

## Effect of Implementing an Educational Program on Parental Knowledge and Practice About Febrile Convulsion

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### ABSTRACT

**Background:** Febrile convulsion (FC) in under five children is a common presentation in family medicine and pediatric clinics. Lack of parental knowledge regarding FC leads to anxiety and fear and improper management.

**Objective:** To improve parental knowledge and practice regarding febrile convulsions through implementing health educational program.

**Patients and methods:** A quasi experiment, one group pre/post-test study enrolled 300 parents 21-50 years old attended two family health facilities, Menoufia Governorate, Egypt, with their children (aged from birth to six years old). Data were collected through a predesigned questionnaire that included personal and socio-economic status, family history of febrile convulsions or epilepsy, questions about parental beliefs regarding causes of febrile convulsions, knowledge about febrile convulsions and recommended and non-recommended practices for febrile convulsion. Health educational program was implemented and parent's knowledge and practice about febrile convulsions was assessed before and after educational program.

**Results:** Among 300 participants aged from 21-50 years old with a mean age of  $31.57 \pm 6.98$  years, majority of them (85%) and (62%) had unsatisfactory knowledge and appropriate knowledge about home management of FC respectively. There was a statistically significant improvement in the perceptions of the participants regards to the causes of febrile convulsions pre- and post- intervention. There was a statistically significant improvement in the level of knowledge, practice and home management of convulsions before and after education. The mean level of knowledge and practice was statistically significantly higher after intervention.

**Conclusion:** There was significant improvement of parental perception, knowledge and practice regarding FC in preschool children after educational program.

**Keywords:** Convulsions, Febrile, Practice, Parents, Preschool children.

### INTRODUCTION

Febrile seizure or febrile convulsion is "a seizure in association with a febrile illness, in the absence of a central nervous system infection or acute electrolyte imbalance in children older than one month of age without prior afebrile convulsion". It is common in young children (3% - 4% of children below six years of age), and is one of the common causes of pediatric hospital admissions <sup>(1)</sup>. The recurrence possibility of febrile convulsions is 30%. The only relevant short-term adverse outcome is new febrile convulsion. Death caused by febrile convulsion itself or by the treatment is almost nonexistent. Adverse outcome may be more related to an underlying preexisting cerebral condition than to the febrile convulsion itself <sup>(2)</sup>.

Pathophysiology of FC remains unclear. It is suggested that FC is an age-dependent response of the immature brain to fever; there is an enhanced neuronal excitability. Febrile convulsions generally happen when the child has an illness, but many times, they occur before the parent may realize that the child is sick. That is because they usually take place on the first day of an illness. There are several different causes for febrile convulsions; (1) A fever that occurs after immunizations, especially the MMR (mumps measles rubella) immunization, (2) A fever resulting from a virus or a bacterial infection can also cause febrile convulsions. Roseola is the most common cause of

febrile convulsions. Risk factors, such as having family members who had febrile convulsions will put a child at a higher risk for having them. (3) A neonatal nursery stay of >30 days, developmental delay, or attendance of day care nursery <sup>(3)</sup>.

Although the occurrence of febrile convulsions in childhood is quite common and is generally considered a benign condition with a good prognosis, it can be extremely frightening, emotionally traumatic, and anxiety provoking when witnessed by parents. Parents are shocked to see their children experience a seizure and consider it to be life threatening. The daily life of some parents is negatively affected by FC, with parents frequently waking at night to follow their children's temperature <sup>(4)</sup>. Parental anxiety and apprehension are related to inadequate knowledge of fever and febrile convulsions. Parents may lack the knowledge or preparedness to offer first aid to a child who is having a convulsion <sup>(5)</sup>.

The best approach for FC should involve establishment of a good communication with parents and should improve their responses to convulsions at home. It is of particular importance that the families are relieved of their concerns and are capable of intervening optimally with the disease <sup>(6)</sup>. Accordingly, understanding and improving parental knowledge, attitudes, concerns and practices (KACP) toward FC are essential. Therefore, a quick assessment tool for



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obtaining information about parental responses to FC is warranted for educating parents and for use in clinical practice and research<sup>(7)</sup>. Therefore, this study aimed to improve parental knowledge and practice regarding febrile convulsions through implementing health educational program.

