

Effect of Educational Program on Mothers' Knowledge and Practices regarding Care for their Children with Febrile Convulsions

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Abstract

Background: Febrile Convulsions (FCs) are the most common convulsive disorder of childhood and represent a benign condition in children. FCs occurrence is the most frequent causes of emergency hospital admission. **Aim of study:** Was to evaluate the effect of educational program on mothers' knowledge and practices regarding care for their children with febrile convulsions. **Research design:** A quasi experimental research design was used to conduct this study. **Settings:** This study was conducted at Inpatient Pediatric department, in Benha University Hospital, Benha Teaching Hospital and Benha Specialized Pediatric Hospital which affiliated to Ministry of Health and Population. **Sample:** A convenient sample of 80 mothers accompanying their children with febrile convulsion regardless their characteristics and admitted to previous mentioned settings. **Tools of data collection:** Three tools were used to collect data. **I:** A questionnaire interview sheet to assess mothers and children personal characteristics. **II:** Mothers' knowledge questionnaire sheet and **III:** Mothers' reported practice. **Results:** There is statistical significant difference between mothers' knowledge about febrile convulsion pre-post program implementation ($p < 0.001$). Where, the minority 3.8% of studied mothers has good knowledge during pre- program implementation, while this percentage is improved to 92.5% post- program implementation also the majority (95%) of the studied mothers had satisfactory reported practices regarding F.C post-program implementation and there was a highly statistical significant difference when compared with pre program implementation. ($P < 0.001$). **Conclusion:** The educational program was effective in improving mothers' knowledge & reported practices level regarding care for their children with FCs. **Recommendation:** Further education in the pediatric clinic or via mass media to provide both public and mothers with accurate knowledge and appropriate practices for children with febrile convulsions.

Keywords: Children, Educational Program, Febrile Convulsions, Mothers' knowledge and practice, Nursing

Introduction

Febrile Convulsion is a temporary nervous disorder occurring in childhood which develops with fever (Kliegman, et al.,

2016). It is the most common seizure disorder during childhood and is prevalent among children between the ages of nine months to five years old, but it is rare before or after this

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period. However, most cases of FC occur between the ages of 6 and 36 months. Overall, FC is seen in about 5% of children, and it is estimated 460 out of 100,000 children under 4 years old in North America and Europe, it is estimated about 3 to 5% and in Asian children up to 14% (**Khair & Elmagrabi, 2015**).

Despite having a good prognosis, FC is a very difficult condition for parents to handle. Concerns about the future health of the child are the most common cause of fear among the parents. Sources of concern include fear of the recurrence, mental retardation, physical disabilities, and even death. Also, FC in children can cause stress and anxiety for parents and may lead to disturbance in the parents' sleeping pattern, family's quality of life, and social activities (**Barzegar, et al., 2016**).

Simple febrile convulsions and complex febrile convulsions are types of FC. Simple febrile convulsions involve an otherwise healthy child who has at most one tonic-clonic convulsion lasting less than 15 minutes in a 24-hour period. While, Complex febrile convulsions have focal symptoms, last longer than 15 minutes, or occur more than once within 24 hours. About 80% are classified as simple febrile convulsions (**Roddy, et al., 2017**).

Febrile convulsions are more common in boys than girls. After a single febrile convulsion, there is an approximately 35% chance of having another one during childhood. Outcomes are generally excellent to children and no change in the risk of death for those with simple convulsions. There is tentative evidence that affected children have a slightly increased risk of convulsion at 2%

compared to the general population (**Stafstorm, 2015**).

Children illness is an anxious time for mothers who are frequently very concerned and irritable about their child and have difficulty in assessing the severity of the illness; fever was the most indicators of an illness and a lot of mothers consider fever harmful and a disease. Mothers often feel disempowered when their child become ill, and they are not caring appropriately for their child if they do not treat the fever (**Rofiqoh, 2018**).

