

## Effect of Parent Training regarding Coping Strategies on Reducing Stress among Parent of Children with Autism Spectrum Disorder

Nagwa Ramadan Esmail Magor<sup>(1)</sup>, Fathia El-Sayed El-Ghadban<sup>(2)</sup>, Sharbat Thabet Hassanine Atea<sup>(3)</sup>, Hala Hassan Saied Khalil<sup>(4)</sup>, Mona Gamal Abd Elnaser Ahmed<sup>(5)</sup>,  
Manal Mohamed Ahmed Ayed<sup>(6)</sup>

(1) Lecturer of Pediatric Nursing, Faculty of Nursing, Tanta University, Egypt

(2) Assistant Professor of Pediatric Nursing, Faculty of Nursing Fayoum University, Egypt

(3) Assistant Professor of Community Health Nursing, Faculty of Nursing, Fayoum University, Egypt

(4) Assistant Professor of Community Health Nursing, Faculty of Nursing, Fayoum University, Egypt

(5) Lecturer of Psychiatric and Mental Health Nursing, Faculty of Nursing, ZagaZig University, Egypt

(6) Assistant Professor of Pediatric Nursing, Faculty of Nursing, Sohag University, Egypt

E-mail of the corresponding author: [Manal\\_ayed@yahoo.com](mailto:Manal_ayed@yahoo.com)

DOI: <https://orcid.org/0000-0003-0922-5823>

### Abstract

**Background:** There is no doubt that the mothers' adaptation helps improve the quality of life, not only for any child with special needs but for the whole family, which greatly helps in improving the child's condition and improving the care provided to him by a conscious parent who can meet the child's needs properly. **The present study aimed to** evaluate the effect of parent training regarding coping strategies on reducing stress among mothers of children with autism spectrum disorder (ASD). **Research design:** A quasi-experimental design was used in carrying out this study. **Setting at** This study was conducted at the Child Psychiatry out-patient clinic at Sohag University Hospital. **Sample:** A purposive sample of a total of forty mothers and their children with ASD aged 4-12 years participated in this study. **Tools: Four** tools were utilized for data collection. I- A structured interviewing questionnaire sheet, which included two parts, part 1: Demographic characteristic of the mothers, Part 2: Demographic characteristic of their children, II- Parenting Stress Index: Short Form Abidin (1992), III- Coping Strategies Inventory (CSI), IV- Child Behavior Checklist. The data were collected before, immediately after and 3 months after the implementation of the parent training program. **Results:** The current study revealed a statistically significant improvement was found between the Parenting Stress Index and the Coping Strategies Inventory of the studied mothers as pre/ immediate post and after three months after the training program implementation ( $p < 0.05$ ). **Conclusion:** implementation of parent training regarding coping strategies reduced stress among mothers of children with ASD, so the study mainly **recommended** that parent training regarding coping strategies for mothers of children with ASD should be conducted to reduce stress among mothers of children with ASD.

**Keywords:** Coping strategies, parent of children with an autism spectrum disorder, parent training, stress.

### Introduction:

Autistic Children are not physically ill or disabled such as someone with brain injury. ASD is mostly characterized by some or all of the following: Difficulties interacting with others or socializing with other people, communication challenges, and repetitive behavior (Miranda et al., 2019).

The World Health Organization has described (ASD) as a group of disorders of brain development that include impaired social interaction such as difficulties in verbal and non-verbal communication and speech along with repetitive or stereotyped behaviors and

often the narrow range of interests and activities that are both unique to the individual. Individuals with autism can experience a type of sensory sensitivity to different sensations such as touch, sounds, taste, light and temperature, and pain. For example, different background sounds of the environment that rarely interrupts other people may make the autistic person sound harsh and distracting while causing them to feel anxiety as well as physical pain (Coren et al., 2018).

Assessment, rehabilitation, and treatment of autistic children are very important because they need special care, help, and adjustment for

their daily activities for reducing social and educational failure. School settings being one of the most challenging places, therefore, professionals at schools, in hospitals, daycare centers, and other institutions were trained to use therapeutic interventions in everyday life. Evidence suggests that an assessment concerning the assistance and support need by the child with ASD and the family is the first step to be made. During the assessment, the parents of the child can talk about their situation and reveal their concerns but a family-based care plan must be made first (**Collins et al. 2017**).

