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Assessing Mothers' Knowledge, Attitudes and Practices on Management of Febrile Convulsions in Children Under Five Years in Manna Mission Hospital and Designing Targeted Educational Interventions to Address Identified Gaps

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Abstract

Febrile convulsions are the most common paroxysmal events in childhood and are a leading cause of emergency visits, frequently provoking fear, distress, and harmful home practices among caregivers. This study assessed mothers' knowledge, attitudes, and practices regarding home management of febrile convulsions in under-five children at Manna Mission Hospital and identified gaps to inform targeted educational interventions. A descriptive cross-sectional hospital-based study was conducted among 100 mothers who's under-five children were admitted with a diagnosis of febrile convulsion between 1 July and 31 August 2022. Data were collected using a structured interviewer-administered questionnaire and analyzed with SPSS version 23 using descriptive statistics. Most participants were aged 20–39 years, and 70% had heard of febrile convulsions and believed they could be managed. Overall, mothers demonstrated generally adequate knowledge and predominantly positive attitudes; 92% agreed that febrile convulsions are a serious condition and 81% rated prescribed medications as very beneficial. In addition, 60% strongly agreed that every febrile child should be taken to a hospital. However, despite this favorable knowledge and attitude profile, 70% provided medically incorrect responses regarding specific home management actions, indicating substantial gaps in practical skills and reliance on inappropriate or potentially harmful practices. These findings reveal a critical knowledge–practice disconnect and underscore the need for structured, context-appropriate, nurse-led educational interventions focused on safe home recognition and first-line management of febrile convulsions. Implementing and evaluating such interventions in Hospital could reduce preventable complications and improve child health outcomes in this vulnerable population.

Keywords: Febrile convulsion; Knowledge; Children under five years; Mothers Attitude; Practices; Febrile Management.

1. INTRODUCTION

Febrile convulsions are the most common seizure disorder in early childhood and affect a substantial proportion of children under five years worldwide (Abd *et al.,* 2024; Elewa *et al.,* 2025). Although febrile seizures are generally benign from a neurological standpoint, their sudden onset, dramatic motor manifestations, and potential for recurrence make them a leading cause of paediatric emergency visits and a major source of fear, anxiety, and perceived helplessness among caregivers, particularly mothers (Ali *et al.,* 2025; Eilbert & Chan, 2022). Fever itself remains one of the most frequent reasons for paediatric consultations, and mothers can amplify distress and drive both inappropriate home responses and unnecessary health care utilization (Kausar *et al.,* 2020a).

Clinically, febrile convulsions are defined as seizures occurring in children aged 6 to 59 months in association with a temperature above 38 °C, in the absence of intracranial infection, metabolic disturbance, or prior afebrile seizures (Kausar *et al.,* 2020b; Westin & Levander, 2018). They are typically classified as simple or complex, with the latter associated with longer duration, focal features, or recurrence within 24 hours, and a higher risk of subsequent epilepsy (Hautala *et al.,*

2021). Recent guideline updates emphasize that although simple febrile seizures carry low long-term morbidity and mortality, they require timely, appropriate first-aid and clear caregiver education to minimize complications such as aspiration, trauma, and inappropriate medication use (Besag *et al.,* 2005; Elewa *et al.,* 2025). In many low- and middle-income settings, including sub-Saharan Africa, childhood febrile illnesses and convulsions remain common, yet structured parent centered educational and support strategies are still limited (Alzweihary *et al.,* 2021; Wuni *et al.,* 2021).

Mothers are usually the primary caregivers for young children and therefore play a pivotal role in recognizing fever, initiating home management, and deciding when and how to seek professional care (Eilbert & Chan, 2022). However, multiple recent studies have documented substantial gaps in mothers' knowledge of febrile convulsions and frequent reliance on ineffective or harmful practices, such as inserting objects into the child's mouth, shaking or restraining the convulsing child, applying extreme temperature measures, and first consulting traditional remedies (Alan *et al.,* 2022; Eilbert & Chan, 2022; Veldandi *et al.,* 2022). Even when awareness of febrile convulsions is relatively high, mothers may hold misconceptions regarding causes, prognosis, and appropriate first-aid, leading to a marked discrepancy between knowledge and safe practice (Alawad *et al.,* 2024). Qualitative and quantitative research further shows that mothers of children who experience febrile convulsions report high levels of stress, anxiety, and feelings of incompetence, underscoring the psychological as well as clinical burden of this condition on families (Almousa *et al.,* 2023; Elewa *et al.,* 2025; Gunawan & Kari, 2008).

