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Maternal Knowledge, Perception, and Attitude Regarding the Management of Childhood Febrile Illness

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Abstract

Background: *Maternal knowledge, perception, and attitude play a crucial role in the effective management of childhood febrile illnesses, as mothers are often the primary caregivers. Understanding how mothers recognize, interpret, and respond to fever can influence the timely administration of appropriate care. This highlights the importance of educating mothers on fever management practices to improve health outcomes for children.*

Objective: *The aim is to assess maternal perceptions on the home management of childhood fever, focusing on their understanding and practices in addressing febrile illness in children. This insight can guide strategies to improve care and health outcomes.*

Materials and Methods: *This cross-sectional study was conducted at the Pediatric Outpatient Department (OPD) of CMH Ramu, Ramu Cantonment, from April 2024 to July 2024 on 350 mothers attending with a feverish child under twelve years.*

Results: *In our study, 60% of mothers used their hands to measure their child's body temperature, with the armpit being the preferred site. The definition of fever varied among mothers, ranging from e"98°F to 102°F. A large proportion, 86%, were unaware of the proper dosing and frequency of Paracetamol, while 90% consulted a doctor before administering any antipyretic. The oral route was favored by 89% of mothers for antipyretic administration, and 14% relied on traditional methods. Paracetamol was the most commonly used antipyretic in 91% of cases, while 51% of mothers preferred antibiotics at the onset of fever to prevent its progression. Cefixime was the most frequently selected antibiotic (44.4%), followed by Azithromycin (30.6%) and other options.*

Conclusions: *Misconceptions about the management of febrile children are widespread among mothers in Bangladesh, leading to unnecessary concern and an increased burden on healthcare facilities. There is a pressing need to enhance their knowledge and perception to improve care and reduce this strain.*

Keywords: Children, Febrile, Fever, Perception

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Introduction:

Fever is an everyday challenge faced by clinicians in different hospitals. Pediatric febrile illness is one of the most prevalent public health issues encountered by parents, which warrants frequent hospital visits. Evidence-based practices are widely lacking among mothers.[1] The predominant causes of childhood fever may be infectious and non-infectious.[2] Respiratory infections and gastroenteritis comprise the most common infectious cause, whereas non-infectious causes of fever include; dehydration, injuries, side effects of some medications, teething, or after vaccination.[3,4] Moreover, a significant number of febrile children are diagnosed with short-lived, self-limiting viral or milder forms of bacterial illness, which can be easily managed at home by the primary caregivers.[5] Nevertheless, the misconceptions and unjustified fears of mothers regarding the harmful effects of fever on children lead to frustration, dissatisfaction with care, unnecessarily aggressive and inappropriate management of feverish children, and subsequently frequent hospital visits.[6]

Inappropriate practices of mothers regarding managing their febrile children are prevalent worldwide. These practices include measuring temperature by hand, providing inappropriate doses of antipyretics, and cessation of breastfeeding in febrile children.[7,8] Some other forms of traditional healing practices persist over generations, despite the advances of scientific medicine.[9] In addition to the over or under-dosing of antipyretics, the substantial misuse of antibiotics by

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overconcerned parents is frequently associated with antimicrobial resistance, a global issue for developing countries.[10] Again, preference for anti-malarial drugs, antihistamines, and herbs was also observed in African parents at high dosages or too frequent intervals.[11]

Literature highlights the critical role of effective educational programs in correcting parents' misconceptions and inappropriate practices regarding the management of febrile children, thus reducing the burden on healthcare facilities and boosting parents' confidence. Therefore, the first step is to identify the self-care practices mothers adopt at home and their concerns. Our study aimed to assess the perception and practices of Bangladeshi mothers regarding the initial home management of childhood fever, as well as to explore sociodemographic factors associated with these practices.

Materials & Methods:

This cross-sectional study was conducted from April to July 2024, focusing on mothers who attended the Pediatric OPD at CMH Ramu, Ramu Cantonment. A convenience sample of 350 mothers, with children under twelve years of age, presenting with fever, was purposively selected for participation. The study aimed to assess the perceptions and practices of these mothers regarding the management of childhood fever. Mothers who agreed to participate in the study were included, while those who declined or had a child under one month of age were excluded from the study.

A close-ended questionnaire was developed by the researcher to collect data, following a thorough review of relevant literature and consultation with healthcare professionals. The questionnaire was designed to evaluate the mothers' knowledge, attitudes, and practices concerning the management of fever in their children. Informed written consent was obtained from all participants before data collection, ensuring their voluntary participation. Confidentiality and privacy were strictly maintained throughout the study.

