Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 11, Issue 1, pp: (97-110), Month: January - April 2024, Available at: www.noveltyjournals.com

An Educational Program for Mothers of Autistic Children

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DOI: https://doi.org/10.5281/zenodo.10565899

Published Date: 25-January-2024

Abstract: **Background: Autism spectrum disorder is neurodevelopmental impairments in communication, social interaction and attainment, improvement of mother's awareness led to best health care to Autistic children. Aim: Evaluate an educational program for mothers of Autistic children. Research design: A quasi-experimental research design was used. Sample: Purposive sample include 197 mothers of autistic children. Setting: In child psychiatry out-patient clinic at Tanta university hospital, El-Gharbia governorate, Egypt. Tools: One tool included 5 parts: 1st: Interview questionnaire sheet, 2nd: Past and present history, 3rd: Mothers' knowledge, 4th: Mothers' reported practice. 5th: Attitude of the mothers. Results: The study result revealed that, 5.7 % of studied sample had good total knowledge pre apply education program become 77.2 %. While 92.1 % of studied sample had unsatisfactory with total practice pre apply educational program and become 96.0 % had satisfactory post apply educational program. 86.8 % of studied sample had negative with total attitude pre apply education program and become 79.9 % had positive post apply education program. Conclusion: The mother's total knowledge, total reported practices & total attitude improved after apply educational program. Recommendations: Apply further research in large sample and other setting for generalization.**

Keywords: **Autistic Children, Educational Program, and Mothers.**

1. INTRODUCTION

Autism is a neurodevelopmental impairment in communication, social interaction, unusual ways of perceiving and processing information can seriously hinder daily functioning of children with autism spectrum disorders (ASD) and severely impede educational and social attainments. While some children with autism and other developmental disorders have varying degrees of abilities that could potentially lead to independent and productive lives with varying levels of support, others are severely affected, require lifelong care and support ***(Baker et al., 2022).***

Children represent the future, ensuring physical, socio-emotional and language and cognitive development ought to a priority for building societies. The early childhood, which spans the period from birth to 8 years of age, is considered to be the most important developmental phase throughout the lifespan. During these years, child's newly developing brain is highly plastic and responsive to change billions of integrated neural circuits are established through the interaction of genetics, environment and experience ***(Bejarano-Martín et al., 2022).***

The global prevalence of ASD among children was more than 7.6 million disability-adjusted life years and 0.3 % of the global burden of disease. ASD is estimated to affect up to 3 % of children in the United States. It is rapidly growing problem and estimated that in 2020, 1 of 59 children were born with ASD in the USA. From Central Asia and Eastern Europe there

57 children diagnosed with ASD had multiple signs of infections, inflammation, immune system disruption, and folate deficiency ***(Conrade & Ho, 2021).***

Mothers may be shocked and dismayed by the diagnosis, and struggle to understand child's diagnosis and find appropriate care options. Mothers of children with ASD face challenges both at home and in the community. Compared to mothers of children without autism, are at heightened risk of financial strain and poor physical and mental health; likely to experience higher divorce rates. In the community, have to pay out of pocket for services or drive long distances to access treatment facilities. Consequently, some might need to relocate family or make career changes to ensure to cover the costs associated with services. Health care professionals need to be aware of such issues and how might impact mother's ability to care for child with ASD ***(Constantino et al., 2023).***

Mothers' knowledge about autistic children increases after a child diagnosed correctly, will be able to focus on child's betterment, demands and teaching strategy of autistic children is unique. Lack of awareness and insufficient knowledge about autism among mothers, causes delayed identification and intervention leading to unsatisfactory outcomes in patients. The level of mothers' information affects the level of their practices. Improving the level of information and practices of mothers improves the level of adaptation to the situation of children, reduces the level of anxiety and improves care provided to children ***(Coutts et al., 2021).***

Mothers' adjustment enhances the accomplishment of other general adaptive tasks, as preserving a satisfactory self-image, keeping the family together, and preparing for an uncertain future, as well as the accomplishment of illness-related tasks, for example dealing with symptoms of the illness, treatment related stressors, and establishing functional relationships with caregivers. Positive experiences in achieving such tasks will turn enforce mothers' emotional balance through so called positive-feedback loops ***(Cox et al., 2021).***

Health education program means plan instructions, guidelines or principles by which mothers and their children learn it to change or behave in a manner conducive for the promotion, maintenance, or restoration of Autistic children health. Health education involves combination of planned learning experiences based on sound theories that provide child, mothers, and communities the opportunity to acquire information and the skills needed to make quality health decisions for care of Autistic children. Today, health systems plan their most important programs based on evidence-based practice to reduce number of autistic children ***(Davies et al., 2022).***

