Mothers' Knowledge, Reported Practice and Attitude Regarding Accident Prevention for Children Suffering from Autism

Loza Kamal AbdAllah AboSoliman [(1)], Iman Amin Mohamed [(2)],Reham Mohammed Elhossiny Abdelbasir [(3)], Areeg Ahmed Wafeek [(4)]
1-B. Sc. Nursing Science (2010)
2-Professor of Pediatric Nursing Faculty of Nursing - Ain Shams University
3-Professor and Head of Developmental and Behavioral Unit – ASU
4-Lecturer of Pediatric Nursing Faculty of Nursing - Ain Shams University

Abstract

Background: Children with Autism Spectrum Disorder (ASD) do not have developmental abilities to protect themselves from injuries. This study aimed to assess the mothers' knowledge, reported practice and attitude regarding accident prevention for their children suffering from autism. **Design:** a descriptive research design was utilized to achieve the aim of this study. **Settings:** The study was conducted at child psychiatric clinic, out-patient Pediatric specialized clinics affiliated to Ain Shams University hospital & Faculty of Childhood Studies, special need center affiliated to Ain Shams University & out-patient of Child Psychiatric Clinic affiliated to Abbasyia Psychiatric Mental Hospital. **Subjects:** a purposive sample was composed of 200 mothers accompanying their children suffering from autism in the previous mentioned settings. **Data collection tools:** Tool 1: A pre-designed interviewing questionnaire. **Tool II:** A Modified Likert scale. **Results:** 56% of the studied mothers had average knowledge level about autism and preventing accidents. Also, 86.5% of the studied mothers had unsatisfactory reported practices level regarding accidents that happen to their children who suffer from autism. Moreover, the majority 84.5% of the studied mothers had positive attitude level regarding preventing accidents for their children with autism. **Conclusion:** there was a positive correlation between mothers' knowledge about autism, with their practices regarding accidents, and attitudes toward preventing accidents to their children with autism. **Recommendations:** Continuous health education program and training courses regarding accident prevention and first aid among mothers who had children suffer from autism.

Key wards: Accident Prevention, Assessment, Autism, Awareness, Children, Mothers'.

Introduction

Autism is a child-development disability that alters social, communication, and behavioural tasks. Often there is nothing can distinguish children with autism from others; however, children living with autism usually communicate, interact, and learn to act differently from others **(Lord et al., 2020).**

Autism is also defined as disorders categorized by behavioural, communication, and language difficulties, as well as low levels of interest and unique repetitive behaviours that appear in the child. Learning, thinking, and problem-solving skills of children with autism can range from talented to having severe special needs. Sometimes children with autism can require support of their family members to perform their daily routine work, while others require less support **(Mousa et al., 2021).**

Autism is a condition with neuro-developmental characteristics and deficiency in social relations and interaction, as well as limited, rhythmic and stereotyped patterns of actions that habitually arise in the toddler stage of life, from three to five years, and continue lifelong **(National Institute of Neurological Disorders and Stroke, 2020).**

The Centres for Disease Control and Prevention (CDC), 2020 reports show that the prevalence of children diagnosed with autism by the age of eight is now 1 in 54. The earlier rate, in 2018, was 1 in 59. An increase in autism prevalence is visible **(CDC, 2020).**

In addition, the global prevalence of autism among children was more than 7.6 million disability-adjusted life years and 0.3 % of the global burden of disease. Autism is estimated to affect up to 3 % of children in the United States. It is a rapidly growing problem. From Central Asia

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

In general, an autistic child always has repetitive and restricted behaviours. The demands of children with autism are massive and include behaviour therapies, psychological care, extraordinary schooling, and supported engagement. Mothers of children with autism are found to have a low level of knowledge about the disease. In another study, the teachers have a low to moderate knowledge level about autism **(Mousa et al., 2021).**

Children with autism do not have developmental abilities to protect themselves from injuries. Therefore, it is the responsibility of adults to provide a safe environment for these children to take protective measures and to control the safety of their living areas. It is known that the people who care for children with autism in the family are mostly mothers. Also, mothers of such mentally retarded children play a critical role because children face lots of stress from society and as well in handling these children in practical day-today life. For this reason, it is important to include mothers in the educational programs for more effective results **(Basiony et al., 2023).**

Childhood injuries are a major public health problem, cause death or disability as well as cost problem. Studies indicate that children with autism have a higher risk of injury due to cognitive limitations. In children with autism, injuries are more common in areas where child control is limited, such as home, school and traffic areas. Most of these injuries include falling, drowning, and burning that occur at home or around the home where children with autism are thought to be safe. The most important factor in protecting children from accidents is taking necessary safety precautions **(Kilinc et al., 2022).**