Evidence from recent interventional studies indicates that targeted, nurse led education or empowerment programs can significantly improve mothers' knowledge and home management practices for febrile convulsions, with large post-intervention gains in both correct first-aid responses and confidence in managing subsequent episodes (Alawwadh *et al.,* 2024; Bertille *et al.,* 2018). These programs typically combine tailored information on the benign nature and recurrence risk of febrile convulsions, recommended and non-recommended first-aid actions, and guidance on antipyretic use and timely health-care seeking, delivered through interactive, culturally adapted sessions(Alan *et al.,* 2022; Wuni *et al.,* 2021). Improvements in knowledge have been positively correlated with better reported practices, suggesting that well-designed educational interventions may offer a cost-effective avenue to reduce preventable complications and unnecessary emergency presentations. Nonetheless, recent reviews highlight that rigorously evaluated empowerment interventions remain scarce, and most available studies are concentrated in a limited number of countries, with little evidence from many African contexts (Assimamaw & Gonete, 2024; Eilbert & Chan, 2022; Sawires *et al.,* 2022).

In Ghana and comparable settings, the epidemiology of febrile illnesses, health-seeking patterns, and sociocultural beliefs about convulsions may critically shape mothers' responses to febrile convulsions, yet context-specific data on their knowledge, attitudes, and practices are limited (Wuni *et al.,* 2021). Building on global evidence that nurse-led educational and empowerment programs can strengthen caregiver competences in managing febrile convulsions, there is a need to generate local, hospital-based evidence to guide tailored interventions. Accordingly, this study aims to assess mothers' knowledge, attitudes, and practices regarding home management of febrile convulsions in children under five years at Manna Mission Hospital, and to use the identified gaps to inform the design of structured, context-appropriate, nursed educational interventions to support safer home care and improve child health outcomes.

2.0 MATERIAL AND METHODS

Study Area

This study was done in Manna Mission Hospital. It is in the Teshie district in the central part of the Greater Accra region some kilometers East of Lekma Hospital, the largest government hospital in the Teshie Nungua district. The facility serves the following areas of need, General medicine, General surgery, Pediatrics, Ear Nose and Throats, HIV testing and counseling, Ophthalmology, Obstetrics and Gynecology and Laboratory. This hospital was chosen since it is one of the few hospitals with a paediatric section, and many children with febrile convulsions appear there.

Study design

The study was a cross-sectional descriptive hospital-based that was carried out at the paediatric wall of Manna Mission Hospital. The study was cross-sectional because the population sample was examined at a single moment in time and there was no requirement for respondents to be followed up with at the conclusion of the study.

Study population

Mothers with children under five years who were admitted to the paediatric ward with the diagnosis of febrile convulsion who were available during the time of study.

Inclusion Criteria

Mothers with children under five years diagnosed with febrile convulsion on admission and who were willing to take part in the study and who speak Twi and English as these are the languages the researcher is fluent in, to avoid misunderstanding of data.

Exclusion Criteria

Mothers who had their children on admission but were not diagnosed with febrile convulsion. Furthermore, mothers whose children were not diagnosed with febrile convulsion but were under five years and lastly, mothers who refused to consent to take part in the study.

Sample size / Sampling Technique

A total of 100 mothers were sampled conveniently at the study facility for the study who had their children admitted with febrile convulsion. The study was conducted from first July 2022 to thirty first August 2022. All mothers whose children were admitted with the diagnosis of febrile convulsion during this period were informed to participate in the study.

Data collection Instrument

A structured questionnaire from various literature was modified and used to collect data from the mothers who had their children admitted at the pediatric ward at Manna Mission Hospital with the diagnosis of febrile convulsion. The questions were both closed-ended and open-ended to provide accurate reflection of knowledge, attitude, and practices of mothers on the management of febrile convulsion in children between the age of six months and five years. The questionnaire was designed, taking into consideration, relevant literature available and the study objectives. The tool was structured into sections; Section A: demographic characteristics of respondents which are made up of 7 questions; Section B: Knowledge of mothers on the management of febrile convulsion with 4 questions; Section C: Attitude of mothers on the management of febrile convulsion with 5 questions; Section D: Practices of mothers on the management of febrile convulsion with 4 questions.

Data collection Instrument

The study was conducted at the paediatric ward in Manna Mission Hospital, Teshie-Accra. The study was piloted using three mothers with children under five years whose children have been admitted and diagnosed with febrile convulsion. The goal of the study was to ensure precision and clarity of the question. Pretesting determines the strengths, weaknesses as well as possible threats of research questions and helps modifications of the instrument before it is used. The answered questionnaires were put in an envelope and were sealed. The research questions were modified ensuring clarity and precision before the main study.

