

PARENTAL KNOWLEDGE, ATTITUDES AND BELIEFS REGARDING FEVER IN CHILDREN

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Abstract

Background: Fever is one of the most common childhood symptoms. It causes significant worry and concern for parents. The present study aimed to describe parental knowledge, attitudes and beliefs regarding fever in children. **Materials and Methods:** A prospective questionnaire-based observational study was done at the Department of Paediatrics, Raja Mirasudar Hospital, Thanjavur, between January 2018 to December 2018. Children less than five years presenting with fever treated as or admitted to the ward were included in the study. Semi-structured interviews were conducted with 300 parents. The collected data was entered in MS Excel and was analysed and statistically evaluated using the SPSS-17 version. **Results:** More than half (75%) of parents considered fever a symptom, and only 14.3% knew it was a disease. 31% of parents defined normal body temperature, and only half (20.3%) knew that the fever could be measured with the help of a thermometer. 57% (171) answered the axilla as the best site for the examination of temperature, followed by the mouth at 20.7% and the rectum at 20.3%. 98.7% of parents used antipyretic medications to reduce the fever. The most commonly reported measure was antipyretic usage, followed by tepid sponging. A maximum number of parents (44.3%) in this study feared fits as the complication of fever followed by brain damage, dehydration and death. **Conclusion:** There is considerable awareness and fear among the parents of children regarding fever, leading to inappropriate management practices and unrealistic expectations from caregivers.

INTRODUCTION

Fever in children is the commonest cause for parents seeking primary consultation to health care setup.^[1,2] Younger children tend to suffer more episodes of febrile illnesses leading to more frequent physician consultations than children of the older age group. Acute febrile illness is also one of the commonest causes of hospital admissions in children.^[3] The cause of fever in young children is often difficult to identify, which poses a diagnostic challenge for healthcare providers. In most cases, childhood fever is due to a self-limiting viral infection, and the child recuperates without medical intervention. However, childhood fever may also be due to serious bacterial illnesses, such as urinary tract infections, septicemia, meningitis, and pneumonia, and may present complications, such as convulsions, seizures and dehydration.^[4,5] This creates a general phobia of

fever among caregivers and healthcare providers.^[1,4] Fever continues to be the number one reason for children's visits to the emergency department, which can be expensive, unnecessary, and lead to overcrowding.^[6] Most children presenting with fever are diagnosed with short-lived, self-limiting viral or non-complicated, milder forms of bacterial illness, which can be managed at home by the primary caregiver with supportive care measures and by imparting adequate knowledge to identify the early warning signs and follow-up advice. But often, there is ignorance and fear on the part of the parents regarding fever in younger children leading to their repeated consultations, sometimes with different physicians, within the same febrile illness episode. This may happen, especially if the fever persists for a longer duration.^[3]

Acute viral febrile illness generally presents with a sudden peaking of temperature, without any localising signs, which may sometimes persist for 3 to 4 days and gradually resolves by seven days. In such a scenario, adequate rest and hydration, along with antipyretics, form the mainstay of therapy and are generally self-limiting. However, it often leads to fear on the part of the parents, compelling them for repeated consultations. The main reason for re-consultation may be due to the lack of knowledge among parents or caregivers, parental anxiety and fear of any untoward event to their child due to fever. It may often lead to patient dissatisfaction with the healthcare setup.^[7,8] The patient's anxiety and dissatisfaction may sometimes be severe enough to compel the primary care physician to practice irrational prescriptions of antipyretic combinations and antibiotics. This may also lead to increased hospital admissions, increasing the burden and cost to the health care setup.^[9]

Though the knowledge among parents regarding fever and home remedial measures in managing acute febrile illness in younger children may be lacking, there are very few studies evaluating the parenteral knowledge and fear related to fever and its management in children. Based on this assumption that parental knowledge about fever may be lacking, an attempt was made to evaluate the knowledge, attitude and beliefs about fever among parents of children under five by a question-based survey presented to the paediatric OPD of a peripheral hospital in Thanjavur, Tamilnadu.

MATERIALS AND METHODS

The prospective questionnaire-based observational study was performed on 300 subjects at the Department of Paediatrics, Raja Mirasudar Hospital, Thanjavur Medical College, Thanjavur, from January 2018 to December 2018. Institutional

ethical committee approval and written informed consent was taken from all subjects before the start of the study.

Inclusion Criteria

All children under five years presenting with fever and admitted children with fever in the ward were included.

Exclusion Criteria

Children over five years of age, acutely ill children requiring ICU admission, and children whose parents were not giving consent were excluded.

A predesigned, pretested, semi structured questionnaire. Containing items on a) Identification data i.e. age, gender of child, primary caretaker, educational status, area of residence, socio-economic status caretaker. b) Knowledge, attitude and practice of people regarding fever. These questionnaires will be based on validated questionnaire.

