

Effect of Home Care Program for Mothers Having Children with Burn Injury

Mervat Amin (1),Huwida Hamdy Abd Elmnem(2)

Community Nursing, Faculty of Nursing, Fayoum University, Cairo, Egypt*,

Pediatric Nursing, Faculty of Nursing, Fayoum University, Cairo, Egypt**

Corresponding Author:Dr. Mervat Amin

Abstract: Burn injuries constitute a major public health problem, especially in low- and middle-income countries especially among children due to home accidents. **Aim:** The study aimed to evaluate the effect of home care program for mothers having children with burn injury. **Design:** A quasi experimental design was used in this study. **Setting:** This study was conducted in the outpatient clinic in El Fayoum teaching hospital affiliated to El Fayoum University. **Sample:** A simple random sample was used to conduct this study. The total number of study sample of mothers was 60 mothers who having primary school children with burn injuries. **Tool:** Two tools were used in this study for data collection, first tool: A structured interviewing questionnaire, second tool: An Observational checklist to assess mothers' practices. **Results:** The study noted that there were 50.0% of mothers were in the age group of 31-40years; with mean \pm SD 32.5 \pm 2.3, 50.0% of them were illiterate. Meanwhile, 63.3% of them were housewives with 80 % of them had insufficient monthly income. Also the study proved that, there were statistical significant differences between mothers' knowledge, attitude, and practices between preprogram and post program implementation with notices improvement. **Conclusion:** The results concluded that, the home care program had an evident effect on improving the mothers' knowledge, attitude, and practices toward home care of their children with burn injuries. **Recommendations:** the researchers recommended that, the importance of publication and disseminations of the home care program in all health services to improve mothers' performance about the care children with burn.

Keywords: Burn Injury, Home Care Program,

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I. Introduction

Children are naturally curious. As soon as they are mobile they want to explore their surroundings and play with new objects. Yet this natural learning process means they come into contact with objects that can cause burn injuries. Playing with fire or touching hot objects can result in burns, causing intense pain and often long-term consequences. This creates suffering not just for the children but also for their families and the broader community (Bhananker, et al., 2012).

Burns are the third leading cause of accidental death in children (Peoples, 2015& Smith, et al 2010)). Deaths from burns peak in the ages from one to four years old because of, injuries to children are arising from home accidents which are increasingly seen as community health problems. Burns constitute a major public health problem, especially in low- and middle-income countries where over 95% of all burn deaths occur. Fire-related burns alone account for over 300 000 deaths per year, with more deaths from scalds, electricity, chemical burns and other forms of burns. Moreover, (CDCP,2016 and Borse, et al., 2018)add, deaths are only part of the problem; for every person who dies as a result of their burns, many more are left with lifelong disabilities and disfigurements. For some this means living with the stigma and rejection that all too often comes with disability and disfigurement.

In Egypt too it has become a public health problem. The incidence of home accidents among children under 6 years in Assuit governorate in the year 2003 as perceived by their mothers was 50.3%. Burns and scalds are the third most common cause of injury and the most frequent form of injury among children less than 5 years of age. They are among the most devastating injuries, a child can sustain and need prolonged medical and nursing therapies can result in long-term physical and psychological concerns (Kamal, 2013).

According to (Pollard, 2013 and Battle et al., 2016)classification of burn injury involves both the depth of the burn and the total body surface area (TBSA). The traditional classification of burns (first, second, third degree) has been replaced by a classification system that reflects the need for surgical therapy-burns are currently grouped as superficial, superficial partial-thickness, deep partial-thickness, full thickness, and fourth-degree burns. Large burn injuries have multisystem manifestations, including injuries to all major organ systems, requiring close supportive and therapeutic measures. Therefore, management of burn injuries requires intensive

medical therapy for multi-organ dysfunction, and aggressive surgical therapy to prevent sepsis and secondary complications. In addition, pain management throughout this period is vital.

Moreover, the mortality rates of children due to burn injuries vary by as much as a factor of 10 across the different regions of the world. Not surprisingly, rates are lowest in high-income countries where, as a result of interventions for home environmental safety such as promotion of the use of smoke detectors, the lowering of temperatures of hot water heaters, the installation of sprinkler systems, as well as the development of safer buildings and household fuels and appliances. Also, the preventive measures for children such as the promotion of flame retardant children's sleepwear (Brown, 2014 and WHO, 2018).