Mothers' knowledge about children with autism can increase after a child diagnosed correctly, allowing them to be able to focus on child's betterment, demands and teaching strategy of children with autism. Lack of awareness and insufficient knowledge about autism among mothers cause delayed identification and intervention leading to unsatisfactory outcomes in children. 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. Self-management of parents' ability has been shown to improve behavioral, social, and academic outcomes across age-groups and settings to children with autism. Self-management of parents' ability reduces challenging behaviors for children diagnosed with autism **(Coutts et al., 2021).**

Pediatric nurses can play a role to get mothers who have children with autism on the way to receive appropriate health and related services enhancing ability to access health insurance coverage. The plan focus is to provide increased access to health and social services in a cost efficient and highly efficacious manner. Pediatric nurses coordinate referrals and assist to facilitate enrollment in clinical trials. Assist mothers to meet the many obstacles they face and overcoming them to the prompt diagnosis and treatment of health problems **(Dyches et al., 2022).**

Significance of the study

Autism comprises a set of chronic neurodevelopmental disorders with a wide range of symptoms and levels of severity. Around 52 million children with autism were recorded worldwide in 2010, with a prevalence of 7.6 per 1000. In 2018, the Centers for Disease Control and Prevention (CDC) reported that nearly 1 from 59 children had autism. In 2020, that number increased to 1 from 44 children **(Maenner, 2021).**

Meanwhile, there is a shortage of data concerning autism prevalence in developing Arab countries. Generally speaking, the great variation in the prevalence of autism in Arab countries is due to the variation in the study methods, age of participants, case ascertainment approaches, and diagnostic tools used; there is no standardized method for screening autism until now, which is considered a challenging situation. Due to the same reasons, studies in Egypt estimate great variability of autism prevalence ranging from 5.4/1000 to 33.6%. At the same time, studies in Egypt are

limited to confined areas, facility-based, and with a limited sample size **(Metwally et al., 2023).**

In Egypt, autism is one of the biggest problems that very often under diagnosed or more commonly, misdiagnosed. According to the latest demographic studies, there are more than 140,000 children in Egypt who suffer from autism, though an Arab Study involves two Northern African Countries (Tunisia & Egypt) states that prevalence of autism is 11.5% and 33.6% among children with developmental disabilities in Tunisia and in Egypt respectively **(Kõlves et al., 2021).**

The world Health Organization shared statistics for Egypt on the causes of juvenile death in children under the age of five years; cause by injury accounted for 5.9% of total deaths **(WHO, 2020).**

The lack of full awareness of the dangers related to accidents that may affect children with autism, affects the rate of illness and death on them and on their efficiency; this also burdens the family a lot to care for the injury and negatively affects society. The researcher found a large number of children with autism in research settings. The total new admission number of children with autism at out-patient of child psychiatric clinic affiliated to Abbasyia psychiatric mental hospital was 344 children in year 2023 as confirmed by information systems center in this hospital. The importance of the study comes from here.

Pediatric nurses provide the mothers with appropriate knowledge, practice, attitude and helps children with autism at many stages of their healthcare journey. Pediatric nurses assist in early diagnosis, an awareness of attunement to behavior or reported parental concerns that may indicate autism can help the primary care. Pediatric nurses identify children who may require further diagnostic assessment; early identification of autism can help and improve the life chances of the children **(AlAlmaei et al., 2023).**

Aim of the Study

This study aims to assess the mothers' knowledge, reported practice and attitude regarding accident prevention for their children suffering from autism.

The aim of the study will be achieved through the following objectives:

1.Assess the mothers' knowledge about autism spectrum disorder and accident prevention (through a pre -designed questionnaire).

2.Assess the mothers' reported practice about accident prevention for their children suffering from autism (through a pre –designed questionnaire).

3.Assess the mothers' attitude about accident prevention for their children suffering from autism (through using a modified Likert scale).

Research Questions:

1- What is the mothers' knowledge about autism spectrum disorder?

2- What is the mothers' knowledge about accident prevention for their children suffering from autism?

3- What is the mothers' reported practice about accident prevention for their children suffering from autism?

4- What is the mothers' attitude about accident prevention for their children suffering from autism?

5- Is there a correlation between mothers' knowledge, reported practice, attitude about accident prevention for their children suffering from autism?