Statistical Analysis

The collected data were entered in Microsoft Excel (Windows 11) and analysed using the statistical package for social sciences (SPSS-17). To find an association between two categorical variables Pearson chi-square test was used. The value of $P < 0.05$ is considered statically significant.

RESULTS

A total of 300 parents completed questionnaires. The distribution of the socio-demographic characteristics of the participating parents is shown in Table 1. A male predominance of 167 (55.7%) was reported. Most children were 0 to 2 years 128 (42.7%), whereas their parent mean age was 29.5 ± 5.2 years. The caretakers were mostly mothers 247 (82.3%) and graduates or illiterates 73 (24.3%). The majority of the parents were housewives 244 (81.3%) and living in rural areas 223 (74.3%).

Table 1: Observation of socio-demographic parameters of subjects

Parameters	Frequency (%)	
Gender	Male	167 (55.7%)
	Female	133 (44.3%)
Children age	0-2 years	128(42.7%)
	>2-4 years	59 (19.7%)
	>4years	113 (37.7%)
Parents age	11-20 years	4 (1.3%)
	21-30 years	156 (52%)
	31-40 years	132 (44%)
	41-50 years	8 (2.7%)
Mean age (mean± SD)	29.5 ± 5.2 years	
Sex	Mother	247 (82.3%)
	Father	53 (17.7%)
Education status of caretakers	Illiterate	73 (24.3%)
	Primary education	50 (16.7%)
	Secondary education	63 (21%)
	Higher education	41 (13.7%)
Occupation	Graduate	73 (24.3%)
	Coolie	18 (6%)
	Teacher	18 (6%)
	Engineer	14 (4.7%)
	Nurse	1 (0.3%)
	Clerk	4 (1.3%)

	Driver	1 (0.3%)
	Housewife	244 (81.3%)
Domicile distribution	Rural	223 (74.3%)
	Urban	77 (25.7%)
Knowledge of perception of fever	Symptom	225 (75%)
	Disease	43 (14.3%)
	Both	29 (9.7%)
	No idea	3 (1%)
Knowledge of recognising fever	Touching the child	196 (65.3%)
	Measuring by thermometer	61 (20.3%)
	Both	43 (14.3%)
Knowledge about the best site for the examination of temperature	Rectum	61 (20.3%)
	Mouth	62 (20.7%)
	Axilla	171 (57%)
	I don't know	6 (2%)
Knowledge of normal body temperature	36.5-37.9 (97.7-100.2F)	91 (30.3%)
	38-39(100.4-102.2F)	10 (3.3%)
	39-40(102.2-104F)	3 (1%)
	Don't know	196 (65.3%)
Knowledge on fever	<37.9(<100.2F)	52 (17.3%)
	38-38.8(100.4-101.8F)	25 (8.3%)
	38.9-39.9(102.2-103.8F)	3 (1%)
	40-41(104-105.8F)	3 (1%)
	I don't know	217 (72.3%)
Source of information about fever	Doctor	281 (93.7%)
	Searching and reading	8 (2.7%)
	Relatives and friends	5 (1.7%)
	Own parents	6 (2%)
Antipyretics used to reduce fever	Paracetamol	296 (98.7%)
	Combination	4 (1.3%)
Type of water used for sponging	Tepid	146 (48.7%)
	Hot	23 (7.7%)
	Cold	131(43.7%)
Body parts used for sponging	Whole body	262(87.3%)
	Head and axilla	30 (10%)
	Trunk	8 (2.7%)

Of all 300 parents, 225 (75%) parents knew that fever is a symptom and 43 (14.3%) regarded fever as a disease. The majority of parents recognised fever by touching 196 (65.3%), and 171 (57%) answered the axilla as the best site for the examination of temperature, followed by mouth 62 (20.7%) and rectum 61 (20.3%). In addition, most parents, 196 (65.3%) did not know about normal body temperature. Among the caretakers interviewed, 193 (93.7%) have received information about fever and its danger signals from doctors [Table 2].

Table 2: Observation of evaluation of different parameters of subjects

Parameters	Frequency (%)	
The practice of caretaker on the usage of antipyretic in rectal form	Yes	33 (11%)
	No	267 (89%)
Factors influencing the caretakers for using medications	Age	146 (48.7%)
	Sex	3 (1%)
	Weight	71 (23.7%)
	Severity of fever	80 (26.7%)
The maximum daily frequency of paracetamol usage	1	4 (1.3%)
	2	16 (5.3%)
	3	112 (37.3%)
	4	151 (50.3%)
	5	17 (5.7%)
Type of pharmaceutical form	Syrup	190 (63.3%)
	Tablet	89 (29.7%)
	Suppository	21 (7%)
Difficulties during the administration of medication	Children refusing to swallow the drug	58(19.3%)
	Children spitting it out	18 (6%)
	Children being too sleepy	6 (2%)
	both first two	113 (37.7%)
Knowledge about the side effects of paracetamol	Liver damage	128 (42.7%)
	Kidney damage	67 (22.3%)
	Allergic reaction	40 (13.3%)
	Gastric ulcer	65 (21.7%)
Every child with a fever needs antibiotics	Agree	175 (58.3%)
	Don't agree	125 (41.7%)
The expectation of caretakers while consulting a general practitioner	Physical examination	109 (36.3%)
	Reassurance	24 (8%)

