Original Article

Association of Maternal Education and Socioeconomic Status with the Management of Febrile Children Under 10 Years of Age in Lahore

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Abstract

Background: Parents frequently become anxious when dealing with febrile children. Inadequate maternal education and poor awareness can lead to improper management of febrile children which can lead to the prescription of inappropriate medication and other adversities like seizures, convulsions, brain damage, and even death.

Objective: The aim of this study is to assess the association of maternal education and socioeconomic status with their knowledge, attitudes, and practice in managing febrile children under 10 years of age in Lahore.

Methods: This was a descriptive cross-sectional study held in January and February 2024 conducted amongst parents of children under 10 years of age present at CMH Lahore and The Children's Hospital Lahore.

Results: Our study found 82.2% of parents considered fever to be hazardous to health. 37% defined fever at 38°C. 35.2% of the total participants gave antipyretics as their initial step to manage febrile children. 29.5% of the mothers with complete university education used digital thermometers. Fear of adverse outcomes included dehydration (14.2%), brain damage (9.3%), seizures (32.8%), death (3.6%) while 23.5% considered all of these to be caused by fever.

Conclusion: Maternal education is positively associated with both the use of antipyretics and knowledge about fever. Educated Mothers are more likely to use thermometers and to alternate between different antipyretics. The fear of unfavorable outcomes is common with a belief that fever could lead to adverse effects such as dehydration, confusion, lethargy, seizures, and brain damage.

Keywords: Fever, Antipyretics, Parents, Knowledge, Behavior

Introduction

Febrile children are a common cause of concern for parents. It is one of the most frequent complaints in emergency department visits and antipyretics are the most common medications administered to children. Fever is defined as a core temperature (rectal) of 37.5°C–38.3°C and a skin temperature (axillary) >37.2°C.[1] Fever can be an indicator of benign (e.g., the common cold) or severe conditions (e.g., lethal diseases and meningitis) and is usually self-limiting in children. Fever often accompanies self-limiting viral infections, though, in

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less than 10% of instances, it might indicate more severe illnesses. It occurs when either endogenous or exogenous pyrogens cause an elevation in the body's thermoregulatory set-point. It can be characterized as low grade [37.3 to 38.0 °C], moderate grade [38.1 to 39.0°C], high grade [39.1 to 41°C] and hyperthermia [>41 °C].[2]

Most parents seek information about fever management and worry about the potentially severe consequences of fever, such as seizures, brain damage, and even death, although these outcomes are rare, leading to heightened anxiety.[3] Physicians and nurses typically serve as the main sources of guidance on fever management for parents and caregivers. However, there exist differences in perspectives between parents and physicians regarding the use of fever-reducing medications.[4] Pediatricians typically start antipyretic treatment when a child's temperature rises above 38.3°C (101°F), primarily to improve the child's overall comfort.[5] Although only 13% explicitly cite discomfort as the main reason, enhancing comfort is generally understood as a key g9al of antipyretic use.[6] Mothers typically identify fever based on their child's overall appearance and often resort to self-medication.[7] Improper management of fever can pose potential harm, with reported adverse effects if not handled appropriately.[8]

Providing parents with consistent, evidence-based information on childhood fever management is crucial, and this can be accomplished through educational initiatives on fever and enhanced access to primary care.[9] Approximately 30 percent of Pakistan's population consists of children under 10 years imposing a high burden of childhood illnesses such as fever. There have been, however, limited studies and awareness programs to expand the knowledge of parents in this region. Moreover, a gap in existing studies acts as a hurdle in raising awareness amongst the parents. This study aims to assess the association of parental education and socioeconomic status with their knowledge, attitudes, and practice in managing febrile children under 10 years of age.

Methods

This was a descriptive, cross-sectional study carried out between January and February 2024 to assess the knowledge and management of fever amongst parents of children under 10 years of age in CMH Lahore and The Children's Hospital Lahore. **Ethical approval (Approval No. ORIC-CMH-LMC-2024-0021)** was obtained from the Office of Research, Innovations, and Commercialization (ORIC) CMH Lahore Medical College and IOD. The technique employed was convenience sampling. The sample size was calculated to be 246 with a 95% confidence interval and 6% error margin using the formula n = Z2*P (1-P)/m2). The parameters used were p= 0.36, z= 1.96, e= 0.06. A p-value <0.05 was considered significant. The confidence interval was >95%.[10] The **inclusion criteria** consisted of mothers of febrile children under 10 years of age presenting in the outpatient department of CMH Lahore and The Children's Hospital Lahore presenting from different areas of Punjab. **Exclusion criteria** was children above 10 years of age, those who were not febrile, and those who had serious medical conditions. The sociodemographic status of the participants was defined as low class (<50,000 rupees), middle class (50,000 to 100,000) and high class (>20,000).[10]

