

## Knowledge of Mothers Towards Febrile Seizure in Children Under Five Years Ages in Karbala City, 2023

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Received: 02/07/2024

Accepted: 22/07/2024

Published: 31/12/2024

**Keywords:** Febrile,  
Knowledge, Mothers,  
Children, Seizures.



DOI:10.62472.kjps.v15.i25.20-32

### Abstract

#### Background:

Febrile convulsion is the most common type of seizure in the children, It typically manifests as a temperature of 38°C or above in the absence of a central nervous system infection, metabolic disorder, or prior history of febrile seizures. It affects children from six months to five years old, with a peak incidence between the ages of 12 and 18 months, it is also one of the most frequent causes of emergency hospital admissions in children under five years of age. It is extremely frightening, emotionally traumatic, and anxiety provoking when witnessed by parents, which make it a very difficult condition for them to deal with. To decrease parental anxiety, it is important that parents have proper knowledge about febrile seizure and its prognosis.

#### Objective:

This study aims to assess the knowledge of mothers towards febrile convulsion in children under five years in Karbala city and to assess the factor associated with their knowledge.

#### Patients and methods:

A cross-sectional study was conducted on 160 mothers with children who have febrile convulsion in multiple health institutes in Karbala City through face-to-face interviews using a prepared questionnaire. The data collection was conducted using convenience sampling over five months duration from the 10th of April 2023 till 15th of August 2023, data collected 2 days per week. The interview took 15-20 minutes. SPSS version 28.00 was used to perform statistical analysis. The means of the groups were compared using independent samples t-test and ANOVA.

#### Results:

The mothers' mean knowledge score was 3.23 (SD 1.60) out of eleven points. The majority of mothers (59.40%) had a poor knowledge level.

#### Conclusion:

There was poor knowledge among mothers toward FC. Better knowledge was associated with having higher mothers' educational level, advanced mothers age, employed mothers, high income, urban residence.

## معارف الامهات تجاه الاختلاجات الحرارية (الشمرة) عند الاطفال تحت عمر خمس سنوات في مدينة كربلاء، 2023

أسراء جواد عباس ، بشير عقيل العلي ، ايناس مؤيد محمد علي

### الخلاصة

#### خلفية البحث:

الاختلاج الحراري هو أكثر أنواع النوبات شيوعا عند الأطفال ، وعادة ما يظهر على شكل درجة حرارة 38 درجة مئوية أو أعلى في حالة عدم وجود عدوى في الجهاز العصبي المركزي أو اضطراب التمثيل الغذائي أو تاريخ سابق من النوبات الحرارية يصيب الأطفال من عمر ستة أشهر إلى خمس سنوات ، مع ذروة حدوث تتراوح أعمارهم بين 12 و 18 شهرا ، كما أنه أحد الأسباب الأكثر شيوعا لدخول المستشفى في حالات الطوارئ لدى الأطفال دون سن الخامسة ، وهو أمر مخيف للغاية ومؤلم عاطفيا ومثيرا للقلق عندما يشهده الآباء ، مما يجعل من الصعب عليهم التعامل مع الحالة ، لتقليل قلق الوالدين ، من المهم أن يكون لدى الآباء معرفة مناسبة بنوبة الحمى وتشخيصها.

#### الهدف:

تهدف هذه الدراسة إلى تقييم معرفة الأمهات تجاه الاختلاج الحراري لدى الأطفال دون سن الخامسة في مدينة كربلاء وتقييم العوامل المرتبطة بمعرفتهم.

#### طرائق العمل:

أجريت دراسة مقطعية مستعرضة على 160 أمات لديهن أطفال يعانون من اختلاج حراري في معاهد صحية متعددة في مدينة كربلاء من خلال المقابلات وجها لوجه باستخدام استبيان معد ، تم جمع البيانات باستخدام أخذ عينات ملائمة على مدار خمسة أشهر من 10 أبريل 2023 حتى 15 أغسطس 2023 ، البيانات التي تم جمعها يومين في الأسبوع استغرقت المقابلة 15-20 دقيقة. تم استخدام SPSS الإصدار 28.00 لإجراء التحليل الإحصائي. تمت مقارنة وسائل المجموعات باستخدام عينات مستقلة t-test وANOVA.

#### النتائج:

كان متوسط درجة المعرفة للأمهات 3.23 (SD 1.60) من أصل إحدى عشرة نقطة، وكان لدى غالبية الأمهات (59.40٪) مستوى معرفة ضعيف.