Community health nurses can play a role to get mothers who have children with ASD on way to receiving appropriate health and related services, enhance ability to access health insurance coverage. The plan focusses increased access to health, social services in a cost efficient and highly efficacious manner. Nurses coordinate referrals and assist to facilitate enrollment in clinical trials. Assist mothers to meet the many obstacles that face them and overcoming it to the prompt diagnosis and treatment of health problems ***(Dyches et al., 2022).***

Significance of the study

Autism spectrum disorder (ASD) comprises a set of chronic neurodevelopmental disorders with a wide range of symptoms and levels of severity. Globally, the prevalence of ASD has been estimated to be 1 % to 1.5 %, with a cumulative incidence up to 2.8 % in recent birth cohorts in Denmark. Although, the onset of ASD is generally in childhood, it may be recognized and diagnosed later in life. The number of children with a diagnosis of ASD has increased during recent decades, and professionals have debated whether this increase is due to changes in diagnostic criteria, decrease awareness, or increased prevalence of etiologic factors ***(Kõlves et al., 2021).***

The newest estimate represents a 15% increase in prevalence nationally to 1 in 59 children. A national Autistic Society survey reported 70 % of them as unable to live independently, 49 % living with their mothers and 32 % living in a residential facility. Approximately 52 million of children have been reported to be on the spectrum globally ***(Xu et al., 2018).***

The estimated minimum prevalence for ASD in Sweden was 3.66 % for children aged 2–5 years. Multiple risk factors and extensive needs for the children and their families were observed. Possible risk factors for ASD, needs for the children and their families are described, as well as implications for health care. The high prevalence of ASD and the plethora of needs in immigrant communities pose challenges for health care. A coordinated health care system is necessary to meet the Child needs ***(linnsand et al., 2021).***

Community health nurses improve the mothers' rehabilitation skills of autistic children through training and dispatch of coordinators. In addition, support services provided by community health nurses for early rehabilitation for children with ASD are significantly influenced by the level of mothers' acceptance and local characteristics. Provision of support customized to local characteristics is important in terms of establishing community support systems. Applying health education program to mothers will improve their knowledge, practice and attitude toward ASD ***(Neyoshi ,2018).***

Aim of the Study

This study aims to evaluate an educational program for mothers of autistic children through the following objectives:

1-Assessing mother's knowledge, reported practice and attitude about their autistic children.

2-Designing the educational program in the light of mothers' actual need.

3-Implementing and evaluating an education program about autistic child.

Research Hypothesis

H1: An educational program will improve the knowledge, practices, and attitude of mothers about their autistic children.

2. SUBJECTS & METHODS

Research design:

A quasi-experimental research design was conducted to achieve the study.

Setting:

This study conducted at child psychiatry out-patient clinic in psychiatry center at Tanta University Hospital, El-Gharbia governorate- Egypt.

Sample:

Purposive sample was used in this study.

Sample size:

It was 197 mothers of autistic children.

Inclusion criteria:

- The mothers of autistic children who newly diagnosed child, accepted to participate in the study.

Exclusion criteria:

- Autistic children who suffering from any chronic disease.

Tools for data collection:

Data was collected using the one tool as the following:

Tool (I): Interview questionnaire

A Structure interview questionnaire developed by researchers after reviewing the national and international related literature and approved by supervision. It was written in Arabic language and consists of five parts as the following:

Part (I): Sociodemographic characteristics of the studied samples: It divided into two sub items:

A- Socio-demographic characteristics of mothers consisted of 11 items such as: mothers age, mothers' education levels, mothers' Job, fathers 'age, fathers' education levels, fathers' Job, family monthly income, ... etc.

B- Demographic data of child consisted of 4 items such as: age, gender, child rank, classroom.

Part (II): History of the mothers about autistic child:

A-History of the mothers consisted of 5 items such as: mother exposed to radiation during pregnancy, mother exposed to pollution during pregnancy, …etc.

B-History of the autistic children consisted of 17 items such as: child age diagnosed with autism, duration of autism, degree of autism, mother's problems during pregnancy, problems during childbirth, type of birth, …etc.

Part (III): Knowledge of mothers about the autism included 20 closed end questions as (pre – post format): meaning of autism, causes of autism, child age for autism, types of autism, degree of autism, symptoms of autism, complication of autism to child, complication of autism to family, …. etc.

Scoring system, it included 20 questions; the answer score 2 point for correct answer and complete, 1 point for correct answer and not complete and zero point to wrong or no answer. The total scores for mother's equal 40 points knowledge regarding autism divided into three levels as the following:

- Poor knowledge < 50 % (< 20 score)
- Average knowledge 50 -70 % (20:28 score)
- Good knowledge > 70% (> 28 score).

