

ORIGINAL RESEARCH

Effect of implementing an educational module on improving mothers knowledge, home management and attitude about febrile convulsion

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ABSTRACT

Background/Objective: Febrile convulsions (FCs) are the most common convulsive disorder of childhood, and represent a benign condition in children. FC occurrence can affect negatively on the familial quality of life and the parents may experience anxiety and fear with every time child develops fever. Therefore, parents and care givers should be educated about febrile convulsion and its home management. The aim of this study was to evaluate the effect of implementing an educational module on mother's knowledge, home management and attitude about febrile convulsion.

Methods: A quasi experimental research design using one group pre & post-test was used. The study sample included 107 mothers of children with febrile convulsion according to statistical consultant and statistical formula. The inclusion criteria were: all mothers of children with first or recurrent FC and the children age was from 6 months to five years. The study was conducted at the Emergency department, outpatient clinic and medical ward affiliated to Mansoura University Children's Hospital, Egypt.

Results: It was found that, fifty two percent (52.3%) of studied children were boys with the mean age were Mean \pm SD 2.76 \pm 1.30 for children and 30.29 \pm 6.41 for mothers. Percentage of studied mother with good knowledge at base line was low (11.2%) while, this percentage was improved to 65.4% with a mean knowledge score 3.98 \pm 2.18 before module and 9.70 \pm 1.56 after module implementation. In addition, sixty four percent (64.4%) of studied mothers had inappropriate practice and home management compared to less than half (44.9%) after module implementation; the difference was statistically significant ($p = .005$). Only 25.3% of mothers had positive attitude about febrile convulsion before module implementation and this percentage was improved to 57.9% after module implementation with the mean score of attitude 18.42 \pm 5.84 before module and 24.71 \pm 6.76 post module implementation and the difference was statistically significant ($p = .025$).

Conclusions: The study concluded that, the use of educational intervention programs and mothers support group were influenced positively in improving mothers' knowledge, home management & attitude about FC and its management; but still some mothers having inappropriate home management and negative attitude. Therefore, it is recommended further education in the pediatric clinic or via mass media.

Key Words: Educational intervention, Febrile convulsion, Home management of febrile convulsion mothers' knowledge, Parent attitude

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1. INTRODUCTION

Febrile convulsion (FC) is the commonest type of benign convulsion in childhood; it is also one of the most frequent causes of emergency hospital admissions in children under five years of age.^[1,2] FC was defined according to American Academy of Pediatrics (AAP) as an event in infancy or children usually occurring between 3 months and 5 years of age, associated with fever but without evidence of intracranial infection, metabolic disturbance, history of febrile seizures and epilepsy. The prevalence of FC in children up to 7 years of age ranges between 3% and 8% they are most common in children aged 12 months to 2.5 years.^[3,4]

Febrile convulsion was recently classified as either simple or complex. Simple FC is generalized convulsion, lasting less than 15 minutes, including generalized tonic and clonic activity without a focal component and without recurrence within 24 hours or within the same febrile illness and no previous neurologic problems and represent 65 to 90 percent of febrile seizures.^[5,6] While, febrile convulsion is considered complex or complicated when exhibiting one or more of the following features: partial onset or focal features (affect one arm or one leg), prolonged duration greater than 15 minutes, recurrent within 24 hours of the first episode, and associated with postictal neurological abnormalities, as exemplified by Todd paresis.^[5,6]

Febrile convulsions can occur with minor illness or with any disease cause fever. Most occur with common illnesses such as ear infections, coughs, colds, flu and other viral infections. Serious infections such as pneumonia, kidney infections and meningitis are much less common causes. Furthermore, developmental delay, admission to NICU for long period, day care attendance, past history of FC, deficiency in iron and zinc level and possibly some immunization such as (DPT and MMR) can be a risk factor for febrile convulsion.^[7] In addition, a genetic cause for FC has been suggested, but still no susceptible gene has been identified. Febrile convulsion may occur before or soon after the onset of fever, with the likelihood of convulsion increasing with the child's temperature and not with the rate of temperature rise.^[8,9]

Children illness is an anxious time for parents who are frequently very concerned and irritable about their child and have difficulty assessing the severity of the illness; fever was the most indicators of an illness and a lot of parents consider fever harmful and a disease in itself. Parents often feel disempowered when their child become ill and they are not caring appropriately for their child if they do not treat the fever. Several studies was illustrated and describing parents' concern about fever and its management; educational programs was developed to assist parents manage childhood

fever have proven effective. Yet, parents still have inadequate knowledge about management of fever and febrile convulsion. They seek information about fever management and FC and reassurance for their management practices from family, friends, health professionals, books, magazines and the Internet.^[10,11] The best medicine for FC is not prescription medications only, but effective personal communication with parents on the part of health care providers.^[12]

