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Nurses' Knowledge about Convulsions among Children:A Cross- Sectional Study

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Abstract

Background: febrile convulsion is a seizure accompanied by fever in a child over the age of one month who has a central nervous system or a cut infection electrolyte imbalance and has not been notified. It infects around three to four percent of children under the age of six.

Objective: The objective of the study is to identify level nurses knowledge regarding pediatric convulsions

Methodology: A descriptive cross-sectional study design was used to achieve the early stated objectives, non- probability sampling (purposive) selected 212 nurses in maternity and children's teaching hospital in the al-diwaniyah city, ıraq during the period (September 28th , 2024 to may 20th , 2025). Data was collected using a self-report questionnaire with two parts: The demographic data form (gender, age, and education level , years of experience in nursing, years of experience in pediatric and a training course for the convulsions among children) and questionnaire consist 38 multiple-choice about convulsions .

Results: The study included 212 nurses who participated, with the majority of the sample reporting a poor level of oral health (42%), less than a third (29.7%) reporting an average level, and the remaining percentage (28.3) reporting knowledge of convulsions. Furthermore, a statistically significant relationship was discovered between level knowledge and educational level ($p = 0.042$) and years of experience in pediatrics ($p = 0.003$).

Conclusions: The researchers concludedThat nurses don't know enough about convulsions, and their degree of understanding is unsatisfactory.

Keywords: Nurses', Knowledge , Convulsions

Introduction

Convulsions that occur only in infants and children are known as febrile convulsions (FC). Usually occurring between the ages of 6 months and 6 years, FC is characterized by fever and lacks any indication of an intracranial infection or other known etiology. (1)

"A febrile convulsion in combination with a febrile disease in the absence of infections with the central nervous system or an acute electrolyte deficiency in children over a month of age without prior seizures with afebrile syndrome" is how the International League against Epilepsy (ILAE)

defined a febrile convulsion. are the most prevalent type of FC in children aged six months to five years, and extremely uncommon in those older than seven [2].

A general spasm that lasts less than 15 minutes and doesn't reoccur within 24 hours is called a simple febrile convulsion. Not Nerve issues or feverish illnesses are the causes. whereas one or more of the primary symptoms are caused by complex febrile convulsions. Within 24 hours, the symptoms, which include a spasm in one arm or leg lasting longer than 15 minutes, resulted in neurological abnormalities, such as paresis in Patient [3].

Although the exact cause of febrile convulsions is unknown, it is hypothesized that FC is an age-dependent reaction of the developing brain to fever because research in animal models has demonstrated that neuronal excitability increases as brain development progresses. The majority (65–85%) of febrile convulsions occur between the ages of six months and three years, with the largest incidence occurring in 18 months [4].

Even though febrile convulsions in children are frequently observed and have a favorable prognosis, they can also be extremely frightening and cause emotional trauma and anxiety in families. Parents are often shocked and think their child may die as a result of the convulsions. The researchers emphasize that steps must be done to teach nurses about febrile convulsions since nurses may not be aware of or willing to administer first aid to children experiencing seizures [5].

One of the most prevalent forms of febrile convulsions is simple convulsion. Ninety percent of these causes are uncomplicated febrile convulsions, which are more common in young children (under five years old) than in other age groups due to their physiological makeup. In the pediatric emergency room, nurses are crucial to the treatment of children who are convulsing and feverish [6].

However, little is known about the mechanism underlying febrile convulsions, which are typically thought to be brought on by metabolic changes that occur during the rising phase of body temperature. The brain's N-Methyl-D-aspartate (NMDA) receptors, which are believed to belong to the glutamate family of receptors and may play a key role in the generation of epileptic discharge, are activated by this hypozincemia. It has been established that glutamate, the primary excitatory transmitter found in both the brain and the spinal cord, is responsible for 75% of excitatory transmission in the brain [7].

