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ASSESSMENT OF PARENTAL KNOWLEDGE REGARDING FEVER AND ITS MANAGEMENT IN CHILDREN

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Abstract

Background: Fever is one of the most common symptoms in childhood and a frequent cause of parental concern and healthcare visits. Despite clear evidence-based guidelines, parental misconceptions and inappropriate practices regarding fever management remain common and may lead to unnecessary anxiety, medication errors, and increased healthcare utilisation. Aim of the study was to assess parental knowledge and practices regarding fever and its management in children, to identify sources of information influencing parental knowledge, and to determine predictors of good knowledge. ***Material and Methods:*** A hospital-based descriptive cross-sectional study was conducted in the Department of Paediatrics among 100 parents/caregivers of children aged 6 months to 12 years presenting with fever or a history of fever. Data were collected using a pre-designed, pre-tested structured questionnaire assessing knowledge of fever, management practices, sources of information, and healthcare-seeking behaviour. Data were analysed using descriptive statistics. Chi-square test was used to assess associations, and binary logistic regression was performed to identify independent predictors of good knowledge. ***Results:*** Overall parental knowledge regarding fever and its management was moderate. Less than half of the parents correctly identified normal body temperature and the temperature threshold for fever. Misconceptions regarding complications such as brain damage were common. Although most parents were aware of antipyretics, correct knowledge regarding dosing intervals and weight-based dosing was limited, and inappropriate practices such as routine tepid sponging were frequently reported. Healthcare professionals were the most common source of information and were significantly associated with higher knowledge levels ($p < 0.05$). Logistic regression analysis identified higher educational status and healthcare professionals as the primary source of information as independent predictors of good knowledge. ***Conclusion:*** Parental knowledge and practices regarding childhood fever remain suboptimal, with persistent misconceptions and inappropriate management behaviours. Strengthening consistent, guideline-based parental education by healthcare professionals is essential to improve safe fever management and reduce unnecessary anxiety and healthcare utilisation.

Keywords: Childhood fever; Parental knowledge; Fever management; Antipyretics; Fever phobia; Healthcare-seeking behavior

INTRODUCTION

Fever is one of the most common symptoms leading caregivers to seek paediatric advice, emergency care, and to use over-the-counter antipyretics in children (1). Although fever is a normal, regulated physiological response that may support host defence, many caregivers perceive it as a harmful illness and focus primarily on reducing body temperature rather than observing the child's overall condition, hydration status, and warning signs of serious illness (2). This gap between medical understanding and caregiver perception significantly influences home-management practices, healthcare-seeking behaviour, and the risk of medication errors.

Schmitt first described the concept of "fever phobia," highlighting excessive parental fear and misconceptions such as beliefs that moderate fever can cause brain damage, seizures, or death (2). Subsequent studies across different countries have shown that fever phobia remains common and persistent, often reinforced by prior experiences, inconsistent medical advice, and information from family members and digital media

(3,4). Caregivers frequently overestimate the dangers of fever and adopt aggressive temperature-lowering practices.

Current evidence-based guidelines emphasise that management of fever should focus on improving the child's comfort and identifying signs of serious illness rather than routine reduction of temperature (1). The American Academy of Pediatrics and NICE guidelines recommend using antipyretics only when the child is distressed and discourage practices such as tepid sponging and unnecessary alternating of antipyretics (1,5). Despite these recommendations, inappropriate practices including incorrect dosing, use of physical cooling methods, and uncertainty regarding when to seek medical care continue to be widely reported (4,6).

Several cross-sectional studies have assessed parental knowledge and practices related to childhood fever and consistently demonstrated knowledge gaps and persistent anxiety (7). Studies by Kelly et al. and Dong et al. reported widespread misconceptions regarding fever thresholds and complications, while Chefdeville et al. showed that parental practices often diverge from guideline-based recommendations (4, 7). Recent studies continue to confirm inadequate parental knowledge despite increasing access to health information (8,9).