## PATIENT AND METHODS

A quasi experiment, one group pre/post-test study was carried out at Shebin Al-Kom Family Health Center representing the urban population (the only Family Health Center in Shebin Al-Kom City) and in Bakhaty Family Health Center representing the rural population (randomly selected from villages affiliated to Shebin Al-Kom District). The study included 300 parents (fathers and mothers) aged from 21-50 years old who attended the selected Family Health Centers with their children (aged from birth to six years old) seeking for any child medical services during the period of 1st of March, till the end of September 2018.

Sample size was calculated based on the following

$$\text{formula: } N = (t^2 \times p(1-p)) \div m^2$$

N = required sample size.

t = confidence level at 95% (standard value of 1.96).

P = estimated prevalence of febrile convulsions among preschool children

m = margin of error at 5% (standard value of 0.05).

At five% prevalence of febrile convulsions in children (aged from birth to six years old)<sup>(8)</sup>, the calculated sample size was 237 and it was increased to 300 to round the figure and to avoid drop out during intervention phase. The sample was proportionally allocated according to the prevalence of FC (179 participants from Bakhaty Health Center representing the rural population and 121 from Shebin Al-Kom representing the urban population).

### Exclusion criteria:

Uncooperative parents. Parents with children who have definitive evidence of neurological illness (epilepsy) and central nervous system (CNS) infection. Parents with children with chronic illness: immunological and genetic diseases and kidney or cardiac diseases. Parents with severe mental illness, visual or hearing disability that may interfere with answering the questions. Participants not living in Shebin Al-Kom City or Bakhaty village were excluded from the study.

**Subjects recruited in the study were evaluated through pre-designed questionnaire and were interviewed through the following stages:**

#### Stage 1 (Pre-interventional stage):

Questionnaire was applied to access information of the parents about febrile convulsions. The parent answered the questionnaire for the first time prior to education.

**The questionnaire had the following three sections:**

**Section 1:** For assessment of personal and Socio-economic status according to **Fahmy et al.**<sup>(9)</sup>, family history of febrile convulsions or epilepsy.

**Section 2:** According to **Kayserili et al.**<sup>(10)</sup>, it included four questions about parental beliefs regarding causes of febrile convulsions. Nine about knowledge of febrile convulsions necessary medical evaluation, risk of FC recurrence or developing subsequent epilepsy, necessity of anticonvulsants ...etc. This part of questionnaire was tested for reliability using Alpha Cronbach's test. The alpha reliability was 0.83.

**A scoring system** was used to categorize level of knowledge about febrile convulsions in studied participants. Responses were coded as zero for incorrect answer, one for do not know and two for correct answer. The knowledge was considered adequate if percentage of correct answers equaled 60-100% and inadequate if the percent were less than 60%.

#### Section 3:

Parental home management during febrile convulsion episodes. It included nine questions related to recommended and non-recommend practices for febrile convulsions according to **Kayserili et al.**<sup>(10)</sup>. 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  $\leq 60\%$ . This part of questionnaire was tested for reliability using Alpha Cronbach's test. The alpha reliability was = 0.87. The parent answered the questionnaire for the first time prior to education.

#### Stage 2 (Interventional stage):

The parent received a 30-minute self-structured educational program about febrile convulsions. Each parent was interviewed individually, not in a group. The education program included 3 sections (10 minutes were allotted to each section):

**Section I:** The definition, causes and classification of febrile convulsions. FC was classified as complex (focal, lasting more than 15 minutes, and recurrences in 24 hours or within the same febrile illness); or simple (generalized, lasting less than 15 minutes).

**Section II:** The symptoms and proper home management and first aid for the child during and after the attack of FC were explained to the parents.

**Section III:** Advice on risk of recurrence, and the effects of FC on children and transformation of FC into epilepsy and prophylaxis were discussed during the education program.

