Original Article

Structured Educational Program for Mothers: Addressing Febrile Seizures and Associated Stress

Asima Bibi, Madiha Mukhtar and Sarfraz Masih

ABSTRACT

Objective: To assess and enhance structured educational program for mothers and reducing stress regarding febrile seizures before and after implementation of structured educational program.

Study Design: Quasi experimental study

Place and Duration of Study: This study was conducted at the Medical Department, Children Hospital Lahore from 1st June 2025 to 30th November 2025.

Methods: Eighty two mothers of children with febrile seizures, aged 6 months to 6 years were enrolled. A structured close ended questionnaire was used to evaluate the pre-post data that contained 20 knowledge questions statements and 18 items practice based statements and stress related 18 statements containing Likert scale were used to assess the level of knowledge, practices and stress of mothers before and after guidelines-based educational intervention.

Results: The mean knowledge percentage score was 48±4.46 and the mean practice percentage score was 50±4.42, indicating poor baseline knowledge and practices. After the educational intervention, the mean knowledge score increased to 60±4.01 and the practice score increased to 64±3.75. At follow-up, knowledge and practice scores remained improved at 58±4.12 and 62±3.89, respectively. Parental stress decreased from 57±4.17 before the intervention to 46±4.49 after the intervention and 45±4.51 at follow-up. These changes were statistically significant ($p = 0.001$).

Conclusion: Structured intervention was highly effective in enhancing knowledge and practices of mothers while reducing stress among mothers of children with febrile seizures.

Key Words: Febrile seizures, Knowledge, Practice, Stress, Management

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INTRODUCTION

Febrile seizures are common childhood seizures associated with fever and no underlying intracranial infection or prior afebrile seizures.[1] The symptoms are primarily seen in children between 6 months and 5 years of age; prevalence rates are approximately 2-5% worldwide, but vary by region. They are the most common reason for pediatric hospitalization in Pakistan, and are most likely to occur in children under 3 years of age, particularly 6-12 months of age, and usually resolve over a few minutes.[2] Although febrile seizures are generally harmless, they cause a great deal of stress and anxiety for both the caregivers and especially the mother.[3]

Lahore School of Nursing, University of Lahore.

Correspondence: Asima Bibi, MSN Scholar, Lahore School of Nursing, University of Lahore.
Contact No: 0304 7606833
Email: asmanazeer390@gmail.com

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It is well documented that parents are frightened by febrile seizures and over 90% of parents have reported a high level of fear during febrile seizures.[4] This lack of confidence is often due to lack of knowledge and misconceptions about serious consequences that result in unsafe first aid practices and unnecessary delays in medical treatment.[5]

Ongoing caregiver worry can also impact the response to subsequent outbreak(s). While effective home management, including the recognition of a fever and how to manage it, as well as the knowledge of when to seek medical attention, is crucial, there is significant knowledge gaps as many parents have limited knowledge of the signs of fever and how to recognise it, as well as suitable first-aid.[6] Education is key in bridging the gap in knowledge that caregivers have about febrile seizures. Specific instructions to mothers as primary caregivers boost confidence, improve initial management of seizures, and minimize long-term psychological distress.[7] The interventions have demonstrated benefits for family well-being, a decrease in unnecessary hospitalizations and unnecessary healthcare expenses caused by suboptimal family care, an improvement in caregiver responses, and decreased anxiety.[8-10] More especially this study is relevant in Pakistan, where parents' poor knowledge is leading to

unnecessary hospital visits, delay in seeking care, and higher levels of emotional stress.[11] There is evidence that informed caregivers are better prepared to respond to seizures, keeping them safe and cool, and obtaining prompt medical attention, and that they experience less anxiety and better coping during seizures.[12,13] International research also confirms that formal education has a great impact on parental knowledge, stress levels and safer management practices.[14,15] Hence, the purpose of this study is to improve maternal knowledge and decrease maternal stress by providing a structured education program about febrile seizure management and the psychological impact of febrile seizures.

