

Parental Knowledge and Practice Regarding Febrile Seizure in their Children

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Abstract

Background: Febrile seizure (FS) is a benign convulsive disorder in under 5-year-old children, but at the same time, it is an alarming event in the lives of both child and parents. Lack of parent's knowledge about the nature of FS and how they should deal with it can lead to poor management. **Objectives:** To assess the knowledge and practice of parents regarding FS in their children and to assess the association of knowledge and practice of parents with certain socio-demographic characteristics. **Materials and Methods:** A cross-sectional study was performed on 100 parents of children with FS attending emergency department in Babylon Teaching Hospital for Pediatrics and Gynecology and AL-Noor Hospital for Pediatrics during a period of 5 months (from March 1 to August 1, 2018). A questionnaire was administered to parents which included items regarding family characteristics, characteristics of FS, their knowledge, and their first-aid practices with FS. **Results:** Regarding maternal age and paternal age, they ranged between 15–43 and 20–50 years, respectively. More than half of them live in urban areas, and concerning educational level of mothers, 70% were either illiterate or had a primary level of education. Majority of FS children were presented with first attack who represent a percentage of about 69%. About half of the respondents have good level of knowledge. Fifty-two percent of them considered that FS is equivalent to epilepsy, 69% stated that it is a life-threatening event, and 80% knew that it occurs during febrile occasions. Only 25% of parents took their children to doctor during attack of fit without first aids. **Conclusions:** Parents' knowledge regarding FS was significantly associated with higher maternal education, urban residence, and mother age. A higher level of practices was shown to have a significant association with increasing in the number of episodes experienced by parents and advancing in maternal age.

Keywords: Febrile seizure, knowledge, parents, practice

INTRODUCTION

Febrile seizure (FS) is the most common type of convulsive disorder and one of the most recorded causes of emergency hospital admission in children under 5 years of age.^[1] In spite of having a good prognosis, FS is extremely frightening, emotionally traumatic, and anxiety provoking when witnessed by parents, which make it a very difficult condition for them to deal with.^[2] Concerns about the future health of the child are the most common causes of fear among the parents. Sources of concern include fear of recurrence, physical disabilities, mental retardation, and even death.^[3] During seizure, the parents may think that their child is dying,^[4] but fortunately, most of febrile convulsions are benign rarely have FSs caused brain damage,^[5] and except developing countries, there are no documented cases of febrile convulsions-related deaths on record.^[2]

The best approach for FS should include establishment of a good communication with parents and have to improve their

responses to convulsions at home; it is of specific importance that the families are relieved of their fears and become capable of intervening optimally with the disease.^[6]

MATERIALS AND METHODS

Study design setting and time

This cross-sectional study was carried out at two hospitals in Al-Hillah city, Babylon Teaching Hospital for Gynecology and Pediatric and Al-Noor Hospital of Pediatrics, Babylon Province, Iraq, from March 1, to August 1, 2018.

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Study population

This study included a sample of 100 parents of children with FS who attended the emergency department in Babylon Teaching Hospital for Pediatrics and Gynecology and Al-Noor Hospital who agreed to participate in this study.

RESULTS

Distribution of parental and child's sociodemographic factors

The mean age of children was 17.67 ± 15.18 years ranging from 3 months to about 6 years. The mean maternal age was 27.81 ± 8.21 years, while the mean paternal age was 31.29 ± 6.59 years. Male children outnumbered female children by a percentage of 63% as compared to 37%. Concerning residence, the balance tips more in favor of urban residence (54%), while the rest live in rural areas, which represented 46%. Regarding educational level of the mothers, 70% of the mothers were either illiterate or had a primary level of education.

Table 1 depicts the parental and child's sociodemographic factors.

Distribution of characteristics of febrile seizure

Children aged 6–12 months were more likely to have the first episode of FS (37%), while children aged 13–24 months also have a higher albeit less than the first age group (32%). In decreasing percentage, the first episode of febrile convulsions was experienced in children aged <6 months, 25–36 months, and more than 36 months as 14%, 11%, and 6%, respectively. The number of episodes experienced by parents was one episode in 69% of the cases, 2–4 in 20% of the cases, and more than four in 11% of the cases. In this study, 92% of persons who filled in the questionnaire were mothers.