#### الاستنتاج:

كانت هناك معرفة ضعيفة بين الأمهات تجاه الاختلاج الحراري، وارتبطت المعرفة الأفضل بارتفاع المستوى التعليمي للأمهات، وعمر الأمهات المتقدم، والأمهات العاملات، والدخل المرتفع، والإقامة الحضرية.

## 1. Introduction

Febrile convulsion is the most common type of seizure in the children (Ateşoğlu et al., 2018). It typically manifests as a temperature of 38°C or above in the absence of a central nervous system infection, metabolic disorder, or prior history of febrile seizures. (Kumar et al., 2019; Sayed et al., 2018). It affects children from six months to five years old, with a peak incidence between the ages of 12 and 18 months. (Sayed et al., 2018). It is also one of the most frequent causes of emergency hospital admissions in children under five years of age (Waruiru and Appleton, 2004). The most frequent convulsive occurrence in children under 60 months of age is febrile seizures, which affect 2% to 5% of all children (American Academy of Pediatrics, 2011). Frequent occurrences of febrile convulsions are reported to affect 2 to 4% of children before they turn five. It was discovered that children with febrile convulsions did not differ in intelligence from their normal seizure-free siblings at seven years old. Mental retardation has been recorded in as many as 22 percent of children with febrile convulsions who were hospitalized or evaluated in specialized clinics (Aliabad et al., 2013). Febrile seizure is an age-dependent response of the developing brain to fever. During the maturation process, there is an enhanced neuronal excitability that predisposes the child to febrile seizures. Because of this, children under the age of three have a lower seizure threshold and are more likely to get febrile seizures (Sharawat et al., 2016). This illness is primarily diagnosed clinically, using the parents' descriptions as a basis. To decide the cause of fever, it is helpful to obtain a thorough history of the patient, including the child's symptoms, any recent antibiotic or medication use, and the child's vaccination history. Additionally, since upper respiratory tract infections are the most common underlying cause of fever syndrome, a check for these infections must unquestionably be made. But in roughly one-third of these patients, the reason for their fever is unknown. (Trainor et al., 2001).

Febrile convulsion is extremely frightening, emotionally traumatic, and anxiety provoking when witnessed by parents, which make it a very difficult condition for them to deal with (Huang et al., 2006). Most of the parents become anxious and frightened observing their children suffering from a seizure. Some parents even think that their child is dying. Many of them are not only concerned about the prognosis of seizure disorder and safety of that child but also concerned of the safety of their other child/children (Parmar et al., 2001).

To decrease parental anxiety, it is important that parents have proper knowledge about febrile seizure and its prognosis (Westin and Levander, 2018). The most frequent source of concern for parents is worry for their child's health in the future. Concerns include the possibility of a recurrence, physical impairments, mental retardation, and even death. (Jones and Jacobsen, 2007). While febrile convulsion (FC) is a benign convulsive illness in children under five, they can be concerning for both the kid and the parents. Poor management may result from parents' ignorance of the nature of FC and how they should handle it. (Oche and Onankpa, 2013). It is believed that parents' education regarding febrile convulsions and how to handle them is crucial to the course of treatment. (Mohsen and Mahboobeh, 2013). Furthermore, a number of studies indicate that parents frequently experience stress and anxiety when their child has a febrile convulsion (FC), as they frequently believe that their child may suffer brain damage, future epileptic attacks, mental retardation, physical injury, or even death (Mohsen and Mahboobeh, 2013; Mousavi Dogahe et al., 2018).

Ten percent of children with FC have three or more FC attacks, and one-third of them relapse. (Berg et al., 1997; Kimia et al., 2015). Fever in these patients is typically caused by upper respiratory tract infections, gastroenteritis, and urinary tract infections (Jones and Jacobsen, 2007; Sajun Chung, 2014). Fortunately, this condition is very benign, has

favorable outcomes for children, and rarely causes brain injury, despite what parents may believe. (Sadleir and Scheffer, 2007). Although febrile seizures are thought to be benign, recent research indicates that a tiny percentage of kids who have a fever and seizures could experience both a seizure and an epilepsy relapse. (Seinfeld and Pellock, 2013). The onset of febrile seizures in children is an unpleasant condition that affects parents physically, psychologically, and behaviorally. (Ghadi and Chakeri, 2020). A 12-year follow-up research revealed that children with febrile convulsion (FC) have a 10% probability of having neurological issues and a 6% chance of developing epilepsy, despite the fact that FC is often benign. (Mousavi Dogahe et al., 2018) Because of the high recurrence incidence of the condition and lack of knowledge about it, mothers may display strange behaviors. When a child has a fever and loses control, some mothers experience confusion and fear, which keeps them from intervening to manage the anger and its consequences. (Namakin et al., 2010; TAHERI et al., 2014). As the primary caregiver for their children, women bear the primary responsibility for ensuring their well-being. However, the findings indicate that mothers lack the necessary knowledge and skills to effectively manage their home and regulate their child's fever. Mothers must therefore acquire adequate information, awareness, and home management in this area. (Ghadi and Chakeri, 2020). Typically, counseling and education will be the only forms of treatment, the key to empowering parents who have gone through terrible and traumatic experiences is education, many parents needed to be reassured that their child wouldn't die during the seizure and that they would take the appropriate precautions. (Ghadi and Chakeri, 2020). The best approach for FC 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 (Oche and Onankpa, 2013). In this study we aim to assess the knowledge of mothers towards febrile convulsion in children under five years in Karbala city, and to assess the factors associated with their knowledge in order to identify the need for mothers' education in Karbala.

