

Effect of Health Education Program on Knowledge and Attitude of Mothers of a Febrile Convulsive Child

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Abstract:

Background: febrile convulsion (FC) in children is a common presentation in family medicine and pediatric clinics. Parental anxiety and fear of fever are often related to inadequate knowledge.

Objective: to assess the effect of health education program on knowledge and attitude of mothers regarding febrile convulsion.

Methods: an intervention study was conducted on 32 children. The study was implemented in Zagazig health district which is the capital of Sharkia governorate. Two family health centers were selected randomly to represent the district. Participants' information regarding FC was collected via the KACP questionnaire.

Results: The study revealed that only 18.8 % of the studied sample had an adequate total knowledge regarding FC, 87.5 % total positive attitude and about one third of the studied mothers had an appropriate knowledge regarding first aid and home management during the FC attack (pre-program), which greatly improved with high statistically significant difference after implementing the health education program.

Conclusion: Parental fear of fever and febrile convulsion could be declined through appropriate health education sessions discussing all aspects of the disease and possible complications and how to prevent it.

Keywords: Children, fever, first aid, Sharkia, management.

Introduction:

Febrile convulsion (FC) is the commonest neurological presentation in childhood, as it generally defined as attacks of seizures occurring in children typically aged from 6 months to 60 months concomitant with fever over 38 °C in absence of other causes of seizures like (intracranial causes, electrolyte imbalance, hypoglycemia, drug use or drug withdrawal, or a history of an afebrile seizure).⁽¹⁾

The peak incidence of febrile convulsions is at 18 months. About 6-15% of febrile convulsion attacks occur after the age of 4

years and onset after 6 years is very unusual.⁽²⁾

Febrile convulsion affects 2–5% of children between 6 months and 5 years of age in Western Europe and the United States with the peak age between 12 and 18 months. Although febrile convulsions are seen in all ethnic groups, it is more frequently seen in the Asian population (5–10% of Indian children and 6–9% of Japanese children). The incidence is as high as 14% in Guamese.⁽¹⁾

Despite FC had a good prognosis, it is a difficult condition for parents to handle.

Concerns about the future health of the child are the most common cause of fear among the parents, including fear of recurrence, mental retardation, physical disabilities, and even death. 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.⁽³⁾

Inadequate knowledge regarding febrile convulsions can cause parental anxiety and incorrect attitudes, so correct and suitable knowledge of the relationship between fever and febrile convulsions and its usual good prognosis is important for lessening the parental anxiety and worry associated with febrile convulsions. Fever phobia may even be developed and each febrile episode of the child can be a nightmare for the parents.⁽⁴⁾

The lack of this knowledge can be overcome with health education which can improve parents' understanding and the ability of taking care of their children during the attack, so knowledge about febrile seizure is important for parents, especially knowledge regarding febrile convulsions when it will occur, seizure characteristics, how to do first aid management and how seizures can be prevented. Correct intervention can prevent complications such as head injury, mouth and teeth injury, and neck suffocation.⁽⁵⁾

This study was conducted to reduce morbidity and mortality of febrile convulsions in children by implementing and evaluating the effect of health education on improving the parents' knowledge and attitude regarding febrile convulsions in children. Up to my knowledge few studies were done in Egypt generally and in Sharkia governorate specifically.

Research question: Is health education affects the level of knowledge and attitude of mothers with febrile convulsive children?

Methods

Study design and sampling method

An intervention study was conducted (pre and post-test intervention) from January 2019 to July 2019. The sample was calculated to be 32 children after calculating it with an online open epi program with a percent of pre-test FC mother's knowledge was 11.2% and post-test percent was 64.4%.⁽⁶⁾

Zagazig district is the capital of Sharkia governorate and had the largest population in the governorate which administratively divided into 17 major districts according to **Sharkia.gov.eg, 2018**), the study was applied in randomly selected two family health centers which represent urban and rural residence in the district. The sample units

were collected by simple random technique (participants attending the family health center asking for different health services). The practical part of the study is completed by attending the health center 4 hours/day, 2 days /week for 2 months.