Although fever management guidelines are well established, parental beliefs and practices often remain outdated and inconsistent. Many studies are context-specific, and few directly evaluate caregiver knowledge against key guideline recommendations or identify modifiable factors to guide targeted educational interventions (9).

This study aims to assess parental knowledge and home-management practices regarding fever in children, including understanding of fever thresholds, recognition of danger signs, appropriate use of antipyretics, and healthcare-seeking behaviour, in order to identify gaps and support the development of targeted, evidence-based parental education strategies.

MATERIALS AND METHODS

The study population consisted of parents or primary caregivers accompanying children presenting with fever or a recent history of fever. A total sample size of 100 parents/caregivers was included in the study. The sample size was selected based on feasibility and similar previously published descriptive studies assessing parental knowledge and practices related to childhood fever. Participants were enrolled using a convenient sampling method until the desired sample size was achieved.

Inclusion Criteria

- Parents or primary caregivers of children aged 6 months to 12 years
- Caregivers accompanying children presenting with fever or history of fever
- Parents/caregivers who were willing to participate and provided informed consent
- Parents/caregivers able to understand and respond to the study questionnaire

Exclusion Criteria

- Parents/caregivers of critically ill children requiring immediate emergency intervention
- Caregivers who were health-care professionals (doctors, nurses, pharmacists), to avoid professional bias
- Parents/caregivers unwilling to give informed consent
- Incomplete or inadequately filled questionnaires

Study Tool

- Data were collected using a pre-designed, pre-tested, structured questionnaire developed after reviewing existing literature and guidelines on childhood fever management.
- The questionnaire consisted of four sections:
  - Sociodemographic details (age, education, occupation, number of children)
  - Knowledge regarding fever (definition, normal body temperature, causes, perceived complications)
  - Knowledge and practices related to fever management (use of antipyretics, dosing intervals, physical methods, healthcare-seeking behaviour)
  - Sources of information regarding fever management (healthcare professionals, media, family, internet)
- The questionnaire was administered in the local language/English as appropriate.

Data Collection

- Parents/caregivers meeting the inclusion criteria were approached in the paediatric outpatient department or wards.
- After explaining the purpose of the study, written informed consent was obtained.
- The questionnaire was administered through face-to-face interviews to ensure completeness and clarity of responses.
- Each interview took approximately 10–15 minutes.
- Confidentiality and anonymity of participants were strictly maintained.

Statistical Analysis

Data were entered into Microsoft Excel and analysed using statistical software, SPSS. Descriptive statistics were used to summarise the data. Categorical variables were expressed as frequencies and percentages. Results were presented using tables and graphs wherever appropriate.

RESULTS

Table 1: Sociodemographic Characteristics of Parents/Caregivers (n = 100)

Variable	Category	n (%)	Mean ± SD
Age (years)	20–29	27 (27.0)	
	30–39	48 (48.0)	
	40–49	20 (20.0)	
	≥50	5 (5.0)	
	Overall age	—	**34.2 ± 7.1**
Educational status	Primary school or less	19 (19.0)	
	Secondary school	43 (43.0)	
	Graduate	28 (28.0)	
	Postgraduate	10 (10.0)	
Occupation	Homemaker	36 (36.0)	
	Unskilled/Skilled worker	24 (24.0)	
	Clerical/Service	22 (22.0)	
	Professional	18 (18.0)	
Number of children	One	41 (41.0)	
	Two	44 (44.0)	
	≥ Three	15 (15.0)	
	Mean number of children	—	**1.78 ± 0.83**