The nurse should provide parents with written and verbal information about the causes of febrile convulsion and the risk of subsequent events. It is essential to tell the parents that fever is a sign of infection and not a disease. In addition, the nurse must inform the parents about the prognosis of FC, so that, parents are fully aware that their child is likely to outgrow the risk of experiencing febrile convulsions.^[13,14]

Febrile convulsion is horrible background for parents. Studies have shown that, parents envision that their child is dying or in great pain. The nursing management of the child focuses upon the immediate care of the child in the emergency department and temperature management. In addition, a significant emphasis by the nurse must be placed on education of the parents about fever detection and treatment in order to prevent potentially another febrile convulsion.^[15,16]

Parents should be advised to observe the time of FC, put the child on lateral recumbent position (the recovery position); to prevent aspiration and suffocation and helps to keep their airway clear, do not attempt to put anything into their child mouth or shake the child. When the convulsion stops, try to lower the child's temperature using pharmacological and non pharmacological measures to make them more comfortable.^[9] So, the nurse should help the parents to cope with their children's FC through the educational program, it is essential to reduce parental concerns and improve their knowledge, practice and attitude about FC. Therefore, the aim of this study was to evaluate the effect of implementing an educational module on mother's knowledge, home management and attitude about febrile convulsion.

1.1 Significance of study

The parents consider febrile convulsion as a life-threatening condition and they are feeling shocked when they see their children experiencing fever. The day by day life of some parents are contrarily influenced and hindered by FC, with parents waking at night frequently to measure their children's temperature. The best practice management for children with FC should involve establishment of a good communication with parents and should improve their practice and first aid measures for management of FC at home. Accordingly, understanding and improving parental knowledge, attitudes,

concerns and practices (KACP) toward FC are essential.^[9,17] Therefore, a quick assessment of parent about their responses to FC are important for educating parents about FC that lead to improve of their knowledge, attitudes and practices toward FC.

2. METHODS

2.1 Design

A quasi experiment using the one group pre/post-test research design was used for this study with the aim of evaluating the effect of implementing an educational module on mother's knowledge, home management and attitude about febrile convulsion. The study was testing the following research hypotheses:

- (1) Implementation of the educational module will improve mothers knowledge and home practices for febrile convulsion.
- (2) Mothers of children with febrile convulsion will have positive attitude about febrile convulsion after implementing the educational module.

2.2 Setting and study participants

This study was carried out at the Emergency department, outpatient clinic and medical ward affiliated to Mansoura University Children's Hospital, Egypt.

The calculated sample size of the study was 96 mothers increased to 107 to compensate for drop outs or protocol failures with incomplete data at 5% level of significance and 80% power, using the following formula:

$$N = (Z_{1-\alpha/2} + Z_{1-\beta})^2 \sigma^2 / \delta^2$$

$$Z_{1-\alpha/2} = 1.96$$

$$Z_{1-\beta} = 0.842$$

$$\sigma = \text{Population SD}$$

$$\delta = \text{Expected difference to be detected between the sample and population}$$

$$\alpha = \text{Level of acceptability of a false positive result (level of significance = 0.05)}$$

$$\beta = \text{Level of acceptability of a false negative result (0.20)}$$

$$1-\beta = \text{power (0.80)}$$

The inclusion criteria were as follows:

- (1) Child age from 6 months to 5 years;
- (2) First or recurrent attack of febrile convulsion.

2.3 Study measures and questionnaires

Mothers' knowledge, home management and attitude about febrile convulsion interview questionnaire

This questionnaire was designed by the researcher after reviewing related literature to assess mothers' knowledge, attitude and home management for febrile convulsion pre/post

the educational module.^[3,18-20] The questionnaire was used to assess the mothers' knowledge, home management and attitude about febrile convulsion. Questions were in the form of open ended question, multiple choice and true/false questions in order to provide more reflection of mothers' knowledge. This questionnaire was used to assess mothers' knowledge pre and post educational module implementation. The questionnaire was assessed for its content validity and reliability by nurse experts. The questionnaire had four parts as follows:

Part I: Characteristics of studied mothers and children seizure. It included mother & child age, child gender, mothers level of education, the child's age at the first occurrence of febrile convulsion, number of times febrile convulsion, duration of convulsion, presence of cyanosis with convulsion, No of children with FC and mothers action during FC attack.

