Effect of Teaching Intervention on Mothers' Awareness about Preventive Precautions of Burn among Children at Home

Rasha Shawky Elashry [(1)], Mona Emad Eldien Hussien Sabbour [(2)], Ragaa Abdallah Ahmed Hassan [(3)], Sabra Mohamed Ahmed [(4)]

(1) Lecturer of Pediatric Nursing Department, Faculty of Nursing, Tanta University
(2) Lecturer of Community Health Nursing Department, Faculty of Nursing, Mansoura University
(3) Lecturer of Family and Community Health Nursing Department, Faculty of Nursing, Sohag University
(4) Lecturer of pediatric nursing, Faculty of Nursing, Sohag University

Abstract

Pediatric burn injury is considered a significant problem worldwide because it can lead to disability or death among children each year. **Aim**: To evaluate the effect of a teaching intervention on mothers' awareness about preventive precautions of burn among children at home. **Research Design:** A quasi-experimental research design with a pre/post-test was adopted in the study. **Setting**: The study was conducted in the Pediatric Outpatient Clinic at Sohag university hospital and Mansoura university hospital. **Subjects**: A convenient sample of 200 mothers and their children was included to achieve the aim of the study. **Tools of data collection:** Structured interview questionnaire was included in two parts, (1) socio-demographic data sheet for mothers and their children, history of burn injury, and (2) questionnaire sheet regarding mothers' knowledge about burn injury and mothers' reported practices regarding burn injury. **Results**: Revealed that more than half of the children (58%) were male. There were significant differences between pre and post-educational nursing guidelines application in mothers' knowledge and reported practices. Mothers' knowledge and practices in the prevention of burn were correlated with their age and education, and child's age (P value is 0.001, 0. 001). **Conclusion**: Teaching intervention regarding preventive precautions of burn at home was effective in improving awareness of the mothers. **Recommendation**: The study recommended that teaching intervention regarding preventive precautions of burn at home should be applied in all pediatric care settings. Health promotion programs should be provided about the prevention of burn injuries to improving mothers' awareness.

Keywords: Burn, mothers' awareness, preventive precautions, teaching intervention.

Introduction:

Burn injuries for infants and children are often serious; this is the result of their desire to explore their world and the inability to protect themselves from the dangers of their actions. Burn injuries can be prevented with appropriate information and precautions application. Parents should remember that they need to maintain a constant balance between overprotecting the child and providing freedom in learning the risks of the environment (**Halperin, et al., 2018**).

All children are at risk for injury because of their normal curiosity, impulsiveness, and their desire to know new skills. They learn to use chairs and climb up to reach things that are kept supposedly out of their reach **(Ashwill & Droske, 2015).**

Burn accidents that happen in the home environment involving children occur as a result of several contributory elements, such as flams, hot fluids, and fire (**Carlsson et al., 2015).** Burn accidents are important threats that affected the health of children worldwide. Additionally, their risk for life, they are causes complications, hospitalizations, physical and emotional consequences that may remain (**WHO, 2014).**

Burns is considered one of the common causes of home-injury deaths. Regarding the Centers for Disease Control and Prevention report (CDC), most home burn accidents happen due to hot water in the bathroom, kitchen, or hot tubs. Heat or flames: in the kitchen. Burn injury is a leading cause of unintentional injuries in children **(Shrestha, 2016)**.

Hospital admission criteria for pediatric patients with the thermal injury include the following, partial-thickness burns greater than 10% of total BSA (TBSA), full-thickness burns

greater than 2% of TBSA, Burns involving the face, hands, genitalia, perineum, or major joints, circumferential extremity burns, All high-voltage electrical burns, including lightning injury, admission of low-voltage electrical burns is selective, chemical burns, Inhalation injury, burn injuries in patients with pre-existing medical disorders that could complicate management, prolong recovery, or affect mortality e.g. diabetes, immunosuppression), suspected child abuse, cases in which it is determined that it is in the best interest to admit the child (i.e. parental inability to care for the burn **(Reed and Pomerantz, 2015).**

The types of burn injuries experienced by children are associated with their age and developmental stage which involves physical, psychological, and behavioral characteristics. This needs to examine strategies and transferring them to new settings. The likelihood of a child being killed or injured is associated with a variety of causes such as single parenthood, low education level among mothers, young mothers, poor housing, and family size is large, and parental drug or alcohol abuse **(Thein et al., 2015).**

Burn size in children, the relative BSA of the head and neck is much larger than in adults, and the BSA associated with lower extremity is much less. The Rule of Nines is a useful and practical guide for calculating the extent of the burn in adult patients, but some modifications need to be made while applying this formula to the children. The adjustment of the percentage of BSA in children according to age (**Palmieri, 2013**).