Subject and Methods

The subject and methods of the current study discussed under the following four (4) designs:

I. TECHNICAL DESIGN

The technical design included research design, setting, subject, and tools for data collection.

Research Design

A descriptive research design was utilized to achieve the aim of this study.

Research Settings:

The study was conducted at child psychiatric clinic, out-patient Pediatric specialized clinics affiliated to Ain Shams University hospital & Faculty of Childhood Studies, special need center affiliated to Ain Shams University & out-patient of child psychiatric clinic affiliated to Abbasyia psychiatric Mental hospital.

-Out-patient Pediatric specialized clinics affiliated to Ain Shams University hospital, third floor, this floor includes the child psychiatry clinic, the liver and glands clinic, the digestive system clinic, the nutrition clinic, the clinical nutrition clinic, the social services office, and the nursing office.

-Faculty of Childhood Studies, special need center affiliated to Ain Shams University, second floor, this floor contains the autism unit with three rooms, the behavior modification unit with two rooms, the learning difficulties unit with three rooms, the family counseling unit with one room, the social skills unit with one room, the psychiatry clinic with one room, and the psychoanalysis unit with one room.

-Out-patient of child psychiatric clinic affiliated to Abbasyia psychiatric Mental hospital, ground floor, autism unit, involve 3 clinics and which include; skill development rooms, a speech room, a sensory integration room, a social studies room, meeting room, an imaginative games room, a unit manager room, a nursing room, two rest areas for parents, and a small garden for children.

Research Subjects:

A purposive sample was composed of 200 mothers accompanying their children suffering from autism in the previously mentioned settings.

The sample size was calculated according to the total admission number of children suffering from autism in year 2022 at the previously mentioned settings as reported in their admission charts. The total number was 53 children suffering from autism in year 2022 at Child psychiatric clinic, out-patient Pediatric specialized clinics affiliated to Ain Shams University hospital & 60 children suffering from autism in year 2022 at Faculty of Childhood Studies, special need center affiliated to Ain Shams University while 310 children suffering from autism in year 2022 at out-patient of child psychiatric clinic affiliated to Abbasyia psychiatric Mental hospital. The studied sample was calculated according to Stephen Thompson equation:

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Where

N=Community size

Z=Class standard corresponding to the level of significance equal to 0.95 and 1.96

d=The error rate is equal to 0.05

p=Ratio provides a neutral property=0.125

N (population) = 423 from three places

z = 1.96

d =0.05

P =0.50

n= 200 children

Inclusion criteria

✓ Mothers of children suffering from autism

Exclusion criteria

✓ Children had any chronic diseases

✓ Children had mental retardation

Data collection tools

Tool 1: A pre-designed interviewing questionnaire: it was designed by the

researcher in simple Arabic language after reviewing the related literature, it was divided into:

Part 1: Characteristics of studied subjects; it included:

✓ **Mothers' characteristics** included: age, level of education, number of family member, job for parents, family income, residence, history of disease in the family and a consanguinity between the mother and the father, (it included 8 questions)

✓ **Children's characteristics** included: age, gender, level of education, academic or studying year, school achievement, degree of the child's independence, arranging the child among his siblings, child exposed to a serious accident or injury before, type of care provided, resulted in a deformity or disability and type of accident frequently happens to child (it included 11 questions)

Part 2: It was used to assess mothers' knowledge about autism concerned as: definition, risk factors for autism, warning signs and symptoms, method of treatment and what were the problems that a child with autism suffering from **Raslan (2019).**

Part 3: It was used to assess mothers' knowledge about accident prevention; it included 15 question as mention five reasons for children's accidents at home, five types of child accidents at home, five reasons for accidents at school and nursery, five types of accidents at school or nursery, five reasons for children's accidents in public places, five types of accidents that happen to children in public places, three reasons for falling, three reasons for the asphyxia, three causes of burns, three causes of poisoning, three causes of injuries, three causes of electric shock, three reasons of a child drown and do have a first aid box at home, If the answer is yes: Mention ten things in the first aid box **(Ibrahim et al., 2018).**

Scoring system: A scoring system was followed to assess mothers' knowledge. It involved 20 questions. The right complete answer was scored as two points, one point for incomplete answer and zero for the wrong answer. The total scores ranged from 0-40 point. These scores were summed and converted into a percentage scores.