Study participants and data collection

Children of both sexes aged from 6 months to 5 years and had febrile convulsions (single or recurrent attacks).

Exclusion criteria:

Children diagnosed with afebrile convulsions even if recurrent or convulsions secondary to organic disease e.g. cerebral palsy, meningitis, encephalitis, severe head trauma or intracranial tumors.

Parents were interviewed using **Fahmy et al., 2015⁽⁷⁾** questionnaire to assess their sociodemographic characteristics including (mother and father education and occupation, sewage disposal, incomeetc).

KACP questionnaire was developed by Huang et al. to assess the knowledge (Possible causes of febrile seizures, Necessary medical evaluation...), the attitude (parental opinions regarding febrile convulsions treatment, prognosis, examination ...), first aid home management during the attack (questions

related to recommended and none recommended management and first aid of febrile convulsions).⁽⁶⁾

The questionnaire took about 20 minutes to be filled in each time; patient education session took about 30 minutes and applied either individually or in small groups, 3 main pre-scheduled health education sessions were implemented in the health center targeting attended mothers not included in the study. Evaluation of the effect of health education done after 3 months of post health education.

Administrative approval

The study was approved by Sharkia health directorate. An official permission letter was obtained from the authority and directed to El-Nahal family health center.

Ethical approval

Ethical considerations were taken through the whole study including fully informed participants with the purpose and nature of the study and then oral consent was taken from participants. Coded numbers for each participant were used to guarantee privacy. Official approval from the Institutional review board (IRB) was taken (ZU-IRB#:4129).

Statistical analysis

The collected data were analyzed using Statistical Package for the Sociable Sciences version 24 (SPSS) software (Statistical Package for the Sociable Sciences, version 24, SPSS Inc. Chicago, IL, USA), Data were represented in tables, Continuous Quantitative variables e.g. age were expressed as the mean \pm SD & median (range), and categorical qualitative variables were expressed as absolute frequencies (number) & relative frequencies (percentage).

Social class was classified according to Fahmy and his colleagues⁽⁷⁾ into high (33.6–48), medium (19.2–<33.6), and low (<19.2) depending on the score calculated (48).

A suitable statistical test of significance (paired t-test) was used after checked for normality. The results were considered statistically significant when the significant probability was less than 0.05 ($P < 0.05$). P-value < 0.001 was considered highly statistically significant (HS), and P-value ≥ 0.05 was considered statistically insignificant (NS).

Results

Regarding socio-demographic characteristics, the mean age of the studied febrile convulsive children was 3.03 ± 1.5 years old, about half of them were males (46.9 %), only 2.9% of the

studied families had enough and saving income and most of them have moderate and high socioeconomic status (53.1% and 40.6%) respectively (Table 1).

The study revealed that only 18.8 % of the studied sample had an adequate total knowledge regarding FC, with 50 % correct answer regarding the definition and if EEG or CT is necessary for every child with FC, while 65.6% of them answered correctly about that if anti-convulsant drugs are required for every child, 31.3% of them answered correctly if Every child with FC will have another FC attack in the future, 81.3% correctly answered if Children with FC can receive immunizations on schedule.

(Table 2).

There was a statistically significant change in knowledge about FC after application of health education program where the score of knowledge statistically elevated from (4.25 ± 2.67) to (9.18 ± 1.33) after program application (table 3).

The total positive attitude of the studied mothers was 87.5% pre-health education, with 75% of the studied mothers strongly disagree that FC is due to possession by spirits or Folk medicine is necessary, while 53.1% of them strongly disagree that FC will become epilepsy, 75% of the studied mothers strongly

agree that parents should take their children's temperature frequently and more attention and care are needed for a child with FC, 53.1% strongly disagree that an FC attack is a life-threatening event or FC can cause brain damage, only 15.6% of the studied mothers strongly agree that FC can be increased and complicated, only 18.8% strongly agree that lumbar puncture is acceptable, most of them 78.2% strongly disagree that shameful to have a child with FC.