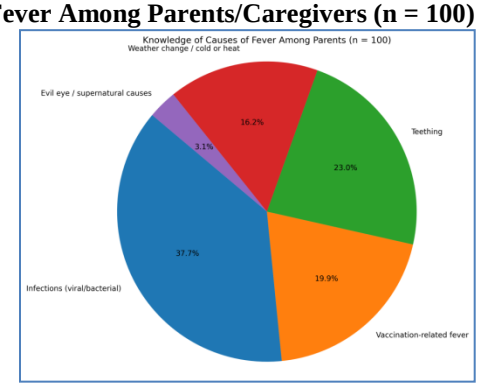
Table 1 shows, total of 100 parents/caregivers were included in the study. The mean age of participants was 34.2 ± 7.1 years, with the majority belonging to the 30–39 year age group (48%), followed by 20–29 years (27%). Most parents had at least a secondary level of education (43%), while 38% were graduates or postgraduates. Regarding occupation, homemakers constituted the largest group (36%), followed by skilled or unskilled workers (24%) and clerical/service employees (22%). The mean number of children per family was 1.78 ± 0.83, with most families having one or two children.

Table 2: Knowledge Regarding Fever Among Parents/Caregivers (n = 100)

Knowledge Variable	Correct Response	n (%)	Mean Knowledge Score ± SD*
Correct definition of fever	Yes	58 (58.0)	
	No	42 (42.0)	
Correct normal body temperature (≈37°C / 98.6°F)	Yes	46 (46.0)	
	No	54 (54.0)	
Correct temperature threshold for fever (>38°C)	Yes	41 (41.0)	
	No	59 (59.0)	
Mean score – definition & temperature domain	—	—	**1.45 ± 0.72**

In the present study, 58% of parents correctly defined fever, while 46% correctly identified the normal body temperature. Knowledge regarding the correct temperature threshold for defining fever (>38°C) was lower, with only 41% of parents responding correctly. The overall mean knowledge score for the definition and temperature domain was 1.45 ± 0.72, indicating moderate but inadequate understanding of basic concepts related to childhood fever (Table 2).

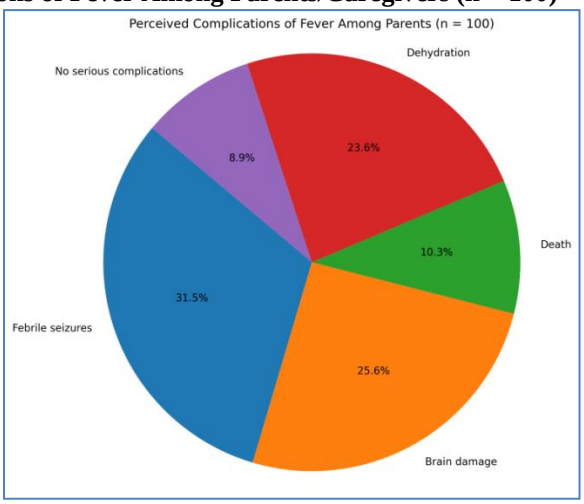
Figure 1: Knowledge of Causes of Fever Among Parents/Caregivers (n = 100)



The figure 1 illustrates parental perceptions regarding the causes of fever in children. Infections (viral or bacterial) were the most commonly identified cause (72%), followed by teething (44%) and vaccination-related fever (38%). A

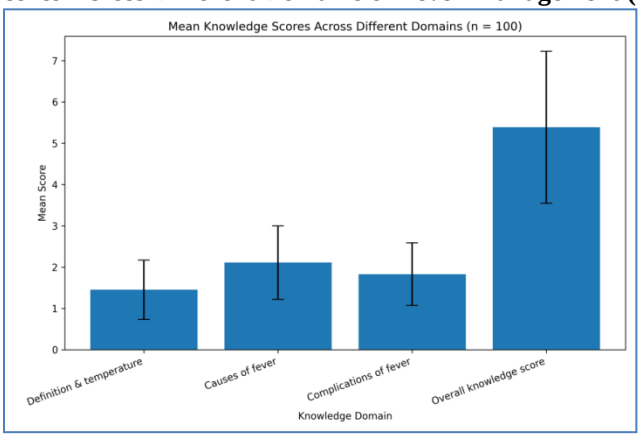
considerable proportion of parents attributed fever to weather changes or exposure to cold or heat (31%), while a small number reported supernatural causes such as the evil eye (6%).