Part (IV): The reported practice of the mothers about the autism (pre – post format):

A-The reported practice of the mothers regarding general health promotion of the child included 12 closed end questions as: motor skills improvement, personal care skills (basic steps to be followed when teaching personal care skills, hand-washing skills, dental cleaning skills, develop the skill of bathing), eating skills (develop child's eating skill, child's drinking skills), …etc.

B- The reported practice of the mother's efficient care with autistic children included 5 closed end questions as:

skills to overcome sleep problems (preparation of the room where the child sleeps, maintain routine sleep time, help the child to sleep), …etc.

Scoring system, it included 17 questions; 2 points for done, 1 point for sometimes answer and zero point to not done answer. The total score of mothers 34 points reported practices about autism classified into two levels:

- **Satisfactory practices ≥ 60 % (≥ 20 point).**
- **Unsatisfactory practices < 60 % (< 20 point).**

Part (V): The mothers' attitude about autism (Shams Eldeen, 2016, after doing modification by the researchers), it consists of 7 items (pre – post format):

1- Nature of the disease - the problems of the child included 9 closed end questions as: autism is a mental disability and the patient must be isolated, I think autism can be controlled, I think that the language and speech in the child autism can be improved by training, …etc.

2- Family problems included 8 closed end questions as: I think that the presence of an autistic child affects the social status of the family, I think that the child autism does not represent a problem for the family, …. etc.

3- Feelings of frustration and psychological pressure included 10 closed end questions as: I feel that I am the cause of my child's disability, I feel that others are looking at the inferior look because of my child, …etc.

4- Mothers' ability to self-management included 10 closed end questions as: Participate in the treatment of the child with specialists, Ability to attract the attention of the child, ability to follow the daily routine with the child, …etc.

5- Responding to the child included 6 closed end questions as: attention and guidance of child behavior, respond to the needs of the child autistic, take care of the incubation and psychological support for the child, …etc.

6- Communicate with the child included 3 closed end questions as: can deal with the problems of children, ability to give all child care requirements, …. etc.

7- The mother accepts to the child included 5 closed end questions as: ability to care for children due to seizures, childcare requirements are many and cause fatigue and fatigue, ability to make the right decisions to treat the child, …etc.

Scoring system: The total score of mothers 51 questions mothers' attitude equal 102 points about autism classified into two levels:

The answers scored as 2 points for agree answer, 1 point for not specified answer and zero point to disagree answer. The total score of mothers for attitude about autism classified into two levels:

- **Negative attitude ≥ 60 % (≥ 61 point).**
- **Positive attitude < 60 % (< 61 point).**

Tool validity and Reliability:

A) Content Validity:

The validity of the tool was tested through five experts from Faculty of Nursing - Helwan University (3experts in the community health nursing and one expert psychiatric health nursing and one expert in pediatric nursing) to review the relevance of the tools for clarity, relevance, comprehensiveness, understanding and applicability.

***B) Tool Reliability*:**

Reliability was applied for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions two times. Answers from the repeated testing were compared (Test- re- test reliability was 0.82 for knowledge), Cronbach's Alpha reliability was 0.890 for practice and reliability was 0.858 for practice.

Ethical consideration:

An official permission to conduct the proposed study obtained from the Scientific Research Ethics Committee. Participation in the study is voluntary and subjects will be given complete full information about the study and their role before signing the informed consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it was not be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs respected.

II) Operational item:

1) Preparatory phase:

It included reviewing of related literature and theoretical knowledge of various aspect of the study using books, articles, internet and magazines to develop tools for data collection.

2) Pilot study:

A pilot study conducted on (10%) of the mothers equal 20 mothers under study to assess the feasibility, practicability, clarity and objectivity of the tools. Based on the results, no modification was done. Mothers in the pilot study were included in the main study sample because no modifications were done.

Field work:

After attaining the approval to conduct the study, sample will be collected during the day of the psychiatry center. After establishing a trustful relation, every mother interviewed Childly by the researchers to explain the study purpose then study tools completed by mothers. Teaching method used: group discussion, brainstorming, demonstration and re-demonstration, also media picture and handout. Booklet and cylinder disk prepared by the researchers.

The study implemented through three phases: preparatory, implementation and evaluation item.

Health education program conducted in following phases:

Assessment phase: by using pre-testing questionnaire to assess the mother's knowledge, practice and attitude about autism. The researchers first introduced herself and explained the purpose of the study briefly to the mother. Every mother was met Childly and written consent for participation was obtained. Mothers were assured that the obtained information confidentially, and used only for the purpose of the study.