The best management for FC is not prescription of medications only, but effective personal communication with mothers on the part of health care providers. The nurse should provide mothers with written and verbal information about the causes of febrile convulsion and the risk of subsequent events. It is essential to tell the mothers that fever is a sign of infection and not a disease (**Jiang, et al., 2015**).

Health teaching about febrile convulsion is important for mothers, especially regarding febrile convulsions when it will occur, convulsion characteristics, how to do first aid management and how convulsions can be prevented. Correct intervention can prevent complications such as head injury, mouth and teeth injury, and neck suffocation (**Rofiqoh & Isyti'aroh, 2018**).

Significance of the study:

Febrile convulsion is one of the most frequent causes of emergency hospital admissions in children under five years of age and the mortality rate was 80% higher during the first year and 90% higher during the

second year after the first febrile seizure The mothers consider febrile convulsion as a life-threatening condition, and they are feeling shocked when they see their children experiencing fever (Srinivasa, et al., 2018).

The day by day life of some mothers are contrarily influenced and hindered by FC, with mothers such as waking at night frequently to measure their children's temperature. So, establishment of a good communication with mothers improve their practice and first aid measures for management of FC at home. Accordingly, understanding and improving mothers' knowledge and reported practices toward FC are essential (Barzegar, et al., 2016).

Aim of the study

The aim of the current study was to evaluate the effect of educational program on mother's knowledge and reported practices regarding care for their children with febrile convulsion.

Research Hypothesis

- Implementation of educational program expected to be improved mothers' knowledge and reported practice regarding care of their children with febrile convulsion.
- Children with febrile convulsion expected to experience resolution of their convulsions and fever.

Subjects and Method

Research design:

A quasi- experimental research design was used in carrying out the study.

Research settings:

The study was conducted at Inpatient Pediatric Department in Benha University

Hospital, which consisted of three pediatric units each unit consisted of two rooms which includes six beds in each room. Also, pediatric department in Benha Teaching Hospital in the fourth floor which consist of eight rooms with 2 beds in each room, and medical department in Benha Specialized Pediatric Hospital which Affiliated to Ministry of Health and Population in building A in the second floor where it consisted of four rooms each one include four beds and intermediate emergency unit includes five beds.

Research sample:

A convenience sample composed of 80 mothers accompanying their children with febrile convulsion regardless their personal characteristics from the previously mentioned setting were included in the current study.

Tools of data collection:

Data was collected by using the following tools:

Tool (I): A structured interviewing sheet:

It was developed by the researcher in an Arabic language after reviewing the related literature and consisted of three parts:

Part (1): Mothers' personal characteristics, which include age, level of education, occupation, place of residence, number of children, source of mother's previous experience about febrile convulsions.

Part (2): Children's personal characteristics, which included child's age, gender, and child order in the family.

Part (3): Children's past medical history which included (6) questions regarding age at the first occurrence of febrile convulsion, number of febrile convulsion episodes during the last month, duration of convulsion,

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presence of cyanosis with convulsion, previous hospital admission with febrile convulsion and mothers' action during febrile convulsion attack, and family history.

Tool (II): Mothers' knowledge questionnaire: This tool assessed mothers' knowledge regarding febrile convulsion episodes was developed by the researcher based on related literatures (Najimi, et al., 2013). It included (22) questions, divided into (17) questions using Yes or No and don't know and (5) multiple choice questions.

Scoring system of mothers' knowledge:

-The scoring system for questions with responses varying from (yes), (no), or (don't know) was scored by giving each participant (1) point for right answer and (0) point for wrong or don't know answers.

-As regards the multiple-choice questions, the scoring system was scored by giving (2) points for complete correct answer, (1) point for incomplete correct answer, and (0) point for incorrect answer. A high score was indicated a better level of mothers' knowledge.

The scoring system of total mothers' knowledge was calculated and classified into three levels as the following:

- (75-100%) was considered good knowledge.
- (60<75%) was considered average knowledge.
- (< 60%) was considered poor knowledge.

