

Knowledge of Mothers about Febrile Convulsion in Children, Children Welfare Teaching Hospital, Medical City Complex, Baghdad, 2024

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Abstract

Background: Febrile convulsion (FC) is the most common seizure in children worldwide. Between 1% and 4% of children develop FCs. It is also a leading reason for pediatric hospital admissions. **Aim of the Study:** The study aimed to assess the level of mothers' knowledge regarding FC in children and to identify the factors affecting mothers' knowledge about FC. **Methodology:** A descriptive cross-sectional study was conducted in Children Welfare Teaching Hospital, Medical City Complex (outpatient clinic and emergency unit), during the period between November 2023 and August 2024. The study involved 426 mothers with children aged <7 years who attended the outpatient clinic and emergency unit. A dedicated knowledge score was established based on 20 questions, dividing the mother's knowledge into three categories (high, moderate/fair, and poor knowledge). **Results:** Mothers' knowledge scores revealed that their scores ranged from 6 to 20 with a mean of 13.4 ± 2.4 standard deviation; 24 (5.6%) got poor knowledge, 317 (74.4%) got fair knowledge, and 85 (19.9%) got high knowledge. The associations were statistically significant between mothers' knowledge level and their residency ($P = 0.018$) and between mothers' knowledge level and their education ($P = 0.001$). **Conclusion:** The majority of mothers (74.4%) had a fair knowledge of FC. Their knowledge is significantly associated with higher maternal education and urban residence.

Keywords: Febrile convulsion, mothers' knowledge, seizure

INTRODUCTION

Febrile convulsion (FC) represents the most prevalent type of seizure observed in children.^[1] It is also a leading reason for pediatric hospital admissions. A febrile seizure is linked with a body temperature exceeding 38° , in the absence of central nervous system infection or metabolic disorder, and with no prior seizure history.^[2,3]

FC can occur in children aged between 6 months and 6 years, with the highest incidence at around 18 months. While most are simple, seizures that are focal, last longer than 15 min, recur within 24 h, or occur more than once during the same febrile illness are deemed complex. The diagnosis is primarily clinical and relies on the parents' description. The exact pathophysiology is unknown, but genetic factors significantly contribute to susceptibility. Even though most febrile seizures are benign and linked to minor viral infections, it is crucial for the child to be evaluated promptly, especially if it is their

first seizure, to alleviate parental anxiety and determine the cause of the fever.^[4,5]

Given that most children experience normal long-term outcomes, the use of antiepileptic medication to prevent a recurrence of FC is not typically recommended. Even though antipyretics have not been proven to prevent the recurrence of seizures, proactive steps to manage the fever, such as the use of antipyretics, can alleviate discomfort and provide reassurance.^[4,5]

Thankfully, the majority of FCs are harmless. Instances of FC leading to brain damage are rare, and outside of developing

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countries, there are no recorded cases of deaths related to FC.^[6,7] In terms of prevalence, approximately 4% of children between the ages of 1 and 6 years experience at least one episode of FC. Of these children, up to 30% have repeated seizures, and many are admitted to the hospital.^[8]

In Iraq, the number of males affected by FC was found to be more than females (1.5:1) in the results of the study conducted by Aziz and Manthar which also concluded that a positive history of febrile seizures in the family, developmental delay, and history of the prematurity are all considered risk factors for FC.^[9]

In terms of parents' knowledge about FCs, a study by Hanaa revealed that the majority of parents (86.7%) knew that fever can cause convulsions. Less than half of the studied sample (46.7%) had a thermometer at home, and the minority of parents (13.3%) carried out first aid before getting the child to the hospital. The study determined that there is a requirement for educational programs to improve the knowledge, attitude, and practice of parents in relation to febrile seizures.^[10]

Rationales of the study

FC is a frightening and emotionally traumatic condition that parents often fear due to concerns about the child's future health, including recurrence, physical disabilities, mental retardation, and death. Despite these fears, most FCs are benign and rarely cause brain damage. Mothers' knowledge is crucial in managing this condition.

Objective of the study

The objective of the study was to assess the level of mothers' knowledge regarding FCs in children and identify the factors affecting mothers' knowledge about FCs.

