



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL
OF ADVANCED RESEARCH

RESEARCH ARTICLE

Knowledge, attitudes, and practices (KAP) regarding Febrile Convulsions among Iraqi under 5 children's mothers attending pediatric department in a teaching hospital in Baghdad

Maysaloun Muhammed Abdulla¹, Feras Sadi Abdulhadi²

1. Mb.Ch.B, D.C.M, F.I.C.M.S/CM, Assistant Professor, Community & Family Medicine Department/ College of Medicine/Al-Nahrain University,

2. Mb.Ch.B, MOH Assistant Professor, Community & Family Medicine Department/ College of Medicine/Al-Nahrain University

Manuscript Info

Manuscript History:

Received: 24 April 2015
Final Accepted: 22 May 2015
Published Online: June 2015

Key words:

Febrile convulsion, Mothers, Knowledge.

*Corresponding Author

Maysaloun Muhammed
Abdulla

Abstract

Background: In terms of occurrence, about 4% of children in the age group of one to six years have at least one episode of febrile convulsion. Of these, up to 30% have recurrent seizures and many get admitted to the hospital. **Aims:** This study was conducted to assess the level of mother's knowledge, attitudes, and practices regarding Febrile Convulsions. **Methodology:** An observational cross-sectional study was conducted at the department of Pediatrics in a teaching hospital in Baghdad during the period spanning 14th of December 2013 through the 17th of May 2014. **Results:** Out of the 800 women questioned, febrile convulsion was reported by 233 mothers. Of those 63.5% children were male, while 36.5% were female. The other 567 mothers reported having unaffected children. It was seen that although mothers can recognize a febrile seizure, a much lower percentage showed the ability to see the signs that precede the convulsions, 84.5% of the mothers knew that fever can cause convulsions, 89.1% knew higher fever increase the risk of febrile convulsion, and 77.2% knew that febrile convulsion cannot progress to epilepsy; only 25.9% were able to differentiate between a febrile convulsion and epilepsy, and 12% knew febrile convulsion wasn't fatal, but 22.8% knew febrile convulsion cannot lead to brain damage and may have good prognosis. **Conclusion:** A higher level of understanding regarding practices was shown to have a significant relationship to the mother's higher educational statuses. Mothers' knowledge regarding FS was significantly associated with positive history of FS, urban residence, higher parental education, and working mother.

Copy Right, IJAR, 2015,. All rights reserved

INTRODUCTION

Febrile seizure is the most recognized result of high fever, which occurs in 3-4% of children under 7 years¹ typically occurring in 2-5% of the children at 3 months to 5 years of age. The peak incidence of disease is at 18 months^{2,3}. Approximately 6-15% of febrile seizure occur after 4 years, and onset after 6 years is unusual^{2,4}. Rarely have FSs caused brain damage⁵

Many FSs occur early in the illness and may be the presenting feature, but others occur during or after the onset of fever; observations that may in part reflect difficulties in both taking and accurately recording the temperature of young children. There are no data to support that the rate of temperature rise as being more important than the peak of temperature achieved. It is also unclear whether there may be a lower limit of fever under which it would be

difficult to make a diagnosis of a FS with some studies citing $>38^{\circ}\text{C}$ and others $>38.4^{\circ}\text{C}$. It is possible that the peak of the fever may be related to recurrent FS. Children with FS with relatively low fever (38.6°C) tend to present with an initial seizure that has focal features or is repeated within the same febrile illness⁶. Several studies conducted to assess parental fear of fever have listed seizure that can cause brain damage and fatality as primary fear sources^{1,7}.

A study by Ling (in Malaysia) suggested that most mothers lack a proper understanding of the disease and its prevention⁸. Other studies indicate that some mothers are panic stricken as soon as fever occurs in their children, and thus fail to control fever and its complications⁹. Sheringham evaluated 154 parents of children with febrile convulsions to conclude that 54% of educated people have helpful information about the problem and increased level of education tends to improve function¹⁰. Since mother, as the primary caregiver of the child, plays a pivotal role in maintaining his/her health, it is essential for her to gain sufficient knowledge to have a modified behavior. Previous studies indicate that recognizing the factors affecting behavior will simplify the process of behaviors modification. Therefore, it is essential to assess the factors influencing prevention of febrile convulsions through patterns which identify and reinforce factors affecting behavior¹¹. Accordingly, understanding and improving parental KAP toward FSs are essential. Therefore, a quick assessment tool for obtaining information about parental responses to FSs is warranted for educating parents and for use in clinical practice and research¹². Many studies have investigated the etiology and natural history of febrile seizures and evaluated various management strategies, but very little information is available about parental KAP. Various questionnaires about KAP can be found in the literature. However, further studies are required for the application of questionnaires among different cultures^{9,13,14}. A literature search did not reveal any study on this aspect on KAP studies from Iraq. Thus, this is the first study in Iraq that aims to determine via questionnaire the KAP status of mothers whose children under five years of age.