This includes helping the child's parents to be more active in consultations, making-decisions, and professionals being mindful and informative while is guiding them to the best possible plan for their child. After the assessment is completed, it's necessary to combine the perspectives of the healthcare professionals and that of the parents to decide what form of support and services found for the situation, meanwhile, the goals set by the parent guide the planning and the finding of the support. Home visiting and follow-ups are also provided for such children and their families, there has been reported to have a good outcome with normal or near-normal social life despite certain difficulties in the social relationship at school and other places (**Narzisi, 2020**).

Caring for an autistic child is considered a daily challenge and it's endless and affects the child's care and the parent's mental health and their ability to meet their children's needs. Understanding those challenges that parents will face, will provide a new direction for new research and intervention development. Many studies are investigating the impact of autistic children in the family system. Parents caring for an autistic child are reported to have a higher risk of stress that could affect negatively family functioning and marital relationship (**Tomeny, 2017**).

These changes may have the possibility to change the family functioning in many ways including the relationship between parents as well as the relationship between siblings and the health status of the family members. The stress expressed by parents of autistic children, which reaches clinically significant levels in

77% of the cases, and is greater than the stress of parents with children who had typical development and with parents with children with other neurodevelopmental disorders, such as specific learning disorders, intellectual disabilities, Down syndrome, cerebral palsy, externalizing behaviors, or attention deficit hyperactivity disorder (**Barroso et al., 2018**).

**Soliman et al. (2016)** have established the feasibility and acceptability of the parent-mediated intervention for ASD in India. Mental health problem in parents can impair their involvement in care. The severity of the features of autism causes parenting stress and maternal psychopathology symptoms (**Tomeny, 2017**).

The problems of children with ASD seem to affect different domains of parenting stress. Parental stress is predicted by behavioral and emotional problems in the children, which causes stress associated with the dysfunctional parent-child relationship is associated with daily living, communication skills, and cognitive abilities. Parents of children with ASD engage certain coping mechanisms to tide them through the various phases of development. The previous research has evaluated the role of coping styles employed by caregivers as a protective and remedial mechanism. Parental coping styles and the presence of social support in relationship with developmental disabilities can impact the level of parental distress (**Dabrowska and Pisula, 2010**).

Higher levels of problem-focused coping and lower levels of emotion-focused coping were generally associated with better maternal wellbeing, regardless of the level of symptomatology of the children with ASD. On the other hand, parenting stress was negatively correlated with the engagement coping and social functional support reported by the mothers. The presence of parental psychopathology and stress can impair the quality of inputs given, thereby hindering progress in the child with ASD. As the role of parents is crucial in the process of development, an understanding of the mental health difficulties, quality of life, and coping styles of parents can give a better understanding of the

possible barriers in the process of change (Miranda et al., 2019).

The impact of the birth of a disabled child on the family has been extensively studied and has largely focused on the psychological adaptation of the parents (Sola et al., 2016). Coping strategies have been classified as adaptive that focus on the problem and involve problem-solving, cognitive restructuring, social support, emotional expression, and active efforts to compensate for the stressful situation and adjust to it, and the non-adaptive coping strategies which include passive coping mechanisms like problem avoidance, wishful thinking, social withdrawal and self-criticism that may increase the risk of suffering due to physical or psychological alterations (Cano et al. 2007).

Studies show that parents who cope with stress using problem centered strategies have lower levels of stress as compared to those that use avoidance strategies. Family interventions programs have helped stressed families view difficult situations as less overwhelming, and teach them to handle their emotions and improve social relations. Family interventions assist the mothers and fathers to limit their negative behavior and thoughts (e.g., obsessive thoughts like spending almost all of their time with the child, etc.) and focus on other areas of their life such as being a couple, hobbies, friends, or work. However, the family must be able to opt for this type of intervention when the child's disability is diagnosed. At times, they may rely on support groups that assist families in satisfying their needs and help them rationally understand the events that have taken place (Collins et al. 2017).