Table 2 shows the distribution of child's age at time of first episode, number of episodes experienced by parents, and person who filled in the questionnaire.

Distribution of participants' response regarding their knowledge related to febrile convulsion

Table 3 shows the correct and incorrect answers of the questions of knowledge of the respondents regarding febrile convulsions.

Distribution of participants' response regarding their practices related to febrile convulsion

Table 4 shows the correct and incorrect answers of the questions of practice of the respondents regarding febrile convulsion.

Distribution of the knowledge score regarding febrile convulsion

This figure depicts that 43% of the respondents had good knowledge regarding febrile convulsion, while those who had poor or fair knowledge were 17% and 40%, respectively. The score of knowledge is 6.55 ± 2.81 .

Table 1: Distribution of parental and child's sociodemographic factors

Sociodemographic characteristics	Mean $\pm$ SD
Child's age (months)	17.67 $\pm$ 15.18 (3-68)
Maternal age (years)	27.81 $\pm$ 8.21 (15-43)
Paternal age (years)	31.29 $\pm$ 6.59 (20-50)
Child's gender, n (%)	
Male	63 (63)
Female	37 (37)
Total	100 (100)
Residence, n (%)	
Urban	54 (54)
Rural	46 (46)
Total	100 (100)
Maternal education, n (%)	
Illiterate	27 (27)
Primary	43 (43)
Secondary	19 (19)
Higher education	11 (11)
Total	100 (100)

Table 2: Distribution of characteristics of febrile seizure

Variables	n (%)
Child's age at the time of first episode (months)	
<6	14 (14)
6-12	37 (37)
13-24	32 (32)
25-36	11 (11)
>36	6 (6)
Total	100 (100)
Number of episodes experienced by parents	
1	69 (69)
2-4	20 (20)
>4	11 (11)
Total	100 (100)
Person who fill in the questionnaire	
Mother	92 (92)
Father	4 (4)
Others	4 (4)
Total	100 (100)

Association between variables and knowledge score

There was a significant association between (residences, maternal educational level) and knowledge score, $P = 0.045$ and <0.001 , respectively.

Table 5 shows that Chi-square test/Fisher's exact test was conducted to show the association between variables which included child's gender, residence, number of episode experienced by the parents, child's age at time of first episode, and maternal education and knowledge score which included poor, fair, and good.

Association between variables and practice score

There is a significant association between number of episode experienced by parents and practice score, $P = 0.029$.

Table 3: Distribution of participants' response regarding their knowledge related to febrile convulsion

Questions	n (%)
Is febrile convulsion equivalent to epilepsy?	
Correct	48 (48)
Incorrect	52 (52)
Total	100 (100)
Are anticonvulsant drugs required for every child with febrile convulsion?	
Correct	50 (50)
Incorrect	50 (50)
Total	100 (100)
If fever subsides, can other attacks of fit be prevented?	
Correct	80 (80)
Incorrect	20 (20)
Total	100 (100)
More attention and care are needed for children with febrile convulsions?	
Correct	92 (92)
Incorrect	8 (8)
Total	100 (100)
Is computed tomography necessary for every child with febrile convulsions?	
Correct	40 (40)
Incorrect	60 (60)
Total	100 (100)
Is febrile convulsion related to family history?	
Correct	34 (34)
Incorrect	66 (66)
Total	100 (100)
Is febrile convulsion attack a life-threatening event?	
Correct	69 (69)
Incorrect	31 (31)
Total	100 (100)
If necessary, lumbar puncture is acceptable?	
Correct	55 (55)
Incorrect	45 (45)
Total	100 (100)
Does febrile convulsion improve with age?	
Correct	70 (70)
Incorrect	30 (30)
Total	100 (100)
Can febrile convulsions cause brain damage?	
Correct	73 (73)
Incorrect	27 (27)
Total	100 (100)
Do you know that convulsion occurs during rapid increase and decrease in temperature?	
Correct	36 (36)
Incorrect	64 (64)
Total	100 (100)

Table 6 shows that Chi-square test/Fisher's exact test was conducted to show the association between variables which included child's gender, residence, number of episode experienced by the parents, child's age at time of first episode, and maternal education and practice score which included poor, fair, and good.