Their level of knowledge was categorized into three levels:

- 75 % (30 point) and more considered good level of knowledge.
- From 50<75% (20-30) considered average level of knowledge
- Less than 50 % (19 or less) considered poor level of knowledge

Part 4: It was revealed to assess mothers' reported practices about accident prevention. It was adapted from **(Wong & Hess, 2020) & (Ibrahim et al., 2018**). It included:

(a) Preventive practices carried out by the mother (it included 28 items)

- Maternal practices regarding burns 7 items
- Maternal practices towards poisoning 4 items
- Maternal practices towards falls 3 items
- Maternal practices toward drowning 2 items
- Mothers' practices towards electrocution 2 items
- Mothers' practices towards choking and suffocation 3 items
- Mothers' practices towards wounds and bruises 3 items
- Mothers' practices regarding road accidents 2 items
- General practices 2 items

b) Therapeutic practices carried out by the mother as first aid to the child. It

included 11 questions as burn occurs to child, the child's clothes caught fire, a foreign body entered the child's eye, a small object entered the child's nose, a small object entered the child's ear, a foreign body entered the child's airway, child ingested a toxic substance, child complains of pain in his hand after he falls, which suggests a fracture, child was exposed to electric shock, a wound cutting to child and first aid is.

Scoring system:

A scoring system was followed to assess mothers' reported practice about preventive and therapeutic practices. It was involved 39 questions, it classified as done correctly (1) grade and not done (0) grade. The total score ranged from 0-39 point.

The total score was sorted as following:

- **Satisfactory** >= 90% (35) point
- **Unsatisfactory** <90% (34 or less)

Tool II: A Modified Likert scale; it was adapted from **Ibraheem, (2009).** It was used to assess attitude of the mothers toward accident prevention

- **Scoring system:**

A scoring system was followed to assess mothers' attitude toward accident prevention. Contained 36 statements, each statement of attitude scale was assessed mothers' responses and accordingly, they were scored by 2 for "agree", 1 for "uncertain" and 0 for "disagree". Scores of all the scale statements ranged from 0-72 point be summed up and total scoring was classified into 2 categories:

- Positive attitude if score ≥50%. (36 point)
- Negative attitude if score<50%.

II. OPERATION DESIGN

The operational design for this study consisted of three phases, namely preparatory phase, pilot study, and fieldwork.

A. Preparatory Phase

It included reviewing of related literature and theoretical knowledge of varying aspects of the study using books, articles, internet search, and periodicals. This was served to develop the study tools for data collection. During this phase, the researcher also visited the selected place to get acquainted with the personnel and the study setting.

- **Content validity:** It was ascertained by panel of expertise (3) professors from pediatric nursing to test its content validity (clarity, relevance, comprehensives, and simplicity). Their opinions elicited regarding the format, layout, consistency, accuracy, completeness. Minor modifications were suggested by supervisors.

- **Content reliability:** The tool was tested (to ensure that an assessment tool produced stable and consistent result overtimes) by Alpha Cronbach test. And a pre-designed interviewing questionnaire Alpha Cronbach test was .652. And Alpha Cronbach test of mothers' reported practices was .770 also Alpha Cronbach test of modified Likert scale was .951.

B. Pilot Study

Pilot study was carried out on 10% of mothers (20) in order to test the applicability of the constructed tools and the clarity, reliability and applicability of the included questions. The pilot has also served to estimate the time needed for each mother to fill in the questionnaire. Pilot study involved in sample size.

C. Fieldwork

The researcher was available three days per week in the study setting from 9 A.M. to 2 P.M by rotation. Data collection started from 19th February 2024 to 8 September 2024. Each mother was individually interviewed using the study tool for 40 minutes. The researcher first explained the purpose of the study after introducing herself then the mother signs informal consent. The researcher filled the questionnaire by herself. A pre-designed interviewing questionnaire took 25 minutes ,5 minutes for the personal characteristic, 10 minutes for mothers' knowledge and 10 minutes for mother' reported practice, while, a Modified Likert scale took 15 minutes.

III.ADMINISTRATIVE DESIGN

Approval was obtained through an issued letter from the Dean of Faculty of Nursing, Ain Shams University to director of the previously mentioned setting. The researcher then met the mothers and explained the purpose and expected outcomes of the study.

Ethical Consideration

Research approval was obtained from the Faculty of Nursing Ain shams University Ethical Committee before starting the study. The researcher has explained the aim and objective of the study to the mothers included in the study and obtained a written informal consent before starting the study. They guarantee that all the gathered data was used confidential and was used for research purposes only. The researcher assured maintaining anonymity and confidentiality of subject's data including in the study. The mothers were informed that they are allowed for withdrawal from the study at any time.