The data was collected through a pre-tested questionnaire conducted in person through verbal communication with parents of children under 10 years of age.[11] Verbal consent was acquired from the participants. The privacy of all participants was respected, and all information obtained was kept confidential. Sociodemographic data (age, origin, socioeconomic level) and data related to knowledge (7 items), behavior (7 items), and fears (6 items) in the management of fever were collected by a questionnaire. The questionnaire was adapted from a published research paper.[11] The value of reliability for the questionnaire was calculated with Cronbach's alpha method (by administering the tool to about 20 parents who were not included in the sample) yielding a value of 0.613. The Author of the questionnaire gave his permission for the usage of the scale in the published research article. Moreover, for validity, the questionnaire was also checked by experts in the field.

The dataset was checked for missing data before analysis. It was then analyzed through Statistical Packaging for the Social Sciences Software (SPSS) version 29. Descriptive analysis was performed in which frequencies, means, and standard deviations were obtained to explain the demographic characteristics of the participants. The data was then represented through charts and tables. Chi-square test was used to check the association of maternal

education with knowledge of fever and antipyretic usage as well as socioeconomic status with use of antipyretics.

Results

A total of 250 mothers were extended invitations to participate in the study, and 247 responded, resulting in a response rate of 98.8%. No case was excluded. Sociodemographic outcome measures are described in Table I. The responses for the knowledge of fever are presented in Table II. Out of all the survey participants, 203 (82.1%) considered that fever was detrimental to health. 166 parents (67.2%) opted to use a thermometer for measuring body temperature, while 79 mothers (32%) abstained from such practice. Most mothers considered a temperature of 39°C to be notably severe. A total of 82 (32.8%) participants held the belief that fever could precipitate seizures, while 58 (23.5%) believed it could lead to seizures, brain damage, or death. Removal of clothing and liquid provision was opted by 37.2% of the respondents as their initial treatment, while 35.2% percent administered antipyretics to their child. 77.3% sought medical advice during their child's recent fever episode. 42.5% practiced routine co-sleeping. 41.3% of the participants anticipated a physical examination from the doctor, while 22.7% expected antipyretic medications. Most of the participants in all three socioeconomic classes used antipyretics preferring acetaminophen and ibuprofen over the others. The use varied from 1 to 6 times a day. The drugs were used after a prescription from the pediatrician by about half of the people. 95% of the respondents used antipyretics, with 47% using acetaminophen, 32% ibuprofen, and 17% both. Table III presents the results for association of maternal education and management of fever. Mothers with higher education were more inclined to use thermometers and opted for alternate use of antipyretics switching between acetaminophen and ibuprofen. Mothers with complete university education showed the highest preference for acetaminophen and ibuprofen while those with complete primary education employed alternate antipyretic therapy. In total, 61% followed alternating antipyretic drug regimens as recommended by pediatricians. In relation to behaviors driven by fear of fever, 55% of parents reported waking their child at night to administer antipyretics, while 43% chose not to disturb their child's sleep.

There was a statistically significant association between socioeconomic status and the use of antipyretics, type of drug used, frequency of administration, and source of indication (Table IV). Lower and middle classes predominantly used acetaminophen or its combination with ibuprofen, while upper classes showed a preference for ibuprofen. Frequency of drug administration varied, with middle and upper classes more likely to use antipyretics 5–6 times/day. Pediatricians were the main source of recommendation, especially in the lower class.

Table I: *Frequency of participants with respective educational and socioeconomic levels*

n = 247		Frequency (%)
Maternal Education	Incomplete primary education	62 (25.1)
	Complete primary education	47 (19)
	Incomplete secondary education	14 (5.7)
	Complete secondary education	39 (15.8)
	Complete university education	83 (33.6%)
	N/A	2 (0.8)
Socioeconomic level	Lower class	100 (40.5)
	Middle class	109 (44.1)
	Upper class	38 (15.4)

n=Number of Participants, Data presented as frequency and percentages.