Currently, the "family-focused" model focuses on providing the family tools for improving quality of life and empowering them to cope with the disability (Benito and Carpio 2017), by teaching them coping strategies, social skills, decision making, etc. For a family intervention to be successful, it is necessary for the parents, family, and professionals to collaborate. Given that parents tend to act as therapists to their children, it is necessary to involve them in the educational process and at the therapeutic sessions. This allows them to imbibe the behavioral procedures and put them

into practice, thereby effectively contributing to their children's education (Guevara and González, 2012).

Lai et al., (2015) pointed out the importance of coping needs of parents of children with ASD. Estes et al., (2015) concluded that parents' abilities to manage and reduce behavior problems are a critical target for interventions for young children with ASD to improve child functions and decrease parenting-related stress. So, parents' training interventions can act such as therapists, shaping behavior to reduce negative behaviors in daily life, also have a secondary target of improving parental feelings and decreasing parental stress (Johnston and Huang, 2018).

The most important role of the nurse in autism recognition and diagnosis is education. The nurse must be able to familiarize the combination of symptoms associated with autism to the parents because they must be increased their knowledge, understanding, and support of the parents and children and facilitating development and learning, promoting socialization, and reducing maladaptive behaviors. The nurse is the coordinator of therapies and interventions that meet the specific needs of individual children (Symon, 2011).

The number of children diagnosed with autism has dramatically increased in the past few years and it became the most commonly diagnosed childhood brain disorder (Centers for Disease Control and Prevention, 2014). So this study was aimed to evaluate the impact of parent training regarding coping strategies on reducing stress among mothers of children with an autism spectrum disorder.

### **Significance of the study**

The prevalence rate of autism in Egypt is one every 870 Egyptian children has autism (Chaste and Leboyer, 2012). On April 26, 2018, the Center for Disease Control and Prevention (CDC) released data determining the prevalence of autism spectrum disorder (ASD) had increased by 15% compared to their previous findings from 2014 (Center for Disease Control and Prevention, 2018). This means that a considerable number of mothers are involved in caring for children with autism.

Children with ASD need special attention and care borne by mothers. The inability of the mothers to successfully play this role may frustrate them and deprive the children of developing better skills. Parent training is an important component of autism intervention, as it can provide positive outcomes for parents and, their children. Approximately two-thirds of children with ASD are unable to live independently, and only 1% can achieve any degree of personal autonomy as adults, which implies a high workload and ongoing concern for the caregiver. These factors may affect the way the parents deal with the child and possibly create a rift in the relationship between the family members (Bauman, 2017).

There is an urgent need for intervention and training programs for families or those in similar stressful situations who are unable to suitably cope. By gaining control over the stressful factors and determining suitable coping strategies, the emotional state of these families can be improved (Robles and Romero 2011). The parents who have children with ASD tend to experience higher stress levels due to the special demands of childcare and a disabled child requires increased daily care and attention, leading to increased stress levels (Raphael et al. 2010).

#### **Aim of the study:**

This study aimed to evaluate the effect of parent training regarding coping strategies on reducing stress among parent of children with an autism spectrum disorder.

#### **Research Hypothesis:**

Parents of children with ASD who will have training regarding coping strategies will have low-stress levels.

#### **Materials and Method**

##### **Research Design:**

A quasi-experimental research design was used. It was used to establish a cause-and-effect relationship between an independent and dependent variable. It does not rely on random assignment. Instead, subjects are assigned to groups based on non-random criteria. It is a useful tool in situations where true experiments

cannot be used for ethical or practical reasons (Lauren, 2020).

##### **Setting:**

The study was conducted at the Child Psychiatry Out-patient Clinic affiliated to Sohag University Hospital, Egypt, this setting was selected due to the high prevalence of children with ASD on the selected setting and also it serves the biggest region of population from both rural and urban areas.

##### **Subjects:**

A purposive sample of forty mothers and their children with ASD were included in the study from the total number 225, who attended to previously mentioned setting with criteria as parent over the age of 18 years old, who live in the same house with the child, and willingness to participate in the study. The children had the following criteria: Age ranged from 4 -12 years, both sexes, and free from other chronic physical illnesses.