**Stage 3 (post-Interventional stage):** Three months after collection of the data from the respondents and the health education program, participants were invited by

phone call to visit the health center again and the same set of questionnaires was applied to the respondents to obtain the post-intervention data. All respondents were asked to fill out the previously prepared questionnaire.

**Ethical consideration:**

The study was approved by the Ethical Committee of the Faculty of Medicine, Menoufia University.

An official permission letter was obtained and directed to the local administrators in Shebin Al-Kom Family Health Center (FHC) and Bakhaty FHC. An oral consent was obtained from all participants in the study after simple and clear explanation of the research objectives and potential benefits of the study to them and to the community. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

*Statistical analysis*

The results were statistically analyzed by statistical package for the Social Science (SPSS) Version 20 (using IBM personal computer). Quantitative data were expressed as mean and standard deviations and analyzed applying paired student t-test for pre- and post-intervention.

Qualitative data were expressed as number and percentage and analyzed applying Chi-square test. P value > 0.05 was considered statistically non-significant, P value ≤ 0.05 was considered statistically significant and P value < 0.001 was considered statistically highly significant.

**RESULTS**

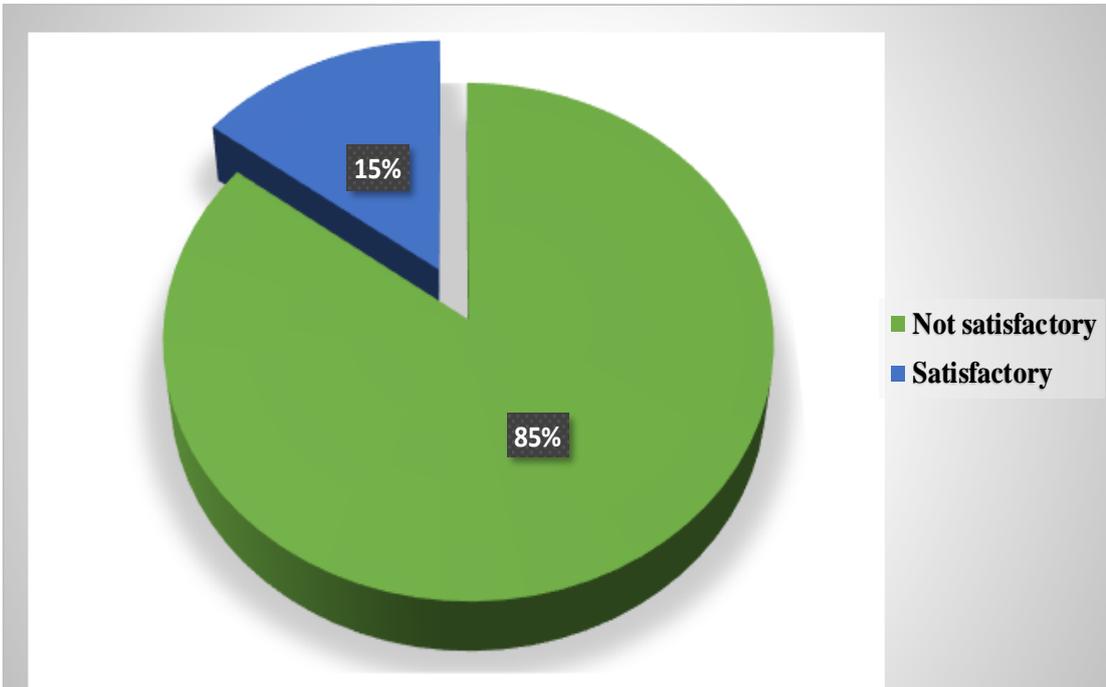
Among 300 studied participants aged from 21-50 years old with the mean age was 31.57 ± 6.98 years, most of them were mothers and from rural areas (77.7% and 59.7% respectively). Most of fathers were working (98.5%) and about half of them had high educational level (58.2%).