Tool (III): Mothers' reported practice:

This tool was adapted from Elbilgahy & Abd El Aziz, (2018) and used to assess mothers' reported practice regarding care of their children with febrile convulsion. It was consisted of 22 items.

The scoring system for mothers' reported practice was as the following:

The scoring system for mothers' reported practices was calculated as follows, (1) Point for (Yes) response and (0) point for (No) response. The score of the items was summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted as a present score. So, the total scores of 22 questions were 22 degree.

Scoring system of total mothers' reported practice was calculated as following:

- (75-100 %) was considered satisfactory.
- (< 75 %) was considered unsatisfactory.

Validity and Reliability:

Tools of data collection were investigated for their content validity by three experts in the field of Pediatric Nursing from Faculty of Nursing, Benha University who were selected to test the content validity of the instruments and to judge its clarity, comprehensiveness, relevance, simplicity, and accuracy. All of their remarks were taken into consideration; some items were re-phrased to arrive at the final version of the tools. The tools were regarded as valid from the experts' point of view.

Reliability of the study tools was applied by the researcher for testing the internal consistency of the tools by administration of the same tool to the same subjects under similar condition, it done by using Cronbach's alpha test. Reliability of knowledge equal 77.1, reliability for practice equal 87.2, this indicates high degree of reliability of the study tools.

Ethical considerations:

The researcher explained the aim, nature and expected outcomes of the study to

the mothers and their children. They were informed that the study is harmless for their children. The researcher secured that all of the gathered data are confidential and are used for the research purpose only. The mothers were informed that they are optionally allowed either to participate or not in the study and they have the right to withdraw from the participation at any time. An oral consent was taken from the mothers and their children.

Pilot study:

A pilot study was carried out during March 2019 involved 10% of the sample size (8 mothers) to evaluate the reliability and applicability of the study tools and estimate the proper time required for answering the questionnaire. All participants in the pilot study were included in the sample as where no radical modifications were carried out in the study tools as revealed from the pilot study.

Field work:

The actual field work was carried out from the beginning of April, (2019) up to end of March, (2020). The researcher was available in the study setting three days weekly (morning and afternoon shifts) to collect the data by using previous tools. The researcher interviewed each mother, introduced herself to the mothers and explained all information about the study aim, duration and activities in order to obtain their oral acceptance to participate in the study prior to data collection, then the researcher assessed mothers' knowledge and reported practice regarding care for their children with febrile convulsion using questionnaire sheet.

The educational program was implemented in 5 sessions in front of all the studied mothers (2 sessions for the theoretical part and 3 sessions for practices), the time

required for each theoretical and practical session ranged from 45-60 minutes. The total number of the studied mothers was 80 who divided into 10 groups each group consisted of 8 mothers. The researcher asked questions in simple Arabic language and recorded the response of mothers on the study tool. Different teaching methods was used as booklet, pictures, group discussion and demonstration, evaluation were carried out by using a posttest as the same pretest format. The researcher motivated the studied mothers by encouraging words to gain their participation, the data was collected from mothers and their children attended in the previously mentioned setting through an interview with them.

a -Assessment phase:

The questionnaire sheet was administered by the researcher to mothers individually to assess their knowledge and reported practices about the care provided to their children with febrile convulsion and explanation of the questionnaire sheet was done by the researcher. The average time needed for the completion of each interview (by mothers) was between 25-35 minutes.

b -Planning phase:

After determining the needed knowledge and practice, the researcher designed the educational program about mothers' performance regarding care provided for their children with febrile convulsion.

c -Implementation phase:

Implementation phase was achieved through 5 sessions at a period of 3 days/week. Each session started by a summary of the previous session and objectiveness of new one. Take into consideration, the use of the Arabic language that suits the mothers' educational level. During session, mothers, children, and researcher sits together in circle

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and take turns sharing; every mother has an opportunity to ask questions and share information with each other, group sessions weren't didactic lectures but rather an integrated discussion with researcher and mothers. Otherwise, answered any mother's questions about the educational guidelines as needed.