	Advice on dangerous symptoms	27 (9%)
	Information about self-management	120 (40%)
	Giving medications	20 (6.7%)
A feared complication of fever	Fits	133 (44.3%)
	Brain damage	36 (12%)
	Dehydration	96 (32%)
	Death	4 (1.3%)
	Coma	4 (1.3%)
	No complication	27 (9%)

Most caretakers, 296 (98.7%), had good knowledge regarding antipyretic paracetamol and mostly used 146 (48.7%) tepid waters for sponging. Most caretakers sponged the whole body during fever 262 (87.3%). Most 267 (89%) caretakers didn't prefer using antipyretic in rectal form. The age of 146 (48.7%) was the main factor before using antipyretics. Of many caretakers, 151 (50.7%) used paracetamol up to 4 doses daily and few used five times daily. Antipyretic syrup was the most common 190 (63.3%) pharmaceutical form used [Table 2, Figure 1].

Among 300 caretakers, 196 (65.3%) had difficulties during the administering of antipyretic, like children refusing to swallow the medication, 58 (19.3%), children spitting it out 18 (6%), and 113 (37.7%) reported both. Most of the caretakers, 128 (42.7%), had adequate knowledge regarding the side effects of using paracetamol. More than half of mothers agreed they needed antibiotics when their child had a fever. In addition, most of the caretakers 120 (40%) expected information about self-management from doctors and feared complications about fever 273 (90%) [Table 3].

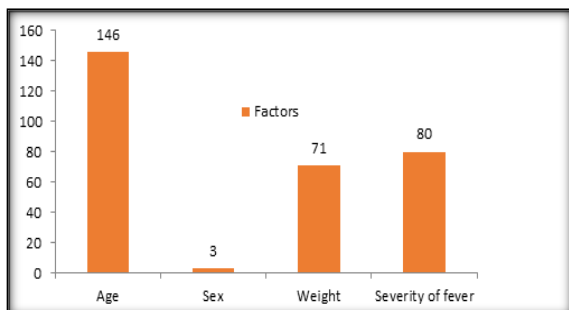


Figure 1: Factors influencing the caretakers for using medications

DISCUSSION

Most parents in the present study have adequate knowledge of fever, its measurement and management. Childhood fever management is an emotional issue motivated by fear of harmful outcomes. In our study, more than half (75%) of parents considered fever a symptom, and only 14.3% knew it was a disease. This is similar to the observation of the study by Rajput et al. questioned the perception of fever; 51% felt it was a symptom, and 21% felt it was a disease.^[10] Compared to the Chandigarh study, 35% considered it a symptom and the majority, i.e., 58%, felt it was a disease.^[11]

This difference might be due to good education and awareness among parents interviewed in the study.

In our study, 31% of parents defined normal body temperature. Youssef et al. found that 25% of parents described a temperature less than 38.0°C (100.4°F) as a fever. It is a contrast to our study.^[12] In 1998, Blumenthal surveyed 392 parents in the United Kingdom and found that 30% of parents could not define normal temperature.^[7] Similar results were reported by Pursell et al. in 2013, who found consistent results similar to this study.^[13] Taveras EM et al. found that 42% of parents knew the fever threshold, which agrees with the present study.^[14]

In a study conducted in Jordon, about 10% of parents believed that 38°C (100.4°F) or 39°C (102.2°F) is the normal body temperature of a small child. In comparison, approximately 14% considered a child with a temperature of 36°C (96.8°F) or 37°C (98.6°F) as feverish.^[15] In this study, only half (20.3%) of the parents knew that the fever could be measured with the help of a thermometer. Similarly, in a Palestine study, 61% of parents used a thermometer to detect fever.¹⁶ Caretakers have low knowledge regarding the usage of thermometers in measuring temperature.