Table 4: Distribution of participants' response regarding their practices related to febrile convulsion

Questions	n (%)
Lower the body temperature?	
Correct	75 (75)
Incorrect	25 (25)
Total	100 (100)
Protect the child on soft surface?	
Correct	63 (63)
Incorrect	37 (37)
Total	100 (100)
Place the child on his/her side?	
Correct	54 (54)
Incorrect	46 (46)
Total	100 (100)
Observe seizure manifestations and duration?	
Correct	88 (88)
Incorrect	12 (12)
Total	100 (100)
Rush the child to the doctors without first aid?	
Correct	75 (75)
Incorrect	25 (25)
Total	100 (100)
Open the convulsing child clenched teeth apart and put something in his/her mouth?	
Correct	64 (64)
Incorrect	36 (36)
Total	100 (100)
Remove discharges from the child mouth and nose?	
Correct	46 (46)
Incorrect	54 (54)
Total	100 (100)
During any febrile illness do you give antipyretic to your children?	
Correct	85 (85)
Incorrect	15 (15)
Total	100 (100)
For febrile children with previous history of febrile convulsion, do you give oral diazepam for 3 days?	
Correct	19 (19)
Incorrect	81 (81)
Total	100 (100)
Do you have thermometer at home?	
Correct	56 (56)
Incorrect	44 (44)
Total	100 (100)

Mean differences between maternal age according to knowledge and practice score

Table 7 shows that ANOVA (F-test) was conducted to show mean differences of maternal age according to knowledge and practice score. There was a significant mean differences in both circumstances, $P = 0.003$ and < 0.001 , respectively.

Distribution of the knowledge score regarding febrile convulsion

This figure depicts that 43% of the respondents had good knowledge regarding febrile convulsion, while those who

Table 5: Association between variables and knowledge score

Study variables	Knowledge score			χ^2	P
	Poor (0-3), n (%)	Fair (4-7), n (%)	Good (8-11), n (%)		
Child's gender					
Male	13 (76.5)	22 (55.0)	28 (65.1)	2.504	0.286
Female	4 (23.5)	18 (45.0)	15 (34.9)		
Total	17 (100.0)	40 (100.0)	43 (100.0)		
Residence					
Urban	6 (35.3)	19 (47.5)	29 (67.4)	6.203	0.045*
Rural	11 (64.7)	21 (52.5)	14 (32.6)		
Total	17 (100.0)	40 (100.0)	43 (100.0)		
Number of episodes experienced by parents					
1	11 (64.8)	24 (60.0)	34 (79.1)	0.22	
2-4	3 (17.6)	12 (30.0)	5 (11.6)		
>4	3 (17.6)	4 (10.0)	4 (9.3)		
Total	17 (100.0)	40 (100.0)	43 (100.0)		
Child's age at the time of first episode (months)					
<6	4 (23.5)	8 (20.0)	2 (4.6)	0.36	
6-12	5 (29.4)	14 (35.0)	18 (41.8)		
13-24	5 (29.4)	13 (32.5)	14 (32.6)		
25-36	1 (5.9)	4 (10.0)	6 (14.0)		
>36	2 (11.8)	1 (2.5)	3 (7.0)		
Total	17 (100.0)	40 (100.0)	43 (100.0)		
Maternal education					
Illiterate	12 (70.6)	11 (27.5)	4 (9.3)	<0.001*	
Primary	5 (29.4)	22 (55.0)	16 (37.2)		
Secondary	0 (0.0)	6 (15.0)	13 (30.2)		
Higher education	0 (0.0)	1 (2.5)	10 (23.3)		
Total	17 (100.0)	40 (100.0)	43 (100.0)		

* $P \leq 0.05$ was significant. F: Fisher exact test

had poor or fair knowledge were 17% and 40%, respectively [Figure 1]. The score of knowledge is 6.55 ± 2.81 .