Planning phase: Based on the result obtained from the assessment phase, the researchers designed the health education program sessions contents according to the mother's needs. Detected needs, requirements and were clarified and discussed in the form of booklet. Contents of the booklet were selected on the base of identified needs. The booklet consisted of knowledge about autism such as meaning of autism, causes of autism, child age for autism, types of autism, symptoms of autism, complication of autism to child, complication of autism to family, diagnoses of autism, time required to treatment

of autism, importance of early intervention to autistic child treatment, treatment methods to autistic children, medication that cures the symptoms of autistic children, side effects caused by drugs that treat symptoms associated with autism, play a role in the treatment of the child, importance of play therapy for the child, right game criteria for the child, importance of massage as a treatment for children, taking knowledge about autism and management and source of knowledge about autism. Teaching methods used as lecture, open discussion, brain storming demonstration and re-demonstrations were frequently applied during sessions. Media such as PowerPoint, data show, pictures, video and booklet prepared by researchers.

Preparatory phase: The researchers review the current advanced national and international related literature, then design and prepare tools of data collections and a recreation program.

Health education program include meaning, causes, forms, symptoms, diagnosis, treatment, preventive methods of autistic children, knowledge, practice, attitude of mothers toward their autistic children.

Implementation phase:

- Actual field work carried out in the period from April 2022 up December 2022 years, two days per week (Wednesday and Tuesday) from 9 am -1pm and interview mothers in psychiatry outpatient clinics in psychiatry center at Tanta university hospital, El-Gharbia governorate.

- Health education program was improved mothers' knowledge, reported practice and attitude about autism and aimed explained to all participants. Based on the result of the pre-test questionnaire the researchers utilized 6 sessions each session needs from 30-45 minutes and meeting 23-25 mothers two days per week.

- Post-test done after applies sessions. The study sample equal 197 mothers divided to 8 groups: 6 groups of them contained about 25 mothers and 2 group one contained about 23 mothers and other one contained about 24 mothers.

The researchers attended the previous mentioned study setting for one day per week because the clinic works every Tuesday from 9 am- 2 pm.

The researchers introduced herself to each participant and explain the aim of the study to gain the participants confidence and trust in order to obtain their written consent from mothers then explain the aim of the study to each mother to fulfill the interview questionnaire.

The education program conducted through 4 theoretical sessions and 2 practical sessions. The sample was about 3 mothers per day. The program including meaning, causes, forms, types, effect of autism and how deal with autistic children.

Evaluation phase:

This phase utilized to evaluate the effect of educational program on improving mothers' knowledge reported practice and attitude. It conducted pre-intervention and post intervention after an educational program, utilizing the same format utilized pre intervention.

III) Administrative Item:

After explanation of the study aim and objectives, an official permission was obtained from the Dean of faculty of nursing and the general director of the psychiatry center at Tanta university hospital, El-Gharbia governorate asking for cooperation and permission to conduct the study.

IV) Statistical Item:

Upon completion of data collection, data computed and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. The P value set at 0.05. Descriptive statistics tests as numbers, percentage, mean standard deviation (SD), will be used to describe the results. Appropriate inferential statistics such as "F" test or "t" test used as well.

- Degrees of Significance of the results were:

- Non-significant (NS) if $p > 0.05$.

- Significant (S) if $p < 0.05$.

- Highly significant (HS) if $p < 0.01$.

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3. RESULTS

Table (1): Shows that, the mean age of studied sample was 29.4 ± 8.4 years .Also, 44.67 %of the studied sample had university or more in education level. Moreover 80.72 % of the studied sample were working. Additionally, the mean age of fathers was 32.6 ± 8.7 years, 45.68 % of the fathers had University or more in education level, and 87.82 % of the fathers were working. Also, 55.34 % of the family members less than or equal five persons. Regarding family type 55.84 % were extended family.

Table (2): Shows that, 77.2 % of studied sample had good total knowledge post apply education program. While 21.9 % of studied sample had average total knowledge post apply health education program. While 0.9 % of studied sample had poor total knowledge post applied health education program where P value 0.04 and paired t test =29.54.

Figure (1): Illustrate that, 92.1 % of studied sample had unsatisfactory with total practice pre apply educational program. While 96.0 % of studied sample had satisfactory total practice post apply educational program where P value 0.000 and paired t test =243.9.

Figure (2): Shows that, 86.8 % of studied sample had negative with total attitude pre apply education program. While 79.9 % of studied sample had positive total attitude post apply education program.

Table (3): Shows that, there was positive correlation between studied sample's total knowledge regarding to autism and their total practice. Moreover, there was highly significance improvement in studied sample's total knowledge and total practice.

Table (4): Shows that, there was highly statistically significant relation between studied sample's total knowledge about autism post- educational program with educational level and age. Moreover, there was statistically significant relation between studied sample's total knowledge about autism post- educational program with their age and educational level where p value = 0.005 respectively.

Table (1): Frequency Distribution of the Studied Sample's Socio-demographic Characteristics (N=197).