## **2. Patients and Methods**

### **2.1. Study Design and Selection of Patients**

A cross-sectional study was conducted in Kerbala governorate on 160 mothers with children who have febrile convulsion, attended Pediatric Teaching Hospital, Al-Imam Al-Hassan Al-Mujtaba Teaching Hospital in Kerbala City and two Primary Health Care Centers from Al-Hurr Sector were selected by using a random lottery method (Al-Taqa, Al-Hassan Al-Askary).

### **2.2. Data Collection and Time**

The data collection was conducted using convenience sampling over five months duration from the 10th of April 2023 till 15th of August 2023, the interview was done, data collected 2 days per week the interview took 15-20 minutes through face-to-face interviews with providing informed consent to the mothers using a questionnaire as the data collection instrument.

### **2.3. Data Collection Tools (Instrument)**

The questionnaire consisted of three parts and was taken from an article (Huang et al., 2006) with some modifications, the first part of the questionnaire consisted of 12 questions regarding sociodemographic information including (the age of the mother and husband, education of the mother and husband, occupation of mother and husband, residence,

economic status, type of house, number of rooms in house, numbers of family and numbers of children. The second part consisted of 6 questions beliefs about the causes of febrile convulsions.

The third part consisted of 11 questions on the mother's knowledge about febrile convulsion including necessary medical evaluation, risk of FC recurrence or developing subsequent epilepsy, necessity of anticonvulsants, and recommended/non-recommended practices for seizures. This domain consisted of 11 true/false questions with a "don't know" category provided for each. English was the questionnaire's original language, Google Translate was used to translate English to Arabic.

## **2.4.Questionnaire Score**

### **2.4.1. Assessment of Knowledge Scores**

Each patient was told to choose one possible answer to the three-choice (yes, no, and I don't know) questions. The correct answer was scored one point and the incorrect answer was scored zero. The knowledge scores ranged from (0-11).

### **2.4.2. Pilot Study**

A pilot study has been conducted in Pediatric Teaching Hospital in Kerbala. The interview was done on 20 mothers in 3 weeks duration extended from 15/3/2023 to 7/4/2023 to assess the feasibility of the questionnaire and to overcome any difficult issues that may arise during data collection. The average time need to complete the interview with each participant is about 15-20 minutes. Responses obtained in the pilot study were not included in the final analysis.

### **2.4.3. Inclusion Criteria**

Mothers of children with febrile convulsion between 6months-5years old.

### **2.4.4. Exclusion Criteria**

Mothers of children with co-diagnosis with head truma,co-diagnosis with meningitis ,pt associated with hemiplegia or focal neurological deficit, children with developmental delay and epilepsy.

## **2.5.Statistical Analyses**

Information from the questionnaire and all test results from study groups samples were entered a data sheet. The Statistical Package for the Social Sciences program, version 28.0 (IBM, SPSS, Chicago, Illinois, USA) and the Real Statistics Resource Pack software for Mac (Release 7.2) of the Excel 2016 resource pack were used to create the data analysis for this study. Descriptive statistics were performed on the data of each group. Values were illustrated by n (%) for categorical, scale variables were presented by mean  $\pm$  standard deviation (SD) for normal data while non-normal data, the distribution of the data was checked using Shapiro-Wilk test as numerical means of assessing normality. Fisher's LSD (least significant difference) method was used in ANOVA to create confidence intervals for all pairwise differences between biomarkers and study groups while controlling the individual error rate to a significance level that specify. Fisher's LSD method was used to calculate the simultaneous confidence level for all confidence intervals. This simultaneous confidence level is the probability that all confidence intervals contain the true difference. Analytical statistical analyses indicated significant variations in categorical variables among the parameters. All hypothesis tests with p-values less than 0.05 (two-sided) were judged statistically significant.