About two thirds of mothers were working (62.3%) and half of them had high educational level (53.2%). About two thirds of participants had middle socioeconomic level (64.7%). Most of the participants have no family history of epilepsy or FC (97.3 and 95.3% respectively) (**Table 1**).

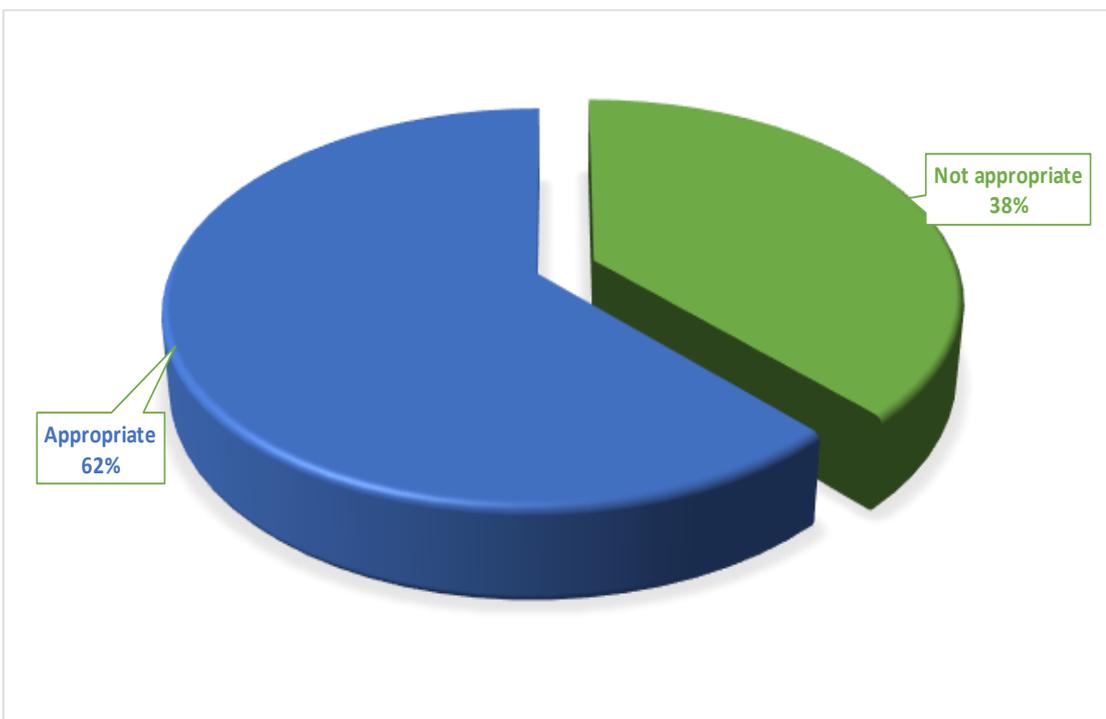
**Table (1):** Socio-demographic characteristics of the studied participants

Parameter	Number (300)	Frequency %
<b>Age</b> Mean ± SD (range)	31.57 ± 6.98 (21-50)	
<b>Gender</b> Male (father) Female (mother)	67 233	22.3 77.7
<b>Residence</b> Rural Urban	179 121	59.7 40.3
<b>Father's occupation</b> Not working Working	1 66	2.5 98.5
<b>Mother's occupation</b> Not working Working	88 145	37.7 62.3
<b>Father's education</b> Below secondary education Secondary education or equal High education	8 20 39	12.0 29.8 58.2
<b>Mother's education</b> Below secondary education Secondary education or equal High education	35 74 124	15.1 31.7 53.2
<b>Socioeconomic status</b> Low Middle High	28 194 78	9.3 64.7 26.0
<b>Family history of epilepsy</b> No Yes	292 8	97.3 2.7
<b>Family history of febrile convulsion</b> No Yes	286 14	95.3 4.7

Regarding the total knowledge score before health education, most of the studied participants (85%) had unsatisfactory knowledge score about FC (**figure 1**), and about (62%) of them had appropriate knowledge about home management of FC (**figure 2**).