(Table 4).

After implementing the health education the total positive attitude increased to (46.12 ± 1.33) after being (35.62 ± 4.26) with a high statistically significant difference (Table 5).

About one third of the studied mothers had an appropriate knowledge regarding first aid and home management during the FC attack, 96.9% of the studied mothers answered correctly about the importance of lowering the child's body temperature, while 78.1% of them answered correctly about observing seizures manifestations and duration and 50% of them answered correctly concerning remain calm, shake the convulsing child, perform cardiac massage and restrain the convulsing child (Table 6).

There was a statistically significant change in Parental first aid and home management in

response to FC after application of health education program where the score was statistically significantly elevated after program application (Table 7).

Discussion

Febrile convulsions are the most common type of convulsions in childhood. They are also one of the most common causes of hospital admissions in children under five years of age.⁽²⁾ Despite having a good prognosis, many parents may even develop fever phobia because of lacking the appropriate basic knowledge to handle a febrile convulsion attack.⁽⁴⁾ The current study revealed that the mean age of the studied febrile convulsive children was 3.03 ± 1.5 years old, with no sex difference. This was similar to a study done in Libya⁽⁸⁾ which revealed that the majority of febrile seizure cases that were admitted to our department were found to be of equal sex incidence and a study conducted in Kayseri, Turkey⁽⁹⁾ found that the prevalence of FC was 4.2% in girls and 4.3% in boys.

Conversely, Sfaihi et al. (2012)⁽¹⁰⁾ in Sfax, Tunisia revealed that a slight predominance of FC in males yielding a sex ratio of 1.42, and a study done In Kathmandu⁽¹¹⁾ revealed that males accounted for 62% and females 38%.

Regarding knowledge about febrile convulsion pre-program, the current study stated that 28.1% of mothers correctly answered about FC is rare after the age of 5, but it was higher in a study conducted in Iraq⁽¹²⁾ which found that 70% of parents believed that it will improve with age.

The current study stated that 50% of parents thought that computed tomography (CT) scan of the brain should be done for every child with FC; this is in consistence with Shibeeb et al. (2019)⁽¹²⁾ in Iraq who found that 60% of parents insist that the CT scan of the brain should be done for every child with FC. Conversely, in Iraq⁽¹³⁾ whereas 76.4% of parents thought that there is no necessity for a CT scan.

There is a statistically significant change in knowledge about FC after application of health education program, This result was in an agreement with an Iranian study⁽¹⁴⁾ that demonstrated that there was a significant increase in the mean score of knowledge of mothers ($p < .001$) in the intervention group compared with the pre-intervention time. Also in an agreement with Barzegar et al. (2016)⁽¹⁵⁾ who stated that the handout assembles and the handout assembles plus verbal instructions about febrile convulsions for mothers

demonstrated significant improvement in their knowledge post-intervention.

About the Attitude of mothers towards febrile convulsion pre-program, this study showed that 53.1% strongly disagreed that an FC attack is a life-threatening event or FC can cause brain damage, this is in agreement with a study done in 2016⁽¹⁵⁾ who reported in their study that the majority of mothers believed that FC episode is a serious condition which can cause brain damage and in Iraq⁽¹²⁾, 69% of parents believed that FC attack is a life-threatening event, and regarding whether it can cause brain damage or not, 73% of them thought that brain damage will occur. These results can explain the parent's fear and anxiety during the attack of convulsion which makes it difficult for them to deal with.

Concerning the attitude of mothers toward lumbar puncture in the current study, only 18.8% strongly agree that lumbar puncture is acceptable, most of them 78.2% strongly disagree that shameful to have a child with FC, in contrast with Shibeeb et al. (2019)⁽¹²⁾ in Iraq who found that 55% of parents believe that if it is necessary a lumbar puncture can be done.