METHODOLOGY

The study was designed as a descriptive cross-sectional survey conducted at Children Welfare Teaching Hospital in Baghdad from November 2023 to August 2024. The target population included mothers with children under 7 years of age who attended the hospital's outpatient clinic and emergency unit during the study period. A total of 426 mothers were recruited using a convenience sampling method.

Data were collected through direct interviews using a structured questionnaire. The questionnaire was developed based on a thorough literature review and included sections on sociodemographic information (such as age, education level, occupation, and residency), previous experience with FCs, methods used to measure their child's temperature, and sources of information regarding FCs. The core of the questionnaire was a 20-item knowledge assessment, where each correct response earned a score of 1, resulting in a maximum possible score of 20. The knowledge scores were then categorized as low (<10), moderate (10–15), or high (>15).

Data were analyzed using Microsoft Excel and Minitab software. Descriptive statistics, including means, standard deviations (SDs), frequencies, and percentages, were

calculated. The Chi-square test was used to assess associations between categorical variables, while *t*-tests were used to compare mean differences. $P < 0.05$ was considered statistically significant. Ethical approval was obtained, and verbal consent was secured from all participants.

RESULTS

A total of 426 mothers participated in the current study; their ages ranged from 15 to 52 years with a mean of 31.1 ± 7.1 years SD. The total number of children for the studied mothers ranged from 1 to 8 with a mean of 3.2 ± 1.6 children (SD). Table 1 shows the sociodemographic characteristics of the participants. It was found that 284 (66.6%) participants lived in the center of Baghdad city, 189 (44.3%) were with a primary level of education or only read and write, and 371 (87.1%) were not working.

Table 2 shows that 123 (28.8%) participants had children with FCs, 240 (56.3%) used to measure their children's temperature by hand, and 333 (78.2%) received their information about FCs from family members, relatives, and neighbors.

On reviewing mothers' responses to the questions assessing their knowledge about FCs, it was found that the highest percentage of correct answers were about the axilla being the most suitable place for baby temperature control as 419 (98.4%) mothers answered correctly, followed by 415 (97.4%) mothers who respond correctly to the most essential way to prevent seizure is fever control and is more common at ages 6 months–6 years, and 389 (91.3%) mothers admitted that children with FC can receive immunizations on schedule, whereas only 30 (7.0%) knew that recurrent attacks of FC do not cause brain damage, 105 (24.7%) agreed that FC may not recur, and 176 (41.3%) knew that electroencephalogram (EEG) is not necessary to be done for every child with FC [Table 3].

Calculating mothers' knowledge scores revealed that their scores ranged from 6 to 20 with a mean of 13.4 ± 2.4 (SD);

Table 1: Sociodemographic characteristics of studied mothers

Characteristics	<i>n</i> = 426, <i>n</i> (%)
Residence	
Center of Baghdad	284 (66.6)
Suburban	142 (33.3)
Education	
Illiterate	45 (10.5)
Read and write	26 (6.1)
Primary school	163 (38.2)
Intermediate school	61 (14.3)
Secondary school	53 (12.4)
College degree or more	78 (18.3)
Occupation	
Not working	371 (87.1)
Student	4 (0.9)
Employee (governmental)	45 (10.5)
Private sector	6 (1.4)

24 (5.6%) got a low score, 317 (74.4%) got a moderate score, and 85 (19.9%) got a high score [Table 4 and Figure 1].

In studying the association between mothers' residency, their education level, and their occupation with their knowledge scores, Table 5 reveals that the associations were statistically significant between mothers' knowledge level and their residency ($P = 0.018$) and between mothers' knowledge level and their education ($P = 0.001$).

DISCUSSION

FC is a seizure with a febrile illness without central nervous system disease infection or acute electrolyte disturbance in children under 5 years of age. FC commonly occurs in 3%–4%

of young children below 6 years of age, and it is the most common cause of pediatric emergency hospital admissions.