Part II: Mothers' knowledge about febrile convulsion episodes. It included twelve questions related to definition, signs & symptoms, incidence and consequence of febrile convulsion on children. This section of questionnaire was tested for reliability using Alpha Cronbach's test. The alpha reliability of this part was $\alpha = 0.86$ which is above the generally accepted $\alpha = 0.70$. The scoring system for the questionnaire was dichotomous, with the correct answer scoring (1) and the incorrect answer scored zero (0). Using this scoring system, mothers were judged to have good knowledge if they answered $\geq 60\%$ questions correctly, average knowledge if $\geq 55\%$ and $\leq 60\%$ were answered correctly and poor knowledge if the score was $\leq 55\%$.

Part III: Mothers home management during febrile convulsion episodes. It included 12 yes and No questions related to recommended and none recommended management and first aid of febrile convulsion. Mothers were asked about action taken during febrile convulsion attack and in case of recurrent convulsion. This part of questionnaire was tested for reliability using Alpha Cronbach's test. The alpha reliability of this part was $\alpha = 0.81$. The scoring system for this part was developed; each correct step of the procedure scored on the bases of "Done" scored (1), or "Not done", scored (0). The level of practice was considered appropriate practice if the percent score was 60% and more and inappropriate practice if the percent score was $\leq 60\%$.

Part IV: Mothers attitude about febrile convulsion. This section included 8 statement likert scale with the positive attitude beginning with strongly disagree and negative attitude beginning with strongly agree except in the statement of measuring temperature. This part of questionnaire was tested for reliability using Alpha Cronbach's test. The alpha reliability of this part was $\alpha = 0.86$. The scoring system for

this part was developed; mothers was had positive attitude if the percent score was 60% and more and negative attitude if the percent score was less than 60%.

2.4 Procedures

Ethical endorsement was acquired from Research Ethics Committee at the Faculty of Nursing-Mansoura University.

An official authorization was acquired by accommodation of an official letter to the director of the hospital to conduct the study after explaining and clarifying the aim of the study.

Oral consent was obtained from mothers after explaining the aim of the study. Secrecy of information and namelessness and in addition mothers entitlement to pull back from the study whenever was disclosed to each mother before acquiring data.

Data collection of this study was completed after six months in the period from the beginning of 15th July 2016 to 15th of January 2017.

A pilot study was carried out on 11 mothers to ascertain the feasibility, applicability and clarity of the tool and some modifications were made consequently and they were excluded from the study.

Assessment of mothers' knowledge, home management and attitude about FC (pre test) was performed in the first time the mother was admitted to the hospital. The post test was collected after one month of educational module and it was collected via telephone call for mothers. The evidence-based educational module for prevention and management of febrile convulsion was designed by the researchers based on a needs assessment of mothers' knowledge and through reviewing the related literature. The educational module combined theoretical content and practical skills aim at increasing mothers' knowledge and practices for the prevention and management of febrile convulsion in pediatric patient.

The module was given in two sessions: session (1) introduction to FC causes and its sequences for children, session (2) first aid and home management for FC with time ranging from 45-60 minutes for each session. The module was given over a period of 6 months the period of data collection.

The module was given individually to each mother according to number of mothers available in the above mentioned study setting. Various teaching methods were used in the form of lectures, group discussion, practical demonstration and return demonstration of how to measure the child temperature. Teaching media such as colored posters, educational leaflet, pamphlet, power point, and video hand out were also used. The module was carried out in the unit of each department. Mothers' knowledge and practice were evaluated pre & after

one month following the educational module.

2.5 Data analysis

The data was analyzed using Statistical Package of Social Sciences (SPSS) version 16.0. Descriptive statistics (number, percentage, mean & SD) were used to describe the main variable. Association between categorical variables was tested using Chi-square test. The level of significance for all testes was performed at ($p < .05$).

3. RESULTS

The characteristics of mothers participating in the study and their children seizure were illustrated in Table 1. Among the mothers participating in this study 49.5% of them had secondary school education and the mean of mothers' age were Mean \pm SD 30.29 \pm 6.41. In addition, fifty two percent of studied children (52.3%) were boys. The mean age of children was Mean \pm SD 2.76 \pm 1.30 with the most of (49.5%) children diagnosed with FC at the age from 1-2 years.