Concerning attitude towards febrile convulsions after application of health education program, the study stated that there

is a statistically significant change in attitude towards FC after application of health education program, this is in accordance with an Egyptian study ⁽⁶⁾ showed that one quarter of mothers had a positive attitude about febrile convulsions 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 convulsions while after gaining knowledge the mothers' attitude was improved. Also, the result was in an agreement with Taheri et al. (2014)⁽¹⁶⁾ showed a significant increase in the knowledge, attitudes, and first aid home management of mothers after febrile seizures by educational intervention.

Conversely, a study done in Libya ⁽⁸⁾ that 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.

Regarding parental first aid and home management in response to febrile convulsions pre-program, the current study 84.4% of studied parents immediately go to the doctor at the time of their children got febrile convulsions without first aid. This is in contrast with Najimi et al. (2013)⁽¹⁴⁾ in Iran who reported that less than one-quarter of the mothers took their children to the hospital or clinic without first aids at the time of FC. Also a study was done in Iraq ⁽¹²⁾ found that only 25% of studied parents immediately go to the hospital or clinic at the time of their children got febrile convulsions without first aids, this is may be attributed to parental fear that their child may die, or they may have a poor understanding of the condition.

The current study showed that 43.8% Pry the convulsing child's clenched teeth apart and put something in his/her mouth. This close to Saudi study ⁽¹⁷⁾ which stated that only 32% of mothers said that they tried to keep the child's mouth open with their fingers or any other objects to prevent tongue biting. Conversely, Shibeel et al. (2019) ⁽¹²⁾ in Iraq found that during attacks of fits, 64% of the parents tried to open a child's mouth and put something in, believing that it may avoid biting of the tongue.

The study also found that 43.8% remove discharges from the child's mouth and nose during attacks of FC. At the same line, a study was done in Sri Lanka ⁽¹⁸⁾ reported that 50.6% of mothers eliminated secretions and kept the child in a lateral position when the child is drooling.

As regards parental first aid and home management in response to febrile convulsions after application of health education program, the study stated that there is a statistically significant change in parental first aid and home management in response to FC after application of health education program. Similarly, a study in Nigeria⁽¹⁹⁾ stated that insufficient emergency treatment and first aid measures were the standers among the parents before intervention while after the intervention, there was an improvement in the home practices of the mothers with regards to FC and these changes were statistically significant. Conversely, in Libya ⁽⁸⁾ the home management of mothers before and after the introduction of the information leaflet did not change significantly; their practice, however, was still inappropriate.

Conclusion:

The health education about FC could improve a mother's understanding and the ability of taking-care of their children in the case when children had febrile convulsions. Also, the efficiency of parental first aid home management could be evaluated and significant improvement could be achieved by giving adequate information to the parents. Creating awareness among parents through adequate health education and counseling could reduce their apprehension and fear.

Recommendations:

- Parents should receive health education about FC routinely with clinical care.
- Health care providers should provide counseling and health education for parents about febrile convulsions and how to deal with and provide simple educational pamphlets and posters about febrile convulsions.
- Similar studies should be conducted on a larger sample of children and longer duration in different areas of care like inpatient, emergency department and primary health units.

Authors' contribution: H.S.S. contributed to the planning of the work, drafting of the work, data collection, patient education, reporting, literature review, revision of the manuscript, approval of the final version of the manuscript, and agreed to all aspects of the work. H.A.E. contributed to the planning of the work, drafting of the work, health education, data collection, statistical analysis, revision of the manuscript, approval of the final version of the manuscript, and agreed to all aspects of the work.

Study limitations:

- A short period of the study, so it was not available time to discover the effect of the education program.
- Larger sample was needed for the study to be extrapolated.
- Absence of a separate place for health education, so it was done in the same room of examination, so there were distractions and loss of concentration.

Conflict of interest: there were no known conflicts of interest associated with this publication.

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Table (1): Sociodemographic characteristics of studied febrile convulsive children (n= 32).