Item	No.	%
Mothers age		
• Less than 25 years	40	20.30
• 25 - 35 years	128	64.98
• 35 - 45 years	10	5.07
• More than 45 years	19	9.65
Mean ± SD	29.4 ± 8.4 years	
Mothers' education levels		
• Not read and write	10	5.07
• Read and writes	38	19.28
• Basic education	41	20.83
• Secondary education	20	10.15
• University or more	88	44.67
Mothers' Job		
• Housewife	38	19.28
• Working	159	80.72
Fathers 'age		
• Less than 25 years	30	15.25
• 25- 35 years	135	68.52
• 35 - 45 years	10	5.07
• More than 45 years	22	11.16
Mean ± SD	32.6 ± 8.7 years	

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Fathers' education levels		
• Not read and write	9	4.57
• Read and writes	39	19.79
• Basic education	40	20.31
• Secondary education	19	9.64
• University or more	90	45.69
Fathers' Job		
• Working	173	87.82
• Not working	24	12.18
Family monthly income		
• Not enough	158	80.20
• Sufficient for basic needs only	29	14.73
• Sufficient for basic needs and savings	10	5.07
Number of home rooms		
• One room	13	6.59
• Two room	58	29.44
• Three room	114	57.88
• More than three rooms	12	6.09
Number of family members		
• ≥ 4	39	19.79
• ≤ 5	109	55.34
• ≥ 6	49	24.87
Residence		
• Rural	97	49.24
• Urban	100	50.76
Family type		
• Central	87	44.16
• Extended	110	55.84

Table (2): Number and Percentage Distribution of Total Knowledge among Studied Sample's regarding Autism Pre and Post Applying Educational Program (N=197).

Total knowledge scores about autism	pre and post applying program				χ^2	P
	Pre-applying		Post- applying			
	No.	%	No.	%		
Levels of total knowledge:						
Poor	123	62.4	2	0.9	3.36	0.04
Average	64	32.3	43	21.9		
Good	10	5.7	152	77.2		
Mean scores of total knowledge pre applying:						
Range	26					
Mean ± SD	6.38±6.00					
Mean change of scores of total knowledge post applying:						
Range	18					
Mean ± SD	17.84±3.52					
Paired **T test**	29.54					
P	0.000					

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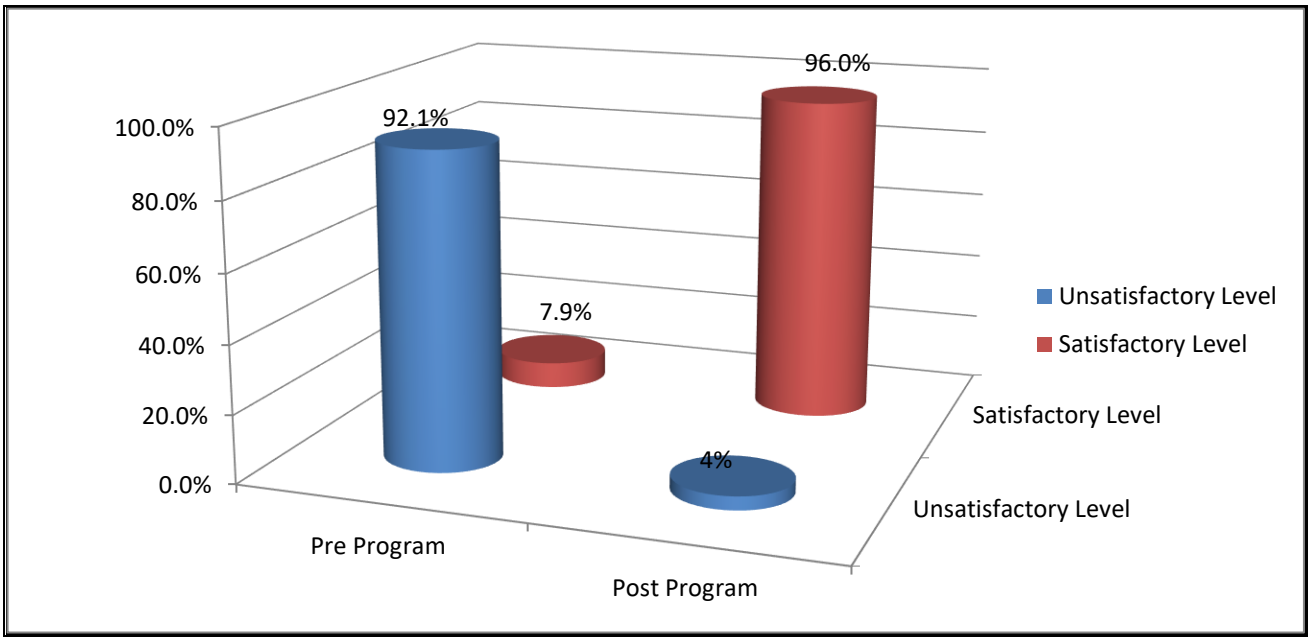

Figure (1): Number and Percentage Distribution of Total reported practices among Studied Sample regarding Child's Skills Pre and Post Applying Educational Program (N=197).