Ethical code : 24.02.215

IV.STATISTICAL ANALYSIS

The collected data was organized, categorized, coded, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) version 26. Data was presented in tables and figures using numbers, percentages, means, standard deviation .Chi square test was used in order to find an association between variables. Statistical significant was considered at P-value < 0.05.

- P value <0.05 was considered significant.
- P value >0.05 was considered insignificant.

Hadships of the study

- Irritability of the child
- Refuse informal consent
- Inadequate time
- Mothers want to finish meeting quickly
- Narrowing one place

Results:

Table (1): Illustrates that more than half of the studied mothers 53.0% their age was ranged from (31 to 40) with mean age of 35.2750 and stander deviation of 6.07403. This table shows that mothers and fathers occupation were only 17.5% of mothers were employee while 82.5% of them were housewives, and 90.5% of the fathers were employed, this table also shows that the majority of the studied mothers (91.0%) lived in an urban area. (86.7%) from the child's having autism in the family were male. Concerning monthly income, it was insufficient for (30.5%) and 22.5% of the studied mothers had consanguinity with their husbands.

Table (2): Reveals that less than two thirds (63.0%) of the studied children their age ranged from (6 to 10) with mean ±SD of 7.603±2.5888. Regarding children's level of education, less than two fifths (39.0%) of them were at school, more than one half (57.7%,) of them were in special needs school, the vast majority (92.3%) of them in the first 5 years of studying and less than three quarters (74.3%) of them had a low educational slandered. Regarding ranking of the studied child, less than two fifths (39.5%) of them were the youngest children.

Figure (1): clarifies that 11.5%, 56% and 32.5% of the studied mothers had good, average and poor knowledge level about autism and preventing accidents respectively

Figure (2): clears that 13.5% and 86.5% of the studied mothers had satisfactory and unsatisfactory reported practices level regarding accidents that happen to their children who suffer from autism respectively.

Figure (3): represents that the majority 84.5% and minority 15.5% of the studied mothers had positive and negative attitude level regarding preventing accidents for their children with autism respectively.

Table (3): This table illustrates that there was a positive correlation between mothers' knowledge about autism, and their practices regarding accidents, and attitudes toward preventing accidents to their child with autism at p-value 0.001, 0.044, and 0.017 respectively

Table (1): Frequency Distribution of the Studied Mothers According to their Personal Characteristics (n=200)

Personal characteristics	N	%
Age / years:		
20 < 30	33	16.5
30< 40	**106**	**53.0**
≥ 40	61	30.5
Age (mean±SD)	**35.2750±6.07403**	
Mothers' occupation:		
Employed	35	17.5
unemployed	**165**	**82.5**
Fathers' occupation:		
Died	8	4.0
Works	**181**	**90.5**
Not work	11	5.5
Number of family members		
3 individuals	32	16.0
3≤5	**120**	**60.0**
> 5	48	24.0
Place of residence		
Rural	18	9.0
Urban	**182**	**91.0**
The child's gender if having autism in the family (n=15)		
Male	**13**	**86.7**
Female	2	13.3
Family income level:		
Sufficient	139	69.5
Insufficient	**61**	**30.5**
There is consanguinity between the mother and father:		
Yes	**45**	**22.5**
No	155	77.5

Table (2): Frequency Distribution of the Studied Children According to their Personal Characteristics (n=200)

Personal characteristics	N	%
Age/years		
< 5 years	48	24.0
5< 10 years	**126**	**63.0**
≥10 years	26	13.0
Age (mean±SD)	**7.603±2.5888**	
Level of education		
Did not enter the nursery	28	14.0
In the nursery	46	23.0
Did not go to school	48	24.0
At school	**78**	**39.0**
If entering school: What type of school? (n=78)		
Regular school	33	42.3
Special needs school	**45**	**57.7**
Academic or studying year: (n=78)		
First 5 years of studying	**72**	**92.3**
6th or more	6	7.7
School achievement of the child (n=78)		
High	2	2.6
Medium	18	23.1
Low	**58**	**74.3**
Ranking of the child		
The first	59	29.5
The middle	62	31.0
The youngest	**79**	**39.5**