Percent of body surface area according to age

Items	Newborn	3 years	6 years	12±years
Head	18%	15%	12%	6%
Trunk	40%	40%	40%	38%
Arms	16%	16%	16%	19%
Legs	26%	29%	32%	36%

Fluid resuscitation requires knowledge of the size of the body fluid compartment and water metabolism in a burned child. In infants, approximately 50% of the body weight is extracellular. This decreases to 35% in a young child and 20% in adults **(Reed and Pomerantz, 2015)**.

The children have a limited physiologic reserve. Thus, fluid resuscitation in a child needs to be more precise than that for an adult with a similar burn. Children also require more fluid for burn shock resuscitation than adults with similar thermal injuries. Weight-based formulas tend to under-resuscitate small injuries in small children, sometimes providing even less than maintenance fluid requirements, and grossly over-resuscitate large injuries in older children. Therefore, a more appropriate means of calculating fluid resuscitation requirement is based on BSA burned. Such a formula has been developed as follows: (**Carvajal, 2008**)

The total requirement for the first 24 hours

2000 ml /*m*2 BSA+5000 ml /*m*2 BSA B (Body Surface Area Burned).

Management of the children with major burns taxes skills of the personnel of any unit. Fluid losses are proportionately higher in children than in adults. Consequently, children have relatively greater fluid resuscitation requirements and more evaporative water loss than adults. The large BSA to body mass ratio of the child also predisposes the child to hypothermia, which must be aggressively avoided. Children younger than two years have thinner layers of skin and insulating subcutaneous tissue than older children and adults. In addition, because of disproportionately thin skin, a burn that may initially appear to be of partial-thickness in a child may instead be of full-thickness in depth. Thus, the child's thin skin may make initial burn depth assessment difficult **(Reed and Pomerantz, 2015)**.

Rapid assessment and treatment of immediate life-threatening conditions are mandatory in patients with burns. Endotracheal intubation is indicated in children with respiratory distress or airway compromise caused by airway edema. Because of the small diameter of the pediatric airway, a low threshold for intubation should be maintained. Children with burns affecting more than 10% of the BSA should receive intravenous fluid resuscitation. Burn wounds should initially be covered with dry sterile sheets, and a thorough history and physical examination should be obtained. Patients should be kept warm by infusing warm intravenous fluids, elevating room temperatures, and minimizing patient

exposure. Tetanus immunization should be administered as indicated. Early initiation of enteral feedings can decrease the need for glucose-containing intravenous infusions during resuscitation (**Hildreth et al., 2013)**.

Saad, et al., (2015) concluded that burn injury which occurred for children is highly affected by various features of the local environment. These features may be indicated childhood burn injury control and prevention programs. The public health approach includes identifying the magnitude of the problem through surveillance and data collection, identifying risk and protective factors based on this information, developing, implementing, and evaluating interventions, and promoting evidence-based practices **(National Safe Kids Campaign, 2012).**

First aid is required an observer first aid to evaluating the injured children, and then to intervene with them, using a small number of supplies. First aid is provided to a person immediately following burn accidents to reduce complications and offer emotional and physical comfort. It is performed to reduce the child's pain and suffering **(Bronstein et al., 2015).**

For all mothers with children under 6 years, it is important to focus on improving their knowledge about precautions that need to be taken at home. This information is related to the risks of burns and how to safely protect children**.** Early guidance focuses also, on providing the mother information regarding normal growth and development during childhood, including specific information about security at home as children's maturation skills, home safety preventive precautions need to be performed early to reduce risks (**Turner et al., 2014)**.

Teaching intervention regarding preventive precautions of burn for mothers is important to be equipped to protect their children. Mother can help prevent burn accidents when proper safety measures are taken into consideration. Learn how to keep the child safe from accidents as talking with their children about injury prevention and safety promotion, children and their parents/caregivers are the primary target groups of interventions **(WHO, 2018).**

Pediatric and community health nurses play an important role in educating the mothers about preventive precautions regarding burns that occur among children in different age groups. Mothers need to know that their infants and children cannot notice the danger or understand when it will happen. Pediatric and community health nurses should teach mothers about their responsibility of providing a safe environment for children, taking protective measures, and controlling the safety of their living space **(Töruner & Buyukgonenç, 2011).**

Mothers need to arrange their children's physical and social environment to ensure that they are protected from pediatric injuries **(Çapık & Gürol, 2014).** Pediatric injuries can be avoided by increasing mothers' awareness of simple environmental changes at home and by providing regular teaching to mothers, who spend most of their time with their children **(Altundag˘ & ozturk, 2017).**

Another approach to injury prevention is a focus on education because it can inform the mothers about potential risks and safety options and help them behave safely (**Carlsson et al., 2016**). The nursing approach to health care also contributes to the fact that nurses establish a unique relationship with each patient, family, and community and implement teaching interventions by sharing their knowledge. These interventions are including dialogue, consider and value mothers' experiences because it improves the prevention of injuries and health promotion (**Turner et al., 2014**).