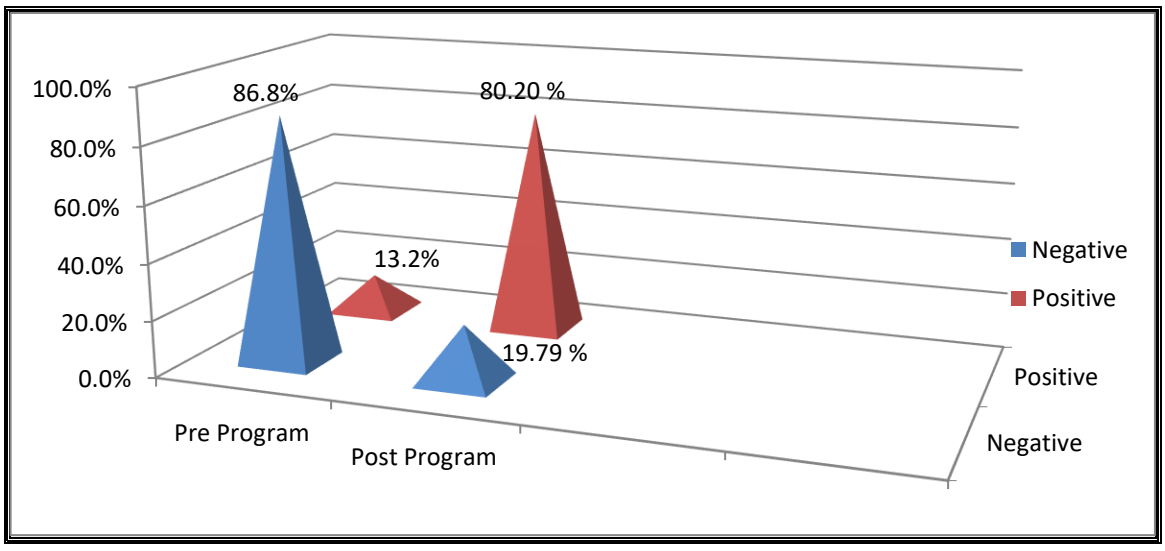

Figure (2): Percentage distribution of Total Attitude among Studied Sample regarding Mother Attitude Toward Autism's Child Pre and Post Applying Educational Program (N=197).

Table (3): Correlation between Total Score Knowledge and Practice of Studied Sample's Pre & Post Education Program (N = 197).

Item	Total practice			
	Pre- program		Post -program	
	R	P value	R	P value
Total Knowledge	**- 0.028**	**0.763**	**0.353**	**0.000****

(*) statistically significant & (**) high statistically significant P≤0.00

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Table (18): Relation between Socio-Demographic Characteristics and Total Knowledge of Studied Sample's Post - Educational Program (N=197).

Items	The studied sample						χ^2	P value
	Post -Educational Program							
	Poor		Average		Good			
	No.	%	No.	%	No.	%		
***Mothers age**								
Less than 25 years	4	10.0	2	5.0	34	85.0	11.842	0.012
25 - 35 years	7	5.46	5	3.90	116	90.62	15.826	0.002
35 - 45 years	2	20.0	0	0.00	8	80.0	14.628	0.001
More than 45 years	3	15.78	0	0.00	16	84.21	19.115	0.007
***Mothers' education levels**								
Not read and write	0	0.00	0	0.00	10	100.0	17.826	0.002
Read and writes	5	13.15	0	0.00	33	86.84	13.842	0.012
Basic education	5	12.19	1	2.43	35	85.36	14.628	0.001
Secondary education	4	20.0	0	0.00	16	80.0	22.622	0.000
University or more	5	5.68	3	3.41	80	90.90	14.115	0.007
*** Mothers' Job**								
Housewife	2	5.26	4	10.52	32	84.21	17.826	0.002
Working	10	6.28	3	1.88	146	91.8	22.622	0.000
***Fathers 'age**								
Less than 25 years	6	20.0	0	0.00	24	80.0	17.826	0.002
25- 35 year	14	10.37	2	1.48	119	88.14	14.628	0.001
35 - 45 years	0	0.00	0	0.00	10	100.0	17.826	0.002
More than 45 years	5	22.72	0	0.00	17	77.27	22.622	0.000
***Fathers' education levels**								
Not read and write	0	0.00	0	0.00	8	100.0	17.826	0.002
Read and writes	5	12.82	0	0.00	34	87.17	17.826	0.002
Basic education	5	12.5	2	5.00	33	82.5	10.826	0.002
Secondary education	3	15.78	0	0.00	16	84.21	14.115	0.007
University or more	0	0.00	0	0.00	90	100.0	27.826	0.002
***Fathers' Job**								
Working	15	8.67	10	5.78	148	85.54	15.826	0.005
Not working	2	8.33	0	0.00	22	91.66	16.826	0.005
Family monthly income								
Not enough	14	8.86	5	3.16	139	87.97	17.826	0.001
Sufficient for basic needs only	5	17.24	0	0.00	24	82.75	18.828	0.002
Sufficient for basic needs and savings	0	0.00	0	0.00	10	100.0	17.826	0.002
Number of home rooms								
One room	0	0.00	0	0.00	13	100.0	17.826	0.002
Two room	12	20.68	3	5.17	43	74.13	18.886	0.001
Three room	25	21.92	12	10.52	77	67.54	18.826	0.005
More than three rooms	0	0.00	0	0.00	12	100.0	27.826	0.001
Number of family members								
≥ 4	5	12.82	0	0.00	34	87.17	17.826	0.002
≤ 5	15	13.76	5	4.58	89	81.65	13.826	0.005
≥ 6	12	24.48	2	4.08	35	71.42	14.844	0.001
Family type								
Central	8	9.19	9	10.34	70	80.45	12.855	0.005
Extended	10	9.09	2	1.81	98	89.09	11.811	0.005