Children have a high risk of sustaining a burn injury due to their physiological, psychological, and developmental differences. Burn injuries have a significant impact on children's life and may affect a range of body systems. The impact of these injuries on children and families is often long lasting. As the injury itself and required treatment often causes distress, pain and anxiety, appropriate management by nurses is essential in providing family centered care. However, care requirements are based on the size, depth, anatomical site and mechanism of injury so, it is important that nurses and mother as caregiver are aware of these implications and thus treat the child in a holistic approach and not only the physical injury (Romanowski and Palmieri 2017)

Progress in this area will be conducted by improved data gathering systems, new and more stringent legislation, social marketing, advocacy and, advances in the treatment and home care of children with burn injuries. The developments in home care for burn will lead to improve in functional outcomes for a great number of children victims, which coupled with increased emotional and practical support from burn survivor groups, have meant that many children survivors manage to lead full, meaningful lives despite their injuries (Stephanie, 2015). Lastly the pediatric field of health care has a different landscape than that of adult. Because of these differences, the nurse's role is patient & family-centered care especially for the mother who consider the main caregiver for their children and Affordable Care Act's promotion of patient centered home. As well nursing in the pediatric field has more considerations than other fields of nursing due to the attention needed paid to the family unit (Christian, 2014).

1.1 Significance of the study:

Burn injuries in the pediatric population present major challenges to children and the community. Children burns may have high mortality rates and can cause significant long-term disabilities lasting years. Thus, a standard of care for burn children are essential and starts with accurate and up-to-date information. In Egypt, nearly 17% of children with burns have a temporary disability and about 18% have a permanent disability. However, the goal in burn care remains to achieve rapid healing, adequate pain control, retention of function, and a pleasing aesthetic outcome (WHO, 2016).

According to the statistical records of El Fayoum Universal Hospital, children burned due to home accidents occur in 42.8% less than five years and 21% ranged around of school age. Moreover, home burn responsible for 12% of child mortality from third degree, the facility of hospital not qualified to receive third degree of burned patient. Meanwhile, statistical record of burned children constitutes 64.2% of total patient admission with burn (Unpublished statistical records from El Fayoum Universal Hospital, 2016).

1.2 Aim of the study

The aim of this study was to evaluate the effect of home care program for mothers having children with burn injury through:

1. Assessing mothers' knowledge, practices and attitude regarding home care of their children who suffering from burn.
2. Assessing safety measures of home environment for prevention of burn children.
3. Developing and implementing a home care programs for mothers, toward care of their children with burn.
4. Evaluating the effect of the home care program on improving the mothers' knowledge and practices related to the care of their children with burn injuries.

1.3 Research hypothesis:

The home care program will improve mothers' knowledge, practices, and attitude related to the care of their children with burn injuries.

II. Methodology

2.1 Research Design:

A quasi-experimental design was used in this study to achieve the aim of the study.

2.2 Study Setting and Population:

The study was conducted in the outpatient clinic in El Fayoum teaching hospital affiliated to El Fayoum University. A simple random sample was used to conduct this study. The total number of study sample

of mothers were 60 mothers who having primary school children with burn injuries, and attended at the Pediatric Clinic for burn at the previous mentioned setting which represent 10% of total attendance of children victims annually were 600 children.

2.3 Tools of data collection:

Two tools were used in this study to collect the data, which developed by the researchers after reviewing the national and international related literature. **First tool:**

A structured interviewing questionnaire developed by the researchers in Arabic language. It consisted of three parts:

Part I: This part to assess the mothers' Socio-demographic characteristics regarding their age, marital status, level of education, occupation, and family monthly income. It was a combination of open-ended and closed questions.

Part II: This part to assess home environmental safety characteristics, which consisted of 6 closed ended questions.

Part III: This part was developed to assess the mothers' knowledge about skin and burn injuries for children. It included 15 open ended questions regarding anatomy and physiology of skin, meaning of burns, its types, signs and symptoms, percentage of the burn, complications, dangerous of burn, and its degree. Also, the first aid of burn (pre and post-test format).

Scoring system for mothers' knowledge:

Each question had a score ranged from 0 - 1 grades, whereas, correct answer scored 1 grade, and score zero for an incorrect or unknown answer. These scores were summed-up and converted into a percent score: The total score for all items related to knowledge 15 items were 15 grades which represents 100% and categorized into three levels as followings: From 0 < 50% referred to poor knowledge, 50 < 75% referred to average knowledge while score from 75 ≤ 100% referred to good knowledge.

Part IV: This part designed to assess attitude of mothers regarding child pain before, during & after dressing, pain management, and effect of child pain on mother attitude. It was including 7 items about mother attitude regarding prevention of child burn injuries.

Scoring system for mother attitude:

Each of the attitude items take 1 grade for agree response and "zero" for disagree response, the total score of mothers' attitude was considered "Positive attitude" if the percent score was 50% or more and Negative attitude if less than 50%.

Second Tool:

An Observational checklist: Designed to assess the mothers' practices about care for first and second degree of burn which adapted from: (Salah 2002), and consisted of 26 steps (pre-post-test format).

Scoring system for mothers' practices

Each of the practice step done correctly was scored "one", and not done "zero", the total score of mothers' practices was considered adequate if the percent score was 50% or more and inadequate if less than 50%.