##### **Tools of data collection:**

**The tool I: A structured interviewing questionnaire sheet:** It was developed by the researcher to collect data, which included two parts,

**Part I:** Demographic characteristics of the mothers: Age, educational level, occupation, and residence, family history of autism, and consanguinity

**Part 2:** Demographic characteristic of the children: Age, gender, birth order, and educational level, child's medical history which includes: the age when autism discovered duration, degree of disability, and type of management.

**Tool II: Parenting Stress Index: Short Form (PSI/SF): (Abidin, 1992):** It consisted of the following three subscales. Paternal Distress: evaluates the perceived competence in their parental functions, the sense of loss of freedom in their personal lives, social support, and the presence of depression. Parents-Child Dysfunctional Interaction: includes questions related to the parents' expectations and experiences regarding interaction with their children. Difficult

Child evaluates the parental perception of their child's temperament and behavior. The questionnaire is self-administered, with 36 questions answered on a 5-point Likert type scale where (5) is totally agree, 4 is agree, 3 is uncertain, 2 is disagree to (1) totally disagree. The sum of all of the items indicates the total degree of parental stress (not including the stress caused by other situations).

#### **Scoring system:**

Percentile scores that fall between 15 and 80 are considered typical. High stress scores range from 81 to 84 (for P-CDI) and 89 (all other subscales). Clinically significant levels of stress that need additional follow up are above 85 (for P-CDI) and above 90 (for all other subscales) (Cabanillas et al., 2006). Finally, the internal consistency of this questionnaire in the Spanish sample was 0.90 for stress derived from the care of the child, 0.87 for personal discontent, and 0.91 for the total scale (Díaz et al., 2011).

#### **Tool III: Coping Strategies Inventory:**

The original version was developed by Tobin et al. (1989) and its results support the problem and emotion-directed coping constructs proposed by Folkman et al. (1986). The coping strategies that positively influence an individual's adaptation to different situations (problem-solving, expressing emotions, social support, and cognitive restructuring) score on a high range (13.3 to 20 points) while the scales with a negative influence (self-criticism, wishful thinking, problem avoidance, and social withdrawal) score on a low range (0–6.6 points).

#### **Content validity and reliability:**

The study tools had been tested for content validity by five experts in the field of pediatric nursing, psychiatry, and community health nursing, and modifications were carried out accordingly. Reliability was assessed through Cronbach's alpha reliability test  $\alpha=92\%$  which revealed that each of the tools consisted of relatively homogenous items as indicated by the moderate to the high reliability of each tool.

#### **Ethical and legal considerations:**

Official permission was obtained from Sohag University Hospital administrators and the manager of the Pediatric Child Psychiatry Outpatient Clinic at Sohag University Hospital. The agreement for participation in the study was taken from subjects after the purpose of the study was explained to them. Before data collection, the mothers and their autistic children were informed about the aim and the nature of the study which didn't cause any harm or pain. Also, they were assured that the information would remain confidential and used for purpose of research only. The participants were informed by the researcher that participating in the study is voluntary; they have the right to withdraw from the study at any time.

#### **Pilot study:**

A pilot study was conducted on 10% of the total sample (four) mothers and their children with ASD to test the clarity, and applicability of the tools, the required modification was done. A total of 4 participants were recruited for the pilot study and excluded from the total sample.

#### **Procedure:**

Actual fieldwork was carried out in a period of six months from June to December 2019. The following detailed included description of the steps involved in the development, implementation, and evaluation of the parent training;

#### **Preparatory phase:**

The educational program was designed in the Arabic language after reviewing the related past and current Arabic and English literature covering various aspects of the problem. The training program was designed by the researcher after a review of the literature to meet mothers' knowledge and practice deficits. The content was prepared according to the mothers' level of understanding. The necessary modifications were carried out by the researchers and the final form of the training program was started after developing the study.

### The implementation phase:

The total number of the sample 40 mothers and their children with ASD, The parent training program involved a small group of 10 mothers in each group; they were divided into 6 groups. The training program was introduced to each group separately 2 sessions /week, the total number of the session was 10 sessions, and each session was presented for one hour regarding coping strategies. Sessions 1–7 were held every week for a total duration of 3 months. In the first session; a pre-test was done and the objective of the training program was explained to the mothers. The teaching strategy includes lectures, discussion, role-playing, data show, video, actual situation, and demonstration. Also, handouts of the training program were given to the mothers.