**Figure (1):** Total FC knowledge score among the studied participants



**Figure (2):** Total score of FC home management score among the studied participants

There was a statistically significant difference ( $P < 0.05$ ) between the level of knowledge and residence, mothers' occupation, fathers' education, socioeconomic status and family history of epilepsy and FC. Most of rural participants were not working mothers (95.5%), fathers with secondary education and below secondary education were 100% and 100% respectively and of low socioeconomic level (100%). Participants with negative family history of epilepsy (87%) or febrile convulsions (88.1%) were reported with unsatisfactory knowledge about febrile convulsions (Table 2).

**Table (2):** Relationship between febrile convulsions knowledge score and socio-demographic criteria of the studied group

Item	Not Satisfactory		Satisfactory		Chi square	p-value
	No	%	No	%		
<b>Age/year</b> Mean ± SD	31.64 ± 6.45		31.18 ± 9.585		0.399*	0.69
<b>Gender</b> Male (father) Female (mother)	53 203	79.1 87.1	14 30	20.9 12.9	2.674	0.078
<b>Residence</b> Rural Urban	162 94	90.5 77.7	17 27	9.5 22.3	9.476	0.002
<b>Father's occupation</b> Not working Working	0 53	00.0 79.1	0 14	0.0 0.0	--	--
<b>Mother's occupation</b> Not working Working	85 118	95.5 81.9	4 26	4.5 18.1	Fischer exact	0.002
<b>Father's education</b> Below secondary education Secondary education or equal High education	11 27 15	100.0 100.0 51.7	0 0 14	0.0 0.0 48.3	17.76	<0.001
<b>Mother's education</b> Below secondary education Secondary education or equal High education	20 27 15	69.0 90.9 89.1	9 6 15	31.0 9.1 10.9	4.939	0.026
<b>Socioeconomic status</b> Low Middle High	28 165 63	100 85.1 80.8	0 29 15	0.0 14.9 19.2	6.123	0.047
<b>Family history of seizure</b> No Yes	254 2	87.0 25.0	38 6	13.0 75.0	23.905	<0.001
<b>Family history of febrile convulsion</b> No Yes	252 4	88.1 28.6	34 10	11.9 71.4	37.805	<0.001

There was a statistically significant difference ( $P < 0.05$ ) between the level of practice and parents' mean age, residence, socioeconomic status and fathers' education as the parents with higher age significantly had appropriate practice. Moreover, 53.6% of participants were of low socioeconomic status. Participants from rural areas (44.1%) and fathers below secondary education (100%) had no enough knowledge about appropriate home management with the child during a febrile convulsion attack (Table 3).

**Table (3):** Relationship between febrile convulsions home management score and socio-demographic criteria of the studied group

Item	Not appropriate		Appropriate		Chi square	p-value
	No 114	% 38	No 186	% 62		
<b>Age</b> Mean ± SD	30.95 ± 7.298		32.58 ± 6.326		1.97	0.05
<b>Gender</b> Male (father) Female (mother)	34 80	50.7 34.3	33 153	49.3 65.7	5.949	0.011
<b>Residence</b> Rural Urban	79 35	44.1 28.9	100 86	55.9 71.1	7.088	0.005
<b>Father's occupation</b> Not working Working	0 34	0.0 50.7	0 33	0.0 49.3	--	--
<b>Mother's occupation</b> Not working Working	29 51	32.6 35.4	60 93	67.4 64.6	Fischer exact	0.444
<b>Father's education</b> Below secondary education Secondary education or equal High education	11 19 4	100.0 70.4 13.8	0 8 25	0.0 29.6 86.2	29.17	<0.001
<b>Mother's education</b> Below secondary education Secondary education or equal High education	11 17 52	37.9 25.8 37.7	18 49 86	62.1 74.2 62.3	0.487	0.485
<b>Socioeconomic status</b> Low Middle High	15 82 17	53.6 42.3 21.8	13 112 61	46.4 57.7 78.2	13.076	0.001
<b>Family history of seizure</b> No Yes	112 2	38.4 25.0	180 6	61.6 75.0	0.590	0.356
<b>Family history of febrile convulsion</b> No Yes	110 4	38.5 28.6	176 10	61.5 71.4	0.554	0.329