2.4. Validity and Reliability:

Content and face validity were performed by two professors of the community specialty of nursing faculty and two professors from the Pediatric Department specialty of nursing faculty, and one professor of pediatric surgery, Faculty of Medicine. All experts were affiliated to El- El Fayoum University, Egypt who reviewed the tools for content accuracy. The developed tool was tested for reliability on a sample of 10 subjects. The reliability test of translated version was established by using the Cronbach alpha and Pearson correlation which showed good internal consistency construct validity Cronbach's Alpha coefficient test = (0.887).

2.5 Ethical Considerations:

The necessary approval from the administrative authority of the El Fayoum University hospital was taken after issuing an official letter from the Dean of Faculty of Nursing, El Fayoum University. An informed consent to participate in the current study was taken after the purpose of the study was clearly explained to each mother. Confidentiality of obtained personal data, as well as the respect of participant's privacy was totally

ensured. A summary of the program was explained to every mother who voluntarily agreed to participate in the study and they were informed that they can withdraw from the study at any time without giving any reason

2.6 Pilot study:

A pilot study was carried out before starting data collection, and 8 mothers having child with burn injury chosen randomly from previous mentioned setting. It was done to estimate the time required for filling out the tools. Also to check the clarity, applicability, relevance of the questions. Based on the results of the pilot study, the necessary modifications were done; these mothers were excluded from the main sample.

2.7 Program Implementation:

2.7.1 Fieldwork:

An official permission to conduct the study was obtained from the Directors of El Fayoum University hospital. In order to obtain their agreement and cooperation, a formal letter was issued by the Dean of Faculty of Nursing, El Fayoum University, explaining the aim of the study. Preparation of data collection tools was carried out over a period of one month beginning from end of August 2017 to end of September 2017, after being revised from experts to test their validity.

The application of the home care program, done by the researchers, lasted for 6 months from the beginning of October 2017 to end of March 2018; two days/week (Sundays, and Wednesdays), in the previous mentioned setting from 9.00 a.m. to 2.00 p.m. The questionnaire took about 25 minutes, and 15 minutes for checklist to be filled by the researchers and included about (5-6mothers). The home care program was applied for mothers; they were met few times because they had many duties after coming to follow up at the outpatient clinic for burn. The intervention of the program was applied in five sessions (2 sessions for theory and 3 sessions for practices).

Home care Program Development Phases:

The general objective of the program: To improve mothers' knowledge, practices, attitude toward care of children with burn injuries at home. The theoretical part of the program was presented in two sessions as work shop, and discussions, followed by the second part which consisted of three subsequent sessions for mothers' practices regarding their providing care related to management of first degree and wound care for second degree of burn at home.

The present study was conducted in four phases:

Phase 1: A pre-program assessment tool, using the previous interviewing questionnaire and checklist for data collection from mothers. This phase aimed at improving mothers' knowledge and practices toward care of children with burn injuries at home which lead to reduce complications of burn which led to decrease the mortality rate among children suffered from burn.

Phase 2: The home care program was designed by the researchers based on results obtained from the pre-program assessment tools. It was revised and modified based on related literature, and socio-demographic aspects of the study sample to cover mothers' knowledge, practices, and attitude toward care of their children having burn at home.

Phase 3: Implementation of the program: Through group discussion, the researchers discussed with the mothers the theoretical and practical parts, which included the following items: Anatomy and physiology of skin, the definition of burn injuries, the types of burn, clinical manifestations of burn injuries, classifications of the burn, the burn complications, dangerous of burn, and its degree, also, the first aid of burn, and care of burn wound and relieve pain.

The contents of the practical part were given through observational checklist that included: (washing hands, wearing gloves, skin care, assessment of burn wound & skin affected, using an ointment on child wound, and steps of wound dressing).

Implementation was done in outpatient clinic for burns at El Fayoum University hospital in El Fayoum Governorate, Egypt during time table for follow up for children at morning shifts during waiting time of clinic. Methods of teaching: included; discussions, role play, followed by demonstration and re-demonstration using simple Arabic language with little professional medical expressions for mothers according to their level of education. As well, audio-visual aids were used such as posters, leaflets and a booklet.

Phase 4: Evaluation phase: Evaluation of the home care program was done immediately after completing the program implementation, while the follow up evaluation was done after six months from beginning of the program by using the same pre-program tools to evaluate the impact of the program on mothers' knowledge,

practices and attitude related to prevention, and management of burn wound and to reduce its complications level of children at home.

2.8 Statistical Analysis:

Data collected from the studied sample were revised, coded and entered using PC. Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS), version 20. Data were presented using descriptive statistics in the form of frequencies and percentages. Chi-square test (X^2) was used for comparisons between qualitative variables. Statistical significance was considered at p -value <0.05 .

III. Results

Table (1) shows that, 50.0% were in the age group of 31-40 years; Mean \pm SD 32.5 \pm 2.3. Also 50.0% of the studied sample of mothers were illiterate and 18.3% of them were divorced. Meanwhile, 63.3% of them were housewives with 80% of them had insufficient monthly income.