Validity and reliability

To measure the accuracy and consistency of the questionnaire used, it was piloted at the Manna Mission Hospital using the same inclusion criteria among three mothers. This did not detect major variations in the questionnaire, and hence the original form was maintained. The questionnaire was designed to suit the objectives intended to be achieved. The questionnaire went through peer review among six experienced paediatric nurses to ensure content validity. Ambiguity, errors, and inconsistencies arising from the review were corrected to make it free from bias. To guarantee internal consistency of the study instrument, Cronbach´s alpha coefficient was conducted on the study instrument. The reliability of the instrument was applied to determine the extent to which items in the questionnaire were related to each other.

Data collection procedure

The data collection process began after obtaining approval from the administration of Manna Mission hospital and the nursing in- charge at the pediatric unit. The data collection commenced in July 2022 and ended in August 2022. Questionnaires were given to the respondents who met the inclusion criteria one-on-one in the ward after obtaining their informed consent. The objectives and the purpose of the study were thoroughly explained to the respondents in English and Twi. Respondents were informed about their willingness to withdraw from the study at any point since participation was voluntary. Mothers who could read and write were given the questionnaires which they answered and returned the complete questionnaires. Those who could not read and write were assisted in answering the questions by translating the information in the questionnaire into the language they understood. The answered questionnaires were cross-checked for completeness and consistency of the responses and were kept in a sealed envelope. Confidentiality was ensured by informing respondents that the data gathered was mainly for academic purposes and would not be used for any other research. Respondent's identities were protected using codes. There were two main sources of data collection, that is primary source whose source of data was from interview through questionnaires of the mothers in Manna Mission hospital and secondary data from Manna Mission hospital report.

Data analysis

The data collected were group according to the respondent knowledge, attitudes, and practices on the management of febrile convulsion in children under the age of five years at Manna Mission Hospital. The data was put into a Microsoft Excel spreadsheet and exported to SPSS version 23.0. tables, bar and Pie charts were used to display the data. Frequencies and percentages were used to convey numerical data and used to calculate mothers' knowledge, attitudes, and practices. The data was then evaluated, and conclusions were drawn. To protect privacy, each questionnaire was thoroughly reviewed for readability, errors, and any missing data. Further analysis of the data was carried out using statistical computer tools such as SPSS version 23 and Microsoft Excel which were used to create tables, pie charts, and percentages.

Ethical consideration

Informed verbal consent was obtained from the mothers participating in the study after the explanation of the purpose of the study to them. Participants were informed that they could willingly withdraw from the study at any time without facing any penalty. The anonymity, confidentiality and privacy of participants were protected, and the complete questionnaires were kept lock and key.

3.0 RESULTS

The main aim of the present investigation was to assess mothers' knowledge, attitudes and practices on management of febrile convulsions in children under five years in Manna Mission hospital and designing targeted educational interventions to address identified gaps. Accordingly, this section presents the results corresponding to this research objective.

3.1 Respondents' Demographic Characteristics of the 100 participants

As seen in Table 1, all responders (100%) are female, while 0% are male. In terms of age, the majority (40%) of participants were between the ages of 20-29 and 35% were between the ages of 30-39 and 5% were beyond the age of 50 and 20% were between 40-49 years of age

Table 1: Respondents' Demographic Characteristics of the 100 participants

Category Demographic Characteristics	Frequency	Percentage
Gender		
Male	0	0
Female	100	100
Age		
≤20 years	0	0
20 - 29 years	40	40
30 - 39 years	35	35
40 - 49 years	20	20
≥50 years	5	5
Marital status		
Single	20	20
Married	60	60
Widowed	8	8
Divorced	12	12
Education		
Tertiary / University	20	20
Secondary	45	45
Primary	35	35
Occupation		
Traders	40	40
Teacher	25	25
Businesswomen	20	20
Civil servant	15	15
Any other state	0	0
Number of children		
1-5	90	90
6-10	10	10
More than 10	0	0

According to the respondents' marital status, 60 % were married, 20% were single mothers, while 8% and 12 % were widowed and divorced mothers respectively. All participants had received some form of education, with 45% finishing at the secondary level, 35% at the primary level, and just 20 % at the tertiary level. Moreover, the statistics suggest that the majority (40%) of the respondents were traders, 20% were mothers owning their own small businesses, whereas 25% and 15% were teachers and civil servants respectively. In terms of the number of children of each respondent 90% of respondents had between one and five children, and 10% had between six and ten children.