Significance of the study:

The World Health Organization, (2015) reported almost 6 million deaths due to injury. It is reported also that is considered a major cause of disability and deaths among children. The problem of burn has been an unnoticed public health disaster and e leading cause of child death. It is expected that burn injury will be considered the rival of a communicable disease as a cause of ill health and death by the first decade of the new millennium. Burn injuries are considered the most frequent cause of hospital admission and disability center admissions, and half of the hospital surgical beds are occupied by injured children**.** Although the prevention of burn injury is an important issue in developed countries, there is a lack of such studies in our country **(Turan et al., 2010).**

Teaching and health promotion is very important to prevent injuries through the guidance of the mothers and provided them with accurate information about the preventive precautions of burn accident that occurs at home. Hence, all the researchers conducted the current study to evaluate the effect of a teaching intervention on mothers' awareness regarding preventive precautions of burn at home among children.

Research Hypothesis:

H1: There will be significant improvement between the pre-and post-teaching intervention of mothers' knowledge and reported practices**.**

H2: There will be a significant association between mothers' knowledge and reported practices and their demographic data.

Aim of the study

- To evaluate the effect of a teaching intervention on mothers' awareness regarding preventive precautions of burn among children at home.

Subjects & Method

Research design:

A quasi-experimental research design with a pre/post-test was adopted in the study.

Setting:

The study was conducted from the Pediatric Outpatient Clinics at Sohag University Hospital and Mansoura University Hospital. A home visit was done for follow-up with mothers after teaching intervention.

Subjects:

A convenient sample of 200 mothers and their children was included to achieve the aim of the study. 100 mothers were from Sohag University Hospital and 100 mothers were from Mansoura University Hospital. All mothers in the two groups were from the Pediatric Outpatient Clinic**.**

Inclusion criteria included:

- Mothers of children aged less than 6 years
- Children from both sexes.
- Mothers of children were available at the time of data collection.
- Mothers of children suffer from chronic conditions

Tools of data collection:

A structured interview sheet was developed by the researchers after reviewing related literature and consisted of two parts:

Part (1): a. Demographic characteristics about mother included; mothers' age, level of education, working state, place of residence, source of mothers' knowledge about child's safety, previous experience with burn injury and burn management by the mothers.

b. Demographic characteristics of children include age and sex.

Part (2): a. Mothers' knowledge about burn injury, which includes: Definition of burn and burns prevention, causes, risk factors of burn, type of burn, the meaning of first aid, and measures that should be given to the child at home. It was containing 10 questions with a total score of 20 for mothers' knowledge. A score 0-8 was considered unsatisfactory, while scores 9-14 were considered good and scores 14-20 were considered very good.

b. Mothers' reported practice regarding burn injury, which includes a checklist about measures used in terms of the first aid in case of a burn. First aids contain 10 items which mothers should know to prevent the complication of burn may happen after injures the answers of items were in form of yes and no. The scoring system of the checklist was 20 marks, scores ranged from 0-9 were considered unsatisfactory and scores ranged 10-20 were considered satisfactory.

Designed manual booklet about preventive precautions of burn:

It is a teaching intervention regarding preventive precautions of burn at home which included a guide booklet for mothers to prevent children from the burn. This booklet had been developed by the researchers after reviewing the related literature; it included knowledge about burns. It included also the preventive precautions that the mothers could take to

prevent and deal with a burn. The booklet included colored pictures about types of burn.

Title: Preventive precautions of burn among children.

Aim: The goal of to equip mothers with knowledge regarding preventive precautions of burn among children.

Specific Objectives:

- To improve the studied mothers' knowledge about preventive precautions among children at home.
- To help mothers how to apply preventive precautions and burn management.

Outlines of the booklet:

1- Knowledge about the burn (meaning, causes and risk factor, types, and management).

2- Role of nine of burn among children to determine the percentage of burn for them.

3- Effect of burn on children according to growth and developmental stage.

4- Electrolyte disturbances among burned children.

5- Preventive precautions of burn.

6- Mothers' role at home with their children regarding burn.

Validity and reliability of the tool:

Content validity was tested by selected a board of five experts in Pediatric Nursing and Community Health Nursing with more than ten years of experience in the field to assess the clarity, feasibility, and applicability of the tools. Content Validity Index (CVI) was 89% for the tool. Internal consistency of reliability was measured using alpha Cronbach's test and R was 0.92.

Administrative Approval

Official permission was obtained from the Dean of Faculty of Nursing, Sohag University to the directors of Pediatric Outpatient Clinics at Sohag university hospital and Mansoura university hospital to conduct this study.

A pilot study

A pilot study was conducted on 10% of the total sample (20 mothers) to test the clarity and applicability of the tool. No modifications in the tools were done. Mothers involved in the pilot study were excluded from the current study.