### 3. Results

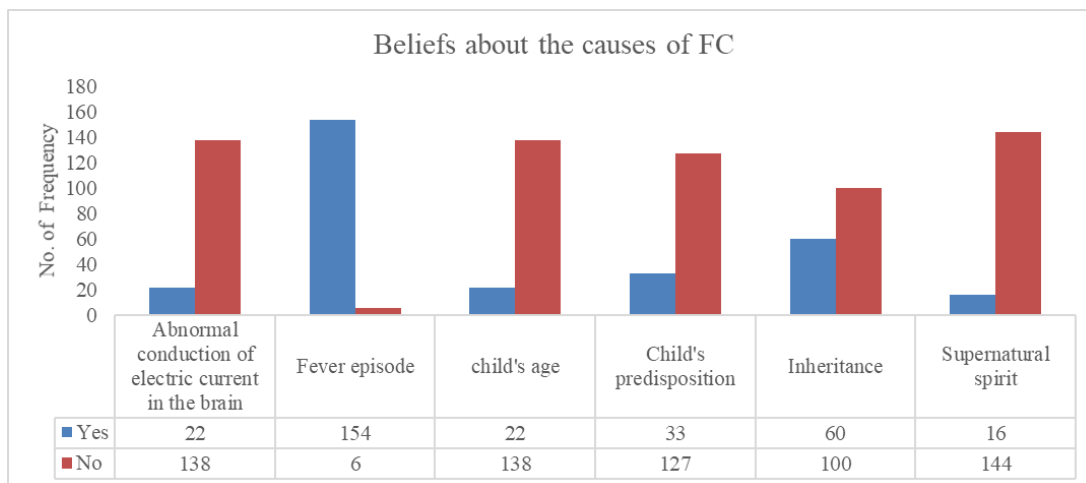
#### 3.1. Sociodemographic Characteristics of the Mothers

Table 1 and Fig.1 summarize the demographic characteristics of the mothers of child with FC included in the study. The majority of mothers fell into two age groups: 17-<26 years (40.0%) and 26-<36 years (40.0%). Only 20.0% of mothers were aged 36-45 years. A significant portion of mothers (40.6%) had a primary school education level. Illiteracy was present in 8.8% of mothers, while university education was achieved by 14.4%. Regarding the Occupation of the mother, results were shown that, the vast majority of mothers were housewives (90.0%). Only 10.0% were employed. For Paternal Age, Similar to maternal age, fathers were primarily concentrated in two age groups: 20-<30 years (43.1%) and 30-<40 years (42.5%). The Fathers Education was included Primary school which was the most common educational level for fathers (40.0%). Illiteracy was slightly lower than mothers (8.1%), while university education (including postgraduate) was achieved by 18.1%. Results demonstrated that Freelance work for fathers was the most common occupation for fathers (68.8%), followed by being an employee (27.5%). Only a small number were unemployed (2.5%) or retired (1.3%). The study population was relatively evenly split between urban (61.9%) and rural (38.1%) residences. Most mothers reported a middle income (61.3%), while 35.0% had a weak income and only 3.8% had a good income. The majority of families lived in owned houses (58.8%). Rented houses were common (23.8%), with a smaller portion living in slums (17.6%). In term of the Number of Rooms and Family Size, the most common dwelling had 2 rooms (43.1%), followed by 3 rooms (27.5%). Most families had 5-8 members (71.3%), with smaller proportions having 3-4 members (24.4%) or 9-12 members (4.4%). The majority of mothers had 2-4 children (61.3%). The average number had one child (18.1%), while 20.6% had 5-9 children.

**Table 1:** Demographic and Data of The Mothers Included in The Study

| Variable                           | Group             | Frequency | Percentage |
|------------------------------------|-------------------|-----------|------------|
| <b>Age groups Mother (Years)</b>   | 17 - <26          | 64        | 40.0       |
|                                    | 26 - <36          | 64        | 40.0       |
|                                    | 36 - 45           | 32        | 20.0       |
| <b>Educational level of mother</b> | Illiteracy        | 14        | 8.8        |
|                                    | Primary School    | 65        | 40.6       |
|                                    | Secondary School  | 36        | 22.5       |
|                                    | University        | 23        | 14.4       |
|                                    | Postgraduate      | 22        | 13.8       |
| <b>Mother Job</b>                  | House Wife        | 144       | 90.0       |
|                                    | Employee          | 16        | 10.0       |
| <b>Age Groups Father</b>           | 20-<30            | 69        | 43.1       |
|                                    | 30-<40            | 68        | 42.5       |
|                                    | 40-50             | 23        | 14.4       |
| <b>Educational level of Father</b> | Illiteracy        | 13        | 8.1        |
|                                    | Primary School    | 64        | 40.0       |
|                                    | Secondary School1 | 43        | 26.9       |
|                                    | University        | 37        | 23.1       |
|                                    | Postgraduate      | 3         | 1.9        |
| <b>Father Job</b>                  | No working        | 4         | 2.5        |
|                                    | Employee          | 44        | 27.5       |
|                                    | Retired           | 2         | 1.3        |
|                                    | Freelance         | 110       | 68.8       |