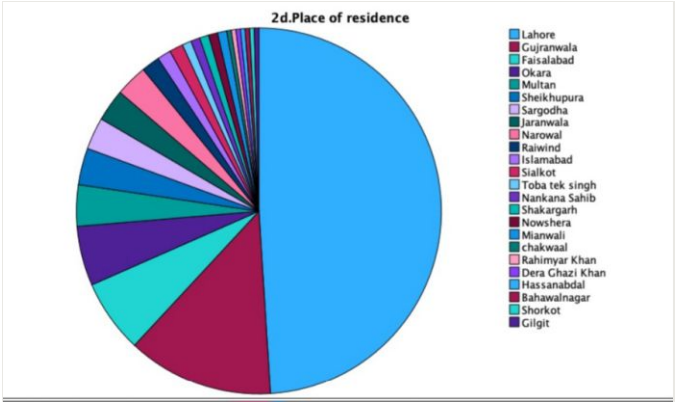

Figure-I: *Place of residence of the study participants*

Table II: *Knowledge of fever among the mothers with their respective frequency.*

n = 247		Frequency (%)
Q3. Do you use a Thermometer to measure body temperature?	Yes	166 (67.2)
	No	79 (32)
Q4. If you use a thermometer, what type is it?	Ear	1 (0.4)
	Forehead	5 (2)
	Digital	73 (29.6)
	Mercury	98 (39.7)
	N/A	70 (28.3)
Q5. If you use a thermometer, in what part of the body do you take the temperature?	Armpit	136 55.1)
	Forehead	12 (4.9)
	Mouth	28 (11.3)
	N/A	71 (28.7)
Q6. If you do not use a thermometer what method do you use?	by hand	78 (31.6)
	flushing and fatigue	6 (2.4)
	N/A	163 (66)
Q7. What temperature do you consider fever (in Celsius)?	37	7 (2.8%)
	37.5	44 (17.8)
	38	84 (34)
	38.5	41 (16.6)
	>39	30 (12.1)
	N/A	41 (16.6)
Q9. Do you think fever may cause any of the following?	Dehydration	35 (14.1)
	None	36 (14.6)
	Brain damage	23 (9.3)
	Seizures	81 (32.8)
	Death	9 (3.6)
	All	58 (23.5)
	Confusion and Weakness	5 (2)

n= Number of Participants, Data is presented as frequency and percentage

Table III: *Association of maternal education and management of fever*

		Which drug(s) do you normally use?					p-value
		Acetaminophen	Ibuprofen	Acetaminophen and ibuprofen	Augmentin	Amoxicillin	
Level of maternal education	Incomplete primary education	29	14	14	1	0	> 0.05
	Complete primary education	26	6	12	0	1	
	Incomplete secondary education	6	3	4	1	0	
	Complete secondary education	18	15	5	0	1	
	Complete university education	36	40	7	0	0	
		How often do you give it to your child?					
		1 to 2 per day	1 to 2 per day	3 to 4 per day	5 to 6 per day		p-value
Level of maternal education	Incomplete primary education	23	32	2	5		
	Complete primary education	14	28	4	1		
	Incomplete secondary education	3	4	4	3		<0.001
	Complete secondary education	5	23	3	8		
	Complete university education	35	32	14	2		
		Do you alternate between several anti-fever drugs?					
		Sometimes	never	Always	N/A		p-value
Level of maternal education	Incomplete primary education	34	21	7	0		
	Complete primary education	24	19	3	1		
	Incomplete secondary education	9	5	0	0		<0.001
	Complete secondary education	22	12	5	0		
	Complete university education	62	18	3	0		

n= Number of Participants p-value calculated by Chi square test and p value < 0.05 considered significant.

Discussion

In our study, the population consisted of mothers of children 10 years, of whom 33.8% had complete university education. The participants were based in different parts of Punjab and comprised more of lower

Table IV: *The association of socioeconomic status with use of antipyretics.*

Socio-economic Status	Do you use any drug to lower the fever?			p-value		
	Yes	No				
Lower class	99	1				
Middle Class	104	5		0.008		
Upper Class	33	5				
Which drug(s) do you usually use?						
	Acetaminophen	Ibuprofen	Acetaminophen and ibuprofen	Augmentin	Amoxicillin	p-value
Lower class	54	16	24	0	1	
Middle class	45	47	14	1	1	0.005
Upper class	17	16	4	1	0	
How often do you give it to your child?						
	1 to 2 per day	3 to 4 per day	5 to 6 per day	N/A	p-value	
Lower class	31	60	5	4		
Middle class	35	45	16	13	0.025	
Upper class	14	16	6	2		
If you do so, who gave you the indication?						
	Family/Friends	Pharmacist	Pediatrician	label	N/A	p-value
Lower class	6	10	62	0	22	
Middle class	19	17	57	2	14	0.041
Upper class	4	8	22	1	3	

n= Number of Participants, p-value calculated by Chi square test and a value < 0.05 is considered significant.