Novelty Journals

ISSN 2394-7330

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4. DISCUSSION

Autism spectrum disorder (ASD) is a developmental disability caused by differences in the brain. Some children with ASD have a known difference, as a genetic condition. Scientists believe there are multiple causes of ASD that act together to change the most common ways children develop. We still have much to learn about these causes and how children impact children with ASD ***(Lord et al., 2022).*** Children with ASD may behave, communicate, interact, and learn in ways that are different from most other children. There is often nothing about how children look that sets them apart from other children. The abilities of children with ASD can vary significantly. Some children with ASD may have advanced conversation skills whereas others may be nonverbal. Some children with ASD need a lot of help in their daily lives; others can work and live with little to no support ***(Hyman et al., 2020).***

The present study finding concerning mothers' age, two third of studied subjects had aged from 25 to 30 years, this finding was in agreement with **Loomes et al., (2022)** who conducted published study at Philippine entitled as "What Is the Male-to-Female Ratio in Autism Spectrum Disorder", in Bacolod City, who reported that, 65.1 % of studied subjects were aged from 25 to 30 years. From researchers point view, this might be due to some of the mothers in this aged risk for low birth weight, malnutrition, not breast feeding, overcrowded conditions, unsafe drinking water and food and poor hygiene practices and that increased risk for autism children.

The present study finding revealed that, more than two third of studied subject's education levels were university or more and more than two third of them were work. This result was in accordance with **Maenner et al., (2020)** who conducted published study at United State (US) entitled as " Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years Autism and Developmental Disabilities Monitoring", who reported that 43.2 % and 87.5 % of studied subject's education levels were university or more and working, respectively. From researchers point view, this might be due to working mother separate from children long time and this caused psychological disorder, and blamed on cold, uncaring mothers, usually the mothers.

Concerning fathers' age, the present study revealed that, more than two third of studied subjects were aged from 25 to 30 years, this finding was similar with **Thomaidis et al., (2020)** who conducted a published study at Vietnam entitled as" Autism Spectrum Disorders in Greece: Nationwide Prevalence in 10 to11 Year-Old Children and Regional Disparities in Southeast Asia in Vietnam ", who conducted cross-sectional study directed among the children with physical disability in Vietnam and found that 69.1 % participants had aged from 25 to 30 years.

Concerning the monthly income of the present study revealed that more than two third of studied subjects had not enough monthly income, this finding was in agreement with **Baron-Cohen, (2022)** who conducted a published study at Kaduna State in Nigeria entitled in ″ Out of sight or out of mind: another looks at deception in autism, Kaduna State, Nigeria. ″, who stated that 81.6 % of studied subjects were not enough monthly income. From researchers' point of view, this might be due to increase in prices and the large number of basic needs for children with special needs and the large number of requirements.

The present study finding revealed that more than half of studied subjects were residence in urban area. This result was in accordance with **Corcoran & Frith (2021)** who conducted published study at London entitled in " Conversational conduct and the symptoms of schizophrenia in, London", reported that 50.5 % of studied subjects were residence in urban area. From researchers point view, this might be due to towns and cities appeal to children for a lot of reasons through improved public transport, a mix of cultures, job opportunities and easy access to shops and amenities.

The present study finding revealed that more than half of studied subjects' family type was extended. This result was in the same line with **Fonagy, (2022)** who conducted published study at Middle East entitled in " On tolerating mental states: theory of mind in borderline personality in, Middle East" reported that 58.2 % of studied subjects' family type was extended. From researchers point view, this might be due to the extended family is the basic family unit and is quite common in southern and eastern Europe, Asia, the Middle East, Africa, the Pacific Islands, and Latin America, but it is less common in western Europe and North America.