METHODS

This quasi-experimental single group pre-test and post-test study was conducted at Department of Pediatrics at Children's Hospital Lahore from 1st June to 30th November 2025 vide letter No. UOL/IREB/25/09/003 dated 30.06.2025. Eighty two mothers of children aged 6 months to 6 years who were admitted with febrile seizures were enrolled. Those mothers who were the main caregivers of the child, lived within the study area defined, or registered at the participating healthcare facilities, were willing to give informed consent, could understand the educational content and were able to attend the educational sessions and follow up assessments were included. Those mothers who were not the primary caregivers, lacked previous specialized training or knowledge about management of febrile seizures, and who had children with chronic neurological disorders, severe systemic illnesses, developmental disabilities, or other significant medical conditions that could affect participation were excluded. Structured demographic questionnaire and standardized assessment instruments measuring mothers' knowledge, home management practices and stress concerning febrile seizures were used to gather baseline information. Demographic data, including the maternal age, level of education, occupation, socioeconomic status, family type, previous history of febrile seizures, and clinical data related to the child, was collected in the demographic questionnaire.

A 20 item close-ended questionnaire was used to check the knowledge of mothers about febrile seizures. All correct answers received a mark of 1 and all incorrect answers received a mark of 0, thus giving a total mark of 0-20. The knowledge scores were classified as poor (0-7), moderate (8-13) and good (14-20). An 18 item questionnaire with dichotomous responses (Yes = 1, No = 0) was used to evaluate home management practices. The range of total practice scores was 0 to 18 with poor (0-9), moderate (10-13) and good (>13). The Parental Stress Scale (18 items, 5 point Likert scale) was used to assess parental stress. Stress levels were categorized as low (18–39), moderate (40–59), and high (60–90). The structured educational program consisted of content on the causes, symptoms, management of fever, first aid for seizures, when to seek medical help, preventing complications of a seizure and coping psychologically as a caregiver. Lectures, discussion, demonstrations and distribution of informational material were used to conduct educational sessions. The study instruments were also validated based on the content, the Content Validity Index (CVI) of the instruments of knowledge, practice and stress were 0.82, 0.84 and 0.81 respectively. The instruments were found to have good internal consistency in reliability testing. Data was inputted and analysed within SPSS version 26. Paired t-test was used to compare the mean knowledge and practice and stress scores before and after the intervention. The $p \leq 0.05$ was considered statistically significant.

RESULTS

Most mothers were aged 25-35 years (63.4%), and all participants were female, as the study included mothers only.

Table No. 1: Distribution of demographic variables (n=82)

Variable	No.	%
Mothers' age (years)		
18-24	21	25.6
25-35	52	63.4
> 35	9	11.0
Education		
Illiterate	27	32.9
Primary	16	19.5
Middle	16	19.5
High	13	15.9
Intermediate/above	10	12.2
Number of children		
One	22	26.8
Two	26	31.7
Three or more	34	41.5
Child's age		
6 months to 2 years	45	54.9
3–5 years	37	45.1
Residence		
Rural	37	45.1
Urban	36	43.9
Semi-urban	9	11.0
Occupation		
Homemaker	44	53.7
Daily wage worker	10	12.2
Salaried employee	17	20.7
Self-employed	11	13.4
Family type		
Joint	58	70.7
Nuclear	24	29.3

About one-third was illiterate 32.9%, while the remaining participants had education ranging from

primary to intermediate/above. Regarding family and living characteristics, 41.5% had three or more children, and more than half of the children were aged 6 months to 2 years (54.9%). Residence was nearly equally distributed between rural (45.1%) and urban (43.9%) areas. Most mothers were homemakers (53.7%) and lived in joint family systems (70.7%) [Table 1]..

The mean knowledge percentage score increased from 48±4.46 before the intervention to 60±4.01 after the intervention and remained improved at follow-up 58±4.12. Similarly, the mean practice percentage score improved from 50±4.42 before the intervention to 64±3.75 after the intervention and was sustained at follow-up 62±3.89. The improvements in both knowledge and practices were statistically significant (p=0.001), indicating the effectiveness of the structured educational intervention (Table 2).

Mothers had a moderate level of stress before the intervention, with a mean score of 57±4.17. After the educational program, the mean stress score decreased to 46±4.49 and remained reduced at follow-up 45±4.51. This indicates a sustained reduction in parental stress after the structured educational intervention (Table 3).