Once the data were collected, they were entered and analyzed using IBM SPSS version 26.0. Descriptive and inferential statistical methods were applied to analyze the results, providing insights into the maternal perceptions and practices regarding fever management, and identifying potential gaps in knowledge and areas for health education interventions.

Results:

A total of 350 mothers participated in the study, and their detailed sociodemographic characteristics were shown in Table I. Two-thirds (74%) of mothers were below 30 years of age, whereas the mean age of the mothers was *25.69±5.3* years with *the minimum to maximum age range from 17 to 41 years.* More than half of the mothers (59%) completed higher secondary education and 93 (26%) mothers completed a university degree or more. The majority of the respondents came from urban areas (91%). Most of the mothers (94%) were unemployed. 300 families (86%) of this study were nuclear variety and family income was sufficient in 95% of them. Most of the participants (78%) had 2 children, followed by 3 children or more in 13% and 1 child in 9% of cases.

Table-I

Distribution of mothers' sociodemographic characteristics; (n=350)

Demographics of mothers	Frequency	Percent
Mother's age in years		
Under 30 years	249	74
30 years and over	101	29
Min.-Max.Mean ± SD	*17-4125.69±5.3*	
Level of mother's education		
Primary school	22	06
Secondary school	30	09
Higher Secondary	205	59
University degree	93	26
Residence		
Urban	318	91
Rural	32	09
Occupation of mother		
Working	22	06
Not working (Home maker)	328	94
Type of family		
Nuclear	300	86
Extended	50	14
Family income		
Sufficient for maintaining a family	332	95
Insufficient for maintaining a family	18	05
Number of children		
One child	32	09
Two children	273	78
Three children or more	45	13
Mean ± SD	2±0.5	
Total	350	10 0

Mothers' practices regarding the home management of childhood fever were evaluated in Table II. Over half of the mothers (60%) reported routinely assessing their child's body temperature by touch, while 18% used both their hands and a thermometer, and 22% relied solely on a thermometer to measure their febrile child's temperature. A significant 95% of mothers preferred using the armpit as the site for measuring body temperature. The definition of fever varied among mothers, with temperature perceptions ranging from ≥98°F to 102°F, and 25% of mothers were unsure of the specific temperature threshold. The study revealed that 86% of mothers lacked knowledge about the appropriate dosing and frequency of Paracetamol, and 90% consulted a doctor before administering antipyretics. The majority (89%) preferred the oral route for

Table-II

Distribution of mothers practicing different methods of home management in childhood fever; (n=350)

Characteristics of children	Frequency	Percent
Way of measuring body temperature		
By touching	210	60
With thermometer	77	22
Using both methods	63	18
Place of temperature measurement with a thermometer		
Armpit	332	95
Oral cavity	18	05
Ear	0	00
Rectum	0	00
The degree that is considered a fever		
Don't know	88	25
≥36.7°C (98°F)	48	14
≥37.2°C (99°F)	101	29
≥37.8°C (100°F)	45	13
≥38.3°C (101°F)	50	14
≥38.9°C (102°F)	18	5
Adequate dosing and frequency of Paracetamol		
Yes	48	14
No	302	86
Consult with a doctor before giving antipyretic		
Yes	315	90
No	35	10
The preferred route of antipyretic		
Oral	312	89
Per rectal	38	11
Try traditional method †		
Yes	48	14
No	302	86
Prefer antibiotic for febrile children		
Yes	180	51
No	170	49
Total	350	100

† (Traditional method) Using herbal or homeopathy drugs, Ice cooling of the body

administering antipyretics. In addition to conventional antipyretics, 14% of mothers used various traditional methods to lower their children's temperature. Furthermore, 51% of mothers believed antibiotics were the best approach for managing fever.

The choice of antibiotics by mothers was summarized in Figure I, where Cefixime scored the top (44.3%) followed by Azithromycin (30.6%), Cephradine (9.4%), Amoxycillin (5.6%) and unidentified (10%). Figure II shows the preference of drugs by the mothers to reduce body temperature, where only Paracetamol was the most common choice in 320 cases (91%) followed by alternating Paracetamol and Ibuprofen (6%), only Ibuprofen (2%) and Diclofenac (1%). Here, 180 mothers (51%) chose antibiotics at the early onset of fever.