and middle socioeconomic groups. Although recent research suggests a more permissive approach to fever because of its antimicrobial and immune developing function, our results showed that 82.2% of people considered fever to be bad for their health. 67% of the participants used a thermometer to check for fever at home.[12] Despite the hazards of mercury thermometers in cases of mishandling, that include sensory changes, cognitive defects, and incoordination, 39% of the people used them, followed closely by digital thermometers.[13] 28% of the mothers did not use thermometers at all and relied on palpation by hand to determine fever. There was limited knowledge and access to other types such as ear or forehead thermometers despite the ease of usage. The predominant site to check fever was axillary which is considered safe and is recommended by The American Academy of Pediatrics.[14] About 34% of the participants defined fever in children accurately as being >37.5 which is according to UNICEF guidelines.[15] Over two-thirds, however, could not correctly define fever.

The first line of management by 37.2% of mothers was to remove the clothes of febrile children and give them fluids. While 35.2% gave antipyretics which depicts their common use since they are easily available and give rapid relief. Although these should not be given immediately if the temperature is higher than normal, but when the child is in pain, discomfort, or lethargic.[16] The benefits of using physical methods to lower temperature are well-backed scientifically. About 59.2% of the mothers used sponging with lukewarm water to help lower temperature which was found to be more effective than using antipyretics alone.[17] Almost all of the participants got their children checked during recent episodes of fever and

about half made sure that their children slept with them during febrile episodes. This reflects their increased fear of the consequences of fever like in other regions. Most of them considered fever as a cause of seizures, dehydration, brain damage, and death in children which leads to elevated anxiety in dealing with febrile children.[18] Studies have claimed, however, that febrile seizures do not cause brain damage and death in most cases.[16]

During their visit to the pediatrician, mothers preferred a physical examination (41.3%) followed by an indication for antipyretics (22.7%) which shows their awareness about the fact that fever has an underlying cause. Almost all of the participants used drugs to lower fever. Acetaminophen was used abundantly and second in line was Ibuprofen. 61.1% of the mothers gave alternate doses of acetaminophen and ibuprofen which may be more effective in lowering body temperature but not so much in reducing a child's discomfort.[19] A small percentage of people were incorrectly given antibiotics for fever which depicts their lack of knowledge and can lead to adverse effects and multidrug resistance.[20] Almost half of the parents gave the correct dosage of antipyretics but 32.4% underdosed which can cause increased load on health services. Many parents tend to give when there is little to no fever which can mask serious illnesses or in high doses, cause hepatotoxicity.[21] More than half of the total parents woke their sleeping children to give them antipyretics which is not recommended as the aim of treating fever is to minimize discomfort of the child rather than reducing the temperature.[22]

Our research presents a strong correlation between maternal education and the use of thermometers for temperature monitoring [$p<0.05$]. Parents with high maternal education had a significant proclivity to use thermometers. Mothers with limited education had constrained awareness regarding the management of fever. Prior studies have validated that maternal understanding regarding fever management profoundly augments with higher education.[23] Parents frequently used digital thermometers in the armpit for measuring the temperature as they provide accurate, quick results and are cost effective. Given the fluctuation in measurements obtained from various types of thermometers and different measurement sites, the natural variation of body temperature appears erratic. For evaluation and counseling purposes with parents, reference values in literature recommend that a moderate fever is signified by an axillary temperature of 38.5°C which was what most of the educated mothers defined it as.[24]

Parents significantly employed acetaminophen for the treatment of fever. Acetaminophen was extensively utilized as an antipyretic since it is easily available and commonly known to most parents. Furthermore, it has remarkable potency and an excellent safety profile.[25] It reaches peak plasma concentration within 30 minutes of oral intake, with the onset of the highest temperature reduction occurring approximately within 2 hours thereby reducing discomfort in less time.