Subjects and Methods:

An observational cross sectional study was conducted at the department of Pediatrics (outpatient clinic and emergency) in Al-Imamain al Khadimain Medical City teaching hospital in Baghdad during the period spanning 14th of December 2013 through the 17th of May 2014. Only mothers who have children under five years of age and willing to participate in the study were included

Eight hundred fifty two women were enrolled in the study, of them ;40 refused to participate , 9 had incomplete answers and 3 refused to continue. The Response rate was 93.8%.

Data were collected 3 days a week for two hours a day to include a total of 800 mothers who met the inclusion criteria. The researcher had direct face to face interview with the mothers using specially designed questionnaire which consists of four parts; sociodemographic characteristics(maternal age, Consanguinity between parents, Family type, Residence ,and parental education)and history of FS among the under 5 children (age when had FS and times of FS) , knowledge , attitudes , and practices of the mothers regarding febrile convulsion.

Regarding ethical Issue; Prior to data collection, verbal consent of each of the participants was obtained after explaining the purpose of the study and ensuring privacy of the data. The study protocol was reviewed; approval and official permission were obtained from the administrator of the hospital.

A pilot study was carried out on a sample from Al-Imamain al Khadimain Medical City in Baghdad; consisted of 25 mothers selected and interviewed (those women were not included in the study) to test the questionnaire and have an idea about the time needed for the interview , to find out if there is any unclear questions and to make modification to the questionnaire (making questions more comprehensible).

The Scoring key of this KAP study was as follows: The correct response carried '1' score and wrong response carried '0' score. Maximum score for knowledge was 13, attitude 9 and for practice 15, with a total KAP score of 37. Minimum score = 0. The obtained score for each domain was multiplied by 100 and divided by the total questions in the domain.

Overall Scoring : The knowledge score ranged from 0 to 13 (for each correct answer score is 1, for incorrect answer 0, for a total of 13 questions); and grouped into **three** incremental sections ($13/3 = 4.3$). This divided the mothers' knowledge into three groups of 0, 4.4, and 8.7 as the lower limits for **poor**, **fair**, and **good** knowledge respectively. The attitude score ranged from 0 to 9 (for each correct answer score is 1, for incorrect answer 0, for a total of 9 questions); and grouped into **three** incremental sections ($9/3 = 3$). This divided the mothers' attitude into three groups of 0, 4, and 7 as the lower limits for **poor**, **fair**, and **good** attitude respectively. Additionally the **attitude** was sectioned into two groups (using the median attitude score as the divider); a score \geq median score was considered a positive attitude, and a score $<$ median was considered as a negative attitude.

The practice score ranged from 0 to 15 (for each correct answer score is 1, for incorrect answer 0, for a total of 15 questions); and grouped into **three** incremental sections ($15/3 = 5$). This divided the mothers' practice into three groups of 0, 6, and 11 as the lower limits for **poor**, **fair**, and **good** practice respectively.

Data of the studied group were entered and analysed by using the statistical package for social sciences (SPSS) version 21, US, IBM, 2013. Descriptive statistics were presented as frequencies, proportions (%), means and standard deviation (SD). Students' T-test was used to compare two means, while ANOVA test was used to assess the significance of differences for more than 2 means. Pearson's correlation (bivariate) was used to assess the correlation between two continuous variables (e.g. age and knowledge score). Level of significance of < 0.05 was considered as significant.

Results:

Out of the 800 women questioned, febrile seizure was reported by 233 (29.1%) mothers (single child cases were included only), while the remaining 567 (70.9%) of the studied group had no history of febrile seizure (**figure.1**).

Of those 148 (63.5%) children were male, while 85 (36.5%) were female. more than half (56.7%) of the mothers' children (with history of FS) had the first attack in the age of 1 year or less and about half of them (49.8%) had experienced convulsion with fever only once (**table.1**). Sociodemographic characteristics were as follows; 56.4% of mothers had expanded families, 24.7% were of rural residence, The median family size was 7 with an inter-quartile range (IQR) of (5 – 11) members in the family, the median age of mothers was 35 (IQR: 28-43) years, 273 (34.1%) were of primary school level. Furthermore, the majority of mothers were housewives (unemployed) and 78 (9.8%) were employed. Regarding the fathers, the median age was 40 (IQR: 33 – 50), primary level was reported in 228 (28.5%), Employed fathers (governmental) were 344 (43%). Consanguinity was found in 447 of the studied group represented (55.9%), the highest among them was first degree consanguineous marriage in 247 (61.3%), (**Table.3**).