Verbal motivation and reinforcement during sessions were used in order to enhance sharing in this study. The total numbers of session were 5 sessions. It was divided as follows:

Three sessions for knowledge and two for practice, each session was taken 45-60 minutes. Different teaching methods and media were used during implementation of the educational program.

First session: it was focused on

- Definition of febrile convulsion.
- Causes of febrile convulsion.
- Clinical manifestation of febrile convulsion.

Second session: it was focused on

- Antiepileptic drugs including; dose, route, and side effects.
- Complications from recurrent febrile convulsion.

Third session :(before convulsion) it was focused on

- Teaching mothers how to observe their child on the day through his activity during the day.
- Observe for any abnormal responses.
- Teaching mothers how to measure body temperature.

Fourth session :(during convulsion) it was focused on

- Performed first aid practices during episode and recommended practices for febrile convulsion.

- The mother was learned how to decrease body temperature.
- Explain for the mothers how to put her child on his side and in a safe place in order to prevent injury.
- The mothers were educated to keep child calm, putting something in his mouth to maintain patent airway and prevent tongue biting.
- Explain for the mothers how to give antipyretic drugs to her child.
- Observe the duration of febrile convulsion.

Fifth session :(after convulsion) it was focused on

- Normal body temperature, availability of thermometer, how to check temperature.
- Risk of recurrence or developing subsequent convulsion.
- Consequences of febrile convulsion.
- Educate the mother how to prevent complications from recurrence of convulsion and how to avoid predisposing factors for convulsion.

The following specific objectives were developed to:

- Define febrile convulsion and how it occurs.
- List types of febrile convulsions.
- List causes and clinical manifestations of febrile convulsion.
- Enumerate antiepileptic drugs & antipyretic drugs
- Describe dose, route, and side effect of antiepileptic & antipyretic drugs.
- Mention Complications of antiepileptic drugs.
- Explain how to observe child on the day through his activity during the day and observe for any abnormal responses.

- Explain how to measure body temperature and how to decrease body temperature.
- Discuss first aid practices during episode and recognize recommended practices for febrile convulsion.
- Explain preventive measures for their child during febrile convulsion.
- Identify the risk of recurrence or developing subsequent convulsion and Consequences of febrile convulsion.
- List complications from recurrence of convulsion and importance of avoiding predisposing factors for convulsion.

d- Evaluation phase:

After implementation of educational program for mothers' knowledge and reported practices regarding their children with febrile convulsion using tool (2), and (3). An immediate posttest was carried out after the implementation to assess mothers' performance, using the same forms of the pretest. This helped to evaluate the effect of the implemented educational program.

Statistical analysis:

The collected data were organized, analyzed, and tabulated using an electronic computer and statistical analysis, was done by using Statistical Package for Social Science (SPSS version 20). which were used frequencies and percentages for qualitative descriptive data, and chi-square was used for relation tests, mean, and standard deviation was used for quantitative data, Person correlation coefficient (r) was used for correlation analysis and degree of significance was identified.

Results

Table (1): Illustrates that, less than one third (32.4%) of mothers were in age group from 30 >40 years old with mean age (31.6 ± 7.313). As regards to the educational level and occupation the results reveal that

more than half (53.7%) and more than two thirds (67.5%) of the studied mothers were secondary educated and housewives, respectively and slightly more than one third (33.7%) of mothers have a previous experience from the nurse. In relation to residence, less than two thirds (63.7%) of the studied mothers are reside from rural areas and more than half (53.8%) of them had 3 to 4 family members.

Table (2): Shows that, two fifth (40%) of children are in age group from 3 years or more with mean age (2.1 ± 0.98 years), less than two thirds (63.7%) of them are boys. As regards to child order in the family, this table reflects that, more than one third (37.5%) of them are the second one.