The results of our study indicate that better-educated parents opted for alternative use of antipyretics whereas those with limited levels of education did not.[25] Studies have shown that alternate use of ibuprofen and acetaminophen is more effective at lowering body temperature but their effect on reducing the discomfort of the child is not well documented.[20] However, studies reporting the safe effective dosage and alternating the use of antipyretics are limited. Most parents of all three socioeconomic classes used antipyretics. Amongst them, most belonging to lower socioeconomic status preferred acetaminophen with ibuprofen second in line (p value= 0.005). This is because of the cost-effectiveness, easy availability, and common use of these medications. Acetaminophen is a safe drug while ibuprofen can cause febrile seizures in a few genetically susceptible people.[16] About half of the parents gave correct dosage while others dose 1-2 times per day which is sub therapeutic for febrile children.[25] Empowering parents with accurate, evidence-based information may reduce the misuse of medications, prevent unnecessary diagnostic testing, and alleviate the anxiety often associated with childhood febrile illnesses.

Conclusion

Maternal education is positively associated with both the use of antipyretics and knowledge about fever. Educated Mothers are more likely to use thermometers and to alternate between different antipyretics. The fear of unfavorable outcomes is common with a belief that fever could lead to adverse effects such as dehydration, confusion, lethargy, seizures, and brain damage.

Limitations and Recmondations: The study was limited to the parents of febrile children in CMH Lahore and The Children's Hospital Lahore so the results may vary in a different setting. Future studies at larger scales are recommended to identify gaps in knowledge and the influence of factors such as education and socioeconomic status. The findings of current study highlight the need for targeted educational programs to train parents across all socioeconomic groups in the appropriate management of fever, including correct medication use, dosing frequency, and seeking professional medical advice.

Conflict of Interest: None

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Ethical Considerations: Ethical approval (Approval no. ORIC-CMH-LMC-2024-0021) was obtained from the Office of Research, Innovations, and Commercialization (ORIC) CMH Lahore Medical College and IOD. Data was collected after informed written consent and confidentiality of data was explained.

Authors Contributions:

The listed authors are responsible for the integrity of the study and have substantially contributed in accordance with the ICMJE guidelines, as detailed below:

ABA: Conceptualizing, Data collection, Results, Drafting, Writing, Editing, Reviewing

MW: Literature review, Data collection, Writing, Reviewing

QUK: Supervising, analysis, Writing, Reviewing

IM: Literature review, Analysis, Results, Editing, Reviewing

EF: Data collection, analysis, editing, reviewing

RM: Literature search, writeup, Data collection, editing, revision

References

1. Mackowiak PA, Chervenak FA, Grünebaum A. Defining Fever. Open Forum Infect Dis. 2021;8(6):ofab161. doi: 10.1093/ofid/ofab161.
2. Balli S, Shumway KR, Sharan S. Physiology, Fever. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024. Available from: https://www.ncbi.nlm.nih.gov/books/NBK562334/
3. Ng HL, Li H, Jin X, Wong CL. Parental knowledge, attitudes, and practices towards childhood fever among South-East and East Asian parents: A literature review. PLoS One. 2023;18(9):e0290172. doi: 10.1371/journal.pone.0290172.
4. Chiappini E, Cangelosi AM, Becherucci P, Pierattelli M, Galli L, de Martino M. Knowledge, attitudes and misconceptions of Italian healthcare professionals regarding fever management in children. BMC Pediatr. 2018;18(1):194. doi: 10.1186/s12887-018-1173-0.
5. Hussain SM, Al-Wutayd O, Aldosary AH, Al-Nafeesah A, AIE'ed A, Alyahya MS et al. Knowledge, Attitude, and Practice in Management of Childhood Fever Among Saudi Parents. Glob Pediatr Health. 2020;7. doi:10.1177/2333794X20931613.
6. Sakr F, Toufaili Z, Akiki Z, Akel M, Malaeb D, Dabbous Mmaet al. Fever among preschool-aged children: a cross-sectional study assessing Lebanese parents' knowledge, attitudes and practices regarding paediatric fever assessment and management. BMJ Open. 2022 ;12(10):e063013. doi: 10.1136/bmjopen-2022-063013.
7. Doan Q, Enarson P, Kissoon N, Klassen TP, Johnson DW. Rapid viral diagnosis for acute febrile respiratory illness in children in the Emergency Department. Cochrane Database Syst Rev. 2014;2014(9):CD006452. doi: 10.1002/14-651858.CD006452.
8. Waly, E.H.; Bakry, H.M. Assessment of Egyptian Mothers' Knowledge and Domestic Management Practices of Fever in Preschool Children in Zagazig City, Sharkia Governorate. Children (Basel). 2022;9(3):349. doi: 10.3390/children9030349.
9. Tshimungu FK, Kakwaka CK, Atuba PM, Furra FK, Ilunga JF, Mujinga DT. Knowledge, Attitudes and Practices of Mothers Concerning Fever among Children under Five Years of Age in the Mabulu 2 Quarter in Kinshasa. Open Access Library Journal. 2023;10(9):1-2. doi: 10.4236/oalib.1110396.
10. Shahid A, Sadiqa A, Saeed MS, Hayat R, Fatima R, Khan S. Determinants of underweight school children in Lahore. Ann King Edw Med Univ. 2021;27(1):56-61. doi: 10.21649/akemu.v27i1-.44015.
11. Castellano VE, Talamona N, Giglio ND, Sabbaj L, Gentile Á. Knowledge and management of fever in parents of children under 5 years of age at a children's hospital. Arch Argent Pediatr. 2020;118(2):89-94. doi: 10.5546/aap.2020.eng.89.