Table 1. Characteristics of studied mother and children seizure

Characteristics	N = 107	%
Mother's age	Mean \pm SD 30.29 \pm 6.41	
Mother's education		
Illiterate	5	4.7
Preparatory	11	10.3
Secondary	53	49.5
Bachelors degree	38	35.5
Child's age	Mean \pm SD 2.76 \pm 1.30	
Child gender		
Boy	56	52.3
Girl	51	47.7
The child's age at the first occurrence of febrile convulsion		
6-12 months	31	29
1-2 years	53	49.5
3 years and more	23	21.5
The number of children living with febrile convulsion		
One	78	72.9
Two	29	27.1
Number of times febrile convulsion		
First time	88	82.2
More than once	19	17.8
Duration of convulsions		
Less than 5 minutes	76	71
5 to less than 15 minutes	23	21.5
More than 15 minutes	8	7.5
Does cyanosis happen to the child during convulsions		
Yes	68	63.6
No	39	36.4
Immediate action taken for your child at the time of febrile convulsion		
Shouting for help and go to the hospital (emergency)	43	40.2
Go to the doctor (private clinic)	38	35.5
Picked up the child outside the house to find neighbor	26	24.3

Regarding number of febrile convulsion, the majority of studied children were the first time of convulsion (82.2%) while, 71% of them had convulsion lasts for less than 5 minutes and 63.6% of them having cyanosis during febrile convulsion.

There was highly statistical significant difference pre/post educational module implementation in relation to the mothers'

knowledge about febrile convulsion as presented in Table 2, approximately half of them (43.9% & 53.3% respectively) replied the correct answer about the definition and prevention of febrile convulsion before educational module implementation compared to 94.4% & 65.4% respectively after educational module.

Table 2. Mothers knowledge about febrile convulsion and its prevention

Variable	Pre intervention		Post intervention		Test of significance	
	N = 107	%	N = 107	%	χ^2	p
Definition of febrile convulsion						
Correct answer	47	43.9	101	94.4	59	< .001**
Incorrect answer	60	56.1	6	5.6		
Symptoms and signs of febrile convulsions						
Correct answer	85	79.4	98	91.6	4.6	.03*
Incorrect answer	22	20.6	9	8.4		
How to prevent febrile convulsions						
Correct answer	57	53.3	70	65.4	2.4	.11
Incorrect answer	50	46.7	37	34.6		
Every child with FC required anticonvulsant drugs						
Correct answer	13	12.1	95	88.8	125.6	<.001**
Incorrect answer	94	87.9	12	11.2		
Every child with FC will have another FC						
Correct answer	77	72	72	67.3	0.55	.45
Incorrect answer	30	28	35	32.7		
FC is rare after age 5						
Correct answer	30	28	93	86.9	75.8	< .001**
Incorrect answer	77	72	14	13.1		
FC recurrence will causes brain damage						
Correct answer	4	3.7	91	85	143.2	< .001**
Incorrect answer	103	96.3	16	15		
Risk of development of epilepsy in FC is rare						
Correct answer	43	40.2	76	71	20.6	< .001**
Incorrect answer	64	59.8	31	29		
It is essential to put protective device inside the mouth during convulsion						
Correct answer	102	95.3	79	73.8	18.9	< .001**
Incorrect answer	5	4.7	28	26.2		
It is necessary to restrain the child during convulsion						
Correct answer	20	18.7	96	89.7	108	< .001**
Incorrect answer	87	81.3	11	10.3		
It is necessary to perform CPR during FC episodes						
Correct answer	22	20.6	79	73.8	60.9	< .001**
Incorrect answer	85	79.4	28	26.2		
It is safe to give children with FC routine immunization						
Correct answer	23	21.5	88	82.2	79.8	< .001**
Incorrect answer	84	78.5	19	17.8		

*p < .5; **p < .001.

Concerning the recurrence of FC will cause brain damage, it was found that, only 3.7% of the mothers knew the correct answer before module and this percentage was improved to 85% after module. While, the majority of mothers (81.3%, 79.4% & 78.5%) were replying incorrect answer regarding restrain the child during convulsion, perform mouth to mouth resuscitation and giving routine immunization for child with febrile convulsion before module and the percentage was improved after module implantation and the difference was statistically significant ($p \leq .001$).