The first half of each session was a lecture on behavior therapy that led children to behave in a socially appropriate manner. In the latter half of each session, the mothers were divided into two groups of two to three mothers in each group, individual consultation and a group workshop practicing real-time dealing. The contents and points of intervention in the seven sessions are included: Session 1, Orientation; Session 2, Observation and record of the behavior; Session 3, Structured teaching; Session 4, Reinforcement; Session 5, Help when your child cannot do; Session 6, How to decrease problematic behaviors; Session 7, Consideration of individual issues and summary.

1. Orientation: This session provided an introduction to ASD and behavior therapy.
2. Observation and record of the behavior: This session involved teaching one how to observe, record, and analyze behavior based on antecedent, behavior, and consequences.
3. Structured teaching: This session was about structured teaching via the treatment and education of autistic and communication-related handicapped children method involving physical structure, scheduling, work system, visual structure, and task organization.
4. Reinforcement: In this session, mothers were taught about positive reinforcement and the judicious use of reinforcements or a token economy system (reward) to increase appropriate behaviors. Mothers were also taught to focus on a target behavior and to immediately reinforce action with an explanation and praise or a smile. Also, they were taught about the effective use or timing of reinforcements.
5. Help when your child cannot do: This session taught about how the child should be aided when he or she could not adopt the target behavior. First, mothers were advised to reassess whether the behavior was appropriate for their children's ability. Then, the behavior was divided into small steps, with careful observation of which was the difficult step for the child. Finally, mothers were taught about prompting and fading.
6. How to decrease problematic behaviors: This session was about the extinction procedure planned ignoring, and time-out based on applied behavior analysis methods.
7. Consideration of individual issues and summary.

### Evaluation phase:

Evaluation of the effect of the parent training regarding coping strategies to reduce stress was done immediately after and three months after the training program implementation by reassessment using the same questionnaires (post-test).

### Statistical Analysis:

Data were analyzed using SPSS software statistical computer package version 19. For quantitative variables, mean and standard deviation were expressed. The number and percentage of distribution were calculated. Fisher exact test (p) was used to compare observations before and after training application. Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance.

### Results:

**Table (1):** clarified that more than two-thirds of the studied mothers (66%) were in the age group of 18 to less than 28 years, 45% had a university education, 60% were not working

and most of them (75%) were resident in urban areas. There was consanguinity between (30%), and 80% of them have a negative family history of autism.

**Table (2):** showed that the age of the autistic children ranged from 4-12 years, with a mean of  $6.27 \pm 2.47$  years. More than half of them (54%) were in the age group of 4 to less than 6 years, and three fourth of them (74%) were males, 40% of them were the first in birth order, and 54% of them were in nursery school. The table showed that when autism was discovered, the age of studied children was 2-5 in 70% of them, 60% of them have the disease from less than one year and 54% of them had a moderate degree of autism. Regarding the type of management (95%) of studied children received speech therapy, 47% of them received a behavioral modification, 30% of them received skills improvement, and 22% of them received all of the above types of management.

**Table (3):** showed significant differences in all variables between the pre-test and post-test points, a significant improvement was seen after the intervention. The PSI-SF scores were

significantly different at pre-test and post-test as well as the follow-up, in terms of parental distress, parent-child dysfunctional interaction, difficult child, and the overall score.

**Table (4):** showed low means in the problem-solving sub-scale of the CSI scale, and therefore lower coping capacity before the intervention, which improved after the parent training program and was higher at the follow-up as well. Also, mothers had higher means of the post-test and follow-up scores of expressing emotions, social support, and cognitive restructuring sub-scales. Low scores of the CSI emotion sub-scales indicated better coping. They had lower mean scores in the self-criticism, problem avoidance, wishful thinking, and social withdrawal sub-scales at the post-test and follow-up than pre-test.

**Table (5):** The table illustrated that there was a significant correlation between the Parenting Stress Index and Coping Strategies Inventory of the studied mothers as pre/ immediate post and after three months after the training program implementation ( $p < 0.05$ ).