This study aimed to assess the knowledge level of mothers regarding FCs in children and identify factors affecting their knowledge. The findings of the current study which included 426 Iraqi mothers showed that the mean age of the mothers is 31.1 years with a SD of 7.1 years, ranging from 15 to 52 years. On average, mothers have 3.2 children with an SD of 1.6, ranging from 1 to 8 children. This is higher than the study of Shibeel and Altufaily^[11] which found that the mean maternal age was 27.81 ± 8.21 ranging from 15 to 43 years and the mean number of children was 2.8 ± 1.3 ; their study sample included only 100 people.

The sociodemographic characteristics of the mothers were also examined, with 66.6% residing in the city center and

Table 2: Mother's experience and information about febrile convulsions

Characteristics	n=426, n (%)
History of children with FC	
Yes	123 (28.8)
No	303 (71.1)
Measuring temperature by	
Hand	240 (56.3)
Thermometer	186 (43.6)
Source of the information about FC	
Social media	17 (3.9)
Family	170 (39.9)
Relative	141 (33.1)
Neighbor	22 (5.1)
Health-care personal	76 (17.8)

FC: Febrile convulsion

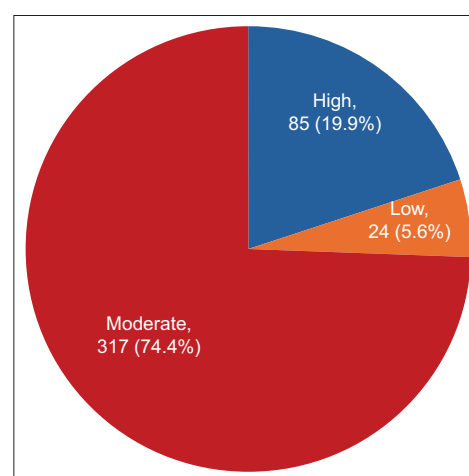


Figure 1: Frequency pie chart of mothers' total knowledge score

Table 3: Mother's responses to the questions assessing knowledge about febrile convulsions

Questions	Correct answers, n (%)
The appropriate temperature of the baby's body is 36.5°C–37.2°C	389 (91.3)
The most suitable place for baby temperature control is axillary	419 (98.4)
Paracetamol syrup is a good medicine to reduce fever in children	384 (90.1)
The best way for tepid is not cold water	255 (59.9)
Fever control is the most essential way to prevent seizure	415 (97.4)
Febrile seizure is more common at ages 6 months–6 years	415 (97.4)
FC is epilepsy	359 (84.3)
Anticonvulsant drugs are required for every FC child	288 (67.6)
Every FC child will have another FC	105 (24.7)
FC is rare after age 6	270 (63.4)
Recurrent FC will cause brain damage	30 (7.0)
Risk of subsequent epilepsy in FC is rare	196 (46.1)
It is necessary to put protective devices into the mouth to prevent tongue injury during convulsion	209 (49.1)
It is necessary to restrain the child during convulsion	186 (43.7)
It is necessary to do mouth-to-mouth resuscitation during convulsion	353 (82.9)
During attack should place the child on his/her side	309 (72.5)
EEG or CT is necessary for every FC child	176 (41.3)
Hereditary factors are effective in causing seizures in a child	309 (72.5)
Children with FC can receive immunizations on schedule	389 (91.3)
Prenatal injuries can cause febrile seizure in a child	262 (61.5)

FC: Febrile convulsion

33.3% in suburban areas. Education levels were found to be high, with 45 (10.5%) being illiterate, 26 (6.1%) reading and writing, and 38.2% attending primary school. This is higher than the findings of Ghadi and Chakeri,^[12] where less educated mothers were more common, and the high level of education in our study could be attributed to the urban setting, which generally has better access to education.

Regarding employment status, most mothers were not employed, with 371 (87.1%) not employed, while only 4 (0.9%) were students, 45 (10.5%) worked as governmental employees, and 1.4% were in the private sector. This is similar to the findings of Paudel *et al.*,^[13] which found that 84.3% were not employed and 16.7% were employed.

