the post-test and follow-up phases (Table 5). This suggests that parents within this age range are likely mature enough to take on the responsibilities of caring for their children effectively. Additionally, they appear to possess the experience needed to address their children's challenges positively by seeking assistance and support from health professionals and other families. These results align with those reported by **Lobo & Black (2021), Brennan et al. (2021), and El Sawy (2019)**, who also identified a significant association between parents' resilience levels and their age.

The findings of the current study indicate that married parents reported the highest average resilience scores. This could be attributed to the emotional support they receive from their spouses, as well as their ability to develop or enhance relationships with friends and extended family members. These factors contribute to building resilience among married parents. In contrast, divorced individuals often experience disruptions in friendships, reduced confidence, and lower levels of emotional support. However, this finding contradicts **Ha's (2023)** research, which revealed that although divorced individuals have less confidence, they tend to exhibit higher levels of resilience. Additionally, the results differ from those of **Cangara et al. (2023)**, whose study in Indonesia found that single parents had the highest mean resilience scores.

Regarding the relation between the sex of the studied parents and resilience, the current study found that females exhibited the highest mean resilience scores during both the post-intervention and follow-up phases (Table 5). This suggests that mothers are better equipped to manage the responsibilities associated with caring for their children, especially during early childhood. The strong emotional bonds between mothers and their children also facilitate smoother interactions compared to those with fathers. Additionally, the perceived weight of responsibility borne by mothers may enhance their resilience, reflecting traditional gender roles where women often assume the role of primary caregiver. However, this finding contrasts with the results reported by **Mikels et al. (2022), Easterbrooks et al. (2021), and Hag et al. (2019)**, who found that male parents demonstrated higher mean resilience scores than females.

Concerning the relation between parents' place of residence and their resilience, the current study revealed that parents residing in urban areas had the highest mean resilience scores (Table 5). This could be attributed to the availability of essential services in urban settings, along with better access to healthcare and educational resources, which are critical factors influencing well-being and enhancing psychological resilience. These findings align with those of **Hassan et al. (2020)**, who also reported higher resilience scores among participants living in urban areas during both pretest and follow-up assessments. However, this result contrasts with the findings of **Gavidia et al. (2023)**, who observed that rural participants demonstrated significantly higher resilience levels compared to their urban counterparts.

Regarding the relation between employment status and parents' resilience, the study found that working parents had the highest mean resilience scores at the pre-test stage. This could be explained by the fact that employed parents are often better able to utilize available resources for their children's needs compared to unemployed parents, who may experience higher levels of stress and lower resilience, largely due to financial challenges. This finding is consistent with the research of **Eilertsen et al. (2021) and Campbell et al. (2020)**, who highlighted that parents' income significantly

accounted for approximately 11% of the variance in resilience levels.

The findings of the current study revealed statistically significant variation between the mean scores of children's communication and parents' age at both the pre- and post-tests (Table 6). This result is supported by **Stewart (2019)**, who conducted a study on the association between sociodemographic characteristics of caregivers and children with ASD. The study highlighted that the caregiver's age plays a significant role in caring for autistic children, particularly in terms of social interaction and communication.

Regarding the educational level, the current study found statistically significant variations between the mean scores of children's communication and the parents' educational level at both the pre- and post-tests (Table 6). This can be attributed to the fact that higher education increases awareness about autism, enabling early diagnosis and intervention among educated individuals and their surroundings. Additionally, educated parents are more likely to understand and adapt to the communication styles of their autistic children. This result is consistent with previous studies by **Surmen et al. (2020), Mousa et al. (2021), and Shriberg (2023)**, all of which reported statistically significant differences between children's communication scores and the educational levels of the participants.

The results of the current study demonstrated statistically significant variations in the mean scores of children's communication based on place of residence, with the highest scores observed among parents residing in urban areas during the pre-test, post-test, and follow-up phases (Table 6). This finding may be linked to the greater availability of parenting resources in urban settings, as well as the influence of cultural beliefs, parenting norms, and heightened awareness of the importance of parenting in child development, all of which positively impact parent-child relationships and foster effective communication skills. This result is supported by **Maretha et al. (2021)**, who similarly found statistically significant differences in children's communication scores based on place of residence. However, the current findings contrast with those of **Lindsay et al. (2023) and Antezana et al. (2021)**, who reported no statistically significant variations in children's communication scores related to place of residence.

Furthermore, the findings of the actual study indicated that the highest mean communication scores among children with ASD were observed in the age group of 9–12 years during the pre-test, post-test, and follow-up phases (Table 7). This could be attributed to the significant delays in developmental skills commonly seen in children with autism, such as social self-regulation, early language enhancement, and the capability to regulate behavior as well as emotions in response to social cues. Additionally, this age group often struggles to comprehend the purpose and social meaning of behaviors and may experience language regression. Such challenges appear to predict potential future communication difficulties. This interpretation is consistent with the findings of **Makrygianni and Reed (2020) and Johen (2019)**, who also reported the highest mean communication scores among ASD children aged 9–12 years in intervention groups.

Conclusions

The current study findings concluded that the mean scores of total resilience and total children communication increased immediately post implementation of resilience training program and at follow up. It was also concluded that resilience coping techniques effectively improve parents' resilience and increase the communication skills of their autistic children.

Recommendations

Based on the findings of the present study, the next recommendations are proposed:

- Implement psychoeducational programs tailored for parents of children with ASD to enhance their awareness, coping strategies, and understanding of ASD.
- Provide continuous health education and counseling initiatives to support parents in effectively caring for their autistic children.
- Establish official local centers and specialized schools that offer comprehensive treatment and educational services for autistic children and their families.
- Further studies are necessary using a large probability sample for generalization of the results

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