According to the responses of women regarding their knowledge about FS, it had been found that 676 women (84.5%) thought that fever can cause convulsion, 593 (74.1%) women believed that febrile seizure is epilepsy, 588 (73.5%) thought that Febrile seizure at 3m - 5 years is risky, 594 (74.2%) thought that growth retardation increase the risk of FS, family history of convulsive disorder increase the risk of FS that what 395 women thought, 558 and 713, respectively, agreed that recurrent and high grade fever increase risk of FS. 406 women (50.8%) thought that medications are needed for every child with FS.

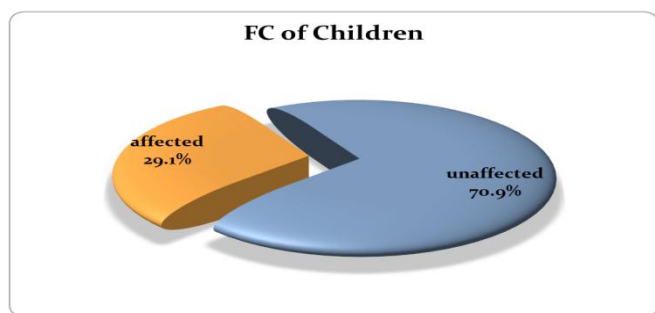


Figure 1. Distribution of mothers according to history of febrile seizure among their under 5 Y children (N=800)

Table 1. Distribution of characteristics of febrile convulsions (N=233)

Age at first convulsion (months)	No. (N= 233)	%
≤ 12	132	56.7%
13 – 24	36	15.5%
25 – 36	28	12.0%
37 – 48	14	6.0%
49 -	23	9.9%

60		
Median	12 (6 – 36) months	
(IQR)		
Times of convulsion with fever		
Once	116	49.8%
Twice	64	27.5%
Thrice	28	12.0%
≥ 4	25	10.7%
times		
Median	2 (1 – 2)	
(IQR)		
Gender of child		
male	148	63.5%
female	85	36.5%

Other responses of the women regarding the KAP are summarized in **table.2**.

The highest correct responses were in “higher fever increased risk” and “fever can cause convulsion” at 89.1% and 84.5% respectively. The highest incorrect responses were in “febrile seizure is fatal” at 88% (**Table.2**).

The calculation of mothers’ scores and grouping according to the overall scoring revealed that the **mean knowledge** score of the mothers was 8.6 ± 2.3 , the **mean practice** score was 9.86 ± 2.2 , and the **mean attitude** score was 6.0 ± 1.02 , as shown in **figure.2**.

Furthermore the categories of each domain are shown in **Table.4**, other findings are shown in this table, the median attitude score was (6) so mothers with score ≥ 6 had positive attitude and those with < 6 had negative attitude.

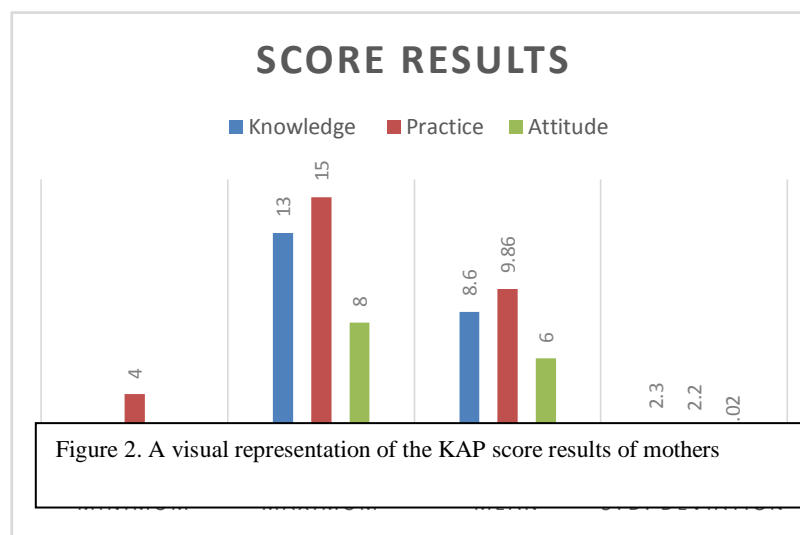


Table.2 Responses of mothers regarding their **Knowledge, Attitudes and Practices** related to febrile convulsion