Regarding distribution of the practice score regarding febrile convulsion, Figure 2 depicts that 38% of the respondents had good practice regarding febrile convulsion, while those who had poor or fair knowledge were 23% and 39%, respectively. The practice score is 5.8 ± 2.36 .

DISCUSSION

The current study showed that the mean age of children developing febrile convulsion was 17.67 ± 8.2 (ranging from 3 months to about 6 years); this comes into agreement with Sajad and Khosravi,^[7] who conducted a study in Iran which showed the same results.

The participated parents in this study were with age ranging (15–43) years for mothers and 20–50 years for fathers; meanwhile, in a study done in Ghana by Nyaledzigbor *et al.*, the age ranged from 22 to 38 and 25 to 50 for the mothers and fathers, respectively.^[8]

Male children outnumbered female children by percentage of 63% as compared to 37% with ratio 1.7:1; this result is compatible to study done by Ali in Tikreet (Iraq).^[9]

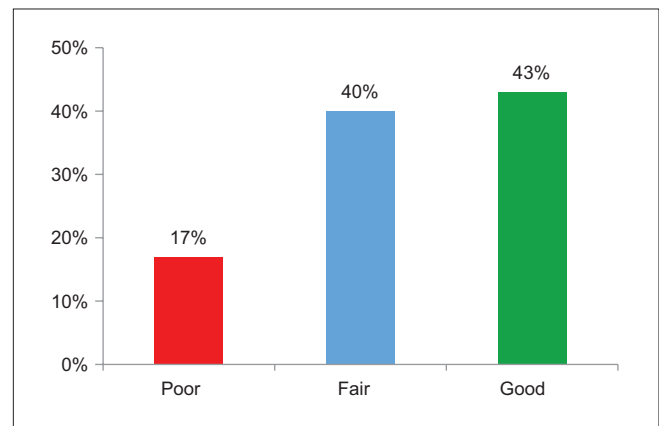


Figure 1: Distribution of the knowledge score regarding febrile convulsion

Concerning residence, the balance tips more in favor of urban residence (54%) and the rest live in rural areas, which represented (46%), while Nyaledzigbor *et al.* reported that 60% of the respondents who participated in his study were living in villages.^[8]

Seventy percent of the mothers who participated in this study were either illiterate or had a primary level of education, in contrast to a study done in Indonesia by Syahida *et al.*,^[10] which

Table 6: Association between variables and practice score

Study variables	Practice score			χ^2	P
	Poor (0-3), n (%)	Fair (4-7), n (%)	Good (8-11), n (%)		
Child's gender					
Male	16 (69.6)	25 (64.1)	22 (57.9)	0.871	0.647
Female	7 (30.4)	14 (35.9)	16 (42.1)		
Total	23 (100.0)	39 (100.0)	38 (100.0)		
Residence					
Urban	14 (60.9)	19 (48.7)	21 (55.3)	0.899	0.638
Rural	9 (39.1)	20 (51.3)	17 (44.7)		
Total	23 (100.0)	39 (100.0)	38 (100.0)		
Number of episode experienced by parents					
1-2	19 (82.6)	29 (74.3)	21 (55.2)	0.029*	
3-4	3 (13.1)	9 (23.1)	8 (21.1)		
>4	1 (4.3)	1 (2.6)	9 (23.7)		
Total	23 (100.0)	39 (100.0)	38 (100.0)		
Child's age at the time of first episode (month)					
>6	5 (21.7)	5 (12.8)	4 (10.5)	0.8	
6-12	6 (26.1)	15 (38.5)	16 (42.1)		
13-24	9 (39.2)	12 (30.8)	11 (28.9)		
25-36	3 (13.0)	4 (10.3)	4 (10.6)		
>36	0 (0.0)	3 (7.6)	3 (7.9)		
Total	23 (100.0)	39 (100.0)	38 (100.0)		
Maternal education					
Illiterate	5 (21.7)	14 (35.9)	8 (21.1)	0.347	
Primary	10 (43.5)	17 (43.6)	16 (42.1)		
Secondary	6 (26.1)	3 (7.7)	10 (26.3)		
Higher education	2 (8.7)	5 (12.8)	4 (10.5)		
Total	23 (100.0)	39 (100.0)	38 (100.0)		