Figure (1): Shows that 10 % of the children were suffering from recurrent attack of febrile convulsions.

Table (3): Shows that, there is statistical significant difference between mothers' knowledge about febrile convulsion pre-post program implementation (p<0.001). Where, the minority 3.8% of studied mothers has good knowledge during pre- program implementation, while this percentage is improved to 92.5% post- program implementation.

Table (4): Shows that the majority (95%) of the studied mothers had satisfactory reported practices regarding F.C post-program implementation and there was a highly statistical significant difference when compared with pre program implementation. (P <0.001).

Table (5): Reveals that there is positive correlation between total knowledge of the studied mothers and their total reported practices at pre and post program implementation with statistical significant difference with (p value<0.001).

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Table (1): Distribution of the studied mother's according to their personal characteristics (n=80).

Mothers' characteristics	No	%
Age (years)		
< 20	15	18.8
20>30	23	28.8
30>40	26	32.4
40 and more	16	20.0
Mean ± SD	31.6 ± 7.313	
Level of education		
Illiterate	12	15.0
Preparatory	2	2.5
Secondary	43	53.7
Bachelor's degree	23	28.8
Occupation		
Work	26	32.5
Housewife	54	67.5
Residence		
Rural	51	63.7
Urban	29	36.3
Number of family members		
3-4	43	53.8
5-6	26	32.5
>6	11	13.7
Sources of mothers' previous experience		
Physician	25	31.3
Friends & family	21	26.3
Nurse	27	33.7
Net & mass media	7	8.7

Table (2): Distribution of the studied children according to their personal characteristics (n=80)

Children's characteristics	No	%
Age (years)		
Less than one year	29	36.3
1<3	19	23.7
3 years or more	32	40.0
Mean ± SD	2.1 ± 0.98	
Child gender		
Boy	51	63.7
Girl	29	36.3
Child order in the family		
First	19	23.7
Second	30	37.5
Third	19	23.8
Fourth	9	11.3
Fifth	3	3.7

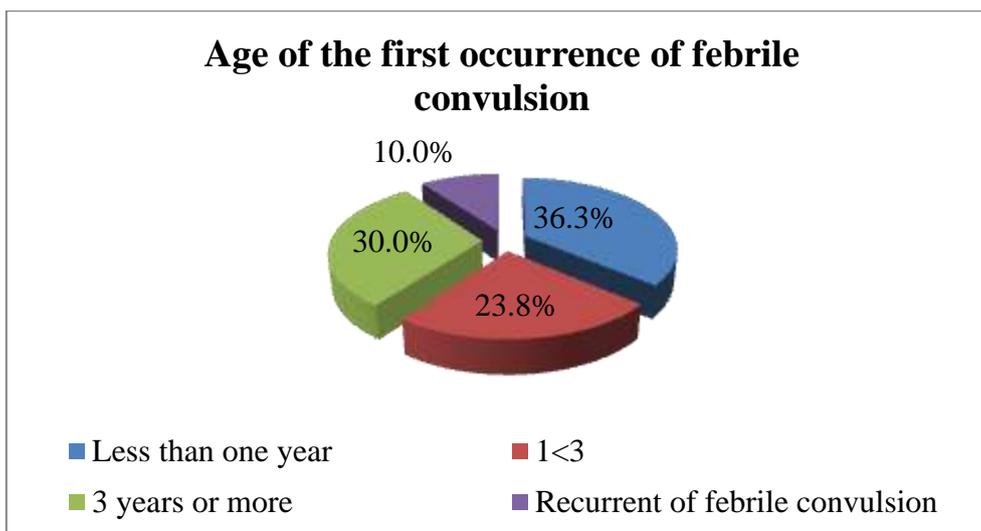


Figure (1): Distribution of studied children regarding to their age at the first occurrence of febrile convulsion (n=80).