Socioeconomic characteristics	Item	the studied group	
		No.	%
Age	Mean \pm SD	3.03 \pm 1.5	
	Median (Range)	3.5 (7 months-5 years)	
Sex	Male	15	46.9
	Female	17	53.1
Education of father	Illiterate/Read & write	4	12.5
	Primary	3	9.4
	Secondary	13	40.6
	University	12	37.5
Education of mother	Illiterate/ Primary	6	18.7
	Preparatory	1	3.1
	Secondary	15	46.9
	University	10	31.3
Working status of the father	No	2	6.3
	Yes	30	93.8
Working status of the mother	No	24	75.0
	Yes	8	25.0
Computer use	Never	12	37.5
	Sometimes	16	50.0
	A lot of times	4	12.5
Per-capita income	Not enough	4	12.5
	Enough only	27	84.4
	Enough and saving	1	3.1
Number of family members	≥ 7	1	3.1
	6	1	3.1
	5	13	40.6
	< 5	17	53.1
Crowding index	≥ 2 - < 4	17	53.1
	< 2	15	46.9
Sewage /refuse disposal	No	1	3.1
	Yes	31	96.9
Social class	Low ($< 40\%$)	2	6.3
	Moderate (40- $< 70\%$)	17	53.1
	High level ($\geq 70\%$)	13	40.6

Table (2): Mothers' knowledge about febrile convulsion preprogram (n=32).

Knowledge about FC	Correct answer		Incorrect answer	
	No.	%	No.	%
Fc* is epilepsy	16	50.0	16	50.0
Anticonvulsant drugs are required for every child with FC	21	65.6	11	34.4
Every child with FC will have another FC in the future	10	31.3	22	68.7
FC is rare after age 5	6	18.8	26	81.2
Recurrent FC will cause brain damage	12	37.5	20	62.5
Risk of subsequent epilepsy in FC is rare	9	28.1	23	71.9
It is necessary to put a protective device into the mouth to prevent tongue injury during the convulsion	17	53.1	15	46.9
It is necessary to restrain the child during the convulsion	17	53.1	15	46.9
It is necessary to do the mouth-to-mouth resuscitation during the convulsion	10	31.3	22	68.7
Children with FC can receive immunizations on schedule	26	81.2	6	18.8
EEG** or CT# is necessary for every child with FC	16	50.0	16	50.0
Total knowledge	adequate		N	6
			%	18.8
	inadequate		N	26
			%	81.2

*FC febrile convulsion **EEG electroencephalogram #CT computed tomography

Table (3): Mothers' knowledge about febrile convulsion before and after application of health education.

	Knowledge about FC		paired t	P-value
	Pre -program	post -program		
Mean \pm SD	4.25 \pm 2.67	9.18 \pm 1.33	18.09	0.000*
Range	1-8	5-11		(HS)

P < 0.05 is statistically significant

HS: Highly significant

Table (4): Mothers' attitude towards febrile convulsion preprogram (n=32).

Attitude towards FC	Negative		Neutral		Positive	
	No.	%	No.	%	No.	%
1. FC is due to possession by spirits	5	15.6	3	9.4	24	75.0
2. FC will become epilepsy	4	12.5	11	34.4	17	53.1
3. Parents should take their children's temperature frequently	5	15.6	3	9.4	24	75.0
4. An FC attack is a life-threatening event	8	25.0	7	21.9	17	53.1
5. FC can cause brain damage	8	25.0	7	21.9	17	53.1
6. Folk medicine is also necessary	3	9.4	5	15.6	24	75.0
7. FC can be increased and complicated	5	15.6	12	37.5	15	46.9
8. More attention and care are needed for a child with FC	24	75.0	2	6.3	6	18.8
9. If necessary, lumbar puncture is acceptable	11	34.4	15	46.9	6	18.8
10. It is shameful to have a child with FC	5	15.6	2	6.3	25	78.2
Total attitude	Negative		No.		4	
			%		12.5	
	Positive		No.		28	
			%		87.5	

Table (5): Mothers' attitude towards febrile convulsion before and after application of health education.