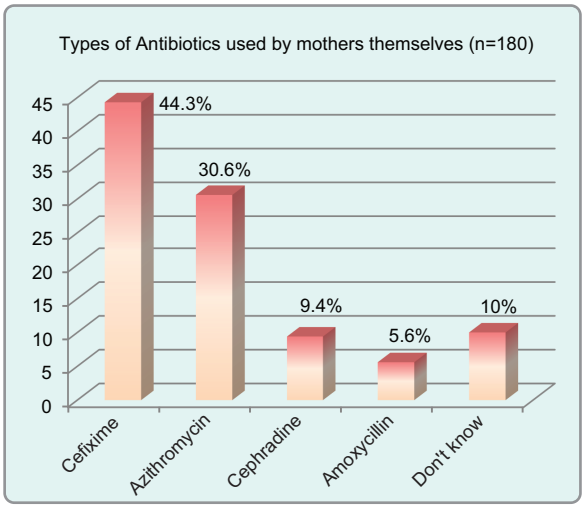

Figure 1: *Showing the types of antibiotics used by mothers themselves*

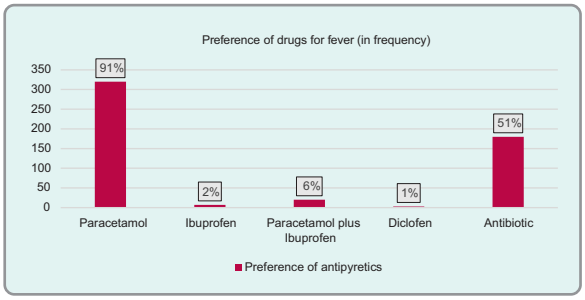

Figure 2: *Showing the preference of drugs among mothers to reduce body temperature*

Discussion

Fever management in children is an emotional issue for parents motivated by fear of harmful outcomes. Therefore, fever reduction by any means becomes the most concern to the parents, while care of a febrile child should focus on the child's well-being rather than reducing temperature under 39.0°C unless associated with discomfort or pain.[13] Unfortunately, evidence-based practices are lacking in most mothers.[6]

In this study, the majority of mothers (74%) were from the young age group which is very close to other similar studies.[14] Most of the mothers (64%) were at the undergraduate level which goes with the other developing countries.[1,15] The level of parents' literacy is a crucial factor for children's health and incomplete education might lead to insufficient knowledge and unsatisfactory practices.[16] Here, the majority of the mothers (91%) came from urban areas which goes with a study of Iran.[8] In contrast, the maximum number of participants resided in rural areas in other studies. The rural people have limited access to education as well as health services, thereby they have poor knowledge and practice skills to manage their sick children.[16]

The present study showed that most of the mothers (94%) were unemployed, same to the study by Arica et al.[17] On the contrary, Athamneh and colleagues found employed mothers in more than half of the cases.[18] Employment sometimes correlates with extended scope to access evidence-based practices, thereby creating the opportunity to provide good care to their offspring. Working mothers had a better level of knowledge and practice in comparison to those who were homemakers in one Bangladeshi study.[19] Alike Chang and colleagues, most of the families (86%) in our study were nuclear variety.[20] In the present study, most of the (95%) families were solvent which is almost similar to a study from Ireland. But Bong and Tan in disagreement with the current study found that almost 89% of families were non-solvent.[13,15] Most of the participants (78%) of our study had 2 children which was almost similar to the study by Hamideh.[14]

Mothers' practice regarding home management of febrile children showed wide variability in our study. Using a thermometer is the only way to determine accurate body temperature.[21] Nevertheless, More than half of the mothers (60%) in our study denied the use of a thermometer, rather they used their hands to measure the body temperature of their febrile children. On the contrary, the authors of some studies expressed better

responses from mothers regarding the use of thermometers.[22] Unavailability of thermometers may result in over-estimating fever and expose children to unnecessary administration of antipyretics. Therefore, hand measurement of temperature is totally an unacceptable practice.[15] In the present study, 95% of the mothers preferred the armpits of the child as the site to measure temperature. These findings were similar in many other studies and granted acceptable clinical screening of fever.[8,21] The NICE guideline also advised that tympanic or axillary methods are preferred methods for body temperature measurement.[23]