Table (3): Distribution of the studied mothers according to their total knowledge scores regarding FC pre / post program implementation (n =80).

Total knowledge score	Knowledge				χ^2	P value
	Preprogram implementation		Post program implementation			
	No.	%	No.	%		
Good	3	3.8	74	92.5	8.198	<0.001**
Average	8	10.0	4	5.0		
Poor	69	86.2	2	2.5		

Table (4): Distribution of the studied mothers according to their total scores of reported practices regarding FC pre / post program implementation(n =80)

Total reported practices score	Reported practices				χ^2	P- value
	Preprogram implementation		Post program implementation			
	No.	%	No.	%		
Satisfactory (75-100%)	5	6.3	76	95.0	8.426	<0.001**
Unsatisfactory (less than 75%)	75	93.7	4	5.0		

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Table (5): Correlation between mothers' knowledge and reported practices regarding FC pre/post program implementation (n=80)

Correlation(r)	Mothers' Knowledge			
	Pre-program implementation		Post-program implementation	
	r	P. value	r	P- value
Mothers' reported Practices	0.234	<0.05*	0.642	<0.001**

Discussion

The findings of the current study showed that, more than half of studied mothers had secondary school education and the mean of mothers' age were 31.6 ± 7.313 years. This result was disagreement with **Najimi et al., (2013)** about 'The effect of educational program on knowledge, attitude and practice of mothers regarding prevention of febrile seizure in children' and reported that, more than one third of studied mothers had high school graduated education and the mean of mothers' age were 26.75 ± 3.9 years.

Also, the result of this study is in contrast to a study done in Indonesia by **Syahida et al., (2016)** about "Knowledge and attitude on febrile seizure among mothers with under five children", who showed that the vast majority of mothers were highly educated. This might be attributed to that highly educated mothers may be more aware of seizure attack and how they should deal with it.

In addition, two fifth of studied children were diagnosed with febrile convulsion at the age more than 3 years, this result was in a disagreement with **Kayser et al., (2008)** who studied "Parental knowledge and practices regarding febrile convulsion" and reported that, approximately half of studied children were diagnosed with febrile convulsion at the age from 1-2 years.

Concerning residence, less than two thirds of mothers reside from rural areas and this not accordance with **Nyaledzibor et al., (2016)** who studied "Mothers' knowledge, beliefs and practices regarding febrile convulsions and home management", and reported that less than two thirds (60%) of the respondents who participated in his study were living in urban areas.

The current study showed that more than one fifth of children have a previous admission with febrile convulsion were more likely to have first episode of febrile convulsion in early ages; this comes into disagreement with **Sharawat, et al., (2016)** about "Evaluation of risk factors associated with first episode febrile seizure" who reported that the majority of FC were noted that less than two thirds (60%) for the first time in range between 6th and 24th months of age.

This result was in an agreement with **Najimi et al., (2013)** about "The effect of educational program on knowledge, attitude, and practice of mothers regarding prevention of febrile seizure in children", who reported that, after the instructive mediation, mean scores of attitude, knowledge and practice of mothers had a significant increase in the intervention group and there was a significant difference between the control and intervention groups in the post-intervention

time. Hence, mothers must be informed regarding febrile convulsion care to improve childcare and outcome.

In addition, the researcher also reported that, the pretest scores of mothers knowledge toward febrile convulsion was low, while, post intervention there was significant improvement in the handout assemble group as compared with that of the control group. In which in this study there is highly statistical significant ($p < 0.001$) in which the majority of mothers have low score and poor knowledge preprogram implementation that improved positively post program implementation.

The present study revealed that, the minority of studied mother had good knowledge before program implementation while, this percentage was improved to the majority post program implementation with p value < 0.001 before, after program implementation and the difference was statistical significant. This finding comes in accordance with **Oche & Onankpa, (2013)**, who studied “using women advocacy groups to enhance knowledge and home management of febrile convulsion amongst mothers in a rural community of Sokoto State, Nigeria” and mentioned that, after intervention, the proportion of the mothers with adequate knowledge of febrile convulsion increased from minority into majority of them with a mean knowledge score of 77.09 ± 10.75 and this was found to be statistically significant.