Procedure:

After obtaining the official permission, the researchers began to collect data from the beginning of July 2019 to the end of December 2019. The researchers have attended the previously selected settings of the study one day/ a week from 9 am to 11 am. Each participant took approximately, 15-20 minutes to complete the questionnaire. The researchers introduced themselves to the studied mothers; the purpose and aim of the study were explained. Oral consent was obtained from them before participation in the study. The study intervention consisted of two parts, a workshop, and a home visit.

The workshop was conducted in the previously selected settings in the training unit with the permission of the responsible supervisor nurse at the selected hospital. Knowledge about childhood burn injury was assessed with the most common questions related to prevention of burn, using questions, for example, types of burn among children, the role of nine of burn among children to determine the percentage of burn for them, the effect of burn on children according to growth and developmental stage, electrolyte disturbances among burned children, the preventive precautions of burns in childhood, the management of children burn. The post-test questionnaire was performed immediately after the end of the educational intervention to ensure if there was an increase in the mothers' knowledge about the research topic. The researchers emphasized that the questionnaire used as a post-test has the same questions as the pre-test questionnaire, except for the sociodemographic characteristics.

All the researchers were done follow-up home visits after one month of guidelines. Researchers made checks for preventative safety measures that had been taken in the studied mother's home according to teaching intervention. It was included checking that their cooker was properly anchored, heat protection

is found around the cooker and oven, a suitable high chair is available to put their children in while the mothers were working in the kitchen and that the electric kitchenware, (coffee machine, kettle, and iron) were kept out of reach for the children. The mothers then answered the baseline questionnaire once again regarding knowledge and reported practice. The researchers were distributing the designed manual booklet to each mother at the end of the teaching intervention.

Ethical considerations:

Written informed consent from studied mothers was obtained. Confidentiality and anonymity were assured. Studied mothers had the right to refuse to participate or withdraw from the study without giving any reason at any time.

Statistical analysis

Data were collected, coded, and transferred into a special design format to be suitable for computer feeding. The Statistical Package for Social Science (SPSS), version 20 was utilized for data analysis and tabulation. All the entered data were manually verified for errors. Mean, standard deviation, Chi-square, and Fisher exact test (if the expected value of Chi-square test was less than 5) were used. The P-value < 0.001 was used as the cut of value for statistical significance.

Results

Table (1): Reflected that 40% of the studied mothers were between 21 < 26 years and their mean age (19.05 ± 8.87). (31%) of them had secondary education, 57% were housewives, (84%) were living in rural areas.

Table (2): Showed that more than half (53%) of the children's age ranged from 0 to 3 years, and their mean age was 2.26±1.48 years. It is noticed from the same table that less than three quarters (73%) of the children were male, whereas 27% of them were female.

Figure (1) showed that more than one-third (37%) of the studied mothers can manage their children's burn injury at home.

It was clear from **figure (2)** that the highest percent (62%) of the studied mothers were experienced burn accidents among their children**.**

It was observed from the **table (3)** that there were significant differences between pre and post-teaching intervention in mothers' knowledge about the definition, causes, risk factors, types of burn, and management (χ^2= 0.14, P value= 0.03).

Table (4): Revealed that there were significant differences between pre and post-teaching intervention in mothers' knowledge concerning mothers' scores (t test= -4.6, P values 0.000).

Table (5): Showed that there were statistically significant differences between pre and post-teaching intervention concerning mothers' practices regarding management used in cases of burn injury (χ^2 = 0.8 P-value = 0.02*)

Table (6): Illustrated that there were highly statistically significant correlations were found between mothers' age, education, and working, child's age, and mothers' knowledge regarding prevention of burn (P value=0.00, 0.56). Regarding mother's reported practices there were statistically significant correlations between mothers' age and education, child's age, and their practices in caring for the children with burns (P-value =0.00, 0.50).

Table (1): Percentage Distribution of Studied Mothers of Children according to their Demographic Characteristics (n=200)

Item	Studied mothers(200)

	No.	%
women ' age in years		
18 < 21	52	26.0
21 < 26	80	40.0
26 < 30	52	26.0
30 < 35	16	8.0
Mean ±Stander deviation	19.05 ± 8.78	
- women ' education		
- Illiterate	14	7.0
-Read and write	40	20.0
-Primary education	40	20.0
-Secondary education	62	31.0
-University education	44	22.0
Occupation		
- Employee	86	43.0
- Housewife	114	57.0
-Residence		
-Rural	168	84.0
-Urban	32	16.0

Table (2): Frequency and Percentage Distribution of the Children according to their Characteristics (n=200)

Children characteristics	No	%
Age (Yrs.)		
• 1– 3	106	53.0
• 3-5	72	36.0
• 5 < 6	22	11.0
Mean± SD 2.26±1.48		
Gender		
• Male	146	73.0
• Female	54	27.0