There were statistical significant difference pre and post module implementations regarding mothers home practice management during febrile convulsion as it was represented in Table 3. It was clear from Table 3 that, 70.1% of studied mothers when asked about the action taken during febrile convulsion they replied lowering the child body temperature before module and this percentage was improved to 99.1% post module implementation. Furthermore, Fifty-two percent of mothers reported that they would take the child to doctor

following a seizure, 77% would perform mouth to mouth resuscitation, 75% would include cardiac massage and 72% of them would restrain the child during a febrile convulsion before module implementation and the percentage was improved after module implementation and the difference was statistically significant ($p \leq .001$).

Mothers' attitude toward febrile convulsion was illustrated in Table 4; it was clear from this table that, thirty six percent (36%) of mothers believed that children with febrile convulsion required frequent measurement of temperature before educational module and the percentage was improved to 84% post module implementation. In addition, the mothers had positive attitude and did not had feeling of shame or guilty of having children with FC. Regarding seriousness of febrile convulsion, approximately half (48.6% & 49.5%) of studied mothers believe that FC is life threatening condition and can cause brain damage before module and this believes was improved to positive attitude after module implementation and the difference was statistically significant.

Table 3. Mothers home management during febrile convulsion

Variable	Pre intervention				Post intervention				χ^2 & p
	Yes		No		Yes		No		
	No	%	No	%	No	%	No	%	
Decrease the child's body temperature	75	70.1	32	29.9	106	99.1	1	0.9	27.2; < .001**
Put the child on a soft and safe place	39	36.4	68	63.6	106	99.1	1	0.9	65.1; < .001**
Put the child on his/her side	41	38.3	66	61.7	104	97.2	3	2.8	61.01; < .001**
Keep calm	43	40.2	64	59.8	105	98.1	2	1.9	60.01; < .001**
Observe seizure manifestations and duration	33	30.8	74	69.2	87	81.3	20	18.7	52; < .001**
Take the child to a doctor	56	52.3	51	47.7	15	14.0	92	86.0	30.1; < .001**
Shake and rouse the convulsing child	76	71.0	31	29.0	13	12.1	94	87.9	57.3; < .001**
Put something in his/her mouth	66	61.7	41	38.3	11	10.3	96	89.7	49.4; < .001**
Perform mouth-to-mouth resuscitation	82	76.6	25	23.4	23	21.5	84	78.5	53.3; < .001**
Remove secretion from the child's nose and mouth	72	67.3	35	32.7	33	30.8	74	69.2	29.4; < .001**
Apply cardiac massage	80	74.8	27	25.2	25	23.4	82	76.6	46.2; < .001**
Restrain the convulsing child	77	72.0	30	28.0	29	27.1	78	72.9	42.4; < .001**

* $p < .5$; ** $p < .001$.

Table 4. Mothers attitude about febrile convulsion

Variable	Pre intervention					Post intervention					χ^2 & p
	Strongly agree	Average agree	Simple agree	Do not agree	Strongly disagree	Strongly agree	Average agree	Simple agree	Do not agree	Strongly disagree	
	%	%	%	%	%	%	%	%	%	%	
The occurrence of FC is due to evil spirits	10.3	29.9	5.6	35.5	18.7	10.3	0.9	3.7	43	42.1	44.4 < .001**
FC will become epilepsy	31.8	30.8	16.8	19.6	0.9	16.8	5.6	13.1	44.9	19.6	54.4 < .001**
Mothers should take their children's temperature frequently	36.4	24.3	35.5	3.7	0	84.1	3.7	1.9	9.3	0.9	33.5 .001**
FC episode is a life-threatening event	48.6	13.1	25.2	11.2	1.9	22.4	11.2	18.7	43.9	3.7	46.5 < .001**
FC can cause brain damage	49.5	14	20.6	15	0.9	18.7	6.5	13.1	53.3	8.4	45.7 < .001**
FC can be increased and complicated	55.1	22.4	15.9	6.5	0	19.6	15	24.3	38.3	2.8	38.1 < .001**
FC child required more love and care	44.9	23.4	20.6	8.4	2.8	22.4	7.5	12.1	33.6	24.3	43.01 < .001**
Having child with febrile convulsion causes guilty feeling	16.8	22.4	16.8	29.9	14	7.5	0	14	36.4	42.1	61.1 < .001**

* $p < .5$; ** $p < .001$.

Table 5 showed that, there were a relationship between the studied mothers' total knowledge score and their total practice and attitude score but the difference was not statistical significant.