Questions of KAP	Correct Response	Responses			
		Correct		Incorrect	
		No.	%	No.	%
knowledge					
Fever can cause convulsion	Yes	676	84.5	124	15.5
Febrile convulsion is epilepsy?	No	207	25.9	593	74.1
Febrile convulsion at 3m - 5 years is risky	Yes	588	73.5	212	26.5
Growth retardation increase risk of FS	No	206	25.8	594	74.2
Family history of convulsive disorder increase the risk of FS	Yes	395	49.4	405	50.6
Recurrent fever increase risk of FS	Yes	558	69.8	242	30.2
Higher fever increase the risk of FS	Yes	713	89.1	87	10.9
Medication needed for every child with FS	No	394	49.2	406	50.8
EEG or CT is necessary in child with FS	No	611	76.4	189	23.6
Febrile convulsion can progress to epilepsy	No	618	77.2	182	22.8
Febrile convulsion is fatal	No	96	12.0	704	88.0
FS can lead to brain damage	No	182	22.8	618	77.2
Traditional medication is necessary as therapy	No	190	23.8	610	76.2
Mean score for this domain = (66.2 ± 18.1) %					
Attitudes*					
Is it a stigma to have child with febrile convulsion	No	677	84.6	123	15.4
Don't know how to deal with febrile convulsion	No	595	74.4	205	25.6
Would you expect that relatives of your child will get the disease	Yes	51	6.4	749	93.6
Could febrile convulsion occurs at night	Yes	739	92.4	61	7.6
It couldn't be expected to have febrile convulsion	Yes	237	29.6	563	70.4
Would more febrile convulsion attacks will occurs	Yes	226	28.3	574	71.8
Could febrile convulsion be infectious	No	40	5.0	760	95.0
Is child with febrile convulsion needs more attention	Yes	793	99.1	7	0.9
Should parents measure the temperature of child frequently	Yes	733	91.6	67	8.4
Is it a stigma to have child with febrile convulsion	No	677	84.6	123	15.4
Mean score for this domain = (67.4 ± 11.3) %					
Practices **					
Reduction of temperature	Yes	789	98.6	11	1.4
Put the child on smooth and safe place	Yes	546	68.3	254	31.8
Put the child on lateral position	Yes	500	62.5	300	37.5
Being calm	Yes	405	50.6	395	49.4
Observation of features and duration of FS	Yes	591	73.9	209	26.1
Taking the child to the physician without life-	No	675	84.4	125	15.6
Shaking the child who had FS attack	No	294	36.8	506	63.3
Open the child's mouth and put something in	No	372	46.5	428	53.5
Resuscitate the child with FS by mouth to mouth	No	597	74.6	203	25.4
Suctions of secretions from the child's mouth and	No	219	27.4	581	72.6
Doing cardiac massage	No	172	21.5	628	78.5
Control and handling of child with FS	No	106	13.3	694	86.8
Stimulation of the FS child	No	181	22.6	619	77.4
Did you have a thermometer in your house	Yes	369	46.1	431	53.9
Did you know the use of thermometer correctly	Yes	570	71.3	230	28.8
Mean score for this domain (63.4 ± 16.1) %					

*The highest correct responses were in “is child with febrile convulsion needs more attention” at 99.1%. The highest incorrect responses were in “could febrile convulsions be infections” at 95%.

** The highest correct responses were in “reduction of temperature” at 98.6%. The highest incorrect responses were in “control and handling of child with FS” at 86.8%.

Table 4. Levels of KAP scores and Attitudes of mothers

Group	N	Good		Fair		Poor	
		No.	%	No.	%	No.	%
Knowledge	800	317	39.6	434	54.3	49	6.1
Attitude	800	254	31.8	531	66.4	15	1.9
Practice	800	318	39.8	451	56.4	31	3.9
Attitude	No.			Percent			
Positive	578			72.3			
Negative	222			27.8			
Total	800			100.0			

The mean scores for each category of FS history was $66.2\% \pm 18.1$, $67.4\% \pm 11.3$, and $63.4\% \pm 16.1$ with a significantly higher knowledge score than those with no history of FS (69.6 ± 17.1 and 64.7 ± 18.4 respectively). Urban resident had higher scores of knowledge than rural regions (69.1 ± 17.9 and 65.2 ± 18.7 respectively).