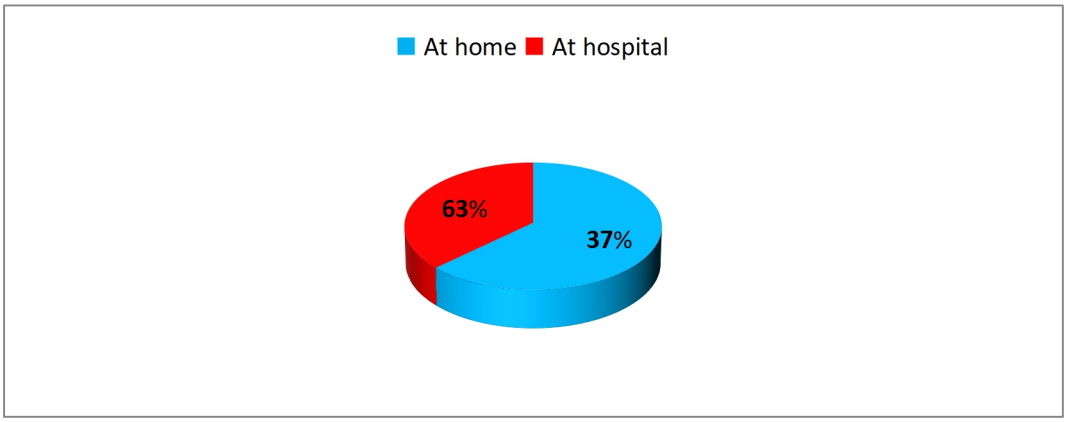

Figure (1): Burn Management of the Studied Mothers for their Children

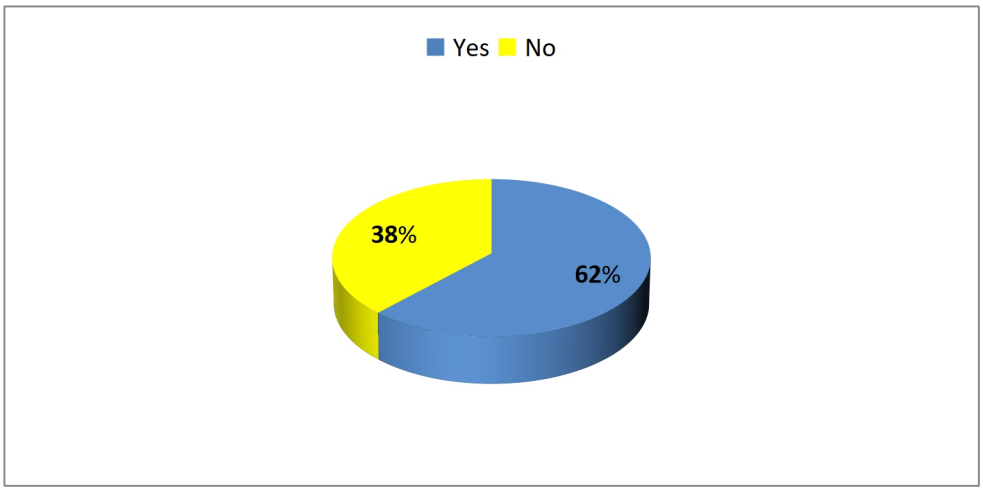

Figure (2): Burn History among Children of the Studied Mothers

Table (3): Frequency Distribution of Mothers' Knowledge Regarding Preventive Precautions of Burn among their Children pre and post Teaching Intervention (n= 200)

Items	Pre-teaching intervention regarding preventive precautions of burn				Post teaching intervention regarding preventive precautions of burn			
	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Definition of burn	38	19	162	81	182	91	18	9
Causes	44	22	156	78	186	93	14	7
Risk factors	46	23	154	77	192	96	8	4
Types	26	13	174	87	180	90	20	10
Management	28	14	172	86	178	89	22	11
χ^2 = 0.14				**P-value = 0.03**				

Table (4): Frequency Distribution of Mothers' Scores Knowledge Regarding Preventive Precautions of Burn among their Children pre and post Teaching Intervention (n= 200)

Items	Mothers' Scores Knowledge			
	Pre-teaching intervention		Post teaching intervention	
	No	%	No	%
Unsatisfactory	174	87	8	4
Good	18	9	10	5
Very good	8	4	182	91
T= --4.6, p-value=0.000*				

Table (5): Frequency Distribution of Mothers' Reported Practices Regarding Burn pre and post Teaching Intervention regarding Accidents (n= 200)

Items	Pre-teaching intervention regarding preventive precautions of burn				Post teaching intervention regarding preventive precautions of burn			
	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Keep children away from fire and cooker	32	16	168	84	170	85	30	15
Keeping panhandles outside the stove.	70	35	130	65	180	90	20	10
Placing candles, hot food, and lit cigarette out of the reach of children.	68	34	132	66	174	87	26	13
Checking the temperature of bathwater.	58	29	142	71	190	95	10	5
Covering outlets with plastic shields.	178	89	22	11	100	100	0	0
χ^2 = 0.8				**P-value = 0.02***				