|                          |           |     |      |
|--------------------------|-----------|-----|------|
| <b>Residence</b>         | Urban     | 99  | 61.9 |
|                          | Rural     | 61  | 38.1 |
| <b>Income</b>            | Weak      | 56  | 35.0 |
|                          | Middle    | 98  | 61.3 |
|                          | Good      | 6   | 3.8  |
| <b>Type of House</b>     | Owned     | 94  | 58.8 |
|                          | Rent      | 38  | 23.8 |
|                          | Slum      | 28  | 17.6 |
| <b>No of Room</b>        | One       | 39  | 24.4 |
|                          | Two       | 69  | 43.1 |
|                          | Three     | 44  | 27.5 |
|                          | Four      | 8   | 5.0  |
| <b>No. family Groups</b> | 3-4       | 39  | 24.4 |
|                          | 5-8       | 114 | 71.3 |
|                          | 9-12      | 7   | 4.4  |
| <b>No. Child Groups</b>  | One Child | 29  | 18.1 |
|                          | 2-4 Child | 98  | 61.3 |
|                          | 5-9 Child | 33  | 20.6 |



**Figure 1:** Demographic Descriptive of The Study for Mothers Beliefs About the Causes of FC

### 3.2. Knowledge

This domain consisted of 11 items, for each score (0 – 1); the maximum total score is 11. Table 2 summarizes the mother's responses to knowledge items about febrile convulsions (n=160). The results show the percentage of mothers who answered each question correctly (indicated by an asterisk (\*)) alongside the percentage who answered incorrectly or I don't know. Knowledge regarding the febrile convulsion FC is epilepsy, (68.1%) correctly identified that febrile convulsion is not epilepsy. For every child with FC, anticonvulsant medications are necessary, about half (50.0%) knew that anticonvulsant drugs are not required for every child with febrile convulsions. Results were also shown that the knowledge of the participants regarding Every child affected by FC will eventually have another FC, A large majority (86.3%) incorrectly understood that if fever subsides, it can help prevent other FC. Over half (52.5%) correctly indicated that after the age of five, FC is uncommon. There was a significant misconception (74.4%) that

Recurrent FC will cause brain damage. Results were also demonstrated that nearly half (44.4%) were I don't know about the Epilepsy risk after FC is uncommon. And Over half (56.3%) incorrectly believed that to avoid injuring the tongue during a convulsion, a protective device must be placed inside the mouth. Almost all mothers (90.0%) indicated that incorrectly answered for It is necessary to restrain the child during convulsion. And (60.6%) incorrectly knew that during a convulsion, mouth-to-mouth resuscitation is required. Nearly half (48.8%) correctly recognized Immunizations can be given to FC children on time and (35.0%) correctly believed not every child with FC needs to have an EEG or CT scan. The mean score on the knowledge assessment was  $3.23 \pm 1.60$ , indicating an overall need for improvement in knowledge about febrile convulsions. These findings suggest that educational interventions may be beneficial to improve understanding of febrile convulsions among the general population.