Mothers with college and higher level of education had higher knowledge scores, working women had higher score, mothers whose husband had college or higher education had higher scores of knowledge, in all these comparison $P < 0.05$.

This picture was not much different when compared the mean attitude scores, it had been significantly found that nuclear type of family, urban residence, higher level of education, working women, were significantly different in mean.

Regarding the practice, mother and father education, and father occupation were significantly different in mean with higher practice score ($P < 0.05$), other variables showed no significant association, ($P > 0.05$) were significantly different with higher practice scores. Findings are shown in **Table.3** and **Figure 3**.

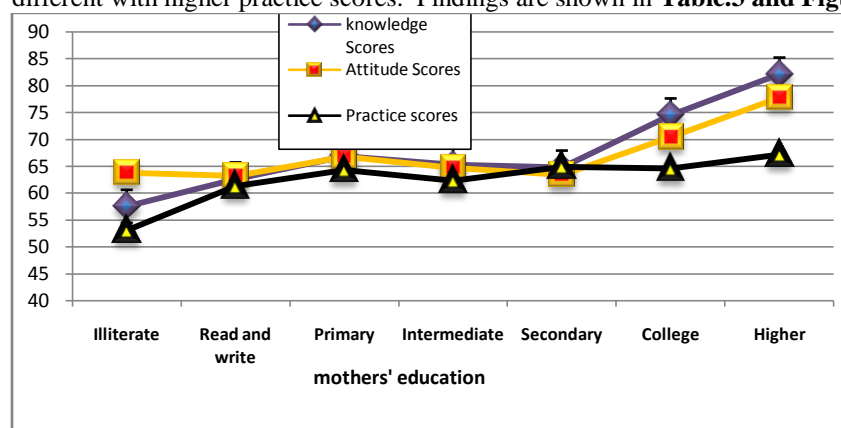


Figure 3. Comparison of mean KAP scores according to the level of education of the mothers.

Table.5 shows the correlation matrix of family number, Mothers' age and fathers' age, in which the only significant correlation was found between the family number and attitude, where there was a negative (inverse) correlation, ($R = -0.094$, $P = 0.008$), other parameters showed no significant correlations. **Figure.4** compares the mean knowledge

scores of women with different sources of information about FS, it had been significantly found that women who obtained their

Table 3. Mean knowledge, Attitudes and Practices scores compared according to demographic characteristics of mothers

(N=800)

Variable		N (%)	Knowledge Scores (%)	Attitude Scores (%)	Practice Scores (%)
			Mean (%)±SD	Mean (%)±SD	Mean (%)±SD
Febrile convulsion history	Yes	233 (29.1)	69.6±17.1	67.1±10.0	62.2±12.9
	No	567 (70.9)	64.7±18.4	65.8±11.8	63.9±17.2
P.value*			0.001	0.12	0.11
Family type	Nuclear	349 (43.6)	65.7±16.4	67.3±10.9	62.5±15.2
	Extended	451 (56.4)	66.5±19.4	65.3±11.6	64.1±16.8
P.value*			0.57	0.014	0.18
Residence	Urban	602 (75.3)	69.1±17.9	66.8±11.0	63.6±16.8
	Rural	198 (24.7)	65.2±18.7	64.1±12.1	62.8±13.7
P.value*			0.01	0.006	0.49
Mother's education	Illiterate	98 (12.3)	57.5±23.9	63.8±11.6	53.1±14.5
	Read and write	32 (4.0)	62.6±19.1	63.2±9.5	61.3±17.2
	Primary	273 (34.1)	66.9±19.7	66.8±9.6	64.3±16.6
	Intermediate	231 (28.9)	65.3±17.7	64.7±13.6	62.3±14.7
	Secondary	91 (11.4)	64.8±10.5	63.4±10.3	64.9±19.1
	College	66 (8.3)	74.5±9.1	70.4±8.6	64.6±11.7
	Higher	9 (1.1)	82.1±3.9	77.8±9.6	67.1±6.2
P.value*			0.002	<0.001	0.004
Mother's occupation	Housewife	722 (90.3)	65.7±18.7	65.7±11.2	63.2±16.2
	Worker	78 (9.8)	70.6±11.7	70.2±12.1	65.8±14.9
P.value*			0.023	0.002	0.16
Father's education	Illiterate	82 (10.3)	64.9±21.6	64.6±9.1	63.1±18.6
	Read and write	20 (2.5)	66.6±29.1	66.6±10.8	62.0±15.6
	Primary	228 (28.5)	66.4±19.3	62.5±15.3	66.9±13.2
	Intermediate	218 (27.3)	67.3±14.8	66.6±10.7	58.3±20.6
	Secondary	104 (13.0)	65.5±17.9	67.2±10.5	67.1±19.3
	College	140 (17.5)	69.5±16.4	73.3±10.0	63.9±14.4