In our study, 57% (171) answered the axilla as the best site for the examination of temperature, followed by the mouth 20.7% and the rectum 20.3%. It was consistent with a study conducted by Athamneh in Jordon in which 43% of the parents believed that the armpit (axilla) is the best place to take a temperature of a child under 6 is the armpit (axilla).⁵ In our study, 98.7% of parents used antipyretic medications to bring down the fever; 98.7% used Paracetamol, with 50.3% giving it at the correct maximum frequency. In the Chandigarh study, 57% used Paracetamol to bring down fever.^[11] A Denmark study reported parental views of Paracetamol were that their feverish child felt better, became more alert and slept easier after taking Paracetamol.^[17] Al-Eissa highlighted the inability of parents to administer the correct dose of antipyretic appropriately.^[18] In Israel, 57% of parents treated children with incorrect doses of antipyretic drugs and 11% were given a daily dose that could cause severe toxicity.^[19]

In our study, the following factors were considered before using the antipyretic, age of the child by 48.7%, severity of fever by 27.7%, and weight of the child by 23.7%, which is similar to a study done in Jordon where parents in this study based their calculation of dose on age (44%) and on the severity

of illness (38.4%) at a greater rate than the 10% who determined dose based on weight. This reflects poor knowledge regarding the recommendations that endorse basing the antipyretic dose on the child's weight rather than the age or other reasons.

This study's other most commonly reported measure was tepid sponging (48.7%). This is similar to the study conducted by Rajput et al. in West Bengal, India.^[10] Zyoud et al., from a Palestinian study, reported 49.8% of parents preferred cold sponges to treat fever.^[16] While comparing the findings with a similar study by Crocetti et al., it was found that 73% of caregivers sponged their child to treat a fever.^[4] When compared to a Canadian study, it was found that around 80% of parents were aware that cold sponging and de-clothing could reduce fever.^[20] Unlike antipyretics, external cooling does not reduce the elevated set point but overwhelms the metabolically expensive effect or mechanisms that the elevated set point has evoked. A Cochrane systematic review found a few small studies demonstrating that tepid sponging alone helps to reduce fever in children.^[21]

Most parents (93.7%) in this study claimed to have derived this information from doctors. Similar reports are shown in the study conducted by Rajput et al. in Maharashtra, with 31% from relatives and 5% each from their parents and reading material.¹⁰ Similar results were seen from the Italian study by Chiappeni et al., in which most parents (67%) reported considering their paediatrician as their primary resource for information about fever.^[22] Another study from Kanpur, India, noted majority of parents (62.80%) main sources of information about fever were health education talks at clinics and hospitals during previous illnesses and vaccination.^[23]

A maximum number of parents (44.3%) in this study feared fits as the complication of fever followed by brain damage, dehydration and death. This was similar to a study conducted by Rajput et al. in Maharashtra, where he reported most parents (28%) feared convulsions as the complication of fever followed by brain damage and death.^[10] In Saudi Arabia, approximately 95% of parents demonstrated undue fear of consequent body damage from fever, including convulsion, brain damage or stroke, coma, serious vague illness, blindness, and even death.^[18] Crocetti et al., from an American study, found that 21% of caregivers listed brain damage as the number one harmful effect of fever and 14% recorded death.^[4]

In our study, most of the (98.5%) parents knew paracetamol is an antipyretic and is used for fever management. Paracetamol can cause liver damage 42.7% or kidney injury was answered by 22.3% of parents in the present study. Similar findings by Agarwal et al. in Madhya Pradesh, nearly two-thirds, 278 (69.5%) of parents knew paracetamol is an antipyretic and is used for fever management. Paracetamol can cause liver or kidney injury was answered by 41.5% (166) of parents.^[24] In the

Palestinian research, 53.2% of parents believed antipyretics used to reduce fever were harmful. Allergic reactions (20.9%) and kidney damage (7.2%) were the most harmful outcomes reported by parents in their study.^[16] Similarly, another survey by Crocetti et al. showed that most (73%) of the parents believed antipyretics cause liver, stomach and kidney damage.^[4]

In this study, more than 50% of parents were literate, and it was found that knowledge of recognising fever and temperature measurement significantly varied with the education of parents ($P=0.001$). More than fifty percent of the parents in the present study were aware of complications of high-grade fever (which can lead to convulsion or brain injury). Awareness was higher at 61.6% (90) among parents over 30 than younger parents. This is similar to the study done by Crocetti et al., who concluded that 21% of parents believed that fever could cause brain damage, and 91% of parents believed that it could cause harm.^[4] Youssef et al. also reported that parents have a high fear of fever-related complications, and 35% of parents believed that it could cause brain injury. This was attributed to the fact that in their study, most parents had more than two children and were more than 30 years of age.^[12]

CONCLUSION

It is evident from the present study that there is considerable awareness and fear among the parents of children regarding fever, leading to inappropriate management practices and unrealistic expectations from caregivers. It is also observed that parental education directly correlates positively with awareness and practices. It is recommended that health education regarding common paediatric ailments should be provided to the parents at every contact with the health care providers. Audio-visual aids regarding thermometer use for fever measurement, method of cold sponging and measuring the dose of medication can be displayed and utilised in the waiting room where parents wait to visit the physician.

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