There was a statistically significant improvement in the perceptions of the participants regarding the causes of febrile convulsions pre- and post-intervention ( $P < 0.001$ ). Where participants who thought that the main cause is fever and child's age were 89.3% before education and 90.7% after education. Also, before the education program, participants who believed that abnormal brain electricity, bad water or air and evil spirit or witch craft were 47.7%, 64.7% & 77.7% respectively and after education, they were 85.3%, 84.7% & 88% respectively (Table 4).

**Table (4):** Perceived causes of febrile convulsions before and after education

Item	Pre-intervention		Post- intervention		Chi square	p-value
	No 300	100%	No *274	91.3%		
<b>High fever and age</b>						
Correct	268	89.3	272	90.7	60.03	<0.001
Don't know	13	4.3	0	0.0		
Incorrect	19	6.3	0	0.0		
<b>Abnormal brain electricity</b>						
Correct	143	47.7	256	85.3	175.195	<0.001
Don't know	57	19.0	4	1.3		
Incorrect	100	33.3	12	4.0		
<b>Bad air/ water</b>						
Correct	194	64.7	254	84.7	103.73	<0.001
Don't know	67	22.3	4	1.3		
Incorrect	39	13.0	14	4.7		
<b>Evil spirit/ witch craft</b>						
Correct	233	77.7	264	88.0	77.674	<0.001
Don't know	46	15.3	8	2.7		
Incorrect	21	7.0	0	0.0		

\*missed cases 26

There was a statistically significant improvement in the level of knowledge about febrile convulsions before and after education ( $p < 0.05$ ). The mean level of knowledge was statistically significantly higher after the educational program. Moreover, the number of parents who believed that FC is a kind of epilepsy, which is a hereditary disease and is recurrent, was 87%, 84.3% & 77.3% respectively. In addition, after the education program parents' perception that FC is dangerous to child, can cause brain damage and more care is needed in-between attacks was more common (51.3%, 65.7% & 65.3% respectively). The number of parents who thought that brain computed tomography (CT) or magnetic resonance imaging (MRI), electroencephalography (EEG) and CSF examination are required for every FC child was 59.0% & 69.0%). After the education, the number of parents who believed that FC damages the brain and that more care is needed in-between attacks was 51.3% & 65.7%. The opinion that anti-epileptic drugs (this terminus refers to a long-term medication) should be prescribed for FC was 65.7% (Table 5).

**Table (5):** Knowledge about febrile convulsions before and after education

Item	Pre-intervention		Post-intervention		Chi square	p-value
	No 300	100%	No *274	91.3%		
<b>Knowledge score</b> Mean ± SD (range)	3.26 ± 1.952 (0-8)		5.647 ± 2.552 (0-8)		12.867*	<0.001
<b>FC is same as epilepsy</b> Correct Don't know Incorrect	214 47 39	71.3 15.7 13.0	262 0 12	87.0 0.0 3.7	95.331	<0.001
<b>FC is hereditary disease</b> Correct Don't know Incorrect	143 35 122	47.7 11.7 40.7	254 0 20	84.3 0.0 6.3	168.797	<0.001
<b>FC is recurrent</b> Correct Don't know Incorrect	182 67 51	60.7 22.3 17.0	233 4 37	77.3 1.3 12.0	92.526	<0.001
<b>FC is danger to child</b> Correct Don't know Incorrect	37 49 214	12.3 16.3 71.3	155 4 115	51.3 1.3 38.0	168.366	<0.001
<b>FC can cause brain damage</b> Correct Don't know Incorrect	66 83 151	22.0 27.7 50.3	197 4 73	65.7 1.3 24.3	190.147	<0.001
<b>Anticonvulsants are required for every FC child</b> Correct Don't know Incorrect	112 77 111	37.3 25.7 37.0	196 6 72	65.7 1.3 24.3	123.02	<0.001
<b>More care is needed in-between attacks</b> Correct Don't know Incorrect	70 59 171	23.3 19.7 57.0	197 9 68	65.3 3.0 22.3	169.894	<0.001
<b>EEG, CT &amp;MRI are required for every FC child</b> Correct Don't know Incorrect	79 91 130	26.4 30.3 43.3	178 4 92	59.0 1.3 30.3	152.07	<0.001
<b>CSF examination is required for every FC child</b> Correct Don't know Incorrect	75 153 72	25.0 51.0 24.0	208 0 66	69.0 0 21.7	243.145	<0.001