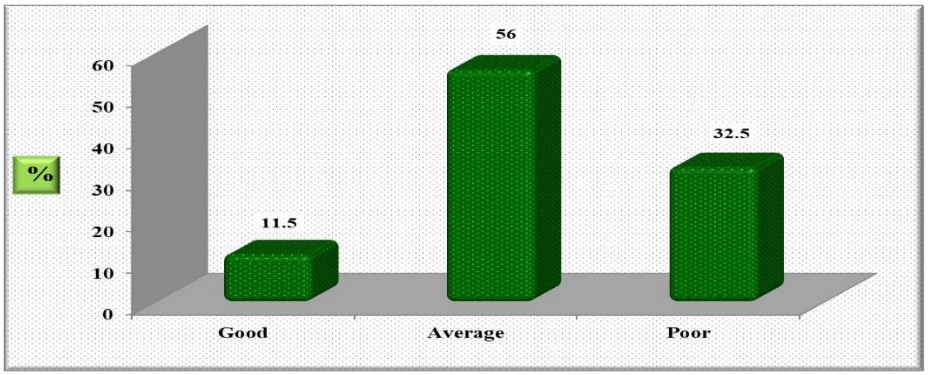

Figure (1): Percentage Distribution of the Studied Mothers According to their Total Knowledge Level about Autism and Preventing Accidents for them (n=200):

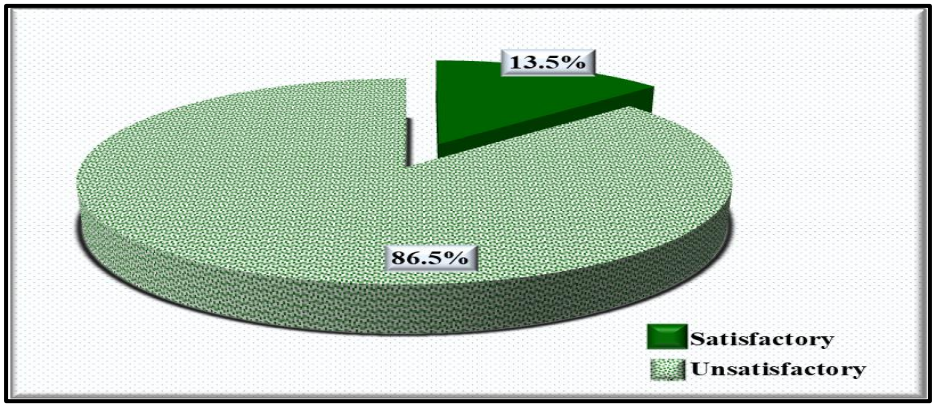

Figure (2): Percentage Distribution of the Studied Mothers According to their Total Reported Practices Level Regarding Accidents that Happen to their Children who Suffer from Autism (n=200)

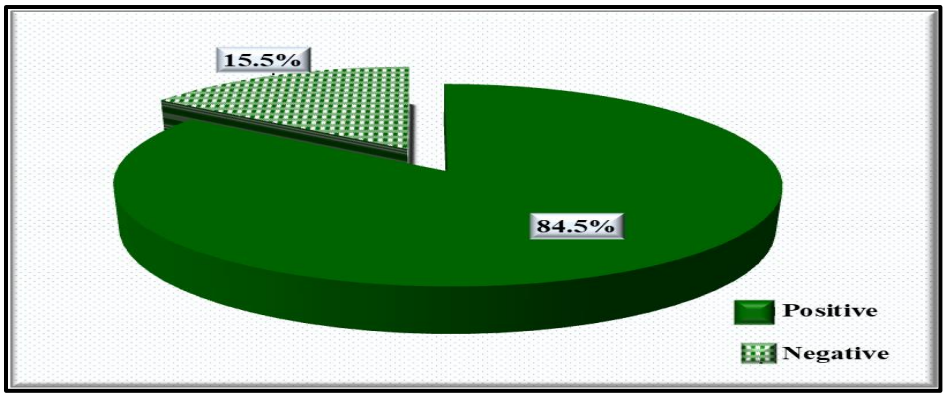

Figure (3): Percentage Distribution of the Studied Mothers According to their Total Attitude Level Regarding Preventing Accidents for their Children with Autism (n=200):

Table (3): Correlation matrix between variables (N=200):

Variables		1		2		3	
		R	P-value	R	P-value	R	P-value
1	Mothers' knowledge about autism						
2	Mothers' practices regarding accidents	.248**	.000				
3	Mothers' attitudes toward preventing accidents	.143*	.044	.169*	.017		

(*) P<0.05 (**) P< 0.01

Discussion

Children with Autism do not have developmental abilities to protect themselves from injuries. Therefore, it is the responsibility of adults to provide a safe environment for these children to take protective measures and to control the safety of their living areas. It is known that the people who care for children with Autism in the family are mostly mothers. Also, mothers of such mentally retarded children play a critical role because children face lots of stress from society and as well in handling these children in practical day-today life **(Miltenberger, & Novotny, 2022). So,** this study aimed to assess the mothers' knowledge, reported practice and attitude regarding accident prevention for their children suffering from autism.