Table (6): Correlation between mother's age, education and child age and mothers' knowledge and practices

Items	Mother's age		Mother's education		Mother's working		Child age	
	R	P	r	P	R	P	R	P
Mothers knowledge about burn	0.56	0.00	0.43	0.00	0.86	0.00	0.87	0.00
Mothers reported practices in case of burn	0.50	0.05	0.42	0.00	0.56	0.00	0.87	0.00

Discussion

The preventive precautions taken by the mothers in the home environment are very important to minimize the incidence of pediatric injuries. So the role of pediatric nurses and community health nurses is very important in utilizing teaching intervention for burn accident prevention among children. The researchers' aim in the current study was to evaluate the effect of a teaching intervention on mothers' awareness about preventive precautions of burn at home among children.

The results of the current study indicated that less than half of the studied mothers were between 21 < 26 years. These results are supported by the study conducted in Assiut Governorate by **Saad et al., (2015)** about "Assessment of Knowledge and Practice of Mothers toward Home Accidents among Children Under Six Years in Rural Areas "and found that less than half of mother's age was ranged between (25-34) years old.

Concerning the education of the studied mother, the results of the current study indicated that less than one-third (31%) of them had secondary education. In contrast, **Saad et al., (2015)** in their study about "Assessment of Knowledge and Practice of Mothers toward Home Accidents among Children under Six Years in Rural Areas" noticed that more than half of the mothers were illiterate.

The results of the current study revealed that more than half of the studied mothers were housewives. This result is in the same line with **Hossein, (2019) and Saad et al., (2015)** who indicated that the majority of the studied mothers in their study were not working.

The results of the current study highlighted that more than half of the children's age ranged from 0 to 3 years. It is noticed from the same table that less than three quarters (73%) of the children were male, whereas 27% of them were female. The same results were mentioned by **lknur and Havva (2018)** in their study about "Effects of a Safety-Awareness–Promoting Program Targeting Mothers of Children Aged 0–6 Years to Prevent Pediatric Injuries in the Home Environment" and reported that more than half of children were in 1–3 years.

The results of the current study highlighted that more than one-third of the studied mothers can manage their children's burn injury at home. This percentage indicated the knowledge deficit regarding burn preventive precautions and the need to apply the teaching intervention to them to improve their knowledge.

The results of the present study revealed that the highest percent of the studied mothers were experienced burn accidents among their children. This is related to that mother did not have enough knowledge about burn preventive precautions and did not apply them at home**.** This result agrees with the study conducted by **lknur and Havva (2018)** and observed that children aged 0–6 years had a history of burn injury. Similary, **Hossein, (2019), and Saad et al (2015)** found that in their study that more than fifty percent of the mothers experienced burn accidents among their children.

The current study revealed that there were significant differences between pre and post-teaching intervention in mothers' knowledge. This is indicated the effectiveness of the teaching intervention regarding preventive precautions for mothers. These results were supported by **Çiçekler et**

al. (2012) who found In their study about the examination of security measures for home accidents in children with 0-6 age group that there was a significant difference in taking safety precautions against pediatric injuries between those who had graduated primary school ($p < .05$).

The results of the present study revealed that there were significant differences between pre and post-teaching intervention in mothers' knowledge about mothers' scores (t test= -4.6, P values 0.000). This is indicated the positive effect of teaching intervention for mothers about burn prevention. These results were in the same line with **Altundag and Öztürk (2017**) who conducted a study about " The effects of home safety education on taking precautions and reducing the frequency of home accidents " and reported that a positive change in mothers' knowledge and attitude as a result of the training provided to prevent pediatric injuries. Similarly, **lknur and Havva (2018)** found that the training provided to the mothers about safety precautions was effective.

Also, Turan et al. (2010) concluded in their study about prevention of home accidents in children aged 0–6 that the training they provided to the mothers with children aged 0–6 years about safety precautions to prevent pediatric injuries increased their knowledge significantly. Similary, **King et al. (2015)** conducted a study about Long term effects of a home visit to prevent childhood injury and reported that most of the mothers in their training group their knowledge, attitudes, and practices after home visits to prevent pediatric injuries has improved($p < .001$).