\*Missed cases 26

There was a statistically significant improvement in the level of practice and home management about convulsions before and after education ( $p < 0.05$ ). As regards the parameters of the health education program as Tepid sponging, protect the child on a soft and safe surface, remain calm, place the child on his side and observe seizure manifestations and duration. Then, rush the child to a doctor without first-aid, shake arouse the convulsing child, pry the convulsing child's clenched teeth apart and put something in his/her mouth, suck discharge from the child's nose and mouth and attempt mouth-to-mouth resuscitation & cardiac massage ( $P < 0.05$ ) (Table 6).

**Table (6):** Parental practices during febrile convulsion before and after education

Item	Pre-intervention		Post-intervention		Chi square	p-value
	No 300	100%	No *274	91.3 %		
<b>Practice score</b> Mean ± SD (range)	5.646 ± 2.2552 (0-8)		6.55 ± 2.322 (0-8)		3.462*	0.001
<b>Tepid sponging</b> Correct Don't know Incorrect	261 30 9	87.0 10.0 3.0	270 0 4	93.8 00.0 1.4	45.85	<0.001
<b>Protect the child on a soft and safe Surface</b> Correct Don't know Incorrect	236 47 17	78.7 15.7 5.7	253 5 16	84.3 1.7 5.3	60.544	<0.001
<b>Placing child on his side</b> Correct Don't know Incorrect	146 112 42	48.7 37.3 14.0	252 8 14	84.0 2.7 4.7	158.364	<0.001
<b>Remain calm</b> Correct Don't know Incorrect	268 27 5	89.3 9.0 1.7	266 4 4	88.7 1.3 1.3	43.183	<0.001
<b>Observe seizure manifestations and Duration</b> Correct Don't know Incorrect	231 59 10	77.0 19.7 3.3	259 0 15	89.3 0.0 5.0	87.6	<0.001
<b>Rush the child to a doctor without first-aid</b> Correct Don't know Incorrect	184 52 64	61.3 17.3 21.3	214 8 52	71.3 2.7 17.3	61.769	<0.001
<b>Shake &amp; arouse the convulsing child</b> Correct Don't know Incorrect	198 64 38	66.0 21.3 12.7	249 4 21	83.0 1.3 7.0	89.658	<0.001
<b>Keep the convulsing child's clenched teeth apart and put something in his/her mouth and Suck discharge from the child's nose and mouth</b> Correct Don't know Incorrect	81 92 127	27.0 30.7 42.3	232 4 38	77.3 1.3 12.7	227.519	<0.001
<b>Attempt mouth-to-mouth resuscitation &amp; cardiac massage</b> Correct Don't know Incorrect	165 90 45	55.0 30.0 15.0	240 4 30	80.0 1.3 10.0	121.57	<0.001

\* Missed cases 26

## DISCUSSION

Regarding the total knowledge score in this study, most of the studied participants (85%) had unsatisfactory knowledge score about FC, with a significant association between unsatisfactory knowledge score and rural residence, not working mothers, low socioeconomic level and participants with negative family history of epilepsy or febrile convulsions. Alongside with a health survey done in Nigeria, there was a mostly low level of knowledge about FC as only 10% of the mothers had adequate knowledge at baseline. These results are opposing to **Shibeeb and Altufaily** <sup>(11)</sup> survey study in Iraq who concluded that that 43% of the respondents had a good level of knowledge. Besides, the current observations were not so far from with **Shibeeb and Altufaily** <sup>(11)</sup>.