**Table 2:** Baseline Characteristics of Mothers Responses to The Knowledge Items(N=160)

| Baseline characteristics of Knowledge                                                                  | Subcategory  | Frequency | Percentage |
|--------------------------------------------------------------------------------------------------------|--------------|-----------|------------|
| Febrile convulsion (FC) is epilepsy                                                                    | Yes          | 20        | 12.5       |
|                                                                                                        | No*          | 109       | 68.1       |
|                                                                                                        | I don't Know | 31        | 19.4       |
| For every child with FC, anticonvulsant medications are necessary.                                     | Yes          | 55        | 34.4       |
|                                                                                                        | No*          | 80        | 50.0       |
|                                                                                                        | I don't Know | 25        | 15.6       |
| Every child affected by FC will eventually have another FC.                                            | Yes          | 138       | 86.3       |
|                                                                                                        | No*          | 14        | 8.8        |
|                                                                                                        | I don't Know | 8         | 5.0        |
| After the age of five, FC is uncommon.                                                                 | Yes*         | 84        | 52.5       |
|                                                                                                        | No           | 15        | 9.4        |
|                                                                                                        | I don't Know | 61        | 38.1       |
| Brain injury will result from repeated FC.                                                             | Yes          | 119       | 74.4       |
|                                                                                                        | No*          | 14        | 8.8        |
|                                                                                                        | I don't Know | 27        | 16.9       |
| Epilepsy risk after FC is uncommon.                                                                    | Yes*         | 47        | 29.4       |
|                                                                                                        | No           | 42        | 26.3       |
|                                                                                                        | I don't Know | 71        | 44.4       |
| To avoid injuring the tongue during a convulsion, a protective device must be placed inside the mouth. | Yes          | 90        | 56.3       |
|                                                                                                        | No*          | 19        | 11.9       |
|                                                                                                        | I don't Know | 51        | 31.9       |
| During a convulsion, the child must be restrained                                                      | Yes          | 144       | 90.0       |
|                                                                                                        | No*          | 6         | 3.8        |
|                                                                                                        | I don't Know | 10        | 6.3        |
| During a convulsion, mouth-to-mouth resuscitation is required.                                         | Yes          | 97        | 60.6       |
|                                                                                                        | No*          | 8         | 5.0        |
|                                                                                                        | I don't Know | 55        | 34.4       |
| Immunizations can be given to FC children on time.                                                     | Yes*         | 78        | 48.8       |
|                                                                                                        | No           | 54        | 33.8       |
|                                                                                                        | I don't Know | 28        | 17.5       |
| Every child with FC needs to have an EEG or CT scan.                                                   | Yes          | 51        | 31.9       |
|                                                                                                        | No*          | 56        | 35.0       |
|                                                                                                        | I don't Know | 53        | 33.1       |
| Mean Score of Knowledge                                                                                |              | 3.23±1.60 |            |
| The correct answer was highlighted as (*)                                                              |              |           |            |



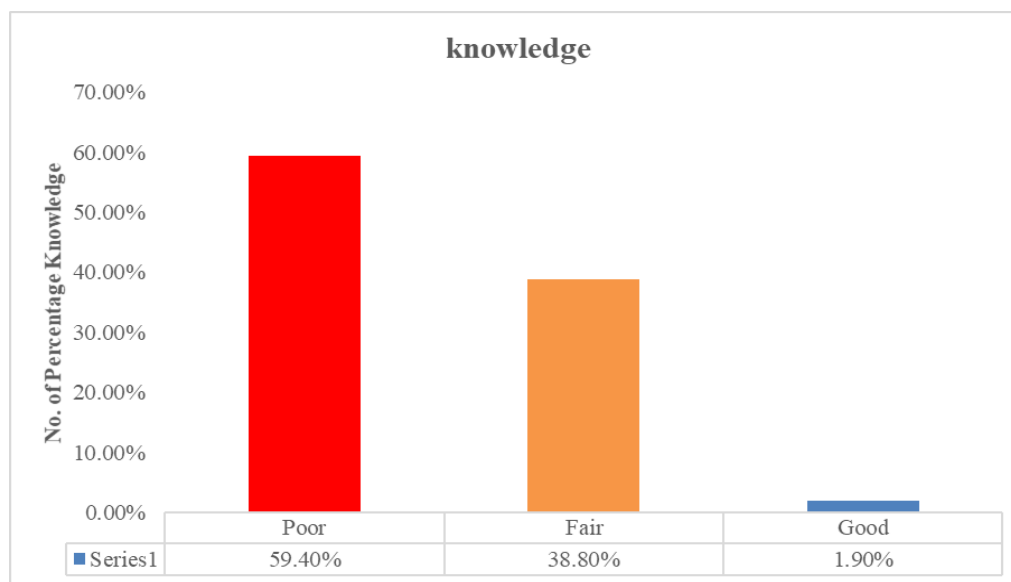
### 3.3 Baseline Knowledge Score by Demographics