				4	
	Higher	8 (1.0)	78.3±13.9	65.4±9.2	60.7±9.4
P.value*			0.015	0.001	0.001
Father's occupation	Governmental Employed	344 (43.0)	65.7±18.5	66.5±12.3	63.2±16.9
	Private employed	79 (9.9)	66.5±19.8	67.9±9.4	68.6±12.9
	Self employed	377 (47.1)	66.6±17.5	65.5±10.7	62.5±15.8
P.value*			0.72	0.19	0.008

*Student t-test was used to test significance between 2 means, and ANOVA test was used for more than 2 means

information from the health workers had the higher mean score than women with other sources of information, (67.15 ± 17.8).

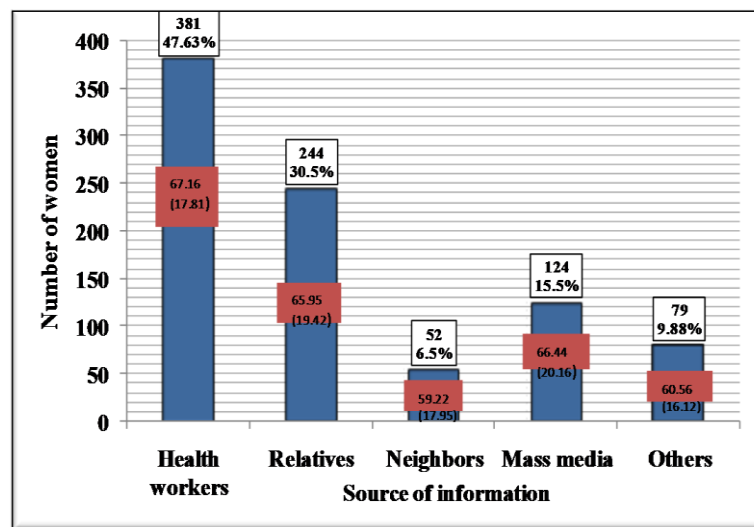


Figure 4. Comparison of mean KAP scores according to different sources of information about FS (N=800)

Table 5. Correlation matrix of KAP scores with family number, mothers' and fathers' age

Variables	Correlation statistics	Knowledge	Attitude	Practice
Family number	Pearson Correlation (R)	0.020	-0.094**	-0.027
	P.value	0.564	0.008	0.450
Mother's age	Pearson Correlation	-0.029	-0.038	-0.060
	P.value	0.417	0.281	0.091
Father's age	Pearson Correlation	-0.015	-0.034	0-.057
	P.value	0.667	0.331	0.105

Discussion

Although the occurrence of FS in childhood is quite common, they can be extremely frightening, emotionally traumatic and anxiety provoking when witnessed by parents. Emotional trauma set by an episode of FS may cause dramatic reactions to ensue⁹, but fortunately the vast majority of FSs are benign. Appropriate action through knowledge about FS can help parents get through this ordeal and give them the needed reassurance. Attitude and proper care assist in avoiding complications, and this can only be achieved through awareness, whether through the public or private health sectors.

The size of the sample population in this study was 800 women; this was about octuple the size of a similar study done in Turkey by Kayserili et al¹⁵. Males were more affected than females in Kayserli et al, and similar findings were present in this study. The overall mean scores for each of the Knowledge, Attitude, and Practice sections of the questionnaire were $66.2\% \pm 18.1$, $67.4\% \pm 11.3$, and $63.4\% \pm 16.1$ respectively. These scores were similar to the Kayserli study¹⁵ but slightly higher than a Taiwanese study by Huang et al¹⁶.