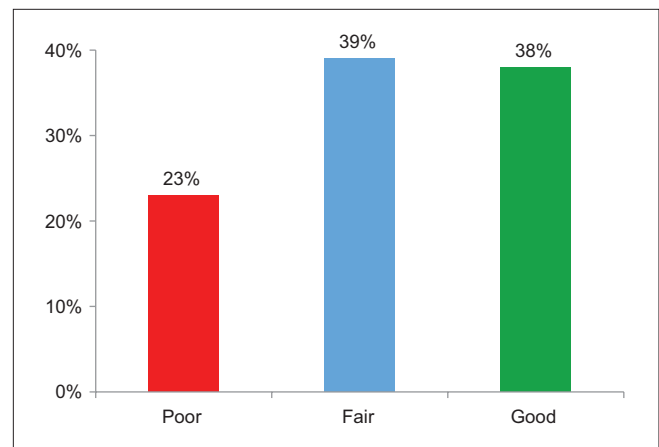
* $P \leq 0.05$ was significant. F: Fisher exact test**Table 7: Mean differences between maternal ages according to knowledge and practice score**

Variable	Knowledge and Practice Scores	<i>n</i>	Mean±SD	<i>F</i> -test	<i>P</i>
Maternal age (years)	Knowledge score				
	Poor	17	27.94±9.85	6.096	0.003*
	Fair	40	24.68±7.55		
	Good	43	30.67±7.16		
	Total	100			
	Practice score				
	Poor	23	18.61±4.36	117.35	<0.001*
	Fair	39	25.28±5.59		
	Good	38	35.97±3.05		
	Total	100			

F: Fisher exact test. SD: Standard deviation

showed that the vast majority of mothers were highly educated. This might be attributed to that highly educated mothers may be more aware of seizure attack and how they should deal with it.

The current study stated that 69% of children were more likely to have first episode of febrile convulsion in age of 6–24 months; this comes into agreement with Sharawat who reported that the majority of FS were noted for the first time in range between 6th and 24th months of age in percentage of 60%.^[11]

**Figure 2:** Distribution of the practice score regarding febrile convulsion

In addition, the number of episodes experienced by parents was for the first time in 69% of the cases and 31% had more than one attack; our result is lower than that obtained by Elbilgahy and Abd-El Aziz in Egypt^[12] and higher than the result obtained in the study by Ali.^[9] These differences may be explained by the lack of information in recording of cases which could be due to the failure of parents to describe or recognize the fit; some parents interpreted the seizure as paralysis, fainting spells, suffocation, and sometimes, they did not have any idea about it.

When the respondents were asked whether febrile convulsion was equivalent to epilepsy, more than half were perceiving FS as epilepsy, and if anticonvulsant drugs were required for every child with febrile convulsion, half of them answered that it should be given. These findings are compatible with results obtained by the study done in Turkey.^[13] Therefore, parents should be informed that most FS attacks recover spontaneously with good long-term prognosis, and long-term anticonvulsant drugs can cause side effects that dominate over minor risks of FS.

Recognizing the cause of FS can help parents to decrease and prevent occurrence of fit; our study showed that 80% of the respondents believed that if fever subsided can prevent attack of fit, in contrary to Parmar *et al.*, who had reported that 77.9% of parents in Mumbai (India) did not know that seizure can occur during one febrile occasion.^[14]

Sixty-nine percent of parents believed that FS 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; this result was in agreement with Barzegar *et al.*, who reported in their study that the majority of mothers believed that FS episode is a serious condition which can cause brain damage.^[15] These results can explain the parent's fear and anxiety during attack of convulsion which makes it difficult for them to deal with.