Concerning level of mothers reported practices about febrile convulsion, the current study showed that, the majority of studied mothers was inappropriate practice before program implementation compared to the majority of mothers after program implementation, this difference was statistical significant. This finding come in agreement

with **Oche & Onankpa, (2013)** who reported that, insufficient emergency treatment and first aid measures were the stander among the parents before intervention, majority of the mothers in his study have inappropriate practices during convulsive episodes on their children, while after the intervention, there was improvement in the reported practices of the mothers with regards to FC and these changes were statistical significant.

The poor score in the knowledge, and unsatisfactory practice for mothers could be explained in the light of the fact that, the majority of children had the first attack of febrile convulsion and the first experience of mothers with febrile convulsion may be associated with anxiety and fear about the child health and may be also factor in decrease score before program. Moreover, if the mothers had previous knowledge about FC and its management before the first FC occurrence this will decrease the level of anxiety and improve their practice and the mother may remember the information and recognize that the FC require appropriate action and decreasing temperature.

Finally, prevention and management of febrile convulsion requires a collaborative effort, and the mothers play an essential role because she is the first person who care for the child 24hours a day and she is the first one detect and provide first aid and care during febrile convulsion attack. So that, it is important to increase the mothers’ knowledge about febrile convulsion and its preventive strategies through educational programs to enhance the implementation of this knowledge into practice and to improve mothers’ knowledge and decrease complication and hospital admission from febrile seizures. It can be seen that educational program achieved its goal of

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improving mothers' knowledge, and practice about FC prevention and management.

Conclusion

The educational program was effective in improving mothers' knowledge and practices level regarding care for their children with febrile convulsions. Besides, there was a highly statistical significant positive correlation between mothers total knowledge and reported practices level regarding care for their children with febrile convulsions pre and post the educational program.

Recommendations

- Further study regarding FC can be replicated another hospitals using large sample size to generalize the findings.
- Further education in the pediatric clinic or via mass media to provide both public and mothers with accurate knowledge and appropriate practices for children with febrile convulsions.
- Awareness programs about febrile convulsions management should be held periodically for mothers with special attention should be given regarding teaching them comply with adequate practice and first aid.

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أثر البرنامج التعليمي على معلومات وممارسات الأمهات فيما يتعلق برعاية أطفالهن الذين يعانون من التشنجات الحموية

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التشنجات الحموية هي أكثر الاضطرابات التشنجية شيوعاً في الطفولة وتمثل حالة حميدة عند الأطفال. ويعتبر حدوث حالات نزيف الدم الحاد أكثر الأسباب شيوعاً لدخول المستشفى في حالات الطوارئ. لذلك هدفت هذه الدراسة الي تقييم أثر البرنامج التعليمي على معلومات وممارسات الأمهات فيما يتعلق برعاية أطفالهن الذين يعانون من التشنجات الحموية. وقد أجريت الدراسة في قسم طب الأطفال بمستشفى بنها الجامعي ومستشفى بنها التعليمي ومستشفى بنها التخصصي للأطفال التابع لوزارة الصحة والسكان على عينة ملائمة من ٨٠ أم مصاحبة لأطفالهن مع تشنج حموي بغض النظر عن خصائصهم. حيث خلصت الدراسة بنجاح البرنامج التعليمي في تحسين معلومات الأمهات ومستوى الممارسات المبلغ عنها فيما يتعلق برعاية أطفالهن. كما اوصت الدراسة بضرورة توافر المزيد من التعليم في عيادة الأطفال أو عبر وسائل الإعلام لتزويد كل من الجمهور والأمهات بالمعلومات الدقيقة والممارسات المناسبة للأطفال الذين يعانون من التشنجات الحموية.