Posner et al., (2014) also found in their study about a randomized, clinical trial of a home safety intervention based in an emergency department setting that home safety scores increased after the training on home safety to the parents with children

These results go parallel with the study's hypothesis and supported with **Rodolfo & Mrach, (2015)** who studied Parenting Knowledge: Similarities and Differences in Brazilian Mothers and Fathers, National Institute of Child Health and Human Development, and showed that mothers' knowledge about injury prevention for their children was positively associated with mothers' home safety practices. On the same line **Alazab, (2012)** who studied Determinants of Acute Poisoning among Children (1-60) months Old at a Poisoning Unit of a University Hospital, Egypt and **Eldosoky, (2012)** who studied Home-related injuries among children: knowledge, attitudes, and practice about first aid among rural mothers concluded that mothers had knowledge deficit in the pretest regarding children's accidents prevention. **Carlsson et al., (2016)** showed in their study conducted about Mothers' awareness towards child injuries and injury prevention at home that the intervention had a positive effect on mothers' awareness towards child injuries at home.

The results of the current study indicated that there were statistically significant differences between pre and post-teaching intervention concerning mothers' practices regarding management used in cases of burn injury (χ^2 = 0.8 P-value = 0.02*). This is explained by the importance of providing the teaching intervention to mothers. This result is in the same line with **Elayne et al. (2016)** who studied "The Effect of Educational Intervention Regarding the Knowledge of Mothers on Prevention of Accidents in Childhood" and stated that there was an increase in mothers' knowledge about the prevention of accidents in childhood through the educational intervention.

The results of the current study revealed that there were highly statistically significant correlations were found between mothers' age, education, and working, child's age, and mothers' knowledge regarding prevention of burn (P value=0.00, 0.56) and also with mothers reported practices. This is explained by young mothers' age can apply different preventive precautions for their children. Concerning education, the educated mother may have sufficient knowledge about the topic and can apply it easier for their children. Regarding working, mothers that are staying at home can take more precautions to protect their children from worked mothers.

The same results were mentioned by **Çiçekler et al. (2012)** in their study about the examination of security measures for home accidents in children with 0-6 age group and found the same. Similarly, **lknur and Havva (2018)** determined that in their study about "Effects of a Safety-Awareness–Promoting Program Targeting Mothers of Children Aged 0–6 Years to Prevent Pediatric Injuries in the Home Environment" that there was a significant difference between the age group of children and the pretraining average scores (p = .019).

Conclusion

Depending upon the results of the current study and the study questions it was concluded that more than half (53%) of the studied children were from 0-3 years old. Sixty-two percent of the studied mothers have experienced burn accidents among their children. There was a significant improvement in both mothers' knowledge and reported practices regarding burn prevention among children less than six years after exposure to teaching intervention regarding burning preventive precautions at home. There were highly statistically significant correlations were found between mothers' age and education, child's age, and mothers' knowledge regarding prevention of burn (P value=0.00, 0.50). Mothers' reported practices were also, significantly correlated with their age, level of education, and child's age in the management of the child with burns (P-value =0.00, 0.50).

Recommendations

From the previous findings the following recommendations are suggested: -

- Teaching intervention regarding preventive precautions of burn at home should be applied in all pediatric care settings.
- Health promotion programs should be provided about the prevention of burn injuries to improving mothers' awareness as children's caregivers about burning accident prevention and how to provide first aid for children in these situations.
- Mothers should make arrangements that minimize the risk of pediatric injuries at the home.

References

Alazab, R. M., (2012): Determinants of Acute Poisoning among Children (1-60) months Old at a Poisoning Unit of a University Hospital, Egypt, Are Employed Mothers a Risk Factor?, Retrospective Cohort Study, Journal of American Science; 8(9).

Altundag, S., & Öztürk, M. C. (2017): The effects of home safety education on taking precautions and reducing the frequency of home accidents. National Trauma and Emergency Surgery Journal, 13(3), 180 – 185.

Ashwill, J., and Droske, S., (2015): Nursing Care of Children, 2nd ed., San Antonio, Texas, United States, P: 880.

Bronstein, A.C., Sadermacner, B., Hager. K., and Manklaser R., (2015): Annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS). Clinical Toxicology; (45):815–917.

Çapık, C., & Gürol, A. (2014): The impact of education on mother's ability to identify safety measures for home accidents. Kafkas Journal of Medical Sciences, 4, 87 – 94.

Carlsson, A., Udén, G, Håkansson, A, Dejin Karlsson, E. (2016): Burn injuries in small children, a population-based study in Sweden. J Clin Nurs; 15:129–34.

Carlsson, Anna-Karin Dykes, Annkristin Jansson, and Ann-Cathrine Bramhagen. (2016): Mothers' awareness towards child injuries and injury prevention at home: an intervention study BMC Res Notes BMC Res Notes (2016) 9:223, Page 6 of 69:223 DOI 10.1186/s13104-016-2031-5.