Concerning child's age, more than two third of child had 6 to 8 years and more than two third of them were males and this finding was in agreement with **Blair, (2022)** who conducted published study at England entitled as " Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations " reported that

67.3 % and 68.8 % of studied subjects were 6 to 8 years and were males, respectively. From researchers point view, this might be due to state that boys are four times more likely to have an autism diagnosis than girls. The average age of diagnosis in girls is four years old, in comparison to a little over three years old for boys.

Regarding child's classroom, most of child had from grade 1 to 3 in primary stage this finding was in agreement with **Fenton & Krahn, (2021)** who conducted published study at Russia entitled as " Autism, neurodiversity, and equality beyond the "normal." ", who reported that 85.3 % of child had (1-3) primary stage. From researchers point view, this might be due to children with autism spectrum disorder (ASD) often have problems with social communication and interaction, and restricted or repetitive behaviors or interests. Children with ASD may have different ways of learning, moving, or paying attention. It is important to note that some children without ASD might, have some of these symptoms.

Regarding the effective of the program on total knowledge studied mothers, the present study revealed that there was statistically significant difference (improvement) between pre and post program in all knowledge items and this finding was in the same line with **Erwin et al., (2021)** whose conducted published study at Roma under title of " Understanding qualitative meta synthesis ", who revealed that, their significant improvement in the knowledge of studied subjects after application of the health education program.

At the same point, there significant improvement between mean scores of total practices pre applied of educational program for autistic mother program implementation 7.01 ± 1.90 versus mean scores of total practices post applied of educational program for autistic mother 17.03 ± 0.662 and this finding was in agreement with **Punshon et al., (2021)** who conducted published study at Europe under title" The "not guilty verdict": Psychological reactions to a diagnosis of Asperger syndrome in adulthood " who described that average of Nurses' score of studied subjects was 5.90 ± 1.82 pre health education program which improved to 18.0 ± 1.30 after 9 months of health education program about autistic children.

At the same point, there significant improvement between mean scores of total attitude pre apply educational program for autistic mother 26.30 ± 1.84 versus mean scores of total attitude post apply educational program for autistic mother 29.37 ± 3.36 and this finding was in agreement with **Glasson et al., (2022)** who conducted published study at Europe under title" Perinatal factors and the development of autism on European Union " who described that average of Nurses' score of studied subjects was 25.90 ± 1.82 pre health education program which improved to 28.0 ± 3.30 after 12 months of health education program about autism.

Regarding relationship between total knowledge and student's demographic characteristics post apply health education program, the present study showed significant relation between them and this finding was in agreement with **Dardennes et al., (2021)** who published study at Argentine under title **"**Treating the cause of illness rather than the symptoms: Parental causal beliefs and treatment choices in autism spectrum disorder", who reported that, statically significant relation between total knowledge and child's demographic characteristics post apply health education program. In addition, this finding in accordance with **Laurence, (2023),** who published study at Britain and London under title "Wider-community Segregation and the Effect of Neighborhood Ethnic Diversity on Social Capital: An Investigation into Intra-Neighborhood Trust in Great Britain and London" who reported significant relation between total knowledge level among the studied subjects and demographic characteristics.

Concerning correlation between total percentage of knowledge and practices post apply health education program, the present study show significant correlation between total score knowledge and practice and this finding was supported with **Bazzano et al., (2022),** who published study at Zimbabwe under title of " Vaccine-related beliefs and practices of mothers of children with autism spectrum disorders " reported that, there was significant correlation observed between mother and autistic children and knowledge and practices. From a researchers' point view, this might be inclusion Nurses create curriculum adaptations to support every student's academic, physical, emotional, behavioral, and social development in the best way possible. Children achieve this by first identifying their Children' strengths and special needs.

5. CONCLUSION

On the light of the current Study, it could be concluded that:

More than two third of studied mothers had good total knowledge post apply education program. Also, most of studied mothers had unsatisfactory with total practice pre apply educational program. While total of them had satisfactory total

practice post apply educational program. While, majority of studied mothers had negative total attitude pre apply education program. While more than two third of them had positive total attitude post apply education program. There was statistically significant relation between mothers' sociodemographic data and their total knowledge, total reported practice and total attitude regarding their children with autism.

6. RECOMMENDATIONS

In the light of the findings of the present study, the following recommendations are suggested:

1- Apply further research in large sample and other setting for generalization.

2- Make posters or banners about reported practices of autism and put in child psychiatry out-patient clinic in psychiatry center at Tanta University hospital, El - Gharbia Governorate under observation of community health nurse.

3- Apply group discussion sessions for mothers with autistic children under supervision of community health nurse.

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