Table (2) In relation to residence of the studied mothers it was found that, 78.3% of them were from urban areas, 46.7% of the studied mothers their house consist from 1-2 rooms. As regarding to ground cover this table revealed that 93.3% their ground was covered with carpet, it was found that 75.0% of the studied mother used windows as a source of ventilation, 66.7% of them did not used any source of heating in winter and 76.6% of mother used gas as a type of burner used in cooking. Also the table presents that, just a little of study sample of mothers 3.3%, 5.0%, and 15.0% had types of fire safety equipments at home such as smoke detectors, fire extinguishers, and escape ladders respectively.

Table (3) clarifies that, there were noticed improvements of mothers' knowledge related to anatomy of skin and degree of burns which was estimated that, 81.7% and 95.0% of mothers had incorrect answers pre-program implementation and improved to 88.3% of mothers answered correctly post program with highly statistically significant relations ($p < 0.01$). Regarding to signs and symptoms of burns and dangerous of burn there were improvements from 31.7% and 26.7% of them answered correctly pre-program to 86.7% of them answered correctly post program implementation with highly statistically significant relations ($p < 0.01$).

Table (4) reveals that, there were improvements of mother's knowledge related to first aid for burning child, for second burn degree, and for chemical burn on eye which was estimated that, 80.0%, 81.7%, and 74.3% of mothers had incorrect answers pre-program implementation and improved to 74.3%, 88.3%, and 80.0% of mothers answered correctly post program respectively with highly statistically significant relations ($p < 0.01$).

Figure (1) illustrates that, there were statistically significant difference between total mothers' knowledge related to burn injuries pre-program and post-program implementation with $\chi^2 = 19.9$ and P value = 0.003.

Table (5) shows that, there were 88.3%, 80.0%, 70.0%, and 71.7% of mothers practiced adequately post program implementation regarding to wearing gloves, removing burning agent, and apply towels moistened with cool water for 5-10 minutes, arranging water proof barrier as appropriate for comfort and monitor for hypothermia, and applying only water based nondrying lotion to healed areas respectively with statistically significant difference between ($p < 0.05$).

Table (6) demonstrates that, there were noticed improvements of mothers' practices regarding care of the second degree of burn as there were 80.0%, 71.7%, 76.7%, and 70.0% of mothers practiced adequately post program implementation regarding to washing hand, wearing gloves, assessing the wound, and removing adequate amount of anti-microbial area from jar respectively with statistically significant difference between ($p < 0.05$).

Figure (2) illustrates that, there was statistically significant difference between total mothers' practices related to home care of their child with burn injuries pre-program and post-program implementation with $\chi^2 = 10.2$ and P value = 0.002.

Table (7) demonstrates that, there were noticed improvements of mothers' attitude regarding care of their child with burn as there were 81.7% and 70.0% of mothers agreed to positive attitude as potting handles away from edge of stove (if child in kitchen) and placing hot water and dishes in a place where couldn't touch respectively post program implementation with statistically significant difference between ($p < 0.05$).

Figure (3) illustrates that, there was statistically significant difference between total mothers' attitude related to home care of their child with burn injuries pre-program and post program implementation with $\chi^2 = 14.2$ and P value = 0.002.

Table (8) presents that, there was positive correlation between total knowledge of the studied sample of mothers and their total practices regarding home care of children with burn at $r = 0.57$, and 0.91 for pre and post program implementation respectively and P value < 0.05 .

Table (9) shows that there was positive correlation between total mothers' knowledge/ practices and their total attitude regarding home care of children with burn injuries at $r = 0.79$, and 0.8591 for total knowledge and total practices post program implementation respectively and P value < 0.05 .

Table (1) Distribution of the studied sample of mothers according to their socio demographic characteristics (no=60)

Item	No	%
Age		
20 -	21	35.0
30-	30	50.0
41 ≤ 50 years	9	15.0
Mean ±SD	32.5 ± 2.3	
Marital statuses		
Married	45	75.0
Divorced	11	18.3
Widow	4	6.7
Level of education		
Illiterate	30	50.0
Read and write	11	18.4
Technical	12	20.0
University	7	11.6
Occupation		
Housewife	38	63.3
Working	22	36.7
Family monthly income		
Sufficient	12	20.0
Insufficient	48	80.0

Table (2): Distribution of the Studied sample of Mothers According to their Home Environment safety measures (no=60)

Item	No	%
Residence		
Urban	47	78.3
Rural	13	21.7
Room number		
1-2	28	46.7
3-4	16	26.6
4-5	10	16.7
>5	6	10
Ground cover		
Carpet	56	93.3
Ceramic grounds	4	6.7
Sources of Ventilation		
Propeller	41	68.3
Air condition	16	26.7
Windows	45	75.0
Doors	44	73.3
Sources of heating in winter		
Electrical heater	7	11.7
Kerosene heater	2	3.3
Wood burn	11	18.3
Non	40	66.7
Type of burner used in cooking		
Electricity	2	3.3
Kerosene	12	20.0
Gas	46	76.7