In Iraq, febrile convulsions are reported by 77% of newborns and children under five; febrile convulsions may result from approximately 5% of feverish diseases. The ambulatory nurse should observe the seizure to observe its duration and behavior. It is important to monitor breathing and airways during this period since respiratory distress and cyanosis can occur. During this time, oxygen, suctioning, and CPR equipment should be accessible. Depending on the local hospital's procedures, diazepam can be administered intravenously or rectally to stop the seizure if IV access is already available [8].

Additionally, previous studies showed that nurses' care of children with febrile convulsions is insufficient. More than half of the nurses who were examined had poor practices in relation to convulsion situations, whereas the majority had generally acceptable practices [9]. This in-depth

research experience has led us to investigate nurses' awareness of febrile convulsions in the Al-Diwaniyah City, Iraq. Assessing level nurses' understanding of pediatric convulsions is the aim of this investigation.

Methodology

A descriptive cross-sectional study design was used to achieve the early stated objectives. A study was carried out in at Maternity and Children's Teaching Hospital in the Al-Diwaniyah City, Iraq. The study was conducted for the period from (September 28th , 2024 to may 20th , 2025).

A total of 212 nurses engaged in the study. They are chosen by non- probability sampling (purposive). The sample size was calculated using the formula established by Steven K. Thompson (2012) [10]. To determine the effect of sample size on population size.

$n = Nxp(1 - p) / [[N - 1x(d^2 \div z^2)] + p(1 - p)]$.

Where: n: Sample size (212),

N: Population size (475),

Z: Confidence level at 95% (1.96),

d: Margin of error (0.05),

p: Probability (50%).

There were 475 nurses in the Maternity and Children's Teaching Hospital in Al-Diwaniyah City who made up the research population. A sample size of 212 nurses is obtained by applying the formula to this number. The questionnaire format was distributed to the study sample by the researcher. The sample of 212 nurses was created using the following criteria:

Criteria for Inclusion in the Study

• Nurses working in pediatric units.

• Nurses working morning, evening and night shifts.

Criteria for Exclusion from the Study

• Nurses less than one year's experience

• Nurses who participated in the preliminary implementation of the study

• Nurses who did not complete the survey and did not agree to participate in the study

The study instrument is a questionnaire designed according to the study objectives . The questionnaire has been designed by the researchers after reviewing related literatures and previous studies. the researchers used questionnaire by Aneed (2020) regarding Procedure Nursing Care on Febrile Convulsions Patient . It consists of two parts, including:

Part I: Demographic Data Form:

A personal information form consisting of six questions examining participants' characteristics such as gender, age, and education level , Years of Experience in nursing, Years of Experience in pediatric and a training course for the convulsions among children)

Part II: Nurses Knowledge regarding Pediatric Convulsions:

Through the researchers review of the study conducted by Aneed (2022) [11], related to an Procedure Nursing Care on Febrile Convulsions Patient . This part is comprised a total of 38 questions, all of which were in the format of multiple-choice divided into 4 Domain:

First domain : Contains general Information about febrile convulsions, consisting of 5 questions.
Second domain: consisting of 10 questions about What can you do during a febrile seizure?.
Third domain: Consisting of 9 questions regarding How should you deal with the family if the child has a febrile convulsion?.
Fourth domain: consisting of 14 questions about What is the reason behind warm application (cold or hot compresses)?.
Before the research, the survey form was applied by the researcher to 20 pediatric nurses working in RCU, and it was observed that the survey was understandable in its current form and was sufficient for the data intended to be collected in the research, and it was decided to use the survey form in this form.
In this study, each nurse's level of knowledge was assessed using the number of right responses. Correct answers received a value of (2), but incorrect responses received a grade of (1). This knowledge test lasted roughly 15 to 25 minutes.
The data was collected between 12th November, 2024 to 2nd January 2025 under the supervision of the researcher in rooms suitable for filling out the survey on the specified days. The SPSS (Statistical Package of Social Sciences) version 25, was used to analyze the collected data of the study.