3.2 Knowledge of mothers concerning Management of febrile convulsions

Figure 1(x, y) illustrates the knowledge of mothers on the management of febrile convulsions. When respondents were asked whether they were aware of febrile convulsions, 70 percent said that they were and 80 percent of them had the answer correct as shown in Fig 1y. Additionally, 70 percent of respondents answered that they are aware that febrile convulsions in children under the age of five can be managed as shown in Fig. 1x.

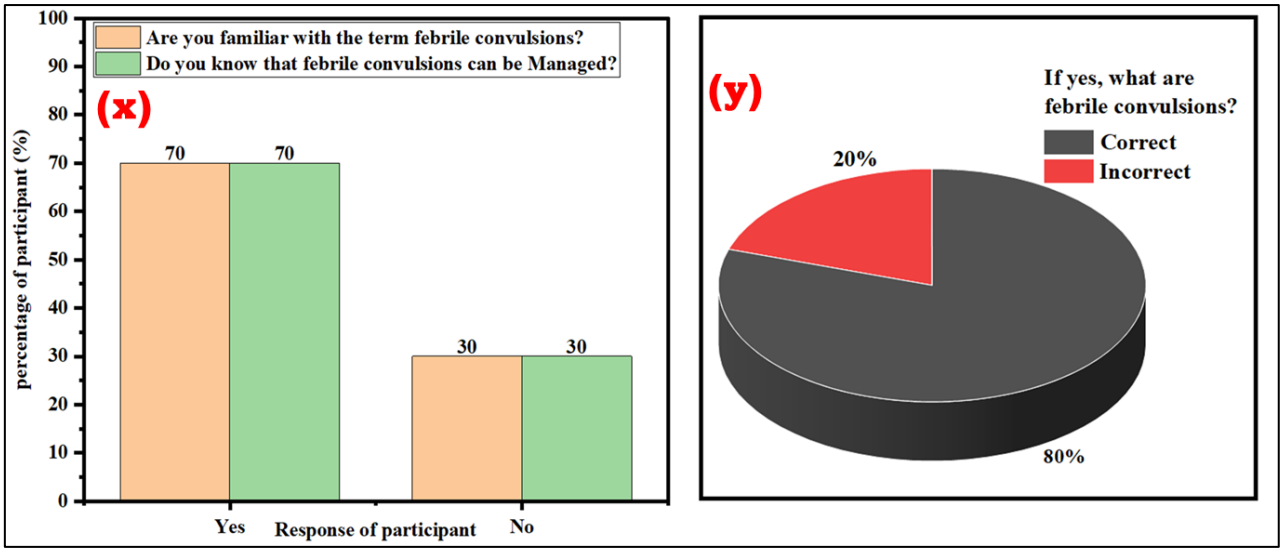

Fig. 1: (x) A plot of response of the knowledge of mothers on the management of febrile convulsions on various questions (y) a pie chart plot of response of the knowledge of mothers on the definition of febrile convulsion

Furthermore, the respondents were presented with a series of questions on febrile convulsions such as whether febrile convulsions are a complication of fever and were asked to reply true or false as depicted in Fig.2 85 percent responded that febrile convulsions are a complication of fever. Regarding the cause of febrile convulsions, 75 percent of respondents agreed that fever is caused by illness, medications, and changes in the weather, while 60 percent said that witchcraft is not the primary cause of fever in children. Regarding fever problems, 35 percent of respondents believed that brain damage, dehydration, and death are not consequences of fever, whereas 65 percent thought that they are. Moreover, 82 percent of respondents agreed that contemporary drugs may minimize febrile convulsions, and 93 percent agreed that temperature can be measured by touching the patient's skin or by using a thermometer. From the result of the findings, we can conclude that the respondents were more knowledgeable about febrile convulsions.

