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Effect of an Educational Intervention about Home First Aid Measures on Mothers' Knowledge

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Abstract: **Rapid and proper maternal intervention can lower the disability and enhance the affected child's likelihood of survival and make a significant difference in the outcome. Objective: to evaluate mothers' knowledge and its related practices regarding first aid at home among children before and after implementing of an educational program. Method: A quasi-experimental research design (pretest and posttest) was used to evaluate the effect of a health education intervention on changing knowledge about home injuries and the basic first aid measures of 80 Egyptian mother's having children under 5 years of age. Results: About 83.8% of the mothers were housewives and 32.5% of them were illiterate. Mean score percent of total knowledge increased from 11.93 ± 18.27 pretest to 62.27±30.38 posttest with (p < 0.001). Conclusion: Application of health education program among mothers having children less than five years improves mothers' knowledge regarding home accidents.**

Keywords: **Educational interventional program, mothers', children, home first aid measures.**

1. INTRODUCTION

Childhood injury is a major public health problem that requires urgent attention. Injury and violence is a major killer and disabilities of children worldwide (WHO, 2008& Ministry of Health 2010). Also, injuries due to accidents as the first cause of death in children less than 5- year were considered (Peden, 2008). Road accidents, drowning, burns, falling and poisoning are the most common causes of death and injuries in children in the world (Ayubi, 2016). Injury caused by accidents is one of the most risks that threatening children's health. (Mansori, 2014& Morowatisharifabad, 2009). Children are prone to unintentional injuries and are at a higher risk of experiencing injuries, because their bodies are developing and they have not yet learned to be aware both of themselves and various environmental dangers (El-Sabely, 2014).

Some studies showed that the majority of deaths occurred at home. Since reducing the burden of injuries is an international health goal, hence requires a collaboration of the different fields of science. Indeed all injuries have a common feature; it is their avoidable (Fardazar, 2016& Gielen, 2003). In Egypt too it has become a concern. For example, the overall rate of injuries in the indoor home environment was 72.5% among children below age 5 years (Amin, 1998). According to the National Safe Kids Campaign in the United States, 40% of deaths and 50% of non-fatal unintentional injuries occur in and around the home (National Safe Kids Campaign, 2012).

Prevention and control of home accidents among children has been recently a target and very important area for health promotion (Abd El-Wahed, 2000). First aid is the provision of initial care for an illness or injury, usually by a non-expert but trained person, until medical treatment can be accessed. Parents' knowledge and practice about first aid is especially important in injury care for children, as many adverse consequences of injuries can be averted if parents know what actions to take, (Ibrahim, 1991).

It was proved that education improves people's ways of life and gives way for enlightenments (National Safe Kids Campaign, 2012). Also it will be important to have a person close to the child who has appropriate knowledge about accidents because with proper attention they can be prevented(BLnfai, 2015). Therefore, the parents have a great, deal of responsibility. An adequate amount of first aid knowledge can increase the chances of survival of the injured person.

Children, particularly their mother, spend most of their time at home under the care of their parents.Children are interested in finding fresh stuff, making them at high danger of accidental injury and death. (Bényi, 2005 &Eldosoky, 2012). Rapid and right intervention from mothers can limit disability and increase the chances of survival of the injured child and make a big difference in the outcome. A caregiver should have an appropriate and adequate amount of first aid knowledge and practice. So it is important to improve the mother s' knowledge about the first aid at home. Therefore, this study aimed to evaluate mothers' knowledge and its related practices regarding first aid at home among children before and after implementing of an educational program.

2. SUBJECTS AND METHODS

Research design:

A quasi-experimental research design (one group: pretest - posttest) was used to carry out the present study.

Research hypotheses

H1: The mothers' who receive an educational program will change their knowledge levels regarding Home First Aid Measures.

Study Setting:

The current study was carried out at EL Shatby University Children's Hospital, Alexandria.

Study Subjects: The present study subjects comprised children's mothers in the medical and surgical departments. It included 80 mothers who were willing to participate in the study. The total number of mothers' admission in these departments 120- 140 mothers/month according to EL Shatby University Children's hospital capacity. Therefore, the sample size of mothers was determined by using EPI Info 7 program using the following information: Population size = ranged from 120-140, expected frequency =50%, acceptable error= 5%, confidence coefficient = 95%, minimum simple size = 80. The study subjects were randomly selected using simple random sampling.