Types of fire safety equipments found		
Smoke Detectors	2	3.3
Fire Extinguishers	3	5.0
Escape Ladders	9	15.0

Table (3): Number and percentage distribution of the studied sample of mothers according to their Knowledge regarding burn (no= 60)

Item	Pre program				Post program				X2	P Value
	Correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Anatomy of Skin	11	18.3	49	81.7	53	88.3	7	11.7	53.04	**0.0001
Function of the skin	12	20.0	48	80.0	51	85.0	9	15.0	48.25	**0.0001
Meaning of Burns	15	25.0	45	75.0	48	80.0	12	20.0	34.22	**0.0001
Types of burn	12	20.0	48	80.0	41	68.3	19	31.7	26.49	**0.0001
Signs and symptoms of burns	19	31.7	41	68.3	52	86.7	8	13.3	35.32	**0.0001
percentage of the burn	17	28.3	43	71.7	49	81.7	11	18.3	32.36	**0.0001
Complication of the burns	11	18.3	49	81.7	51	85.0	9	15.0	50.76	**0.0001
Dangerous of burn	16	26.7	44	73.3	52	86.7	8	13.3	41.57	**0.0001
Degree of burns	3	5.0	57	95.0	53	88.3	7	11.7	80.39	**0.0001
First burn degree characteristics	19	31.7	41	68.3	48	80.0	12	20.0	26.49	**0.0001
Second burn degree characteristics	13	21.7	47	74.3	50	83.3	10	16.7	43.31	**0.0001
Third burn degree burn characteristics	10	16.7	50	83.3	47	74.3	13	21.7	43.31	**0.0001

(**) High statistically significant at $p < 0.01$

Table (4): Number and percentage distribution of the studied sample of mothers according their knowledge regarding first aid for burning child (no= 60)

Item	Pre program				Post program				X2	P Value
	Correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
First aid for first burning child	12	20.0	48	80.0	47	74.3	13	21.7	38.54	**0.0001
First aid for second burn degree	11	18.3	49	81.7	53	88.3	7	11.7	56.28	**0.0001
First aid for chemical burn on eye	13	21.7	47	74.3	48	80.0	12	20.0	38.54	**0.0001

(**) High statistically significant at $p < 0.01$

Figure (1): Number and percentage distribution of the studied sample of mothers according to their total knowledge score regarding burn injuries (No= 60)

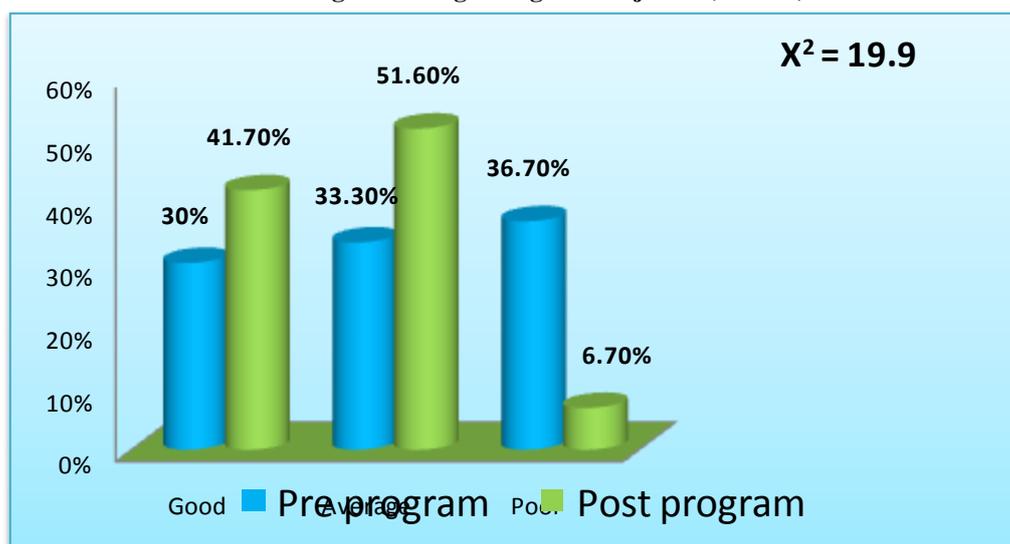


Table (5): Number and percentage distribution of the studied sample of mothers according to their practices regarding home care of the first degree of burn (no= 60)