Administrative Arrangements and Ethical Considerations

After receiving ethical approval for the conduct of the study the researcher completed the study, including the aims and methodology (survey) of the study. and then the permission was sent to Maternity and Children's Teaching Hospital in The Al-Diwaniyah City to ensure agreement and cooperation .
The researcher acquired all nurses' verbal informed consent. The researchers explained the goal of the study to the participants before they participated, and they were informed that their participation in this study was optional and that they might withdraw at any moment.

The results of the Study.

Table 1: Distribution of the nurse by their demographic characteristics (n=212)

Demographic Data	Rating and Intervals	Frequency	Percent
Age	20-30	111	52.4
	31-40	63	29.7
	41-50	32	15.1
	50 and more	6	2.8
	Total	**212**	**100.0**
Gender	Male	68	32.1
	Female	144	67.9
	Total	**212**	**100.0**
Educational Level	Secondary School of Nursing	21	9.9
	Diploma in Nursing	83	39.2
	Bachelor's in Nursing	103	48.6
	Master and above	5	2.4

	Total	**212**	**100.0**
Years of Experience in nursing	Less than 1	48	22.6
	2-5	56	26.4
	6-10	96	45.3
	More than 10	12	5.7
	Total	**212**	**100.0**
Years of Experience in pediatric	Less than 1	96	45.3
	2-5	80	37.7
	6-10	36	17.0
	More than 10	0	0
	Total	**212**	**100.0**
a training course for the convulsions among children	Yes	148	69.8
	No	64	30.2
	Total	**212**	**100.0**

% = Percent; Freq.= Frequency

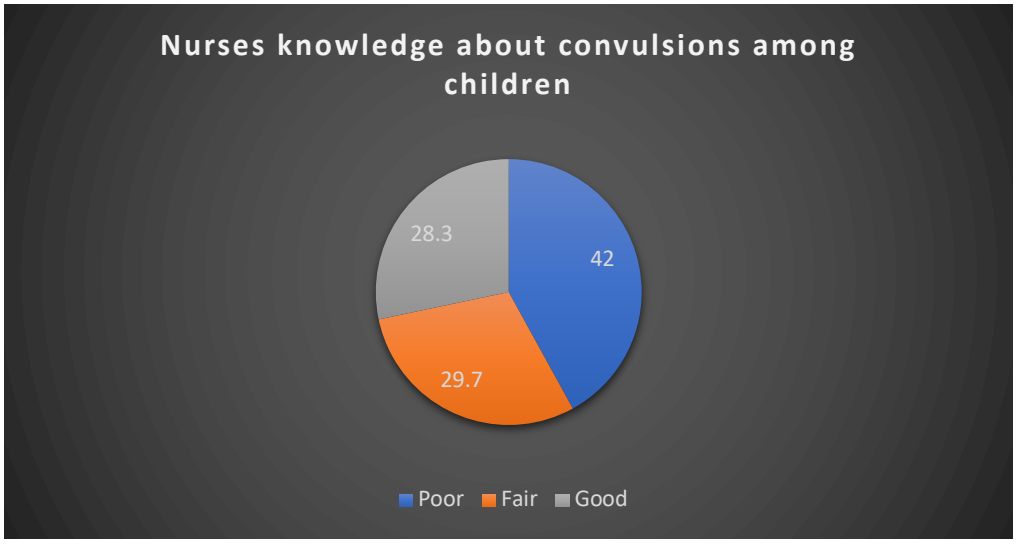

Figure 1: Overall Assessment of Nurses knowledge about convulsions among children

Table 2: The relationship between the overall nurses knowledge about convulsions among children and their demographic data.