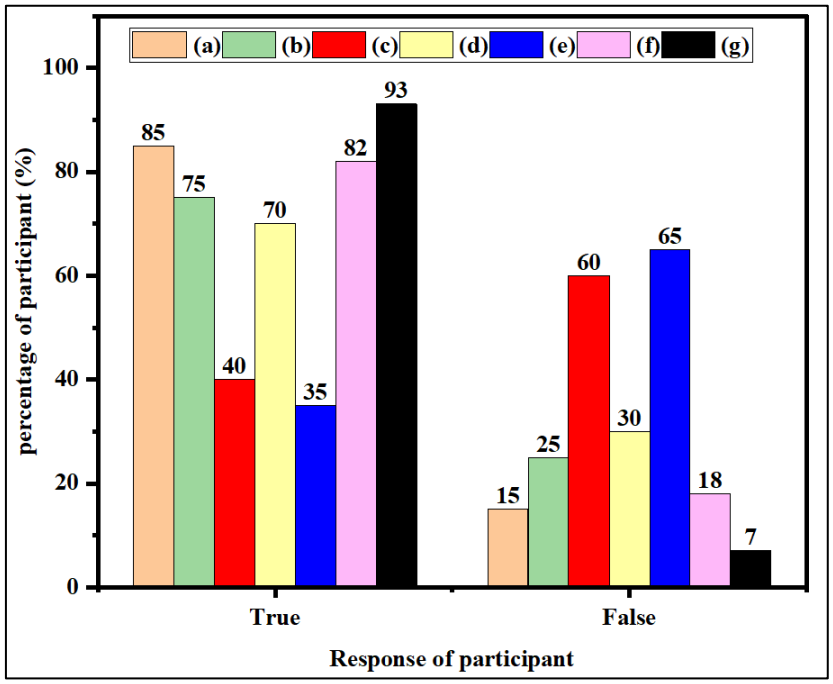

Fig. 2: A plot of response of mothers on (a) Febrile convulsions are a complication of fever (b) Fever is caused by infection, teething, drugs, and weather change (c) Witchcraft is the main cause of fever in children (d) Decreased appetite, restlessness, vomiting, irritability, and pain are the signs and symptoms of fever (e) Dehydration, brain damage, and death are not the complications of fever (f) Febrile convulsions can be managed using modern medicines and (g) Touching the patient's skin and using a thermometer are ways of measuring temperature

3.3 Attitude of mothers concerning Management of febrile convulsions

Fig. 3 (x, y) and Fig.4 Show the attitude of mothers on the management of febrile convulsions. As evidenced by the data in the figures, most respondents had a favorable attitude toward febrile convulsion management. The results in Fig. 3x indicate that 92 percent of respondents agreed that febrile convulsions are not good, 88 percent agreed that they should be managed, and 66 percent agreed to the notion that febrile convulsions can be caused by witchcraft. Moreover, the results in Fig.3y and Fig.4 depicts that 70 percent believed it is extremely risky for a child to develop febrile convulsions if fever is not adequately avoided, and 81 percent of respondents evaluated current medications as very beneficial in controlling febrile convulsions, whereas 10 percent said they were ineffective.

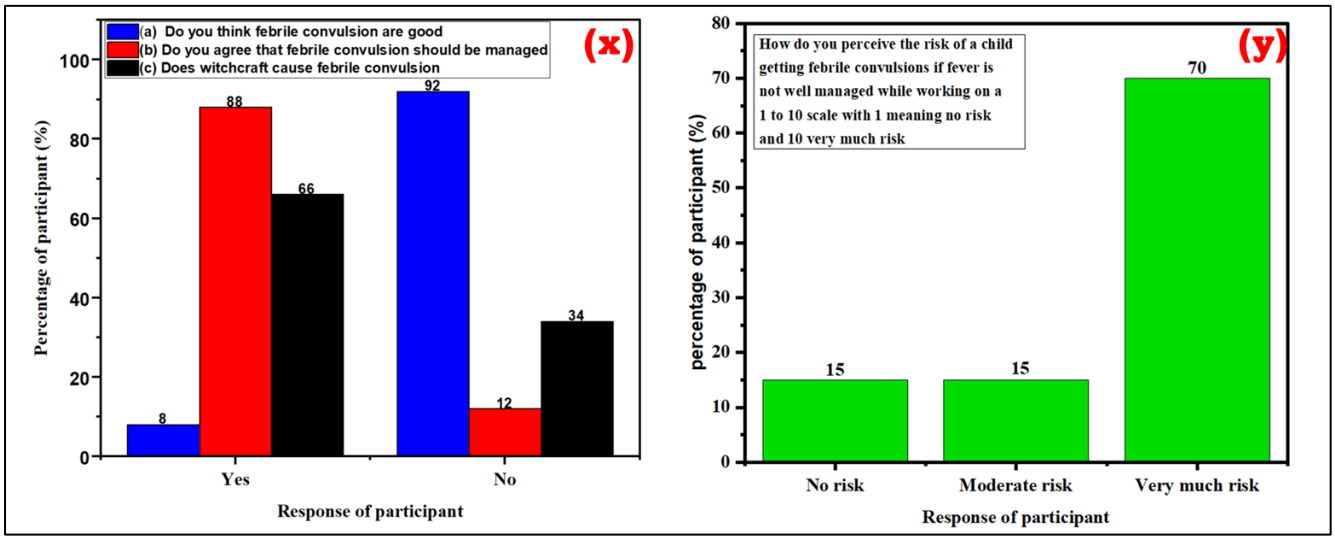

Fig. 3: (x) A plot of responses of the attitude of mothers on the management of febrile convulsions on various questions (a) Do you think febrile convulsions are good? (b) Do you agree that febrile convulsions should be managed (c) Does witchcraft cause febrile convulsion and (y) A plot of response of the attitude of mothers on the management of febrile convulsions on the question of how do you perceive the risk of a child getting febrile convulsions if fever is not well managed