Tool of data collection: one tool was used in this study

A Structured Interview schedule it was in an Arabic language designed by the researchers after reviewing of the related literature, to find out the effect of educational interventional program about mothers' knowledge regarding home first aid, it consists of the following:

A) The first part:

It included (6) items for socio-demographic characteristics of the families as mother's age, educational level, occupational status, and family size, socio economic status and area of residence.

B) The second part:

It included (8) items about child's age, sex, and mother's knowledge towards home accidents types, causes, and its occurrence.

C) The third part:

It included (9) items regarding mother's first aid knowledge related to practices and/ or measures that mother followed in case of exposure to any type of home accidents.

Scoring system of mothers knowledge sheet

The response to those items were scored on a 3 –points likert scale (1 = correct response, 0= incorrect response, 0 = do not know.) The scoring system was as follows: the total scores less than 50% was considered unsatisfactory knowledge level, 50% - 75% considered as average knowledge level, and ≥ 75% considered as good knowledge level.

Content validity and tools reliability

Content validity for the Tool was established by jury of five experts' professors from Nursing Education Department and Pediatric Nursing Department. No modification of the content was being done according to the panel judgment on the clarity of sentences, appropriateness of content and sequence of items. Reliability of tools performed to confirm its internal consistency by Cronbach's Alpha reliability test was 0.902.

Pilot study

Pilot study was conducted on 8 (10 %) of mothers and they were excluded from the total number of mothers to ensure the clarity and comprehensiveness, feasibility, objectivity, applicability, clarity, adequacy, content validity, and internal consistency of the study tool and to determine possible problems in the methodology approach or instrument.

Administration and Ethical consideration:

- Approval from Faculty of Nursing Damanhour University was obtained to carry out the study
- Meetings were held with the head nurses of pediatric nursing Departments to clarify the purpose of the study and to gain the cooperation and support during data collection.
- All mothers were informed about the purpose of the study and given brief explanation by the researchers through direct personal communication prior starting to their participation in the study; consequently written informed consent was obtained from each of them.
- The right to refuse to participate or withdraw from the study was emphasized after reassuring mothers that their response would have no impact on their children care.
- Data Anonymity and confidentiality were considered, and it was used for the purpose of the research only.

Health Educational program:

Health educational program was designed by the researchers in an Arabic language form based upon the actual needs of mothers as a result of the pretest. It was carried out through these phases: preparatory, planning & implementation, and evaluation phases.

1. Preparatory phase:

The researchers extensively reviewed the more recent, national and international textbook, literature review, online, magazine in various aspects regarding home accident among children and mothers role to minimize the complications. Schedule for the educational interventional program was started twice weekly during the study time.

2. Planning and implementation phase:

Objective of the program: the program aimed that each mother will acquire new knowledge and practices regarding home accident first aid among their children.

1. Time and place of implementation were selected, prepared with the needed presentation equipment.
2. Time and place for the educational interventional program were announced by the head nurses to all units' nurses to be informed.

Contents of the program:

The educational program started at the end time of evening shift for mothers in the present of their children. The time required for the program implementation was three months from December to the middle of March 2018.The total duration of the program was 6 hours on four sessions. Each session was 80-90 minutes: first 10 minutes for introduction and mothers' expectations, the next 20 minutes for theoretical contents presentation, 50-60 minutes for practical contents and 10 minutes for discussion and comments. It was applied in groups of 4-5 mothers according to the admitted number/ day. Different teaching methods were used such as group discussion, role play, demonstration and remonstration in addition to, audiovisual materials as power point presentation, flayer: bencher and picture to easily understand. Motivation, shaping and reinforcement were done by rewarding and supporting to encourage the mothers. The

researchers' uses different ways of communication with the mothers to build trust relationship and encourage them to report any method they use to aid the affected child. A copy of the program bencher was given to each mother at the end of the program.

3. Evaluation phase:

The post test was carried out immediately at the end of the educational program to evaluate educational interventional program for mothers regarding home accident first aid among children.

Statistical analysis

Statistical analysis of the data

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0**. (**Armonk, NY: IBM Corp**)** Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using mean, standard deviation. Significance of the obtained results was judged at the 5% level.