Table 5. Correlation between total knowledge scores and total practice and attitude scores

Item	Total knowledge scores	
	r	p
Practice scores	.04	.61
attitude scores	.028	.08

Level of mothers' knowledge about febrile convulsion pre/post module implementation was represented in Figure 1 and showed that, the minority (11.2%) of studied mother had good knowledge before module implementation while, this percentage was improved to 72.9% with a mean knowledge score 3.98 ± 2.18 before module and 9.70 ± 1.56 after module implementation and the difference was statistically significant.

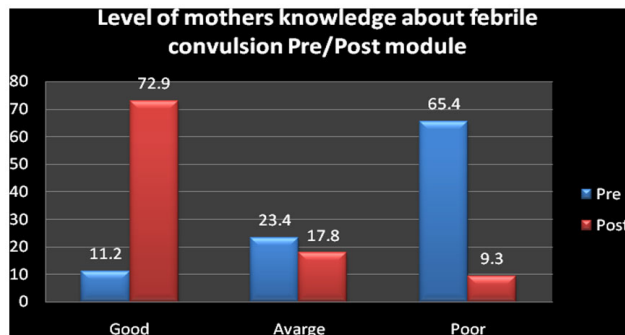


Figure 1. Level of mothers' knowledge about febrile convulsion

It was clear from Figure 2 that, approximately two third (64.4%) of studied mothers had inappropriate practice and home management before module implementation compared to less than half of them (44.9%) after module implementation and the difference was statistically significant ($p = .005$).

Mothers attitude about febrile convulsion was illustrated in Figure 3 and showed that, 25.3% of mothers had positive attitude about febrile convulsion before module implementation and this percentage was improved to more than half (57.9%) after module implementation with the mean score of attitude (18.42 ± 5.84 & 24.71 ± 6.76) pre and post module implementation respectively.

4. DISCUSSION

Febrile convulsion is a seizure with a febrile illness without central nervous system disease or infection or acute elec-

trolyte disturbance in children under five years of age without past febrile seizures. Febrile convulsion commonly occurs in 3%-4% of young children below six years of age and it is the commonest cause of pediatric emergency hospital admissions.^[21] The mothers may encounter tension, apprehension and fear whenever a child develops a fever because of lacking information and practice to offer emergency treatment and first aid to their children during febrile seizure. At the point when the parent had satisfactory knowledge and practice they would be able to manage febrile seizures better when they happen, better comprehension may enable the parent to adapt better with the frightening experience of FC. Good knowledge may also help to decrease nervousness, apprehension and help in improving the quality of life.^[22,23]

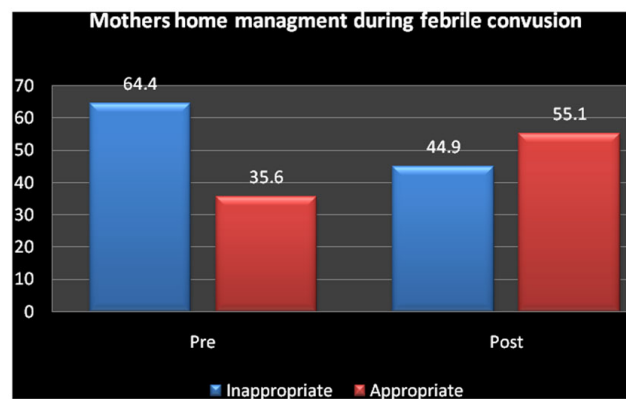


Figure 2. Level of mothers' practice and home management about febrile convulsion

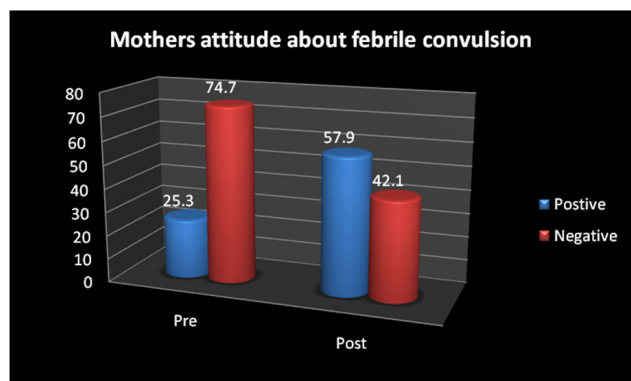


Figure 3. Mothers' attitude about febrile convulsion

The findings of the current study showed that, approximately half of studied mothers had secondary school education and the mean of mothers' age were 30.29 ± 6.41 (see Table 1). This result was in a disagreement with Najimi et al.,^[23] who studied 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 . In addition, half of studied children were boys and were diagnosed with febrile convulsion at the age from 1-2 years, this result was in an agreement with Kayserili et al.,^[20] 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.