The following percentages express for us what will be discussed further below. Although 84.5% of the mothers knew that fever can cause convulsions, 89.1% knew higher fever increase the risk of FS, and 77.2% knew that FS cannot progress to epilepsy. What is seen here is that although there is a solid foundation for the basics of recognizing the onset and symptoms of a FS, there is still poor knowledge regarding the fact that a good prognosis follows a FS, as stated in the Australian study (Repatriation Hospital Campus, Victoria) by Sadlier and Scheffer¹⁷. Even though mothers can recognize a FS, it is still important to know that it is not life-threatening (in majority of cases) and know about the prognosis as this will eliminate the stress caused to the mother, and family during this ordeal. It will also enable the mother to deal accordingly; whereas a stressed mother who thinks her child is about to die, will take actions that could complicate the situation and put the child's life at risk. On a positive note, the fact that more mothers think FSs are life-threatening, could be a motivating factor to learn more about FS and thus enhance their knowledge. Almost half of the mothers thought that medication was necessary for children with FS and 76.2% believed that herbal medicine should be used, this is similar to similar studies; Parmar RC, and Huang (Taiwan)^{9,16}. This is incorrect because there is a low chance 1-2.4% that FS will develop into epilepsy, and anticonvulsants cannot prevent and epilepsy from developing^{18,19}. Looking into the social division of these mothers to further analyze and discuss their knowledge score, it is seen that it is what is normally expected and similar to other studies; Ling, Panayiotopoulos, and Shojaezadeh^{8,20,21}; was found. Mothers who have a background with FS tended to be employed, have a higher education, and have urban residence compared to their non-working, rural, poorly educated counterparts. Regarding the attitude of the mothers towards FS, it was seen that although mothers can recognize a FS, a much lower percentage showed the ability to see the signs that precede the convulsions such as (only 28.3% knew that FS could reoccur). Proper attitudes come from a good understanding and proper knowledge of FS as a condition. The mean score for the attitude questionnaire was much higher than other countries with similar evaluations of mothers; Knudsen (Denmark, Glostrup University Hospital)¹⁸. The practice portion of the KAP study is the most revealing as it combines the KA of KAP; and practice is really the combination of knowledge and attitude coming to fruition. Here it is seen that practice is the lowest score out of all the three portions ($63.4\% \pm 16.1$), although it is comparable to similar studies (Hedi Chaker Hospital, Sfax, Tunisia)^{22,23}. A large percentage 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 placing something inside, shaking the child, suction of secretions from the child's nose and mouth, doing cardiac massage, and stimulation of the child. While earlier it was apparent that 91.6% of mothers knew that it was important to constantly monitor a child's temperature, in practice, only 71.3% knew how to use a thermometer and less than half (46.1%) actually had a thermometer at home. This goes to show that while these mothers may have good understanding of the condition; short, consistent reminders via the media or the public health sector (posters, advertisements) can raise the needed awareness to allow for a better understanding and attitude towards FS. Another study would have to be done to measure the cost-effectiveness of such an endeavor. An interesting point here was the higher scoring mothers for practice who have husbands of secondary education and husbands who were privately employed at (67.1% and 68.6% respectively). One possible explanation behind this is that people who do not complete higher education may feel a sense of guilt later on in life and actually start to educate themselves on their personal time to make up for what they believe to be a social stigma. Those who only finish secondary school and do not pursue further education are mostly self-employed also.

The most reported source of information about FS was "health workers" at 47.6% followed by "relatives" at 30.5% and "mass media" at 15.5%. This is similar to an Iranian study¹¹. The role of mass media is clearly lacking here, as it should be in second place. Mass media can push out controlled messages while we cannot predict what kind of information is being transported through "relatives" and the reliability of such information. Health workers remain to be the number one source of information regarding FS as they are in two other studies^{3,24}.

In conclusion it was found that the efficacy of the written questionnaire was enough in determining the KAP of mothers in the hospital, and illustrating a bird's-eye view of the situation in Iraq in general within regards to mothers' KAP about FS. It was noticed that the scores that were collected had slightly higher values than previous studies done in other countries^{15,16,19,24,25}. This shows that a humble campaign to raise awareness for KAP regarding FS can go to great lengths as the foundation to receive such information is clearly present. A simple effort with posters, and short but effective advertisements with encouragement from health workers (regarding proper first-aid techniques) can greatly increase the KAP score numbers in Iraq. This will help to create a more fluid health care system and certainly improve the infant mortality rate, the life expectancy, and quality of life in Iraq (HDI*). Perhaps the next step would be to conduct a similar study following a short campaign or to conduct a study that incorporates only mothers with affected children, hence comparing those that have had previous children with FS and those that have only had one¹⁵. While KAP scores weren't poor, there is much room for improvement within regards to mothers' KAP for FS in Iraq.

* The Human Development Index (HDI) is a composite statistic of life expectancy, education, and income indices used to rank countries into four tiers of human development.