Item	Pre program				Post program				X2	P Value
	Inadequate practices		Adequate practices		Inadequate practices		Adequate practices			
	No	%	No	%	No	%	No	%		
Wash hand	36	60.0	24	40.0	20	33.3	40	66.7	7.5	*0.01
Wear gloves	33	55.0	27	45.0	7	11.7	53	88.3	23.4	**0.0001
Remove burning agent , and apply towels moistened with cool water for 5-10 minutes	34	56.7	26	43.3	12	20.0	48	80.0	15.5	**0.0001
Remove and discharge gloves	32	53.3	28	46.7	16	26.7	44	73.3	7.8	*0.01
Done gloves	34	56.7	26	43.3	19	31.7	41	68.3	6.6	*0.01
Gently wash burned area with taped water and soap , and pat dry with a towel	40	66.7	20	33.3	21	35.0	39	65.0	10.8	**0.002
Elevated burned extremity	38	63.3	22	36.7	19	31.7	41	68.3	10.8	**0.001
Arrange water proof barrier as appropriate for comfort and monitor for hypothermia	36	60.0	24	40.0	18	30.0	42	70.0	9.7	**0.001
Apply only water based nondrying lotion to healed areas	31	51.7	29	48.4	17	28.3	43	71.7	5.8	*0.02
Remove and discharged gloves	35	58.3	25	41.7	23	38.3	37	61.7	4.0	*0.04

(*) Statistically significant at $p < 0.01$ (**) High statistically significant at $p < 0.01$

Table (6): Number and percentage distribution of the studied sample of mothers according to their practices regarding home care of the second degree of burn (no= 60)

Item	Pre program				Post program				X2	P Value
	Inadequate practices		Adequate practices		Inadequate practices		Adequate practices			
	No	%	No	%	No	%	No	%		
Wash hand	33	55.0	27	45.0	12	20.0	48	80.0	14.2	**0.0002
Done gloves	31	51.7	29	48.4	17	28.3	43	71.7	5.8	*0.01
Remove and discard old dressing	32	53.3	28	46.7	21	35.0	39	65.0	14.5	**0.0001
Discard gloves	33	55.0	27	45.0	20	33.3	40	66.7	4.1	*0.04
Done gloves	40	66.7	20	33.3	15	25.0	45	75.0	19.3	**0.0002
Gently wash the wound	39	65.0	21	35.0	19	31.7	41	68.3	12.0	**0.001
Deride loose narcotic tissue	36	60.0	24	40.0	22	36.7	38	63.3	5.6	*0.02
Assess the wound	35	58.3	25	41.7	14	23.3	46	76.7	13.7	**0.0002
Gently warp in warm towels	31	51.7	29	48.4	19	31.7	41	68.3	4.5	*0.04
Remove adequate amount of anti-microbial area from jar	34	56.7	26	43.3	18	30.0	42	70.0	7.6	*0.01
Apply anti-microbial cream to wound	35	58.3	25	41.7	23	38.3	37	61.7	4.0	*0.04
Removed and discard single gloves and done another gloves	36	60.0	24	40.0	19	31.7	41	68.3	8.5	**0.003
Warp wound loosely with bulky gauze	37	61.7	23	38.3	23	38.3	37	61.7	5.6	*0.02
Removed and discard the gloves	38	63.3	22	36.7	21	35.0	39	65.0	8.5	**0.003
Wash hands	37	61.7	23	38.3	23	38.3	37	61.7	5.6	*0.02
Total mean score	38	63.3	22	36.7	19	31.7	41	68.3	10.8	**0.001

(*) Statistically significant at $p < 0.01$ (**) High statistically significant at $p < 0.01$

Figure (2): Number and percentage distribution of the studied sample of mothers regarding to their total practices regarding burn (no= 60)

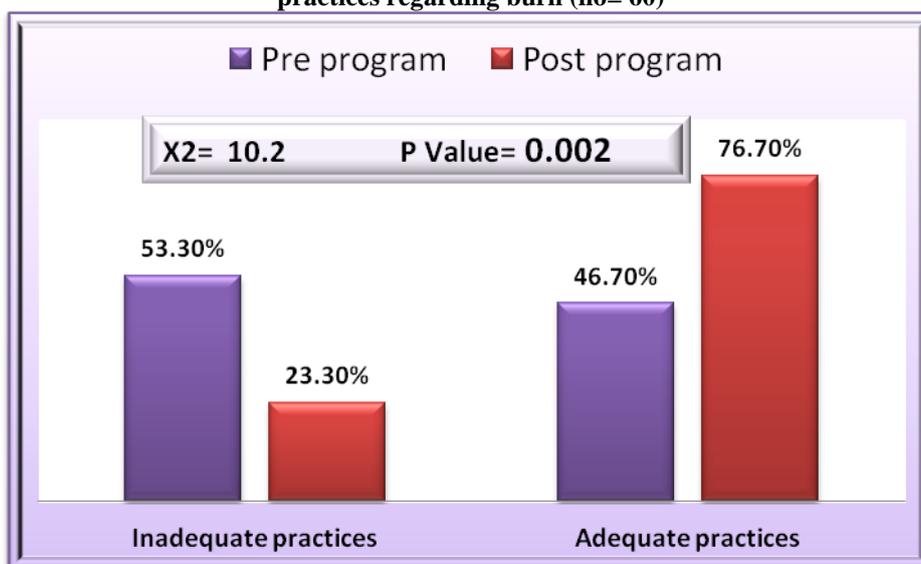


Table (7): Number and percentage distribution of the studied sample of mothers according to their attitude regarding prevention of child burn injuries (no= 60)