This study reported that the knowledge score was affected by residence and maternal education level. In addition, a study in Malaysia showed that the good knowledge of FC was associated with higher maternal education level, higher paternal education, and higher family income <sup>(12)</sup>.

Regarding the knowledge of the cause of FC by the participants, most of them were perceiving FC not as epilepsy. These findings are superior to **Kayserili et al.** <sup>(10)</sup> and **Shibeeb and Yahia** <sup>(11)</sup> study that reported that more than half of the participants believed that the febrile convulsion was a type of epilepsy.

This study showed that majority of the participants believed that the fever and young age was the cause. This study agrees with **Elbilgahy and Abd El Aziz** <sup>(5)</sup> who concluded that 77% of Egyptian mothers believed that FC is related to young age less than five years. In contrary, **Parmar et al.** <sup>(13)</sup> reported that 77.9% of parents in Mumbai (India) did not know that seizure can occur during fever only.

More studies stated the fever was the main cause of the seizure as cited by parents. The same results were proved in Cameron <sup>(14)</sup>. Besides, **Van Stuijvenberg et al.** <sup>(15)</sup> in Netherlands noted a similar finding as well as other studies especially in Africa <sup>(16, 17, and 18)</sup>.

The present study reported that about 77% of participants denied that the febrile seizures were due to witchcraft and evils. On contrary, **Anigilaje and Anigilaje** <sup>(19)</sup> and **Munthali** <sup>(17)</sup> stated that most mothers thought seizures were due to witchcraft.

The unsatisfactory level of knowledge and practice among the studied participants may be explained by their prevalent rural residence, low to middle socioeconomic status and low educational levels. The current study revealed that interventional educational program had a highly significant effectiveness in improvement of the knowledge and perception of causes of FC. These results are approved by **Huang et al.** <sup>(20)</sup> where their interventional program improved the knowledge. Additionally, the findings of **Taheri et al.** <sup>(21)</sup> showed significant increase in the knowledge, and practices of mothers after the educational intervention. The results of the above-mentioned study confirm the findings of the present

study about the effectiveness of educational interventions on improving intended outcomes.

The present study illustrated that there was a highly statistically significant improvement observed between pre- and post intervention as regards the parameters of the practice. This is in agreement with **Huang et al.** <sup>(14)</sup> who stated that parental practice about protecting and placing the convulsing child in a safe place and in an appropriate position and the other practice parameters were improved by the educational program. But, their intervention was not effective in reducing the child's temperature during convulsions. Because reducing body temperature usually takes time and the need for protection during convulsions is immediate, it might be too stressful for parents to protect the convulsing child and handle the body temperature issue simultaneously. Accordingly, the recommendation to reduce body temperature during a convulsion should be changed. Reducing the child's body temperature after FC may be a better suggestion for parents. Also, many studies proved that there was a significant effect of the interventional programs in improving the home practice of mothers in dealing with the FC <sup>(15)</sup> On contrary, **Oche and Onankpa** <sup>(16)</sup> mentioned that after the education program, only a few of the mother's practice at home were improved. Additionally, **Zeglam et al.** <sup>(17)</sup> reported that a few of their respondents had improved practice.

#### Conclusion:

the study concluded that the level of knowledge and practice of the parents regarding febrile convulsions was grossly inadequate, which may be related to rural residence, socioeconomic status, parent occupation, and family history of epilepsy/ or febrile convulsions among the study subjects. The current interventional program had a high impact on knowledge and practice of the participants towards the febrile convulsions. Therefore, we recommend that parents should receive education with correct and sufficient information about FC via the posters in the waiting room and from health care workers in the family medicine clinics and to invite parents with affected children to the clinical controls in order to be given detailed information. In addition, effective advertisements with encouragement from health workers (regarding proper first-aid techniques) can greatly increase the knowledge, practice and attitude about FC.

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