As regard to age of the studied mothers, the current study result illustrated that more than half of the studied mothers their ages ranged from (31 to 40) with mean ± SD 35.2750±6.07403 years**.** This result was disagreeing with **Basiony et al., (2023)** who applied a study entitled "Mothers' Awareness regarding Home Accident Prevention among their Mentally Retarded Children in Benha City" and reported that more than half of the studied mothers were in the age group between 20 - < 30 years old.

Regarding mothers' and fathers' occupation, the current study result showed that most of the studied mothers were housewives, and the majority of the fathers were employed**.** This result was supported by **Shatia, et al., (2022)** who applied a study to evaluate effect of Parents' Knowledge and Practice regarding Safety Measures on Safety Threats of their Children with Mental Impairment and reported that highly percentage of the studied mothers were not working.

As regard number of family members, less than two thirds of the studied mothers had from (4-5) family members**.** This result was in accordance with **Kılınç, et al., (2022)** who conducted a study entitled "The effect of home safety education program given to mothers with children with intellectual disability on their attitudes towards safety measures for home accidents" and found that more than half of the studied mothers had 4 family members.

Concerning to residence among studied mothers, the current study result showed that, the majority of the studied mothers lived in urban areas. This result was contrasted with **Basiony et al., (2023)** who showed that less than two thirds of the studied mothers lived in rural areas.

The current study showed that, most of the children in the family with autism were male This result was supported by **Papadopoulos, (2021)** who conducted a qualitative study entitled "Mothers' experiences and challenges raising a child with autism spectrum disorder" and reported that most of the studied participants had a son with autism, while two mothers had a daughter with autism

Concerning monthly income, the current study result showed that less than one third of the studied mothers had insufficient monthly income**.** From investigators' 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. This result was supported by **Parlak et al., (2023)** who applied a study entitled "Knowledge levels of mothers with children aged 0-6 about autism spectrum disorder" and reported that highly percentage of the studied mothers had satisfied monthly income. Wile, this result was contrasted with **Shatia et al., (2022)** who showed that more than half of the studied parents hadn't enough family income.

The current study result revealed that, less than one quarter of the studied mothers had

consanguinity with their husbands**.** This result was agreeing with **Bassam, & Tork, (2019)** in a study entitled "Education Program for Mothers of Children with Autism Spectrum Disorder: Mothers and Child Outcomes" and reported that highly percentage of the studied mothers had no consanguinity with their husbands.

Concerning children's age, the current study result showed that less than two thirds of the studied children had an age ranged from (6 to 10) with mean ± SD of 7.603±2.5888. From the investigator's point of view, the most parents discover the illness of their children from 5 to 7 years through the symptoms that appear on them and begin the steps of treatment. This result agreed with **Muhammad et al., (2018)** who conducted a study in Pakistan, studied about "Final report 29th Asia-Pacific international seminar on education for child's with special needs and found that, the mean age of child with autism was 7.55 ± 9.7 years

Regarding level of education among studied children, the current study result showed that, less than two fifths of the studied children were at school, more than half of them were in special needs school, the majority of them were in the first 5 years of studying, and less than three quarters of them had a low educational slandered. From investigator's point view, this might be due to children with autism often have problems with social communication and interaction, and restricted or repetitive behaviors or interests. Children with autism may have different ways of learning, moving, or paying attention. It is important to note that some children without autism might, have some of these symptoms.

This result was supported by **Bassam, & Tork, (2019)** who reported that less than two thirds of the studied children were in primary education. While more than one third of them in Nursery. While **Fenton & Krahn, (2021)** who conducted a published study at Russia entitled "Autism, neurodiversity, and equality beyond the normal" and reported that most of child had (1-3) primary stage.

Regarding ranking of the child among his siblings, less than two fifths of them were the youngest children. This result disagreed with **Rosanoff, (2018)** who conducted a study in Iran about " Behind the science: new 1 in 45 autism prevalence survey" and found that more than half of the survey the autism children was first child in the family.

According to total knowledge level of the studied mothers about autism and preventing accidents for their children, the current study result clarified that, more than half of the studied mothers had average level about autism and preventing accidents**.** The investigator's opinion is that the studied mothers need educational programs to enhance their knowledge related to autism and preventing accidents. Moreover, the lack of mothers' knowledge and misconception not only affects the prevention and management of the accidents event, but it also increases the complications, disability, and fatality.