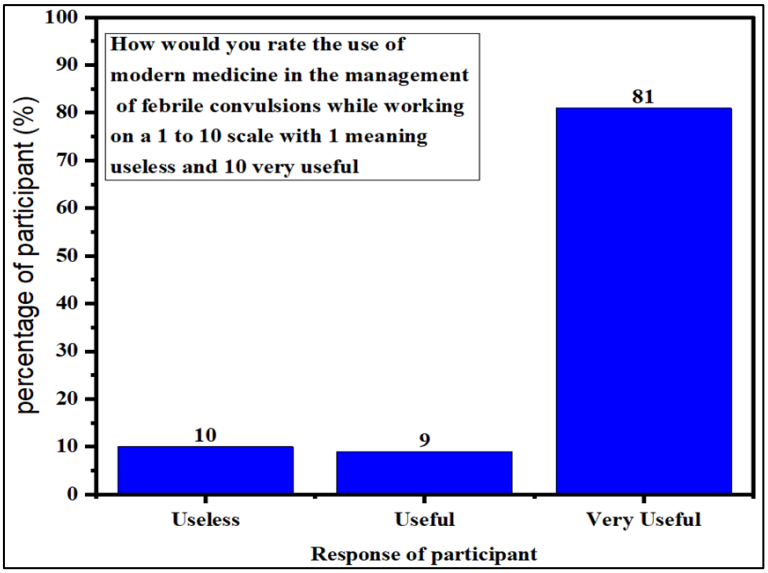

Fig. 4: A plot of response of the attitude of mothers on the management of febrile convulsions on how you would rate the use of modern medicine in the management of febrile convulsions

3.4. Practices of mothers towards the management of febrile convulsions

To identify the various practices of mothers in the management of febrile convulsion, questionnaires were used and the response of the participant are shown in Figures 5 (x, y). Figure 5x shows that 50 percent of respondents strongly disagree that witchdoctors do their best in management of febrile convulsion while 10 percent disagree. Furthermore, 60 percent of respondents strongly agreed that every child with a fever should be

sent to the hospital doctor, while just 5 percent disagreed as depicted in Fig. 5y with 20 percent agreeing to such practices and 15 percent strongly disagreed. Additional mothers were asked on their practice the use of traditional medicine in management of febrile convulsions and the result as depicted in Fig.6x shows that traditional medications do not help manage febrile convulsions, according to 45 percent of participants who strongly agree that traditional medicine does not help whereas 25 percent strongly disagree.