Mothers' experience with FCs is significant, as they often experience apprehension about the potential for problems and the repetition of the event. In this study, 28.8% of mothers reported previous experience with FCs in their children, slightly higher than the findings of Akpan and Ijezie,^[14] where the mothers' previous experience of FCs was around 20%.

Temperature measurement methods were predominantly by hand (56.3%) and thermometer (43.6%), similar to Al-Kaisi *et al.*,^[15] which revealed that 60.5% of mothers used only their hands for temperature measurement. The sources of

information about FCs were diverse, with 39.9% receiving information from family members and relatives (33.1%). However, only 17.8% received information from health-care personnel, suggesting a potential gap in health education that needs to be addressed.

The results showed that most mothers had a good understanding of these aspects, with 91.3% correctly identifying the appropriate body temperature for a baby and 98.4% knowing that the axillary area was the most suitable place for temperature control. However, there were areas where the mothers' knowledge was less than optimal, such as 59.9% correctly identifying cold water was not the best method for tepid sponging and 67.6% knowing that anticonvulsant drugs are not required for every child with FC similar results was found in the study of Hall-Parkinson *et al.*^[16]

Interestingly, only 24.7% of mothers believed that every child with FC will have another one, which can lead to unnecessary anxiety among parents. Education programs should aim to correct this misconception and provide accurate information about the likelihood of recurrent FCs. In terms of diagnostic procedures, only 41.3% of mothers knew that an EEG or computed tomography is not necessary for every child with FC, and this is consistent with the study of Weerasekara *et al.*^[17] which revealed that 39.4% of mothers knew that information.

The knowledge scores about FCs ranged from 6 to 20, with a mean score of 13.4 ± 2.4 . On average, most mothers had a moderate level of knowledge about FCs. This is consistent with previous studies by Shibeel and Altufaily,^[11] Paudel *et al.*,^[13] and Barzegar *et al.*^[18]

CONCLUSION

The study found that mothers' knowledge of FC was moderate (fair) among 74.4% of mothers, with only 5.6% having bad knowledge and 19.9% having high knowledge. There was

Table 4: Distribution of mothers by their knowledge scores about febrile convulsion

Parameter	Mean \pm SD (range)
Knowledge score (out of 20)	13.4 \pm 2.4 (6–20)
Knowledge categories	Total (n=426), n (%)
Low (<10)	24 (5.6)
Moderate (10–15)	317 (74.4)
High (16–20)	85 (19.9)

SD: Standard deviation

Table 5: Cross tabulation of mother's knowledge with their residence, education, and occupation

Parameters	Low score (n=24), n (%)	Moderate score (n=317), n (%)	High score (n=85), n (%)	Total, n (%)	P*
Residence					
Center of Baghdad	12 (4.2)	206 (72.5)	66 (23.2)	284 (100)	0.018
Suburban	12 (8.5)	111 (78.2)	19 (13.4)	142 (100)	
Education					
Illiterate	7 (15.6)	33 (73.3)	5 (11.1)	45 (100)	0.001
Read and write	1 (3.8)	24 (92.5)	1 (3.8)	26 (100)	
Primary school	6 (3.7)	125 (76.7)	32 (19.6)	163 (100)	
Intermediate school	0	45 (73.7)	16 (26.2)	61 (100)	
Secondary school	2 (3.7)	43 (81.1)	8 (15.1)	53 (100)	
College degree or more	8 (10.3)	47 (60.3)	23 (29.4)	78 (100)	
Occupation					
Not working	19 (5.1)	283 (76.3)	69 (18.6)	317 (100)	-
Student	0	3 (75.0)	1 (25.0)	4 (100)	
Employee (governmental)	5 (11.1)	28 (62.2)	12 (26.7)	45 (100)	
Private sector	0	3 (50.0)	3 (50.0)	6 (100)	

*Chi-square test was used

no significant association between the mother's age and number of children, but higher maternal education and urban residence significantly influenced their knowledge. The study recommends upgrading knowledge by distributing pamphlets, sharing posts on social media, and providing health education in well-baby clinics. Reliable evidence-based information on childcare can increase self-confidence and reduce anxiety. More time should be spent on education and public awareness programs.

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Conflicts of interest

There are no conflicts of interest.

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