Figure 2: Perceived Complications of Fever Among Parents/Caregivers (n = 100)



The figure 2 depicts parental perceptions regarding the complications of childhood fever. Febrile seizures were the most commonly perceived complication (64%), followed by brain damage (52%) and dehydration (48%). A smaller proportion of parents believed that fever could lead to death (21%), while only 18% reported that fever does not result in any serious complications. These findings reflect persistent parental anxiety and misconceptions related to childhood fever.

Figure 3: Mean Knowledge Scores Across Different Domains of Fever Management (n = 100)



The graph 3 shows the mean knowledge scores of parents across different domains related to childhood fever, with error bars representing standard deviation. The highest mean score was observed for the overall knowledge domain**,** while lower scores were noted for definition and temperature**,** causes of fever**,** and complications of fever**.**

Table 3: Knowledge Regarding Antipyretic Use in Childhood Fever (n = 100)

Knowledge Variable	Correct Response n (%)	Incorrect / Don't know n (%)
Awareness of commonly used antipyretic (paracetamol/ibuprofen)	82 (82.0)	18 (18.0)
Knowledge that antipyretics are for comfort, not temperature alone	39 (39.0)	61 (61.0)
Knowledge of age-appropriate antipyretic use	57 (57.0)	43 (43.0)
Knowledge that antibiotics are **not** antipyretics	71 (71.0)	29 (29.0)

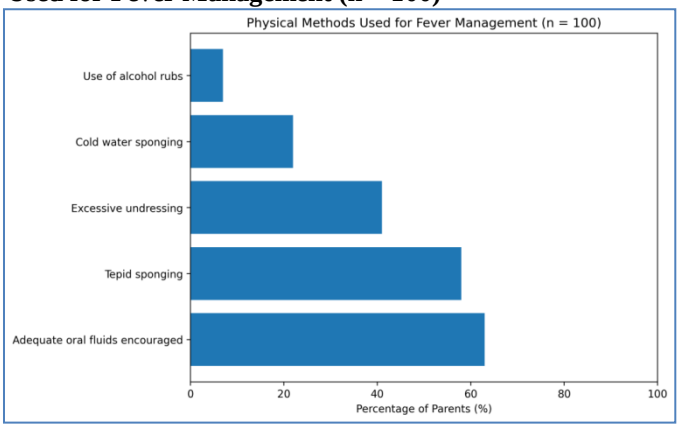
Table 3 depicts parental knowledge regarding the use of antipyretics in childhood fever. A majority of parents (82%) were aware of commonly used antipyretics such as paracetamol and ibuprofen. However, only 39% correctly understood that antipyretics are intended to improve comfort rather than to reduce temperature alone. Knowledge regarding age-appropriate use of antipyretics was observed in 57% of parents, while 71% correctly identified that antibiotics are not antipyretics.

Table 4: Knowledge and Practices Related to Antipyretic Dosing (n = 100)

Variable	Response	n (%)
Correct dosing interval for paracetamol (6–8 hours)	Yes	44 (44.0)
	No	56 (56.0)
Knowledge of weight-based dosing	Yes	36 (36.0)
	No	64 (64.0)
Practice of alternating paracetamol and ibuprofen without advice	Yes	29 (29.0)
	No	71 (71.0)
Practice of waking child at night to give antipyretic	Yes	34 (34.0)
	No	66 (66.0)

Table 4 illustrates parental knowledge and practices related to antipyretic dosing in childhood fever. Less than half of the parents (44%) were aware of the correct dosing interval for paracetamol (6–8 hours), and only 36% reported knowledge of weight-based dosing. Inappropriate practices were also noted, with 29% of parents alternating paracetamol and ibuprofen without medical advice and 34% waking their child at night to administer antipyretics.