Table No. 2: Comparison of pre-, post- and follow-up percentage scores of mothers' knowledge and practices regarding febrile seizures

Variable	Pre-intervention percentage score	Post-intervention percentage score	Follow-up percentage score	t-test	p-value
Knowledge	48±4.46	60±4.01	58±4.12	18.10	0.001
Practice	50±4.42	64±3.75	62±3.89	30.73	0.001

Table No. 3: Mean parental stress scores across three time points regarding febrile seizure management (n = 82)

Measurement time	Mean±SD	Stress category
Pre-intervention	57±4.17	Moderate stress
Post-intervention	46±4.49	Moderate stress
Follow-up	45±4.51	Moderate stress

DISCUSSION

This quasi-experimental study aimed to assess and improve mothers' knowledge of febrile seizures across pre-intervention, post-intervention, and follow-up phases. Prior to the intervention, 58% of participants had poor knowledge. The educational intervention increased good knowledge to 73% and 71% of participants at follow-up which was statistically significant (p<0.05). This is consistent with studies demonstrating comparable impact of specific learning on knowledge, attitudes, and practices of parents of febrile seizures.[16] Misconceptions like febrile seizures being equally epilepsy, always needing anticonvulsants or causing brain damage were significantly reduced post intervention, consistent with what is found in the literature; that misconceptions are common among uneducated parents.[17] Follow-up assessments showed sustained improvement in knowledge, indicating that correcting misconceptions and providing evidence-based education leads to lasting retention over time.[18] Mothers frequently misunderstand febrile seizures, often conflating them with epilepsy or believing they cause brain damage. In Saudi Arabia, recent study found that 73.3% of parents incorrectly believed febrile seizures are a form of epilepsy.[19] This is also observed globally surveys that inadequate parental knowledge and high levels of concern are common and contribute to fear and inappropriate first-aid responses.[20]

Interventions such as structured educational sessions, pamphlets, or empowerment programs significantly improve parental knowledge, attitudes, and practices. This study aligns with a clinical trial showed significant increased knowledge, attitude, and practice scores one month after structured educational sessions compared to controls.[21] Another quasi-experimental study is consistent with it that empowerment programs significantly (p<.001) elevated knowledge and home management practices.[18] Health education also improves parents' confidence and attitude toward emergency handling of febrile seizures.[22]

In the present study, before the intervention, a majority of participants demonstrated poor home management practices. Only 17 participants exhibited moderate practices, while 15 participants (18%) demonstrated good practices. This indicates that the overall level of home management was relatively low prior to the intervention. Following the intervention, there was a marked improvement in home management practices. There was a significant rise in the number of participants that reported having good practices: 64 (78%) compared to 10 (12%) for poor practices. Slightly less of those with moderate practices, 8 (10%), increased. The findings indicate that the intervention had a positive impact on the improvement of home management behaviors. Of the 62 participants (76%) who followed good practices at follow-up, there was evidence of continued improvements with time. The short-term intervention benefits are consistent with previous studies that have found education that is targeted to reduce febrile seizures to be effective in

improving caregiver knowledge and home management.[18] The high response rates at follow-up indicate that parents remembered important points about recognising fever, effective management and not performing harmful practices like shaking or mouth-to-mouth resuscitation. The results are also consistent with previous studies that have reported that structured maternal education has a significant effect on knowledge, attitude and practice about febrile seizure prevention and care.[17] Although this study demonstrates improvement of knowledge across populations, recent studies have shown that there remain significant parent misconceptions and concerns about febrile seizures, and that additional education and reinforcement strategies are needed.[23]

Similarly, many mothers monitor fever and have access to thermometers, misunderstandings about seizure management remain reinforcing that basic informational interventions can reduce 'fever phobia' and unsafe practices in community settings.[1] The study results are consistent with international evidence demonstrating that educational and psychosocial interventions significantly reduce parental stress in cases of febrile seizures.[23] A study by Simbolon et al[24] reported high levels of anxiety among parents of children with febrile seizures, primarily due to inadequate knowledge and fear of epilepsy. The current study extends this literature by demonstrating that a structured intervention can effectively reduce parental stress and improve long-term coping.

CONCLUSION

The structured educational interventional program had an encouraging effect on improving the knowledge, practices and maternal stress scores of mothers regarding Febrile Seizures management. The structured intervention was highly effective in reducing stress among mothers of children with febrile seizures. Stress levels significantly decreased from pre-intervention to post-intervention and remained stable (moderate stress) at follow-up. These findings emphasize the importance of parental education and psychosocial support in managing febrile seizures and highlight the vital role of nurses in delivering family-centered care.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Asima Bibi, Madiha Mukhtar
Drafting or Revising Critically:	Asima Bibi, Sarfraz Masih
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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