This result was in the same line with **Basiony et al., (2023)** who showed that two fifths of the studied mothers had average knowledge about prevention of accidents for mental retarded children. While, this result was contrasted with **Mousa et al., (2021)** who applied a study entitled "Evaluation of Mothers' Knowledge about Autism: Saudi Arabia" and reported that less than three quarters of the respondents had a low or insufficient level of knowledge about autism and less than one third of them had a medium level of knowledge. Additionally, none of the respondents exhibited a high level of knowledge.

On the other hand, the study disagreed with, **El Seifi et al., (2018)** who studied the effect of community-based intervention on knowledge, attitude, and self-efficacy toward home injuries among Egyptian rural mothers having preschool children (N=244), and reported that; two fifth of the studied mothers had good knowledge about the prevention of home injuries and basic first aid measures. Also, it disagreed with, **Thenmozhi et al., (2020)** who conducted a study on knowledge and practice on prevention of domestic accident among mothers of under five year children in India (N=60) and found that; more than half of the studied mothers had adequate knowledge towards the prevention of home accident.

According to studied mothers total reported practices level regarding accidents that happen to their children who suffer from autism, the current study result demonstrated that most

of the studied mothers had unsatisfactory reported practices level regarding accidents that happen to their children who suffer from autism.

This result was in the same line with **Kufa, (2021)** who applied a study to assess the mother perception toward home accidents among children and determine the mothers' baseline knowledge, attitudes, and practices about home accident and found that, less than a third has good (appropriate) practices. And it was supported by **Al-Hajj et al., (2023)** who applied a study entitled "Child injuries in Lebanon: assessing mothers' injury prevention knowledge attitude and practices" and found that, the majority showed poor practice.

According to studied mothers' total attitude level regarding preventing accidents for their children with autism, the current study result represented that most of the studied mothers had positive attitude level regarding preventing accidents for their children with autism**.** From the investigator's point of view, this result may be due to good knowledge level and awareness level among the studied mothers.

This result was supported by **Soltani, & Jahanmehr, (2019)** who studied to investigate knowledge, attitude and behavior of mothers about prevention of accidents and injuries in under-6-year-old children and showed that, more than three quarters of mothers had high attitude about prevention of accidents and injuries. While it contrasted with **Kufa, (2021)** who showed that, less than two fifths of the studied mothers had a positive attitude level about prevention of accident. Also, it disagreed with **Nour et al., (2019) who** declared that; less than two fifth of the studied mothers had positive attitude toward prevention of home accidents, and less than two thirds of them had negative attitude level toward prevention of home accidents.

As regard correlation matrix between variables, the current study result illustrated that there was a positive correlation between mothers' knowledge about autism, and their practices regarding accidents, and attitudes toward preventing accidents to their children with autism.

This result was in the same way with **Thenmozhi et al., (2020)** who found that there was a statistically significant positive correlation between the level of knowledge, practices and attitude of studied mothers about mental retardation and prevention of home accidents. And it was supported by **Basiony et al., (2023)** who showed that, there was a highly statistically significant relation between mothers' total knowledge, practices and attitude about mental retardation, prevention of home accidents and first aid of home accidents for their mentally retarded children. While, the current result contrasted with **Farouk & Awadin (2021)** who done a study entitled "Effect of educational interventions regarding home accidents among children on mothers in rural areas" and indicated that there was no statistically significant relation between the studied sample's data and knowledge practice and attitude**.**

Conclusion

In the light of the current study findings, it can be concluded that:

More than half of the studied mothers had average knowledge level about autism spectrum disease and preventing accidents. Moreover, the majority of the studied mothers had unsatisfactory reported practices level regarding accidents that may happen to their children who suffer from autism. Also, the majority of the studied mothers had positive attitude level regarding preventing accidents for their children with autism. Additionally, there was a positive correlation between mothers' knowledge about autism, and their practices regarding accidents, and attitudes toward preventing accidents to their child with autism. However, the results of the study achieved study aim and research questions.

Recommendations

Based on the current study findings the following recommendations were proposed:

- ✓ Continuous health education programs and training courses regarding accident prevention and first aid among mothers who have children suffer from autism.
- ✓ Counseling for mothers about usage of safety measures at home to prevent the

accidents among their children who suffer from autism.

- ✓ Several studies are required to determine the impact of a health education intervention on minimizing the rate of children with autism exposure to accidents.

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