Figure 4: Physical Methods Used for Fever Management (n = 100)



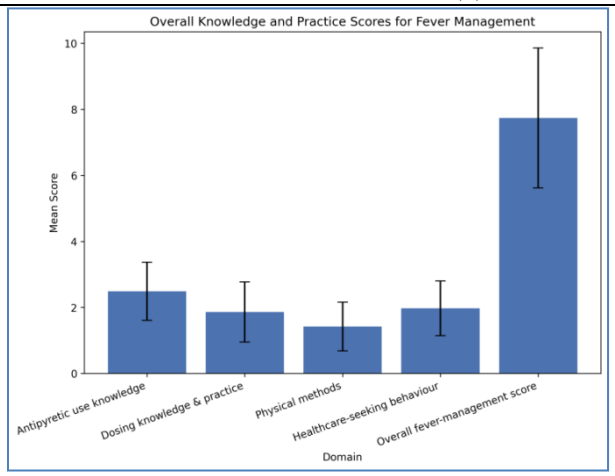
The chart 4 illustrates the physical methods employed by parents for managing fever in children. Encouraging adequate oral fluid intake was the most commonly practiced method (63%), followed by tepid sponging (58%) and excessive undressing (41%). Cold water sponging was used by 22% of parents, while a small proportion (7%) reported the use of alcohol rubs.

Table 5: Healthcare-Seeking Behaviour for Childhood Fever (n = 100)

Behavioural Variable	n (%)
Immediate hospital visit for any fever	46 (46.0)
Consults doctor only if fever persists >48 hours	38 (38.0)
Seeks care when danger signs appear	29 (29.0)
Self-medication without consultation	33 (33.0)
Uses prior prescriptions for current illness	27 (27.0)

The table 5 describes healthcare-seeking behaviour of parents during episodes of childhood fever. Nearly half of the parents (46%) reported visiting a hospital immediately for any episode of fever. About 38% consulted a doctor only if the fever persisted for more than 48 hours, while 29% sought medical care specifically when danger signs appeared. Self-medication without medical consultation was practiced by 33% of parents, and 27% reported using prior prescriptions for the current illness.

Figure 5: Overall Knowledge and Practice Score for Fever Management



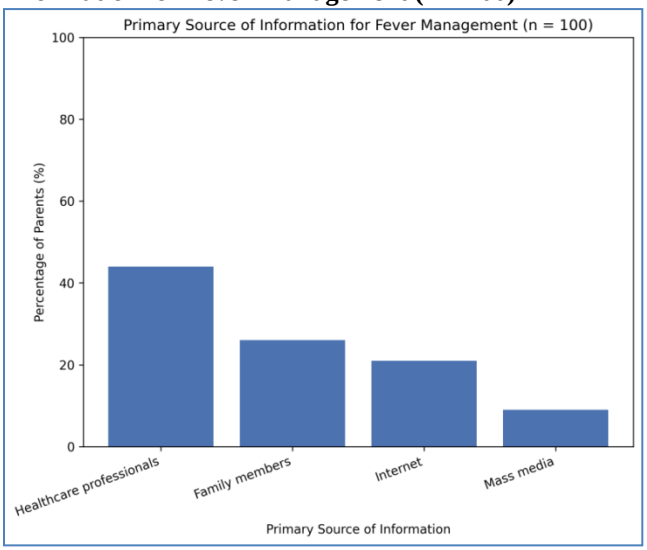
The bar graph 5 depicts the mean scores (± standard deviation) across different domains of knowledge and practices related to childhood fever management. Higher mean scores were observed for antipyretic use knowledge and healthcare-seeking behaviour, while comparatively lower scores were noted for dosing knowledge and practice and physical methods.