Item	Pre program				Post program				X2	P Value
	Disagree		Agree		Disagree		Agree			
	No	%	No	%	No	%	No	%		
Child not held while cooking or holding a hot liquid	32	53.3	28	46.7	21	35.0	39	65.0	14.5	**0.0001
Child not entry the kitchen when cooking	33	55.0	27	45.0	20	33.3	40	66.7	4.1	*0.04
Pot handles away from edge of stove (if child in kitchen)	34	56.7	26	43.3	18	30.0	42	70.0	7.6	*0.01
Child kept away from stove or oven (if child in kitchen)	35	58.3	25	41.7	23	38.3	37	61.7	4.0	*0.04
Hot dishes away from edge of counter (if child in kitchen)	36	60.0	24	40.0	19	31.7	41	68.3	8.5	**0.003
Place hot water and dishes in a place where couldn't touch	38	63.3	22	36.7	11	18.3	49	81.7	23.3	**0.0001

(*) Statistically significant at $p < 0.01$ (**) High statistically significant at $p < 0.01$

Figure (3): Number and percentage distribution of the studied sample of mothers regarding to their total attitude regarding home care of children with burn injuries (no= 60)

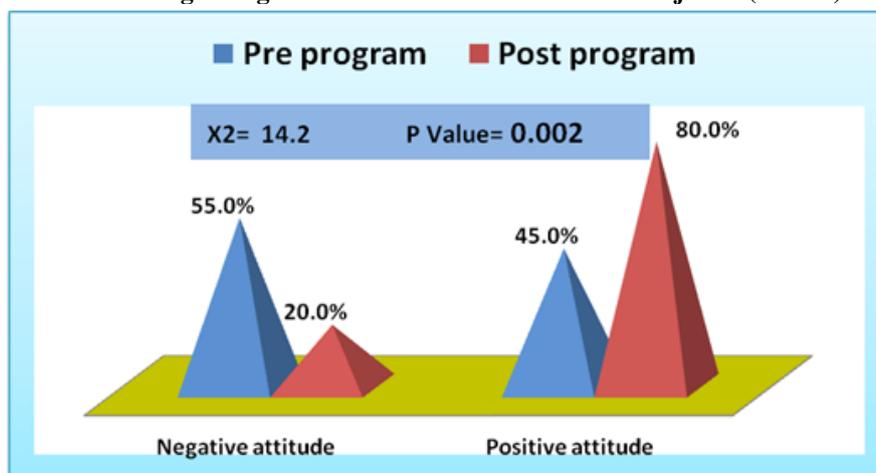


Table (8): The correlation between total knowledge of the studied sample of mothers and their total practices regarding home care of children with burn (n= 60).

Knowledge	Practices	
	r	P Value
Pre program	0.57	0.8
Post program	0.91	*0.01

(*) Statistically significant at $p < 0.01$

Table (9): The correlation between total mothers' knowledge/ practices and their total attitude regarding home care of children with burn injuries (n= 60).

	Attitude	
	r	P Value
Total mothers' Knowledge		
Pre program	0.49	0.6
Post program	0.79	*0.04
Total mothers' Practices		
Pre program	0.42	0.7
Post program	0.85	*0.03

(*) Statistically significant at $p < 0.01$

IV. Discussion

As regards studied sample characteristics, the current study revealed that, half of the studied mothers were in the age group of 31-40 years, and also half of them were illiterate, meanwhile two thirds of them were housewives with majority of them had insufficient monthly income (*Table 1*).

This result supported by the study of *Eldesouky (2015)*, who study home-related injuries among children: knowledge, attitudes and practice about first aid among rural mothers who found that, about half of the studied mothers were aged 25:< 35 years with mean age of 30.8 SD ± 7.9 years (range 19–54 years) and the majority of those studied mothers did not work. Also this finding is in agreement with *Mohammed et al., (2013)* who implement Supportive strategies regarding accidents prevention for mothers of children under five years old they mentioned that, more than half of the mothers were housewives and low family income.

In relation to residence of the studied mothers it was found that, more than three quarters of them were from urban areas, slightly less than half of them lived inhouse consisted of only one or two rooms. As regarding to ground cover this results revealed that, most of them their house ground was covered with carpet, it was found that three quarters of the studied mother used windows as a source of ventilation, and more than three quarters of mother used gas as a type of burner used in cooking also little of them had types of fire safety equipments at home such as smoke detectors, fire extinguishers, and escape ladders respectively (*Table 2*).