The used tests were

1 –Wilcoxon signed ranks test

For abnormally distributed quantitative variables, to compare between two periods

3. RESULTS OF THE STUDY

Table (1):Distribution of the studied cases according to the socio-demographic data of mothers and their children (N = 80).

Items	No.	%
Mother age		
<25	13	16.3
25-<35	32	40.0
35<45	29	36.3
≥45	6	7.5
Educational level		
University or higher education	10	12.5
Secondary education	14	17.5
Preparatory education	18	22.5
Read & write	12	15.0
Illiterate	26	32.5
Occupation		
Employee	13	16.3
House wife	67	83.8
Family size		
Three members	6	7.5
Four members	21	26.3
Five members	24	30.0
Six members	13	16.3
Seven or more members	16	20.0
Income		
High	4	5.0
Middle	32	40.0
Low	44	55.0

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Area of residence		
Rural	58	72.5
Urban	22	27.5
Child age		
≤1year	13	16.3
1-3 years	39	48.8
3-5 years	28	35.0
Child gender		
Male	42	52.5
Female	38	47.5

Table (1) reveals that the highest percentage of mothers' age ranged from 25-35 years old, 32.5% mothers were illiterate, 83.8% mothers were housewives, 30% mothers belongs to five members in the family, 55% of them belongs to low income group and 72.5% of them live in rural area and common child age for accident was 1-3 years of life 48.8% was male 52.5%.

Table (2): Distribution of mother's knowledge about home accidents among children .

	No.	**%**
Heard about first aids		
yes	67	83.8
No	13	16.3
knowledge regarding causes of home accident		
Know	61	76.3
Don't know	19	23.8
Occurrence of home accidents		
Occurred	57	71.3
Not occurred	23	28.8
If occurred mention the type of home accident		
Cut / Wound	16	20.0
Fall / Fracture	7	8.8
Burn	16	20.0
Poisoning	7	8.8
Choking	4	5.0
Animal bite	7	8.8
If yes, source of knowledge		
From books	6	7.5
Friends and relatives	21	26.3
Doctors and nurses	4	5.0
Media(Radio , television, net)	31	38.8
Attend training periods	5	6.3

Table (2) shows mothers' knowledge regarding home accidents occurrence (71.3%), it types 20% for wound and burn, mothers' gained knowledge source from media and friends 38.8% and 26.3% respectively, and home accidents causes had 76.3%.

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Table (3): Reported mother's practices pre and after the program.

Types of home accident	Range	Pre.	Post	Z	p
Fracture					
Total score	**0 – 1**	0.14 ± 0.35	0.687 ± 0.46	6.351*	<0.001*
Percent score		13.75± 34.65	68.75±46.64		
Wound					
Total score	**0 – 1**	0.09 ± 0.28	0.487 ± 0.50	4.718*	<0.001*
Percent score		8.75 ± 28.43	48.75±50.30		
Bleeding					
Total score	**0 – 1**	0.13 ± 0.33	0.687±0.46	6.181*	<0.001*
Percent score		12.50 ± 33.28	68.75±46.64		
Epistaxis					
Total score	**0 – 1**	0.11 ± 0.32	0.575±0.497	5.181*	<0.001*
Percent score		11.25 ± 31.80	57.50±49.75		
Chocking					
Total score	**0 – 1**	0.14 ± 0.35	0.65±0.48	6.252*	<0.001*
Percent score		13.75 ± 34.65	65.0±48.0		
Drowning					
Total score	**0 – 1**	0.08 ± 0.27	0.637±0.48	6.068*	<0.001*
Percent score		7.50 ± 26.51	63.75±48.38		
Poisoning					
Total score	**0 – 1**	0.14 ± 0.35	0.687±0.46	6.351*	<0.001*
Percent score		13.75 ± 34.65	68.75±46.64		
Gas poisoning					
Total score	**0 – 1**	0.11 ± 0.32	0.575±0.497	5.286*	<0.001*
Percent score		11.25 ± 31.80	57.50±49.75		
Animal bites					
Total score	**0 – 1**	0.13 ± 0.33	0.70±0.46	6.782*	<0.001*
Percent score		12.50 ± 33.28	70.0±46.11		
Burn					
Total score	**0 – 1**	0.10 ± 0.30	0.575±0.49	5.374*	<0.001*
Percent score		10.0 ± 30.19	57.50±49.75		
Electrical accidents					
Total score	**0 – 1**	0.16 ± 0.37	0.587±0.49	4.808*	<0.001*
Percent score		16.25 ± 37.12	58.75±49.54		
Overall Knowledge					
Total score	**0 - 11**	1.31 ± 2.01	6.85±3.34	7.181*	<0.001*
Percent score		11.93 ± 18.27	62.27±30.38		

t: Paired t-test

p: p value for comparing between the studied groups

*: Statistically significant at $p \leq 0.05$

Data was expressed using Mean ± SD.