Table 6: Sources of Information Regarding Fever Management Among Parents/Caregivers (n = 100)

Source of Information*	Number (n)	Percentage (%)
Healthcare professionals (doctors/nurses)	68	68.0
Family members / elders	54	54.0
Internet (websites, social media, apps)	49	49.0
Mass media (television, newspapers, magazines)	31	31.0
Previous personal experience	42	42.0

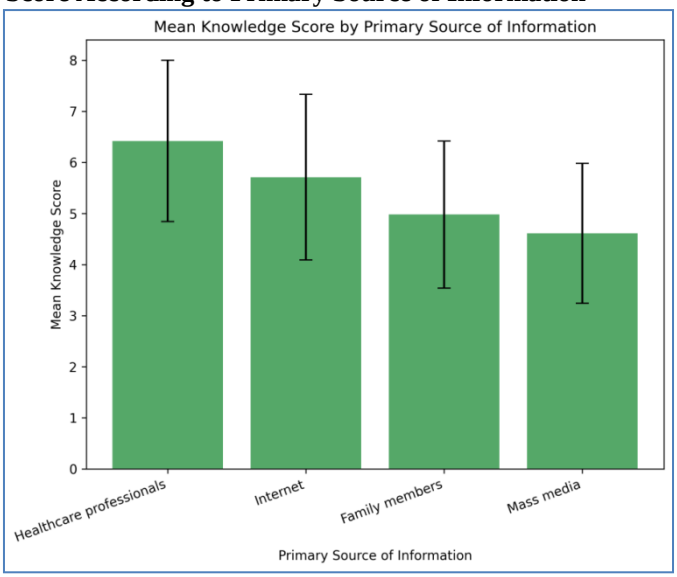
The table 6 presents the sources of information used by parents for fever management in children. Healthcare professionals were the most common source of information, reported by 68% of parents, followed by family members or elders (54%) and internet-based sources (49%). Previous personal experience was cited by 42% of parents, while 31% relied on mass media such as television, newspapers, or magazines.

Figure 6: Primary Source of Information for Fever Management (n = 100)



The bar chart 6 illustrates the primary sources of information relied upon by parents for managing childhood fever. Healthcare professionals were the most frequently reported primary source (44%), followed by family members (26%) and internet-based sources (21%). Mass media was the least commonly cited primary source (9%).

Figure 7: Mean Knowledge Score According to Primary Source of Information



The bar graph 7 depicts the mean knowledge scores (± standard deviation) of parents according to their primary source of information on fever management. Parents who relied on healthcare professionals demonstrated the highest mean knowledge score, followed by those using internet-based sources. Lower mean scores were observed among parents who primarily depended on family members and mass media.

Table 7: Association Between Primary Source of Information and Knowledge Category (n = 100)

Primary Source of Information	Poor Knowledge n (%)	Moderate Knowledge n (%)	Good Knowledge n (%)	Total
Healthcare professionals	6 (13.6)	29 (65.9)	9 (20.5)	44
Internet	5 (23.8)	13 (61.9)	3 (14.3)	21
Family members	12 (46.2)	13 (50.0)	1 (3.8)	26
Mass media	5 (55.6)	4 (44.4)	0 (0.0)	9
Total	**28**	**59**	**13**	**100**

The table 7 shows the association between the primary source of information and the level of parental knowledge regarding fever management. Parents who relied on healthcare professionals demonstrated higher levels of knowledge, with 20.5% having good knowledge and 65.9% having moderate knowledge. In contrast, parents who depended on family members or mass media had a higher proportion of poor knowledge (46.2% and 55.6%, respectively), with very few demonstrating good knowledge. Parents using the internet as their primary source mostly had moderate knowledge, though a smaller proportion achieved good knowledge.