**Table (1):** Frequency and percentage distribution of the studied mothers According to their demographic characteristics (n=40)

Demographic characteristics	No	%
<b>Mother age:</b>		
• 18->28	26	66.0
• 28-38	8	20.0
• >38	6	14.0
<b>Mean± SD 27±8.09</b>		
<b>Educational level</b>		
• Illiterate	5	13.0
• Preparatory	7	18.0
• Secondary	10	24.0
• University	18	45.0
<b>Occupation</b>		
• Working	16	40.0
• Housewife	24	60.0
<b>Resident area</b>		
• Rural	10	25.0
• Urban	30	75.0
<b>Consanguinity</b>		
• Yes	12	30.0
• No	28	70.0
<b>Family history of Autism</b>		
• Positive	8	20.0
• Negative	32	80.0

**Table (2):** Frequency and percentage distribution of the studied children according to their demographic characteristics (n=40)

Demographic characteristics	No	%
<b>Age</b>		
• 4->6	22	54.0
• 6-> 10	14	36.0
• 10 -12	4	10.0
<b>Mean± SD 6.27±2.47</b>		
<b>Gender</b>		
• Male	30	75.0
• Female	10	25.0
<b>Birth order</b>		
• First	16	40.0
• Second	13	32.0
• Third	7	18.0
• Fourth	4	10.0
<b>Educational class</b>		
• Nursery	22	54.0
• School-age	18	46.0
<b>Age ( in years) when autism discovered</b>		
• 1	8	20.0
• 2->5	28	70.0
• >5	4	10.0
<b>Duration of disease ( in years)</b>		
• <1	24	60.0
• 1-5	13	32.0
• >5	3	8.0
<b>Degree of autism</b>		
• Mild	14	34.0
• Moderate	21	54.0
• Sever	5	12.0
<b>Type of management</b>		
• Speech therapy	38	95.0
• Behavioral modification	19	47.0
• Skills improvement	12	30.0
• all of the above	9	22.0

**Table 3:** Mean differences of the studied mothers regarding the Parenting Stress Index as pre/ immediate post and after three months after the training program implementation

Parenting Stress Index items (PSI)	Pre-program	Immediate-post program	After three months of program implementation	X 2	P-value
PSI paternal distress	35.24± 11.40	28.39 ± 6.12	29.17 ± 6.84	0.558	0.000
PSI parent-child dysfunctional interaction	35.14 ±11.64	31.05 ±7.26	30.67± 6.62	0.734	0.005
PSI difficult child	35.12± 12.80	29.08± 11.30	28.75 ±11.40	0.560	0.000
PSI parenting stress	104.50± 25.38	89.40± 21.88	91.58 ±21.67	0.577	0.000

**Table 4:** Mean differences of the studied mothers regarding Coping Strategies Inventory as pre/ immediate post and after three months after the training program implementation

Coping Strategies Inventory items (CSI)	Pre-program	Immediate-post program	After three months of program implementation	X 2	P-value
CSI-problem solving	12.55 ± 5.23	15.27 ± 4.20	15.36 ± 3.52	0.573	0.000
CSI-self-criticism	5.09 ± 4.83	2.64 ± 2.42	2.82 ± 2.36	0.596	0.000
CSI-express emotions	6.82 ± 3.94	10.82 ± 3.02	10.64 ± 3.95	0.091	0.000
CSI-wishful thinking	13.36 ± 4.27	8.91 ± 5.04	8.64 ± 5.05	0.257	0.000
CSI-social support	9.45 ± 5.36	13.45 ± 3.44	14.36 ± 2.84	0.386	0.000
CSI-cognitive restructuring	10.09 ± 3.58	13.64 ± 2.53	14.36 ± 3.00	0.506	0.000
CSI-problem avoidance	8.82 ± 2.02	6.00 ± 3.57	6.45 ± 4.59	0.092	0.000
CSI-social withdrawal	5.09 ± 3.53	3.18 ± 2.99	2.91 ± 2.72	0.438	0.000
CSI-strategies focused problem	38.90 ± 12.84	53.18 ± 8.63	54.72 ± 9.72	0.176	0.000
CSI-strategies focused emotion	32.36 ± 9.28	32.36 ± 9.28	20.81 ± 9.05	0.126	0.000

**Table 5:** Correlation between Parenting Stress Index and Coping Strategies Inventory of the studied mothers as pre/ immediate post and after three months after the training program implementation