Table 3 compares the average baseline knowledge score on a participant's knowledge, according to various demographic characteristics. Statistically significant differences ( $p$ -value  $< 0.05$ ) are indicated by [S] and non-significant findings are indicated by [NS]. Mother's age range (36 - 45) years had a slightly higher mean knowledge score ( $3.38 \pm 1.64$ ) compared to the younger ( $3.00 \pm 1.57$ ) and 26 - <36 age groups ( $3.35 \pm 1.61$ ). This difference was statistically significant ( $p$ -value  $< 0.05$ ). Results illustrated that mothers with a university degree had the highest mean knowledge score ( $4.00 \pm 1.51$ ), followed by those with a secondary school education ( $3.19 \pm 1.51$ ). Illiteracy was associated with the lowest score ( $2.36 \pm 1.65$ ), This difference was statistically significant ( $p$ -value  $< 0.05$ ). On the other hand, Employee participants were scored significantly higher ( $4.13 \pm 1.82$ ) than housewives ( $3.11 \pm 1.55$ ) on the knowledge test ( $p$ -value  $< 0.05$ ). For Paternal Characteristics, there were no statistically significant differences in knowledge scores based on fathers' age groups. And similar to mothers, fathers with a postgraduate degree had the highest mean score ( $4.33 \pm 2.08$ ), followed by university ( $3.67 \pm 1.30$ ) and secondary school education ( $3.23 \pm 1.66$ ). Illiteracy was associated with a lower score ( $2.62 \pm 1.76$ ), but the differences between education groups were not statistically significant. In term of Fathers' occupations, it also did not show statistically significant differences in knowledge scores. The effect of Socioeconomic factors, results were indicated that mother living in urban areas had a significantly higher mean knowledge score ( $3.41 \pm 1.63$ ) compared to those in rural areas ( $2.90 \pm 1.51$ ) ( $p$ -value  $< 0.05$ ). Income level showed a statistically significant ( $p$ -value  $< 0.05$ ). Mothers with a good income had the highest score ( $4.67 \pm 1.51$ ), followed by middle income ( $3.31 \pm 1.62$ ) and weak income ( $2.89 \pm 1.49$ ). No statistically significant differences in knowledge scores were found based on other factors as presented in Fig.2.

**Table 3:** Comparison of Mean Baseline Total Knowledge Score According to Baseline Characteristics of Mothers (N=160)

| Variable                    | Group            | Knowledge score | P-value     |
|-----------------------------|------------------|-----------------|-------------|
|                             |                  | Mean $\pm$ SD   |             |
| Age groups Mother (Years)   | 17 - <26         | 3.00 $\pm$ 1.57 | [S] °       |
|                             | 26 - <36         | 3.35 $\pm$ 1.61 |             |
|                             | 36 - 45          | 3.38 $\pm$ 1.64 |             |
| Educational level of mother | Illiteracy       | 2.36 $\pm$ 1.65 | 0.002[S] °  |
|                             | Primary School   | 2.92 $\pm$ 1.43 |             |
|                             | Secondary School | 3.19 $\pm$ 1.51 |             |
|                             | University       | 4.04 $\pm$ 1.49 |             |
|                             | Postgraduate     | 3.86 $\pm$ 1.88 |             |
| Mother Job                  | House Wife       | 3.11 $\pm$ 1.55 | 0.016[S] °° |
|                             | Employee         | 4.13 $\pm$ 1.82 |             |
| Age. Groups Father          | 20-<30           | 3.10 $\pm$ 1.49 | [NS] °      |
|                             | 30-<40           | 3.33 $\pm$ 1.72 |             |
|                             | 40-50            | 3.22 $\pm$ 1.62 |             |
| Educational level of Father | Illiteracy       | 2.62 $\pm$ 1.76 | [NS] °      |
|                             | Primary School   | 3.05 $\pm$ 1.51 |             |
|                             | Secondary School | 3.23 $\pm$ 1.66 |             |

|                                                                                                                                                                                                                     |              |           |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|------------|
|                                                                                                                                                                                                                     | University   | 3.67±1.30 |            |
|                                                                                                                                                                                                                     | Postgraduate | 4.33±2.08 |            |
| Father Job                                                                                                                                                                                                          | No working   | 3.50±1.29 | [NS] °     |
|                                                                                                                                                                                                                     | Employee     | 3.48±1.70 |            |
|                                                                                                                                                                                                                     | Retired      | 2.00±1.41 |            |
|                                                                                                                                                                                                                     | Freelance    | 3.12±1.57 |            |
| Residence                                                                                                                                                                                                           | Urban        | 3.41±1.63 | [S] °°     |
|                                                                                                                                                                                                                     | Rural        | 2.90±1.51 |            |
| Income                                                                                                                                                                                                              | Weak         | 2.89±1.49 | 0.022[S] ° |
|                                                                                                                                                                                                                     | Middle       | 3.31±1.62 |            |
|                                                                                                                                                                                                                     | Good         | 4.67±1.51 |            |
| Type of House                                                                                                                                                                                                       | Owned        | 3.27±1.64 | [NS] °     |
|                                                                                                                                                                                                                     | Rent         | 3.13±1.58 |            |
|                                                                                                                                                                                                                     | Slum         | 3.11±1.28 |            |
| No. of Room                                                                                                                                                                                                         | One          | 3.03±1.65 | [NS] °     |
|                                                                                                                                                                                                                     | Two          | 3.01±1.62 |            |
|                                                                                                                                                                                                                     | Three        | 3.77±1.48 |            |
|                                                                                                                                                                                                                     | Four         | 2.88±1.36 |            |
| No. family Groups                                                                                                                                                                                                   | 3-4          | 3.26±1.77 | [NS] °     |
|                                                                                                                                                                                                                     | 5-8          | 3.20±1.57 |            |
|                                                                                                                                                                                                                     | 9-12         | 3.14±1.21 |            |
| No. Child Groups                                                                                                                                                                                                    | One Child    | 3.55±1.74 | [NS] °     |
|                                                                                                                                                                                                                     | 2-4 Child    | 3.24±1.64 |            |
|                                                                                                                                                                                                                     | 5-9 Child    | 2.85±1.28 |            |
| ANOVA test (°) & T-test( °°), the significant results of knowledge score according to baseline characteristics of Mother's, (%), p<0.05 considered significantly different, [S]= Significant, [NS]= Non significant |              |           |            |