Regarding characteristics of febrile convulsion, the results of the current study represented that, the majority of studied children were the first time of convulsion while, approximately three quarter of them had convulsion lasts for less than 5 minutes and approximately two thirds of them having cyanosis during febrile convulsion. This finding was in an accordance with Barzegar et al.,^[24] who studied the effects of two educational strategies on knowledge, attitude, concerns, and practices of mothers with febrile convulsive children and revealed that, the majority of studied children were the first time of convulsion, also this result was in disagreement with Kheir et al.,^[25] who reported in his study that, 30% of children had first time seizure.

In addition, less than half of studied mothers go to hospital (emergency department) at the time of their children suffer from febrile convulsion, this may be attributed to lack of mothers' knowledge and practice and may have poor understanding of the condition of their children or may be due to mothers fear that children may die; so that, they go to hospital, this result was in disagreement with Najimi et al.^[23] who reported that, less than one quarter of the mothers took their children to the hospital without first aid during episodes of FC.

Concerning mothers' knowledge about febrile convulsion in relation to definition and prevention of febrile convulsion (see Table 2), the result of the current study revealed that, approximately half of them replied the correct answer before educational module, in contrast these percentage improved after educational module implementation. This may be due to an unawareness of mothers regarding their children's correct febrile convulsion care before educational module while after educating them about correct care, the mothers knowledge was improved rather than before educational module. This result was in an agreement with Najimi et al.^[23] who demonstrated that, there was significant increase in the mean score of knowledge of mothers ($p < .001$) in the intervention group compared with the pre-intervention time.

In addition, the majority of mothers were replying incorrect answer regarding FC can cause brain damage, restrain the child during convulsion, mouth to mouth resuscitation, put a protective device into the mouth during convulsion and giving routine immunization for child with febrile convul-

sion before module and the percentage was improved after module implementation, this difference was statistically significant, this result was in an agreement with Barzegar et al.^[24] who stated that, the handout assemble and the handout assemble plus verbal instruction group about febrile convulsion for mothers demonstrated significant improvement in knowledge post intervention.

Regarding mothers home practice management during febrile convulsion (see Table 3), the result of the current study revealed that, approximately three quarter of studied mothers when asked about the action taken during febrile convulsion they replied lowering the child body temperature before module implementation compared with the majority of them were replied lowering the child body temperature post module implementation. This result was in an agreement with Kayserili et al.^[20] who reported that, the majority of studied mothers were lowered the child body temperature during febrile convulsion post intervention. In contrary, Kanemura et al.^[26] reported that fifty-one percent of parents don't attempt and don't take any action to lower the child's temperature before the FC attack.

Moreover, approximately three quarters of studied mothers perform mouth to mouth resuscitation, applying cardiac massage and restrain the child during febrile convulsion attack before module implementation compared with less than one third post module implementation. This result was in disagreement with Kanemura et al.^[26] who reported in his study that, there is no attempt done by parents to perform mouth to mouth resuscitation while, 7.7% of them shaken their children vigorously. This result may be due to the mothers thought that their child heart was arrest and unable to take breathing, also they think that their child may be injured during febrile convulsion or it may be die so they believe that the first thing is to do cardiac massage; all of this inappropriate practice is due to lack of knowledge and practice about FC management.

This result was in an agreement with Najimi et al.^[23] 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 child care and outcome.

The findings of mothers' attitude toward febrile convulsion (see Table 4) showed that, the approximately one third of studied mothers believed that children with febrile convulsion required frequent measurement of temperature pre module implementation compared with majority of them post

module implementation and this difference was statistically significant. This result could be attributed to mothers' knowledge about importance of measuring temperature and controlling fever is the basic step in preventing and controlling febrile convulsion. This result was in an agreement with Barzegar et al.^[24] who stated that, most mothers take their children's temperature frequently during FC.

Regarding seriousness of febrile convulsion, approximately half of studied mothers believe that FC is life threatening condition, can be outgrown and can cause brain damage before module and this believes were improved to positive attitude after module implementation and the difference was statistically significant, this may be due to positive attitudes come from a good understanding and proper knowledge of FC as a condition. This result was in an agreement with Barzegar et al.^[24] who reported in his study that the majority of mothers believed that FC episode is a serious condition, can cause brain damage, can be increased and repeated, and more care and consideration are required for febrile convulsive children. In addition, the researcher also reported that, the pretest scores of mothers attitude toward febrile convulsion was low, while, post intervention there was significant improvement ($p = .009$) in the handout assemble group as compared with that of the control group.