Carvajal HF. Resuscitation of burn children. In: Carvajal HF, Parks DH, editors. Burns in Children:

Pediatric Burn Management. Chicago: Year Book Medical Publishers; 2008. pp. 78–88. [Google Scholar]

Çiçekler Yıldız , C. , Er Konuk , R. , Pirpir Alakoç , D. , & Büyükbayraktar , Ç.(2012). Examination of security measures for home accidents in children with 0-6 age group according to various variables. Ç.Ü. Social Sciences Ins. Journal, 21, 157 – 174

Elayne, C. S., Maria, N. F., Márcia, C. N., Ariadne, S. G., Ana, C. C., Thábyta, S. A., et al. (2016): The Effect of Educational Intervention Regarding the Knowledge of Mothers on Prevention of Accidents in Childhood, The Open Nursing Journal, 10, 113-121 113 1874-4346/16 Bentham Open The Open Nursing Journal Content list available at: www.benthamopen.com/TONURSJ/ DOI: 10.2174/1874434601610010113

Eldosoky, R.S.H., (2012): Home-related injuries among children: knowledge, attitudes, and practice about first aid among rural mothers; EMHJ, Vol. 18 No. 10.

Halperin, S.F., Bass, J.L., and Mehta, K.A., (2018): Knowledge of accident prevention among parents of young children in nine Massachusetts towns, Public Health Rep.; 98:548-53.

Hildreth, MA, Herndon, DN, Desai, MH, Duke MA. (2013): Caloric requirements of patients with burns under 1 year of age. J Burn Care Rehabil; 14:108–12. [PubMed] [Google Scholar]

Hossein, Y.E., (2019): Effect of Mother's Education about Home Accident Prevention among Preschool Children in Rural Area in El-Minia governorate, El-Minia med. bull., vol. (20), no. (2), June.

King, W. J., LeBlanc, J. C., Barrowman, N. J., Klassen, T. P., Bernard Bonnin, A. C., Robitaille, Y., … Pless, I.(2015): Long term effects of a home visit to prevent childhood injury: Three years follow up of a randomized trial. Injury Prevention: Journal of the International Society for Child and Adolescent Injury Prevention, 11, 106 – 109.

Lknur, K., and Havva, K. (2018): Effects of a Safety-Awareness–Promoting Program Targeting Mothers of Children Aged 0–6 Years to Prevent Pediatric Injuries in the Home Environment: Implications for Nurses, Article in Journal of trauma nursing: the official journal of the Society of Trauma Nurses ·September DOI: 10. 1097/ JTN. 0000000000000384

National Safe Kids Campaign, (2012): [online factsheet] (http://www. achd. net/injury/pubs/pdf/KidsSafety_pamphlet.pdf, accessed 9 August (2012).

Palmieri, T.L. (2013): Problems in General Surgery, Vol. 20. Philadelphia: Lippincott Williams and Wilkins, Pediatric burn management; pp. 27–36. [Google Scholar]

Posner, J. C., Hawkins, L. A., Garcia-Espana, F., & Durbin, D. R.(2014): A randomized, clinical trial of a home safety intervention based in an emergency department setting, Pediatrics, 113, 1603 – 1608.

Reed, JL, Pomerantz WJ. (2015): Emergency management of pediatric burns. Pediatr Emerg Care; 21:118–29. [PubMed] [Google Scholar]

Rodolfo, C., and Mrach, H., (2015): Parenting Knowledge: Similarities and Differences in Brazilian Mothers and Fathers, National Institute of Child Health and Human Development, USA, Interamerican Journal of Psychology, Vol. 39, Num. (1), pp. 5-12.

Saad, N.A., Moftah, M.F., Ibrahim, H.F., and Hassanen, R.H., (2005): Assessment of Knowledge and Practice of Mothers toward Home Accidents among Children Under Six Years in Rural Areas in Assiut Governorate, Ass. Univ., Bull. Environ, Res., Vol. 8, and No. (2), October 2005.

Shrestha, S. R. (2016): Burn Injuries in Pediatric Population; J Nep Med Assoc 45: 300-305

Thein, M.M., Lee B.W., and Bun, P.Y., (2015): Childhood injuries in Singapore: a community nationwide study, Singapore Med. J., 46: pp.116-21.

Törüner, E. K., & Büyükgönenç, L. (2011): Child health basic nursing approaches. Ankara, Turkey: Göktug.

Turan , T. , Dündar , A. S. , Yorgancı , M., & Yıldırım , Z.(2010): Prevention of home accidents in children aged 0–6 . National Trauma and Emergency Surgery Journal, 16, 552 – 557.

Turner C, Spinks A, McClure R, Nixon J. (2014): Community-based interventions for the prevention of burns and scalds in children. Cochrane Database Syst Rev; 2(2):CD004335.

WHO (World Health Organization), (2018): Regional Committee for Europe Fifty-fifth Session: European strategy for child and adolescent health and development, Denmark: WHO Regional Office for Europe. Available from: http://www.euro.who.int/document/RC55/edoc06.pdf.

World Health Organization (2014): http://www. who. int/ whosis/ database/core/core select_ process. Cfm, Accessed 25 July.