**Figure 2:** Represents Percentage of Knowledge Score by Demographics knowledge level

#### **4. Discussion**

According to mothers' beliefs about the cause of FC, fever episode was major causes of FC 154 from 160, these results agree with the study conducted in Saudi Arabia by (Alfhaid et al., 2020) where 53.7% of the participants they know that fever was the most prominent causes of FC. Also study done in Japan by (Sakai et al., 2009), and in Turkey by (Kayserili et al., 2008) and in Indonesia by (Syahida et al., 2016) Mothers believed that high fever caused febrile seizures but the study done in India by (Parmar et al., 2001) found that 77.9% parents did not know the fact that the convulsion can occur due to fever and in Libya by (Zeglam et al., 2010) reported only About 20% of mothers had heard or even observed seizures caused by fever. The mean knowledge score was 3.23 (SD 1.60) out of eleven points. Based on this score, 59.40% of mothers had poor knowledge of FC, 38.80% had fair knowledge, and only 1.90% reported their knowledge was good. These results agree with the study in Sudan by (Kheir et al., 2014), and in Nigeria by (Oche and Onankpa, 2013) and also this is almost consistent with the study done in Saudi Arabia by (AlZweihary et al., 2021). Contradicting these reports, a study conducted in Iraq done by (Shibeeb and Altufaily, 2019) and the study in Ghana done by (Wuni et al., 2021), and in Indonesia by (Syahida et al., 2016). The current study found a significant association between mothers' knowledge of FC and increased maternal educational level, which is directly related to mothers' knowledge of FC as reported by in Iraq by (Shibeeb and Altufaily, 2019), in Sudan by (Kheir et al., 2014) and in Nigeria by (Oche and Onankpa, 2013), the explanation for this finding that the educated women had better access to internet and books and they gained information during their studies. There was association between age of mothers and knowledge, the higher age groups had a good knowledge, this may be due to they had more experience than young age women. The result of the study done in Iraqi by (Shibeeb and Altufaily, 2019); (Eta and Gaelle, 2021), found that mothers age had a positive association with knowledge, which is in line with current study. Employed mothers also had better knowledge than housewives. There are several possible explanations for this finding, employed women may have better access to internet and books and they share their experiences with other women in the workplace compared to housewives. Also, we found mothers with high income had better knowledge than low income. There was association between residence and knowledge, urban areas had better knowledge than rural areas, these results were in line with study done by (Shibeeb and Altufaily, 2019). The study conducted in Iraq (Baghdad city) reported no significant association between knowledge and parental educational level, urban residence and employed mothers (Shneshil, 2021). Also study done at Riyadh, Saudi Arabia by (Almousa et al., 2023) revealed age, education, occupational status, residence, monthly income was discovered to be not significantly correlated with knowledge, which did not coincide with our study.

#### **5. Conclusions**

Based on the findings of the present study, it is concluded that: There was poor knowledge of mothers toward febrile convulsions. Better knowledge was associated with having higher mothers' educational level, advanced mothers age, employed mothers, high income, urban residence. negative beliefs are still persisted among mothers regarding febrile convulsion and those misconceptions can lead to take inappropriate or even harmful actions in an attempt to control the convulsions.

## 6. Ethical consideration

The study was approved by research ethical committee in University of Kerbala - College of Medicine and approval was taken from Karbala Health Directorate. Verbal consent was obtained from mothers of children with febrile convulsion who were assured that all data are confidential before conducting the survey, also the aim of study was explained for them.

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