Parenting Stress Index items (PSI)	Coping Strategies Inventory					
	Pre-program		Immediate-post program		After three months of program implementation	
	R	P	R	P	R	P
PSI paternal distress	0.84	<0.05*	0.53	<0.05*	0.67	<0.05*
PSI parents-child dysfunctional interaction	0.86	<0.05*	0.84	<0.05*	0.83	<0.05*
PSI difficult child	0.96	<0.05*	0.93	<0.05*	0.91	<0.05*
PSI parenting stress	0.97	<0.05*	0.92	<0.05*	0.90	<0.05*

## Discussion:

Our study results indicated that the PT program was effective in improving mothers' coping strategies and reducing their stress levels. After PT program implementation, the escape/avoidance coping strategies decreased and the positive appraisal coping increased. Also, the parent stress index among the mothers decreased.

The current study results showed that more than two-thirds of the studied mothers were in the age group of 18 to less than 28 years, near to one half of them had a university education, and most of them were resident in urban areas. This result agrees with the study by **Soliman et al., (2016)** who mentioned that nearly two-thirds of mothers' age ranged from 25- < 38 years, and the majority of them were highly educated and living in urban areas. Also,

these findings are following those of **Attiya (2006)** who found the same. Nearly two-thirds were not working, this finding is supported by the study of **Mostafa (2012)** also stated that housewives reported that their children displayed more autistic symptoms and externalizing problems than the working mothers. And **Brandon, (2007)** reported that working mothers raising a child with a disability have less time for work and other activities as socializing and leisure than mothers raising a typical child. This may be because children with ASD need special care so that mothers spent more time with their disabled children to manage their needs and not prefer to work.

The present study revealed that three-fourths of children with autism were males.

This result is supported by, **Hassan, 2008**, who found that majority of children were boys.

The present study result indicated that in most children, autism was discovered at age 2<5. This finding is following **Soliman et al., 2016** who reported the same and the study also is in the same line with **Wong, 2007** who mentioned that autism typically appears in the first 3 years of life. This may be due to The failure to achieve this milestone is relevant to autism, which constitutes the defining characteristic of autism by the age of three, that play important role in social self-regulation milestone and building on first-year milestones and early language development, and the ability of children to regulate their behavior and emotions in response to social cues( **National Research Council, 2019**) This also may delaying in the diagnosis of autism which following **Elsheikh, 2016** who concluded that delayed psychiatric consultations among Egyptians may be attributed to lack of access to services (either because of cost or availability) and lack of awareness among the general Egyptian population about autistic children.

The current result illustrates that highly statistically significant differences were found in all variables between the pre and post-test points; a significant improvement was seen after the intervention. The PSI-SF scores were significantly different at pre and post-test as well as the follow-up, in terms related to parental distress, parent-child dysfunctional interaction, difficult child, and the overall score. This result is supported by **Remedios et al., (2019)** who reported significant differences regarding all the variables between the pre and post-test and significant improvement was seen among the studied mothers regarding parent stress index.

The current result is in the same line with **Walsh et al. (2013)** who mentioned that a stress intervention program was more effective than no treatment for parents of disabled children, resulting in significant improvements in their emotional states, stress levels, and adjustments, and in favoring some coping strategies

The current study results showed that low means in the problem-solving sub-scale of the CSI scale, and therefore lower coping capacity before the intervention, which improved after the parent training program and was higher at the follow-up as well. Also, mothers had higher means of the post-test and follow-up scores of expressing emotions, social support, and cognitive restructuring sub-scales. Low scores of the CSI emotion sub-scales indicated better coping. They had lower mean scores in the self-criticism, problem avoidance, wishful thinking, and social withdrawal sub-scales at the post-test and follow-up than pre-test. This finding is similar to **Said, (2012)** who found that the level of mother's knowledge of children with ASD improved immediately after the program implementation. This result is supported by **Remedios et al., (2019)** who found low means in the problem-solving sub-scale of the CSI scale, and therefore lower coping capacity before the intervention, which improved after the program and was higher at the follow-up as well.