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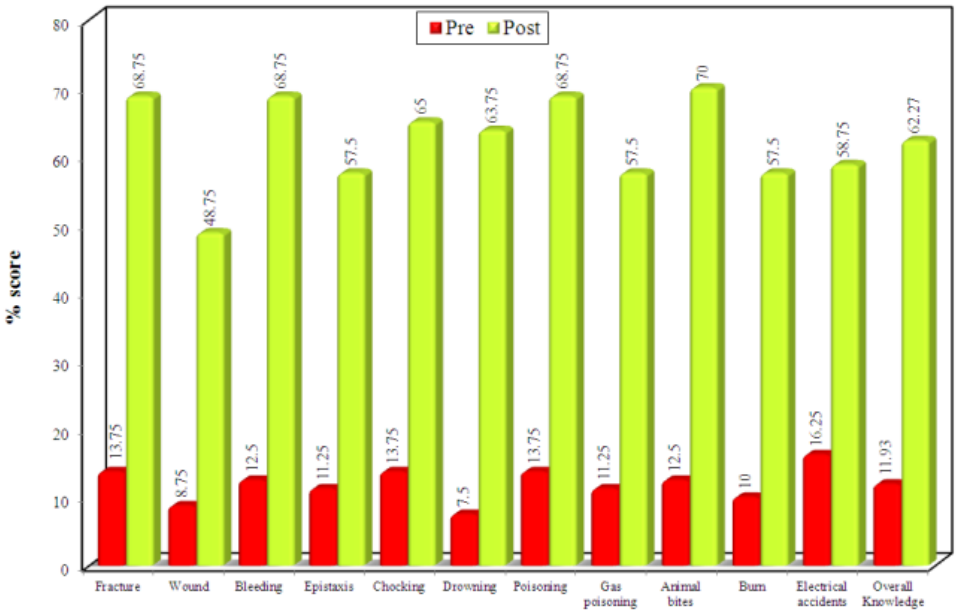

Figure (1): Comparison between pre & post according to knowledge score

Table (3) and figure (1): shows knowledge change among mothers regarding causes of home accidents. It could be observed from the table that mothers' knowledge for all home accidents types causes had high scores in the post intervention phase at P=0.001 for all causes.

Table (4): Overall mothers' knowledge (n = 80)

Knowledge	Pre.		Post		Z	p
	No.	%	No.	%		
Poor (<50%)	79	98.1	33	41.3	6.219*	<0.001*
Fair (50 - <75%)	1	1.3	15	18.8		
Good (≥75%)	0	0.0	32	40.0		

Z: **Wilcoxon signed ranks test**

*: Statistically significant at $p \leq 0.05$

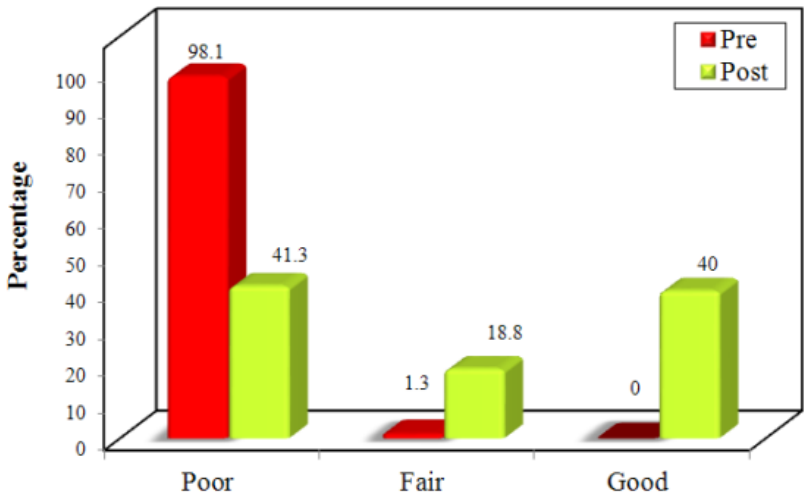

Figure (2): Overall mothers' knowledge (n = 80)

Table (4) and figure (2): demonstrate the overall mothers' knowledge regarding home accidents first aid before and after the intervention. There were increase in the mothers' knowledge after implementation of the educational interventional program at P= 0.001.