In addition, the mothers had positive attitude and did not had feeling of shame or guilty and embarrassment of having children with FC as the majority of mothers don't agree and strongly disagree with this statement before and after module implementation in Table 4. Findings of the current study was in disagreement with Kayserili et al.^[20] who demonstrated that, studied parents had a slightly negative attitude toward FC and approximately half of parents were feeling guilty of having child with FC after intervention.

As regards to the correlation between total knowledge scores and total practice and attitude scores (see Table 5); the current study revealed that, there were no statistical significant difference between the degree of the studied mothers' total knowledge score and their total practice, this may be attributed to mothers' lack practical experiences about care that should be provided during febrile convulsion because of the majority of studied children were exposed to febrile convulsion first time in their life so that, the mothers didn't do proper care for their children. This finding was similar to the view of Abdulla & Abdulhadi;^[27] who studied knowledge, attitudes, and practices (KAP) regarding febrile convulsions among Iraqi under 5 children's mothers attending pediatric department in a teaching hospital in Baghdad, who concluded that, practice is really the combination of knowledge and attitude coming to fruition and showed that practice is the lowest

score with mean ($63.4\% \pm 16.1$), a large percentage of mothers knew about reducing the temperature, putting the child in safe place, placing the child in a lateral position. However, many mothers showed that they were doing incorrect practices such as opening the mouth and putting something inside, shaking the child, remove secretions from the child's nose and mouth, doing CPR and stimulation of the child.

In addition, there was statistical significant difference between the levels of the studied mothers' total knowledge score, home management and their attitude score after module implementation. This result may be due to the effect of educational intervention in combination of visual aids help in improving mothers' response. This result was in an agreement with Huang et al.^[18] who stated that, correlations in the KAC domains were all significant ($p < .01$). These correlations provide evidence to support the assumptions of the theoretical model upon which the questionnaire is based. In essence, greater knowledge was related to more positive attitudes and fewer concerns.

In relation to the level of mothers' knowledge about febrile convulsion (see Figure 1), the present study revealed that, the minority of studied mother had good knowledge before module implementation while, this percentage was improved to less than three quarter post module implementation with a mean knowledge score 3.98 ± 2.18 before module and 9.70 ± 1.56 after module implementation and the difference was statistically significant. this finding comes in accordance with Oche & Onankpa^[3] 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' practice and home management about febrile convulsion (see Figure 2); the current study showed that, approximately two third of studied mothers was inappropriate practice and home management before module implementation compared to less than half after module implementation, this difference was statistically significant. This finding come in agreement with Oche & Onankpa^[3] who reported that, insufficient emergency treatment and first aid measures were the stander among the parents before intervention, majority of the mothers in this study practice alternative medicine including cutting the skin by varying method (scarification marks) during convulsive episodes on their children, while after the intervention, there was improvement in the home practices of the mothers with regards

to FC and these changes were statistically significant.

Regarding mothers attitude about febrile convulsion (see Figure 3); the finding of the current study revealed that, one quarter of mothers had positive attitude about febrile convulsion before module implementation and this percentage was improved to more than half of them after module implementation with the mean score of attitude 18.42 ± 5.84 before and 24.71 ± 6.76 after module implementation. This may be due to lack of knowledge and confidence of mothers when managing febrile convulsion while after gain knowledge and practice, mothers' attitude was improved. This result was in disagreement with Zeglam et al.^[28] who studied auditing the attitude and knowledge of parents of children with febrile seizures and reported that, mothers practice and attitude did not change significantly after the introduction of the information leaflet and the majority of mothers did not know how to act toward a child with FC and take decision to take their child to the hospital.

The poor score in the knowledge, practice and attitude for mothers could be explained in the light of the fact that, the majority of children were 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 module. 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 recog-

nize 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 24 hours 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' attitude and decrease complication and hospital admission from febrile seizures. It can be seen that, educational module achieved its goal of improving mothers' knowledge, home management and attitude about FC prevention and management.

5. CONCLUSION & RECOMMENDATIONS

The study concluded that the general level of mothers' knowledge about FC is low and their reaction in home management and first aid was persistent and high and attitude was improved after implementation of the educational module; but still some mothers had inappropriate practice and had negative attitude; this beliefs was influence mothers decision about management of febrile convulsion. Therefore, we recommended further education in the pediatric clinic or via mass media & replication of this study on large sample.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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