References:

- 1- Ravanipour M, Akaberian S, Hatami G. Mothers' perceptions of fever in children. J Edu Health Promot 2014;3:97.
- 2- [Najimi A.](#), [Dolatabadi N K.](#), [Esmaeili A A.](#), [Sharifirad G R.](#) The effect of educational program on knowledge, attitude and practice of mothers regarding prevention of febrile seizure in children J Educ Health Promot. 2013; 2: 26.
- 3- 4. Waruiru C, Appleton R. Febrile seizures: An update. Arch Dis Child. 2004;89:751–6.
- 4- Prymula, Roman. "Effect of prophylactic paracetamol administration at time of vaccination on febrile reactions and antibody responses in children: two open-label, randomised controlled trials." The Lancet 374.9698 (2009): 1339-1350.
- 5- Palliana R R, Singh K D, Borade A. Zinc Deficiency as a Risk Factor for Febrile Seizure. Pediatric Oncall 2010.
- 6- Kilicaslan, Buket. "Association Between Hypocapnia and Febrile Seizures." Journal of child neurology 29.5 (2014): 599-602.
- 7- 8. Al-Nouri L, Basheer K. Mother's perceptions of fever in children. J Trop Pediatr 2005;52:113-6.
- 8- Ling SG. Parental response and understanding towards febrile convulsion. Med J Malaysia 2000; 55(4): 419-23.
- 9- Parmar RC, Sahu DR, Bavdekar SB: Knowledge, attitude and practices of parents of children with febrile convulsion. J. Postgrad. Med. 2001; 47:19–23.
- 10- Sheringham A, Teodor M, Salci T. Febrile convulsion development and validation of a questionnaire to measure parental knowledge attitude concern and practice. J Formos Med Assoc 2006; 105(1): 38-42.
- 11- Ghasemi F, Valizadeh F, Mohsenzadeh A. Educational needs of mothers of children with febrile convulsion, Planetarium. J Khorramabad 2005; 1: 1-4.
- 12- Huang MC, Liu CC, Huang CC. Effects of an educational program on parents with febrile convulsive children. Paediatr Neurol 1998; 18: 150-5.
- 13- Huang MC, Huang CC, Thomas K. Febrile convulsions: development and validation of a questionnaire to measure parental knowledge, attitudes, concerns and practices. J Formos Med Assoc 2006; 105: 38-48.
- 14- Huang MC, Liu CC, Huang CC, Thomas K. Parental responses to first and recurrent febrile convulsions. Acta Neurol Scand 2002; 105: 293-9.
- 15- Kayserli Ertan, Unalp Aycan. Parental Knowledge and Practices Regarding Febrile Convulsions in Turkish Children. Turk J Med Sci 2008; 38 (4) 344-350.
- 16- Huang MC, Liu CC, Huang CC. Effects of an educational program on parents with febrile convulsive children. Paediatr Neurol 1998; 18: 150-5.
- 17- Sadleir LG, Scheffer IE. Febrile seizures. BMJ 2007; 334: 307-11.
- 18- Knudsen FU. Febrile seizures: treatment and prognosis. Epilepsia 2000; 41: 2-9.
- 19- Ofofwe GE, Ibadin OM, Ofofwe EC, Okolo AA. Home management of febrile convulsions in an African population; a comparison of urban and rural mother's knowledge, attitude and practice. J Neurol Sci 2002; 200: 49-52.
- 20- Panayiotopoulos, C. P. "Benign childhood focal seizures and related epileptic syndromes." A clinical guide to epileptic syndromes and their treatment. Springer London, 2010. 339-375.
- 21- Shojaezadeh DA. Health education and behaviour models. 1st Ed. Tehran: Assare Sobhan Publ; 2000: 58-62.

- ²²⁻ Sfaihi, Lamia, "Febrile seizures: an epidemiological and outcome study of 482 cases." *Child's Nervous System* 28.10 (2012): 1779-1784.
- ²³⁻ Tison-Chambellan C. Anthropological approach to current parental perceptions of children's seizures. *Archives de Pédiatrie*. 2013 Oct;20(10):1075-82.
- ²⁴⁻ Khier M, Ibrahim SA. Knowledge, attitude, and practice of Sudanese mothers towards home management of febrile convulsion. *Khartoum Medical Journal* (2013) Vol 6 No 1 p 847-853.
- ²⁵⁻ Ofovwe GE, Ibadin OM, Ofovwe EC, Okolo AA. Home management of febrile convulsions in an African population; a comparison of urban and rural mother's knowledge, attitude and practice. *J Neurol Sci* 2002; 200: 49-