12. Ray JJ, Schulman CI. Fever: suppress or let it ride? J Thorac Dis. 2015;7(12):E633-E636. doi: 10.3978/j.issn.2072-1439.2015.12.28.
13. Assimamaw NT, Gonete AT and Terefe B. Survey of knowledge, practice, and associated factors toward home management of childhood fever among parents visiting Gondar health facilities in 2022. Front Pediatr. 2024;12:1100828. doi: 10.3389/fped.2024-.1100828.
14. Temperature measurement in paediatrics. Paediatr Child Health. 2000;5(5):273-284. doi: 10.1093/pch/5.5.273.
15. Factor SH, Schillinger JA, Kalter HD, Saha S, Begum H, Hossain A et al. Diagnosis and management of febrile children using the WHO/UNICEF guidelines for IMCI in Dhaka, Bangladesh. Bull World Health Organ. 2001;79(12):1096-1105.
16. Vicens-Blanes F, Miró-Bonet R, Molina-Mula J. Analysis of Nurses' and Physicians' Attitudes, Knowledge, and Perceptions toward Fever in Children: A Systematic Review with Meta-Analysis. Int J Environ Res Public Health. 2021;18(23):12444. doi: 10.3390/ijerph182312444.
17. Villarejo-Rodríguez MG, Rodríguez-Martín B. Parental Approach to the Management of Childhood Fever: Differences between Health Professional and Non-Health Professional Parents. Int J Environ Res Public Health. 2019;16(20):4014. doi: 10.3390/ijerph16204014..
18. Chang LC, Liu CC, Huang MC. Parental knowledge, concerns, and management of childhood fever in Taiwan. J Nurs Res. 2013;21(4):252-260. doi: 10.1097/jnr.0000000000000007.
19. Samir N, Hassan MZ, Biswas MAAJ, Chowdhury F, Akhtar Z, Lingam R et al. Antibiotic Use for Febrile Illness among Under-5 Children in Bangladesh: A Nationally Representative Sample Survey. Antibiotics (Basel). 2021;10(10):1153. doi: 10.3390/antibiotics10101153.
20. Green R, Webb D, Jeena PM, Wells M, Butt N, Hangoma JM et al. Management of acute fever in children: Consensus recommendations for community and primary healthcare providers in sub-Saharan Africa. Afr J Emerg Med. 2021;11(2):283-296. doi: 10.1016/j.afjem.2020.11.004.
21. Taveras EM, Durousseau S, Flores G. Parents' beliefs and practices regarding childhood fever: a study of a multiethnic and socioeconomically diverse sample of parents. Pediatr Emerg Care. 2004;20(9):579-587. doi: 10.1097/01.pec.0000139739.46591.dd.
22. Sullivan JE, Farrar HC. Section on Clinical Pharmacology and Therapeutics; Committee on Drugs. Fever and antipyretic use in children. Pediatrics. 2011;127(3):580-587. doi: 10.1542-/peds.2010-3852.
23. Nazme NI, Jafran SS, Sultana J. Knowledge and practice of caregivers for the management of their febrile children: Bangladesh perspective. J Pediatr Neonatal Care. 2023;13(2):93-98. doi: 10.15406/jpnc.2023.13.00498.
24. Çelik T, Güzel Y. Parents' Knowledge and Management of Fever: “Parents Versus Fever!”. Turk Arch Pediatr. 2024;59(2):179-184. doi: 10.5152/TurkArchPediatr.2024.23152.
25. Chaudhary P, Sharma R, Rawat S, Janmeda P. Antipyretic Medicinal Plants, Phytocompounds, and Green Nanoparticles: An Updated Review. Curr Pharm Biotechnol. 2023;24(1):23-49. doi: 10.2174/1389201023666220330005020.