The finding of this study indicated that there was a significant correlation between the Parenting Stress Index and Coping Strategies Inventory of the studied mothers as pre/ immediate post and after three months after the training program implementation ( $p<0.05$ ) and an improvement found after PT. This is reflected in the effectiveness of PT intervention in changing stress levels among mothers of children with ASD and coping strategies. Also indicated the importance of training program which improving the stress of the majority of the mothers regarding their autistic children cares about the training program implementation. Because the PT process, help mothers to learn, understand, and raise their children to care for ASD, and it may support the mother's psychological acceptance and improve the mother-child relationship. Also, it is meaning that parents desire to have information about their child and the diagnosis and ask for strategies to improve their child's performance or manage difficult behaviors.

The results of this study are supported by **Iida et al., (2018)** who found a change in SCI and positively correlated with the change of

STAI "trait anxiety," and are reporting that the decrease in stress-coping style "escape-avoidance" correlates with the decrease in trait anxiety.

**Robles and Romero (2011)** conducted a meta-analysis of studies published over 20 years to analyze the efficiency of these parental training programs and found they promoted positive changes in the child's behavior, improved daily interactions between parents and children, parental behavior, and attitudes, helped improve communication and problem resolution, and reduced parental stress. The family intervention may also be useful in discouraging parents from perceiving the situation as overwhelming (**Guevara and González 2012**). To ensure this, the intervention should focus on teaching how to control situations by reducing negative behaviors and thoughts and improving other aspects of life such as couple relationships, friends, hobbies, etc.

Educational support as formal or no formal for mothers having children with ASD and linking to positive coping strategies help in reducing parenting stress (**Mcintyre and Brown 2018**), also help in demonstrating the greatest potential for coordinating and streamlining care, decreasing logistical barriers to help-seeking, and improving child and family outcomes (**Gopalan et al. 2018**).

### **Conclusions**

Parent training program was effective for mothers of children with ASD in improving and reducing their stress levels about autism. Parent training program significantly influenced overall coping capacity in which mothers showed lower mean scores in their coping strategies which improved after the parent training program and were higher at the follow-up. there was a significant correlation between the Parenting Stress Index and Coping Strategies Inventory of the studied mothers as pre/ immediate post and after three months after the training program implementation ( $p < 0.05$ ).

### **Recommendations:**

1. Pediatric nurses should receive adequate and continuous training courses in children's care (physically, emotionally, and socially) to improve their skills in health education for mothers toward their children's care and adequate follow up and counseling for the parents, along with the children with ASD.
2. Children with autism should be enrolled in an early intervention program as soon as they are diagnosed with continuous health education and counseling programs are necessary to improve parenting approaches and coping strategies
3. Emphasize the role of mental health providers for adequate care delivery for the parents, along with the children with ASD.
4. Mass media should play an important role to determine the needed information about child health care and increase public awareness about autism and engage parents of children with a disability in early intervention may have a spillover effect on the child and help them understand how the intervention matches their current needs, clarifying expectations regarding the content, process, and expected benefits or solving practical obstacles to participation.
5. Establish localized formal centers and special schools which provide treatment services and education for autistic children and their families and provide social support for families with disabled children who experiences multiple emotions from the moment of diagnosis; therefore, they require consistently daily
6. Family orientation programs improve their response to stress factors as well as parental perception and care of the disabled child.
7. Encourage several collective interventions are being implemented for people with disabilities, such as the act of social integration of disabled people and the act of promotion of personal autonomy and care of dependent people, in addition to developing school integration and services for treatment/ rehabilitation
8. Caregivers as parents, communities, and society should be equipped to accommodate the needs of families with disabled children.

9. Establish strategies that will be effective in facing the demands of raising a disabled child, and decreasing parents stress, e.g., participation in social life.
10. Further research is required on the impact of early interventions on parental and child stress to develop new intervention protocols, useful for these children and their families, performing research on larger samples of families with greater demographic and socioeconomic diversity, which could better represent the entire spectrum of society, and continue to assess variables that may affect parenting stress as family relationships and family functioning may also be imperative, such as family structure, family conflict, and other family stressors.

### **Limitations of the study:**

The current study had one limitation that mothers of the children only were accompanied with the child at the time of the study and they responded to the parent stress scale tool as one of the parents in the previously mentioned setting of this study.

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