Demographic Data	Chi-Square Value	D.F.	P-Value
Age/Years	4.682	6	.585
Gender	.616	2	.735
Educational level	5.0181	6	.042
Years of Experience in nursing	9.583	6	.143
Years of Experience in pediatric	16.196	4	.003
a training course for the convulsions among children	1.701	2	.427

DISCUSSION

According to the results attached in Table 2 regarding the overall assessment of nurses' understanding of pediatric convulsions., out of 212 nurses who participated in research, most of the sample reported a poor level regarding convulsions (42%), while less than a third (29.7%) reported an fair level and the remaining percentage (20.83) of those who good knowledge about convulsions.

The findings of this study show that nurses have a troubling degree of knowledge on the management of convulsions in children. The findings suggest that 42% of nurses had a low level of understanding, which is a considerable number. This shows a crucial knowledge gap, which may have a direct impact on the quality of care delivered to juvenile patients undergoing convulsions.These findings highlight the necessity of ongoing training programs, workshops, and refresher courses designed to enhance nurses' knowledge and competencies in pediatric emergency care. Enhancing nurses' understanding of convulsions, their origins, symptoms, and management options should improve patient outcomes and prevent potential difficulties in clinical practice.

The results of this study are agreement with study conducted by (Won-Oak et al. 2021) [(12)] conducted in Korean to evaluate nursing staffs' behaviors regarding care of children experiencing febrile convulsions supports this finding. Most nurses have poor practice during the pre-test.

Also , This study is consistent with a study conducted in Egypt [(13)] , where the results showed that nurses' knowledge was insufficient, with a percentage of 41.7%.

These findings contradicted the findings of Taha et al. (2016) [(14)], who investigated the evaluation of nursing care provided to infants with convulsions and discovered that 56.5% of the nurses surveyed had a good knowledge score, 24.2% had a fair knowledge score, and 19.4% had a poor knowledge score. From the researcher's perspective, these findings may be attributed to the relationship between sociodemographic features of the investigated nurses and their expertise.

The finding of this study show reveals that there is a significant association between Overall Assessment of Nurses knowledge about convulsions among children and their (Educational level & Years of Experience in pediatric) at p-value <0.05 while there is a non- significant relationship with other demographic characteristics at p-value <0.05.

The results of this study are consistent with the study conducted by (Aneed, S. H. et al. 2020) [(11)] that state that there is non-significant link among knowledge of nurses with their demographic features at ($p > 0.05$), except their gender and years of experience in the domain of pediatric nursing revealed significant differences in their knowledge, While the results are not consistent with the results of this study regarding educational level and gender.

Also, study result agreement with study conducted by (Hussein & Hatab. 2023) [15] that mention Statistical significant associations between the level of practice and the education level p value 0.05. While no statistical significant associations between level of practice and followings independent variable (age groups, gender, marital status, residency, experience years in general hospital and experience years in the emergency department), while are not consist with this study about years of experience in pediatric.

According to the researcher, nurses' lack of experience treating febrile convulsions may be due to a number of factors, including their incapacity to remember, update, and improve information about febrile convulsions, their failure to continuously develop and update their practice, and the fact that most nurses work long hours in healthcare facilities, which prohibits them from using evidence-based practice. The results of this study are consistent by study conducted (Ahmed et al., 2017) [16]. Their findings showed that the educational level of nurses had a significant association with practice about children with febrile convulsion.To summarize, comprehensive nursing intervention has a considerable application effect and value for children with febrile convulsions, as well as a high promotion value in terms of disease treatment and nursing satisfaction.

Conclusions:

Pediatric nurses have moderate knowledge of all aspects of pediatric convulsions. This study demonstrated a substantial correlation between nurses' general knowledge levels and (Educational level , Years of Experience in pediatric) at ($p<0.05$).This distribution emphasizes how important it is to provide focused educational interventions and ongoing training initiatives to improve nurses' proficiency in treating pediatric convulsions. To provide improved results for pediatric patients undergoing convulsions, nurses' understanding in this area must be strengthened.

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