This finding is in agreement with *Ummuhan and Behice, (2016)* who study determination of knowledge, attitudes and behaviors regarding factors causing home accidents and prevention formothers with a child aged 0-5 Years, they found that, a significant relationship was detected between residence of family and home accident in child. As well found that, incidence of home accident is higher in children of families residing in isolated house. this finding similar the studies by *Waled, (2015)* who study the home accidents and associated factors among children less than five years old in Sudan he was found that children living in flatted houses exposed to home accidents are more commonly.

From the researchers' point of view this results are related to that, most of studied sample of mothers are low socio economic class as more than half of them were housewives with majority of them had insufficient monthly income also, one quarter of them were divorced and widow so they hadn't any other source of income to improve their quality and safety level of house.

As regards mothers' knowledge related to burn injuries, the current study clarified that, there were highly statistically significant relations between mother's knowledge as, first aid for burning child throughout the intervention ($p < 0.05$) (*Table 4*).

This is in agreement with the findings of *El-Sabely et al., (2014)* who conducted their research about the relation about mother's education and her knowledge about home accident prevention among preschool children in rural area in Sharqia governorate and reported that, more than half of the mothers did not know anything about home accidents to which their children might be exposed. Also this finding supported by *Mohamed et al., (2016)* who study theknowledge, attitude and practices of rural mothers towards home injuries among children under 5 years of age in Menouf District- Menoufia Governorate, Egypt they found that, there was a remarkable improvement in participants' level of knowledge as regards home injuries (causes, prevention, and first aid) after the program implementation ($P < 0.001$) in comparison with that before the program.

Also this study results supported by similar study conducted in Baghdad city by *Lafta et al., (2013)*, who found that mothers' knowledge about prevention of the four types of accidents studied was clearly deficient

and need to health education program to raise their awareness. This is also in agreement with a study conducted in China by **Wang et al., (2012)**, which concluded that parental knowledge on injury prevention and safety promotion was unsatisfactory. However, these findings are in disagreement with the findings of **Hatamabadi et al., (2014)**, who conducted a study in Iran on 230 mothers and mentioned that 75% of participants had good knowledge on preventive measures.

From the researcher's point of view this results are related to that, lowering of educational level of mothers and also insufficient health education in some health services and lack of mothers' utilization for some health services which are available and accessible for them.

The current study clarified that there was statistically significant difference between mothers practice related to care of the first and second degree of burn throughout the intervention ($p < 0.05$) (**Table 5,6**). This study was in accordance with **Sobhy, (2011)**, who study the Impact of health promotion educational program for mothers about accident prevention and first aid for preschool children at Benha City and reported that, the mothers' practices of first aid as regards burn, choking, wounds, fracture; electrical accidents, poisoning, and drowning were obviously improved after program intervention. Also this results supported by the study of **Carlsson et al., (2011)**, who study the precautions taken by mothers to prevent burn and scald injuries to young children at home they reported that, there was a highly statistically significant difference before and after intervention as regards mothers' practice.

The current finding indicated that there, there were statistically significant difference between total mothers' practices related to care of burn throughout the intervention ($p < 0.05$) (**Figure 2**). This study finding was highly supported by the study of **Mohamed et al. (2016)** who study burn prevention and first aid knowledge among high school students in Bangladesh who documented that, mothers' practice as regards care of burn among children under 5 years of age was highly improved after implementation of the educational program.

The current finding illustrated that there were statistically significant differences between mothers' attitude related to home care of children with burn throughout the intervention of the program ($p < 0.05$) (**Figure 3**). This study was in an agreement with the study of **Morrongiello et al., (2009)** they mentioned that, a significant increase in mothers' attitude and commitment following an educational intervention based on video and audio messages. Also this result supported by the study of **Mohamed et al., (2016)** they mentioned that, there was an improvement in mothers' attitude toward home injuries after implementation of the program.

The current study clarified that there were statistically significant differences between mother's knowledge, practices and attitude regarding care of burn at $p < 0.05$. this study was in accordance with **Falavigna et al., (2012)**, who study the Impact of an injury prevention program on teenagers' knowledge, practice and attitudes they reported that, the mother's attitude was also affected by the educational method in such a way that the total score of their knowledge increased significantly with positive effects of educational interventions on the attitude. Also this results supported by the study of **Jalal et al., (2013)** who study the factors associated with mothers' beliefs and practices concerning injury prevention in under five-years children they have to improve mothers' knowledge and attitude toward injuries prevention before they occur.

Conclusion

Based on the results of the current study, and the research hypothesis the following can be concluded: The home care program had an evident effect on improving the mothers' knowledge, attitude, and practices toward home care of their children with burn injuries

Recommendations

Based on the findings of the current study, the following recommendations are suggested: Emphasize the importance of conducted health education programs for all parents, especially new parents, on home accidents prevention and first aid as a routine service at primary health care units and out patients clinic at general hospitals. Increase the community awareness about home accidents prevention and how to provide first aid for children in emergency situations through mass media especially television. Publication and disseminations of the home care program in all health services to improve mothers' performance about the care children with burn.

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