4. DISCUSSION

Most injuries occur in home as children less than five years spend the most of their time there. These injuries presumed to be preventable or decrease its complications through the removal of hazards or applying the basics of first aid measures (Nour et al, 2018). First aid is the provision of initial care for an illness or injury, usually by a non-expert but trained person, until medical treatment can be accessed. Provision of immediate first aid to patients who require emergency care can make a big difference to the outcome (Kendrick et al., 2013B). In certain self-limiting illnesses or minor injuries, appropriate first aid measures may be sufficient to avoid a medical consultation (Hecht, 2011). Parents' knowledge and practice about first aid is especially important, as many adverse consequences of injuries can be averted if parents know what actions to take (Ibrahem, 2017).

The present study revealed that 40% of mother age ranged from 25-35 years old, 32.5% of them were illiterate, the majority of them were housewives, 30% mothers belongs to five members family with low level of income, and they live in rural areas. These findings were congruent with Kamel (2014) and Sharma (2016) in their studies as their results were almost the same to the present study.

The current study revealed that the majority of mothers heard about first aid measurements, know home accidents causes, and ensuring that it occurred in home. This was disagreed with Sonavane and Kasthuri,(2008) who found that studied mothers(65.7%) had not heard about the term of first aid, this may be due to the different demographic characteristics of the populations. Moreover the studied mothers in the current study did not know all types of home accidents, may be because of their educational level as one third of studied mothers were illiterate in addition to, this could explained also by their attitude regarding other types of home accidents as fracture, they may consider playing inside home could not cause harm.

As regarding knowledge sources one third of mothers stated that their source of knowledge regarding first aid was radio, television, and internet followed by relatives and friends. According to Kamel (2014) who found that television followed by family members and friends were considered primary sources of his studied mothers' knowledge regarding first aid measures.

In the current study, the results revealed that mothers' knowledge related to first aid practices for fracture, wound, bleeding, epistaxis, chocking, drowning, poisoning, animal bits, burn and electrical accidents were significantly improved after the implantation of the educational interventional program. This improved knowledge provides mothers with the baseline for practicing first aid measures with proper skills. These findings could be due to the careful assessment of educational needs of the mothers in addition to the most appropriate teaching methods as role play and Video-Assisted Instruction rather than lectures by the researchers before implementing the educational program and selecting the necessary content of training that would fulfill and satisfy the needs of the particular study group.

Similarly, El Seifi, etal (2018) found that the application of health education program among mothers having children less than five years improves their knowledge, self-efficacy, and attitude about home accidents; however, the improvement in first aid measures applied after injuries is much lower than that for accidents prevention. Age of the mothers, education level and previous occurrence of home injuries were the significant predicting factors for knowledge, attitude, and self-efficacy of the mothers respectively.

Moreover, the findings of the current study were in the same line with Mohamed, Mohamed and Ahmed (2018), in their study on applying training program about first aids for nursery school teachers found that there was an observed improvement in the correct answers percentage in most items of the first aid knowledge as well as in the total mean scores of practice after the implementation of the training program with statistical significant differences at (p-value 0.0001) between pretest, and posttest.

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5. CONCLUSION

In light of the study results it was found that the mothers' who receive an educational program their knowledge levels regarding home first aid measures were changed and the hypotheses was accepted. Application of health education interventional program among mothers having children less than five years showed significant increase with significant statistical differences in most items in immediate and post-test to testing with a probability value of 0.001.

6. RECOMMENDATION

1. More follow-up studies to evaluate the impact of a health education program on mothers' attitude regarding home accidents.

2. Training courses about first aid measures for the mothers to improve their practices, awareness and make sound practice.

3. Inclusion of training program regarding the prevention of home accidents in the educational curriculum of high schools and Universities.

4. Provide mothers with appropriate brochures, posters, maps, equipment and supplies to improve their knowledge and practices about first aid.

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