Our study showed that 66% of parents believed that FS is not relating to family history, while Abeysekara *et al.* reported that 54.6% of mothers in Sri Lanka considered the family history of convulsion is a factor that increases the risk of FS.^[16] Hence, parents should be informed that FS may run in families.

Regarding the fate of FS, 70% of parents in our study believed that it will improve with age; Elbilgahy and Abd-El Aziz agreed with this result as she reported that 77% of Egyptian mothers believed that FS is rare after 5 years.^[12]

In our observation, 60% of parents insist that computed tomography (CT) scan of the brain should be done for every child with FS, and 55% of parents believe that if it is necessary, lumbar puncture can be done, while in other studies, 76.4% of parents thought that there is no necessity of CT scan and 50.7% believed that lumbar puncture should be done;^[9,13] hence, they should be taught that CT is not indicated after the first FS episode, and lumbar puncture is only indicated in the course of clinical suspicion.^[17,18]

Regarding parents' practices and how they deal with their children during the attack of seizure. Parents should observe seizure manifestation and duration in this study; 88% of parents were aware of this; Abdulla *et al.* agreed with this result as they did a study in Baghdad and found that 73.9% of mothers were observing seizure feature and duration.^[19]

Only 25% of studied parents immediately go to the hospital or clinic at the time of their children got febrile convulsion without first aids, this may be due to parents fear that their child may die, or they may have poor understanding of the condition. This result comes in agreement with Najimi *et al.*,

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 FS.^[20]

During attacks of fit, 64% of the parents tried to open child's mouth and put something in, believing that it may avoid biting of the tongue; in Saudi Arabia, 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.^[21]

Forty-six percent of respondents who participated in this study remove discharges from the child's mouth and nose during attacks of FS which is a good action for parents to take in order to avoid aspiration, Abeysekara *et al.* reported that 50.6% of mothers in Sri Lanka eliminated secretions and kept the child in lateral position when the child is drooling.^[16]

Regarding preventive measures of febrile convulsion, the parents had been asked if they give antipyretic to their children during any febrile illness; 85% of them had answered with yes, and regarding those whom their children had previous attack of FS, 19% of them were given prophylactic diazepam for their febrile children during any febrile occasion; meanwhile, Nyaledzigbor *et al.* reported that mothers in Ghana had various ways by whom they believed that febrile convulsion could be prevented at home; 60% of them indicate that febrile convulsion can be prevented by reducing fever in children by sponging, while 44% of them mentioned giving paracetamol syrup to the child having fever to prevent febrile convulsion; another 40% indicate that treating the cause of the fever can prevent febrile convulsion and only 10% of them giving prophylaxis for repeated convulsion.^[8]

In general, the current study showed that 43% of the respondents had a good level of knowledge regarding febrile convulsion while those who had fair and poor knowledge were 40% and 17%, respectively, in opposing to a health survey done in Nigeria. There was a mostly low level of knowledge about FS as only 10% of the mothers had adequate knowledge at baseline.^[22]

Regarding association between variables and knowledge score, there was a significant association between knowledge score and residence ($P = 0.047$) and also a significant association between knowledge score and maternal education level ($P = 0.001$). A study in Malaysia showed that the correct knowledge of FSs was associated with higher maternal education level ($P = 0.003$), higher paternal education ($P = 0.024$), and higher family income ($P = 0.001$).^[23]

Regarding practice score in the current study and its association with variables, 38% of parents had a good level of practice and those who had fair and poor knowledge were 39% and 23%, respectively.

There was a significant association between number of episodes experienced by parents and practice score ($P = 0.029$); another study had found a significant association between Mother's education and practice score ($P = 0.0004$), father's education ($P = 0.001$), and father's occupation ($P = 0.0008$).^[19]

CONCLUSIONS

Parents' knowledge regarding FS was significantly associated with higher maternal education, urban residence, and mother age. A higher level of understanding regarding practices was shown to have a significant relationship to increasing in number of episodes experienced by parents and maternal age.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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