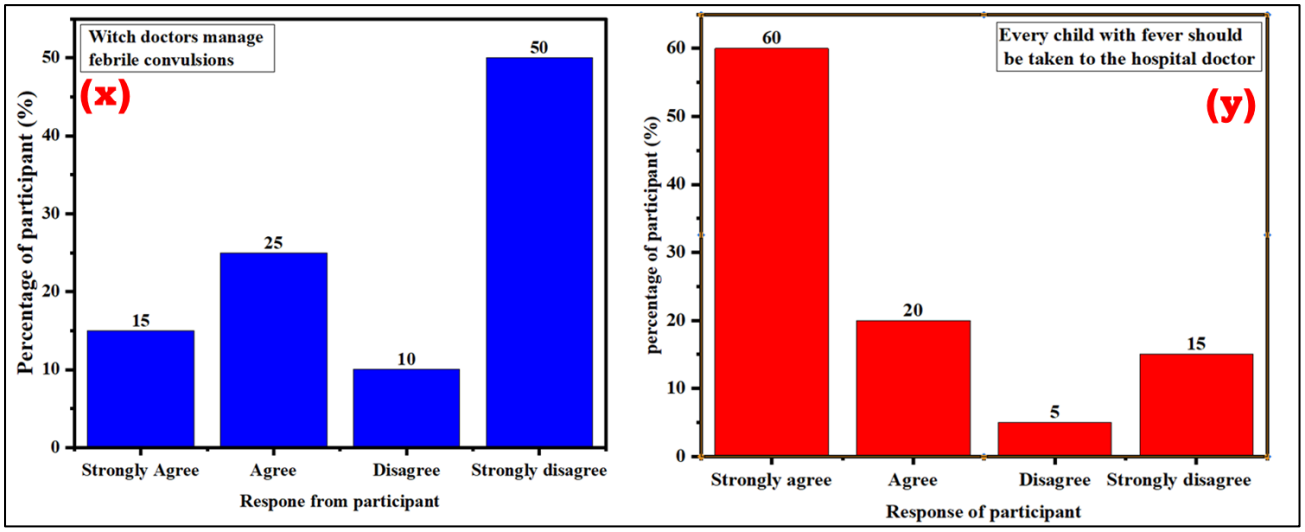

Fig. 5: (x) Practices response of mothers towards management of Febrile convulsions on whether witch doctors manage febrile convulsion and (y) Practices response of mothers towards management of Febrile convulsions on whether every child with a fever should be taken to a doctor in the hospital

Finally, when asked what should be done to manage febrile convulsions in children under the age of five, 70 percent of respondents gave medically incorrect responses, implying that they did not know what to do, while only 25 percent gave medically correct responses, implying that they did know what to do. 5 percent of those polled said they had no clue as shown in Fig.6y.

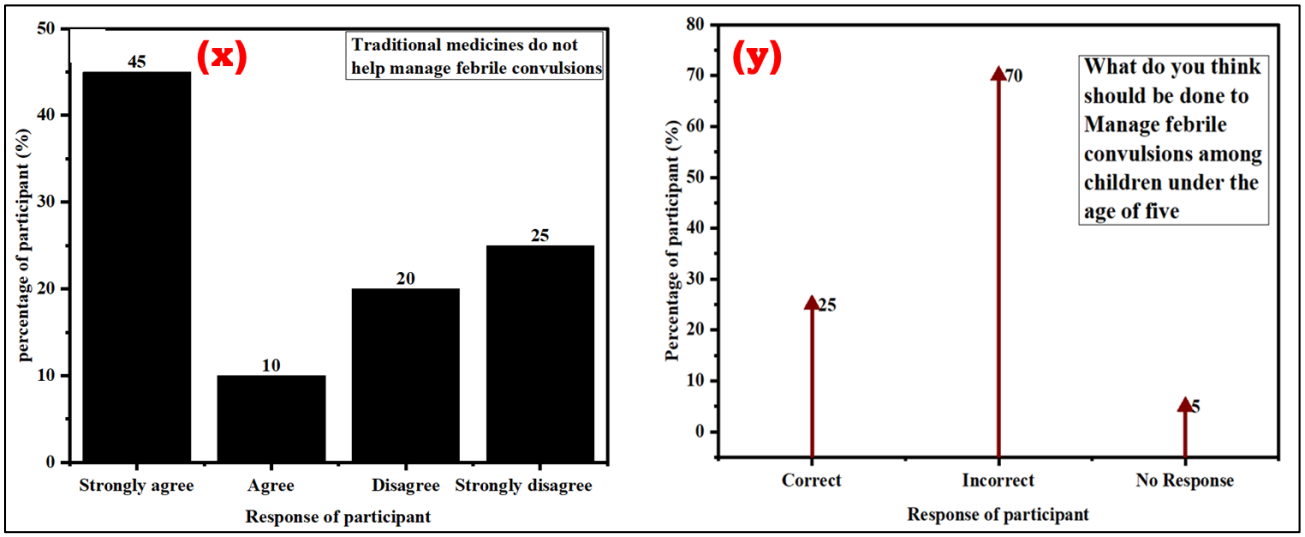

Fig. 6: (x) Practices response of mothers towards management of Febrile convulsions on whether traditional medicines do not help manage febrile convulsion and (y) Practices response of mothers towards management of Febrile convulsions on what should be done to manage febrile convulsions

4.0 DISCUSSION

The results demonstrate that mothers at Manna Mission Hospital possess relatively good conceptual knowledge and predominantly positive attitudes toward febrile convulsions but exhibit major gaps in actual home management practices, mirroring patterns reported in similar studies across Africa (Veldandi *et al.,* 2022; Wuni *et al.,* 2021). The finding that 70% of respondents had heard of febrile convulsions and that most correctly recognized fever and infection as core precipitants is consistent with previous reports that most parents in hospital-based samples can link febrile convulsions to fever and illness (Assistant & Taha, 2016; Dong *et al.,*

2015). High proportions identifying complications such as dehydration and potential brain damage also align with studies showing that mothers often overestimate the severity and risks of febrile seizures (Merlo *et al.,* 2023). At the same time, the proportion of mothers rejecting witchcraft as the main cause of fever contrasts with earlier Ghanaian work in which nearly half of mothers attributed febrile convulsions to witchcraft or evil spirits, suggesting some progress in biomedical understanding but with residual syncretic beliefs (Wuni *et al.,* 2021).