In the current study, the definition of fever varied among mothers ranging from ≥98°F to 102°F, and 25% of them denied any idea about the level. According to Das and colleagues, a high body temperature of 37.5°C (99.5°F) or more when taken orally, and axillary temperature of 37.2°C (98.96°F) or more, are all considered fever.[24] But external factors like physical exercise, warm clothing, hot or humid weather, or warm food/drinks should be considered before tagging the condition as fever.[25] The current World Health Organization (WHO) guidelines on managing fever recommend that fever should not be routinely suppressed and Paracetamol should be used to treat children over 38.5°C (101.3 °F), indicating a mild to moderate rise in temperature.[26] Parents with a poor perception of the definition of fever might tend to give antipyretics to their febrile children at lower temperatures.[27] So, clinicians should play an important role in providing adequate knowledge about fever to mothers.[14] The perception of proper dosing and frequency of antipyretics was deficient in most of the mothers (86%) of the present study, as in previous studies.[8,22] The most widely used antipyretic is paracetamol at the dose of 10–15 mg/kg body weight every 4–6 hours. The overdose or more frequent dose may result in renal or liver damage.[28]

In our setup, health facilities in the form of medical inspection rooms or tertiary-level hospitals usually exist near accommodation places. Therefore, parents are interested in health facility visits even in minor requirements. So, most of the participants (90%) of our study preferred consulting medical professionals for their febrile children predominantly at the hospital. The result was similar in other studies where health facilities had easy accessibility.[6,13] Sometimes parents seek an immediate solution for the treatment of fever in their child due to extreme anxiety, while in most cases, treatment of fever in children is not necessary. It invites unnecessary visits to the doctor.[8,15] Therefore, the doctors, who are often the first and most trusted source of information, should ensure adequate fever management guidelines by direct communication with the parents. In this study, 89% of parents preferred oral administration of antipyretics to rectal administration. This finding coincides with the earlier research as well.[13] Again, 56% of participants exclusively used the Paracetamol suppository in an Icelandic study.[29] Rectal administration of antipyretics has a risk of overdose; therefore, it is recommended that rectal dosing should be based on the child's body weight to ensure the child's safety. Rectal Paracetamol is only recommended in circumstances where oral administration is impossible such as vomiting or refusal.[13]

Different traditional methods to reduce physical temperature such as peripheral cooling by Iced water application and rubbing the body with alcohol are practiced in different countries which are not recommended, as their usage may be associated with adverse effects like a paradoxical increase in fever, brain damage (cold application) and hypoglycemia, coma even death (alcohol rubbing).[22] Homeopathic or herbal medicines are also very popular methods preferred by mothers.[20,22] In our study, 14% of the mothers believed in traditional practices as the better option than antipyretics to combat fever. In the current study, almost half of the mother's (51%) best choice was antibiotics to reduce fever in children, which is considered a very bad practice.[22] There was evidence of pre-hospital exposure to antibiotics for the febrile children provided by their mothers, with the preferences of Cefixime, Azithromycin, Cephradine, Amoxycillin, and unidentified in decreasing frequencies. Another study in Uganda revealed the order as Amoxycillin, Erythromycin, Metronidazole, and Ciprofloxacin to the febrile children by mothers.[30]

Consistent with other studies, Paracetamol was the most common choice (91%) of the mothers in our study (figure II).[8,22] On the contrary, German parents prefer Ibuprofen more than Paracetamol.[14] There are a lot of controversies regarding the alternating use of Paracetamol and Ibuprofen for febrile children. Some authors do not recommend Ibuprofen due to the guarded safety of this practice.[27,29] In our context, where dengue fever is an

endemic disease, Paracetamol should be the best choice as an antipyretic for any age as Ibuprofen or Aspirin might cause extensive hemorrhage due to their antiplatelet effect.[31]

Conclusion:

The study found that mothers demonstrated poor perceptions and unethical practices in managing their febrile children at home. These findings highlight a significant lack of health literacy, which often results in heightened maternal anxiety and uncertainty when caring for a sick child. Inadequate knowledge about how to properly manage fever can lead mothers to adopt harmful or ineffective practices. As a consequence, this confusion and fear can contribute to unnecessary hospital visits and the inappropriate use of treatments. The study underscores that maternal apprehension often arises from not knowing when a fever is serious enough to require medical attention or how to appropriately treat it at home. This lack of confidence results in mothers either over-treating or under-treating the fever. Additionally, reliance on unproven traditional remedies or misuse of medications like antibiotics further compounds the problem. Antibiotic overuse, for example, can lead to resistance and other complications, which can exacerbate the situation.

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Conflicts of Interest: The authors declare no conflict of interest.

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