	Attitude towards FC		paired t	P-value
	Pre -program	post -program		
Mean \pm SD	35.62 \pm 4.26	46.12 \pm 1.33	15.69	0.000*
Range	26-43	43- 48		(HS)

P < 0.05 is statistically significant

HS: Highly significant

Table (6): Parental 1st aid and home management in Response to febrile convulsion preprogram (n=32).

1st aid home management	Correct answer		incorrect answer	
	No.	%	No.	%
Lower the child's body temperature	31	96.9	1	3.1
Protect the child on a soft and safe Surface	13	40.6	19	59.4
Place the child on his/her side	8	25.0	24	75.0
Remain calm	16	50.0	16	50.0
Observe seizure manifestations and duration	25	78.1	7	21.9
Rush the child to a doctor without first-aid	5	15.6	27	84.4
Shake the convulsing child	16	50.0	16	50.0
Pry the convulsing child's clenched teeth apart and put something in his/her mouth	18	56.3	14	43.8
Attempt mouth-to-mouth resuscitation	18	56.3	14	43.8
Suck discharge from the child's nose and mouth	14	43.8	18	56.3
Perform cardiac massage	16	50.0	16	50.0
Restrain the convulsing child	16	50.0	16	50.0
Stimulate the convulsing child	14	43.8	18	56.3
Too overwhelmed to respond	11	34.4	21	65.6
Total parental 1st home management	appropriate	No.	9	
		%	28.1	
	inappropriate	No.	23	
		%	71.9	

Table (7): Parental 1st aid and home management in Response to febrile convulsion before and after application of the health education program:

	1st aid home management		paired t	P-value
	Pre -program	post -program		
Mean ± SD	6.90 ± 2.37	12.28 ± 0.88	16.03	0.000*
Range	2-12	10- 14		(HS)

P < 0.05 is statistically significant

HS: Highly significant

العربي الملخص

أثر التثقيف الصحي على معارف وإتجاهات الأمهات فيما يخص التشنج الحرارى بقطاع الزقازيق, محافظة الشرقية

هناء صلاح سعيد، هالة أحمد المغاوري

الخلفية: التشنج الحرارى في الأطفال هو عرض شائع في طب الأسرة وعيادات طب الأطفال. غالبًا ما يرتبط القلق الأبوي فيما يخص الحمى بعدم المعرفة الكافية. **الهدف:** تقييم تأثير برنامج التثقيف الصحي على معارف وإتجاهات الأمهات فيما يتعلق بالتشنج الحرارى. **المنهجية وطرق البحث:** أجريت دراسة تدخلية على 32 طفلًا. تم تنفيذ الدراسة بقطاع الزقازيق الصحى والتي تمثل عاصمة محافظة الشرقية. تم اختيار مركزين صحيين لتمثيل القطاع. تم جمع معلومات المشاركين حول التشنج الحرارى عن طريق استبيان. **النتائج:** كشفت الدراسة أن 18.8 ٪ فقط من العينة المدروسة لديهم معرفة كاملة كافية بخصوص التشنج الحرارى ، وبالنسبة للاتجاه الإيجابي كانت النسبة 87.5 ٪ ، وحوالي ثلث الأمهات قيد الدراسة لديهن معرفة مناسبة فيما يتعلق بالإسعافات الأولية والعلاج المنزلى لحالات التشنج الحرارى (قبل برنامج التثقيف الصحى) ، والذين تحسّنوا كثيرا مع وجود فارق إحصائى عالى بعد تنفيذ برنامج التثقيف الصحى. **الخلاصة:** يمكن تقليل الخوف لدى الوالدين من الحمى والتشنج الحرارى من خلال جلسات التثقيف الصحى المناسبة التي تناقش جميع جوانب المرض والمضاعفات المحتملة وكيفية الوقاية منها.