Table 8: Binary Logistic Regression Analysis Identifying Predictors of Good Knowledge Regarding Fever Management (n = 100)

Predictor Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Age of parent (≥35 years)	1.42	0.54 – 3.71	0.47
Female gender	1.68	0.61 – 4.63	0.32
Education ≥ graduate level	3.21	1.18 – 8.72	**0.022***
≥2 children	1.36	0.51 – 3.64	0.54
Healthcare professionals as primary source	4.08	1.46 – 11.42	**0.007***
History of febrile seizure in child	2.09	0.74 – 5.92	0.16

The logistic regression analysis identified factors associated with good knowledge regarding fever management among parents. Higher educational status (graduate level or above) and healthcare professionals as the primary source of information were found to be significant independent predictors of good knowledge. Parents with graduate-level education were over three times more likely to have good knowledge compared to those with lower education levels (AOR = 3.21; p = 0.022). Similarly, parents who relied on healthcare professionals for information were about four times more likely to demonstrate good knowledge (AOR = 4.08; p = 0.007). Other variables such as age, gender, number of children, and history of febrile seizures did not show a statistically significant association with good knowledge.

DISCUSSION

The present study assessed parental knowledge and practices regarding fever and its management in children and identified moderate overall knowledge with several important misconceptions and inappropriate practices. Fever remains a common reason for paediatric consultations, yet parental understanding continues to be influenced by anxiety and misconceptions rather than evidence-based guidance. Similar observations have been consistently reported in earlier studies, indicating that parental concerns about fever persist despite the availability of clear clinical recommendations (10).

In the present study, less than half of the parents correctly identified normal body temperature and the appropriate temperature threshold for defining fever. This finding is comparable to earlier studies that demonstrated inadequate parental understanding of basic fever definitions (11). Schmitt first described the concept of "fever phobia," highlighting parental fear that fever itself could lead to serious complications such as brain damage or death (3). Despite decades of education, this fear continues to influence caregiver perceptions, as reflected in the high proportion of parents in the present study who perceived fever as potentially dangerous. Similar misconceptions have been documented in multiple international studies and systematic reviews (10,12).

Knowledge and practices related to fever management were suboptimal in the present study. Although most parents were aware of commonly used antipyretics, correct knowledge regarding dosing intervals, weight-based dosing, and appropriate indications was limited. These findings are consistent with previous studies reporting frequent dosing errors and inappropriate antipyretic use, including unnecessary night-time dosing and alternating medications without medical advice (13). Current guidelines emphasise that antipyretics should be used to improve child comfort rather than to normalize body temperature, a principle that was poorly understood by many parents in this study (1,2).

The widespread use of physical cooling methods such as tepid sponging observed in the present study further reflects outdated practices. National and international guidelines discourage routine physical cooling measures, as they offer little benefit and may increase discomfort (2). Similar persistence of inappropriate physical methods has been reported in studies from different regions, indicating a need for consistent and repeated caregiver education (11,14).

Healthcare-seeking behaviour in the present study was largely driven by anxiety, with nearly half of parents seeking immediate medical attention for any episode of fever, while fewer relied on the presence of danger signs. Comparable findings have been reported in earlier studies, suggesting that parental fear often results in unnecessary healthcare utilisation (10,13). Emphasising recognition of red-flag symptoms rather than fever alone is therefore essential.

Healthcare professionals were identified as the most common source of information and were significantly associated with better knowledge levels. This association is supported by earlier studies showing that parents who rely on professional medical advice demonstrate more appropriate knowledge and practices compared to those depending on family members or mass media (9,15). Logistic regression analysis in the present study further identified higher educational status and healthcare professionals as the primary information source as independent predictors of good knowledge. Similar predictors have been reported in other cross-sectional studies, reinforcing the importance of structured counselling and targeted education for parents with lower educational attainment (15).

CONCLUSION

The present study highlights that parental knowledge regarding fever and its management in children is moderate but insufficient, with persistent misconceptions and inappropriate management practices. Fever phobia continues to influence parental behaviour, leading to unnecessary anxiety, improper antipyretic use, and increased healthcare utilisation. Higher education and guidance from healthcare professionals were significant predictors of better knowledge. Strengthening consistent, guideline-based parental education, particularly during paediatric outpatient visits, is essential to improve safe fever management and reduce avoidable concerns and practices.

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