The overwhelmingly negative perception of febrile convulsions (92% stating they are "not good") and the strong endorsement that they should be managed reflect the widely documented view of febrile seizures as frightening and potentially life-threatening, even when parents know they are often benign (Alawad *et al.,* 2024; Alawwadh *et al.,* 2024; Assimamaw & Gonete, 2024). Mothers' high rating of modern medicines as "very beneficial" parallels evidence from Ghana and other low- and middle-income settings that mothers increasingly trust biomedical treatment, particularly in urban and rural areas. However, the finding that two-thirds of respondents still agreed that witchcraft can cause febrile convulsions highlights the coexistence of biomedical and spiritual explanatory models, a pattern also reported in Ghanaian qualitative studies where caregivers combine hospital care with spiritual and traditional practices (Abd *et al.,* 2024; Ali *et al.,* 2025; Wuni *et al.,* 2021). These mixed beliefs are important because they shape pathways to care, including delays in hospital presentation, concurrent use of herbal remedies, and reliance on spiritual healers when biomedical care is perceived to have failed them.

Despite generally adequate knowledge scores, 70% of mothers provided medically incorrect responses when asked what should be done to manage febrile convulsions at home, revealing a substantial gap between conceptual understanding and procedural competence. Similar discrepancies have been observed in multiple knowledge, attitude and practice (KAP) studies, where parents can correctly define febrile convulsions yet respond during such conditions with harmful practices such as inserting objects into the child's mouth, vigorous shaking, and extreme cooling (Alawwadh *et al.,* 2024; Bertille *et al.,* 2018; Veldandi *et al.,* 2022). The present finding that most mothers strongly disagreed that witchdoctors "do their best" and that many rejected traditional medicines as helpful suggests a shift away from exclusive reliance on traditional care but does not exclude covert or combined use of herbal and spiritual interventions, which remains common in Ghana. Crucially, the high proportion of incorrect first aid answers implies that, in a real seizure, children remain at risk of aspiration, trauma, inappropriate drug administration, and delayed transfer to health facilities (Assimamaw & Gonete, 2024; Paul *et al.,* 2007).

The pattern of high awareness, positive attitudes toward hospital care, and poor first aid practice strongly supports the rationale for targeted educational interventions embedded in paediatric and post discharge care at Manna Mission Hospital. Evidence from quasi-experimental and randomized studies shows that structured education delivered via pamphlets, group sessions, and empowerment programs can significantly improve mothers' knowledge, correct first aid behaviors, and confidence in managing future febrile convulsions (Abd *et al.,* 2024; Dong *et al.,* 2015; Hautala *et al.,* 2021). Recent empowerment programs have demonstrated sustained gains in febrile convulsion knowledge and home management practices, particularly when content is culturally adapted and reinforced over time, suggesting that similar nurse led models could be highly effective in this setting. Given that demographic and educational factors often predict better practice, prioritizing mothers with lower formal education and integrating visual, language appropriate materials may enhance equity and impact.

4.0 CONCLUSION

This present study among 100 mothers of under-five children with febrile convulsions at Manna Mission Hospital demonstrated a mixed but informative profile of knowledge, attitudes and practices. Overall, 70% of mothers had heard of febrile convulsions and correctly believed they could be managed, while 92% perceived the condition as serious and 81% rated prescribed medications as very beneficial, indicating a broadly favorable orientation toward biomedical care. In addition, 60% strongly agreed that every febrile child should be taken to hospital, and more than 80% acknowledged that modern medicines can reduce febrile convulsions, reflecting substantial potential for health system partnership.

However, despite these positive indicators, 70% of respondents provided medically incorrect descriptions of what to do during a period of febrile convulsion, only 25% articulated appropriate first aid, and 65% still regarded fever-related complications such as brain damage and death as inevitable outcomes, revealing a critical knowledge practice gap. The persistence of beliefs in supernatural causation among a sizeable minority further underscores the influence of sociocultural factors on care-seeking and home management. These findings justify the design and rigorous evaluation of structured, culturally adapted, nurse led educational interventions that quantitatively target the 70% practice deficit, with the aim of increasing correct first aid responses to at least 80% and thereby reducing preventable morbidity and anxiety in this vulnerable population.

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Conflict of Interest: None.

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