Advances in Bioresearch
Adv. Biores., Vol 12 (1) January 2021: 145-151

Print ISSN 0976-4585; Online ISSN 2277-1573
Journal's URL:http://www.soeagra.com/abr.html
CODEN: ABRDC3
DOI: 10.15515/abr.0976-4585.12.1.145151

Advances in Bioresearch

ORIGINAL ARTICLE

Knowledge, attitude and response of mothers tofever in their children in Hail City

Mona Madbouly Shahin 2 , TamamMurdi Alshammari 1 , HawreyahJazza Alshamary 1 , Shada Khaled Bashantoof 1 ,Farida Habib Khan 3 , Madiha Rabie Mahmoud 4
1 Medical students at college of medicine, University of Hail, KSA
2 Assistant professor, Department of Pediatrics, University of Hail, KSA
3 Professor Department of Community Medicine, College of Medicine, University of Hail,
4 Professor Department of Pharmacology Dept., College of Medicine, Hail University, KSA
[4]Professor Department of Pharmacology Dept., TBRI, Ministry of High Education and Scientific Research, Egypt

ABSTRACT
Fever and febrile considered as the most common occurring signs of illness during childhood that triggers several concerns among parents. Although it is a natural defense mechanism of some diseases but it still a remarkable source of fear for parents. Our study aimed to assess the knowledge about fever, attitudes and responses of mothers to fever towards their children in Hail City, Saudi Arabia. A cross sectional noninterventional study conducted in Hail, from April 2018and continued for three months. During the study period, 524 mothers of young children participated and completed a self-administered questionnaire. A verbal consent was taken from parents before interviewing them. About 401(76.5%) of them others used thermometer as temperature measuring tools. About half of mothers considered 36.4 °C as a normal body temperature. About third of mothers used a child armpit to measure the body temperature. About 37% considered apathy as a symptom of a high temperature followed by a spasm 31.3%. Majority of mothers (80.4%) selected tonsillitis as a cause of elevated body temperature. Most of mother's response to a child hyperthermia was by using cooling measures(42.6 %)followed by using antifebrile drugs (30.3 %). For most of the mothers, the agreeable place to use cooling measures was the axilla part (44%).Most of the study sample consider a child age/weight in mind as regard dosage of an anti-febrile drugs (81.1%). Also, 87.8% of them prefer to visit a doctor as a response to an uncontrolled fever. The findings of this study show that most of the mothers in Hail region have a baseline health knowledge regarding fever in children but it's insufficient and they need more health education.
Keywords: *Knowledge, attitude, practice, fever management,anti-febrile drugs.*

Received 12.11.2020 Revised 26.12.2020 Accepted 11.01.2021

How to cite this article:
M M Shahin , T M Alshammari , H Alshamary , S K Bashantoof ,F H Khan, M R Mahmoud. Knowledge, attitude and response of mothers tofever in their children in Hail City. Adv. Biores., Vol 12 (1) January 2021: 145-151

INTRODUCTION

Fever is defined as elevation in body temperature above the normal daily variation[1]. Normal temperature considered as between 36 and 36.8 °C [2]. Fever is one of the most common occurring signs of illness during childhood that triggers several concerns among parents [3]. It is a response of the body to some situations, the most common of which is infection[4]. Although it is considered as a natural defense mechanism, it's still a remarkable source of fear for families[5]. Thus, the fever remains the most common reason that makes the parents to visit a doctor or use emergency services [6,7]. In some studies, a frequency of visits to the doctor due to fever in children has been reported as 19 to 30% to about 50% in other studies [8,9].Parents worry when their child is feverish and feel that fever may spiral upwards with a possible fatal outcome [10]. This wrong perception of fever by parents and their excessive worries lead to repetitive visits to health care centers and impose unnecessary costs, also make the parents use of inappropriate treatments and sometimes drug poisoning happened by consumption of substandard drugs, leading to multiple visits to pediatric emergency facilities [11,12].Studying of mothers' perceptions and attitudes towards fever and its treatment found that most mothers did not know how to manage

fever [13].Study of Kallestrup and Bro stated that parents sought the medical advices when their children had fever because of fear of lack to control the condition (half of parents), fear of symptom relief and also fear of serious disease [14], while, Walsh and his colleagues said that about 90% of parents considered moderate fever 40·0±1·0°C was harmful and about 77% of parents said it causing febrile convulsions[11]. Our study assessed the enrolled mothers' knowledge about fever in their children who were referred to the hospital for any reason of fever and investigated the factors that influenced their responses and fears about treating fever in Hail City.

MATERIAL AND METHODS

This study was a cross-sectional non-interventional study conducted in Hail region, Saudi Arabia in 2020. It was commenced in March 2020and continued for three months. The sample size was 524 mother that was randomly selected as the team focused on collection from public areas to get the appropriate knowledge level from the community. The questionnaires examined the socioeconomic level of the mothers, as well as their knowledge about fever and included questions that assess knowledge of mothers about cause of fever, the location of temperature measurement, temperature measuring tool, body temperature considered as fever, the first response to high fever, the location of peripheral cooling application, the method of peripheral cooling application, what to do for uncontrolled fever, the drugs given to reduce fever and the consideration given for using an antifebrile drug. For each correct answer, the mother gains one point and a total knowledge score out of eight was calculated.Data was analyzed using statistical package for social science (SPSS) version 24. The descriptive analysis was done using percentage for qualitative variables, $p < 0.05$ was considered statistically significant and all tests were two tailed.

RESULTS AND DISCUSSION:

Fever is one of the most common causes of visiting the doctor [15]and it is up to 20% of children in pediatric emergency presented with fever [16].Insufficient mothers' knowledges about fever was found in many studies [17]. The number of mothers participated in this study were 524, their ages ranged from 20 years to >45 years and most of them were 26-35 years (33.2%) and 20-25 years (24.8%). The majority had a bachelors' degree or higher (63.7%). About 40.6% of mothers had 1-2 children, 28.8% had 3-4, and 30.5% had more than five children. The demographic details of the sample are summarized in Table 1.

Table 1. Socio-Demographic information's about mothers

Variable		N (%)
Mother's age, years	**20-25**	**130 (24.8)**
	26-35	**174 (33.2)**
	36-45	**113 (21.6)**
	>45	**107 (20.4)**
Education status	**Illiterate**	**47 (9)**
	Primary school	**31 (5.9)**
	High school	**112 (21.4)**
	bachelors' degree or higher	**334 (63.7)**
No of children	**1-2**	**213 (40.6)**
	3-4	**151 (28.8)**
	5 <	**160 (30.5)**
Mother's occupation	**Housewife**	**254 (48.5)**
	Government employed	**229 (43.7)**
	Non-Government employed	**41 (7.8)**

Table 2 showed that, before determining if the child has a fever or not, body temperature should be first measured properly by using a thermometer. In our research we found that 76.5% of mothers used a thermometer as body temperature measuring tool. Similarly, study done by Baysoy showed 72% **[18],** other study done in Turkey was observed to be 50.1% [19], 15% with Parmar [20], with AlAteeqin Ryiadh, KSA 68% use oral thermometer [21].

Table 2. Mothers knowledge about fever and their attitudes &responses to fever in children		
Variables		**N (%)**
Body temperature measuring tool	**Thermometer**	**401 (76.5)**
	Manual measuring	**46 (8.8)**
	I don't know	**77 (14.7)**
The normal body temperature	**36.4**	**267 (51)**
	37.5	**232 (44.3)**
	38	**7 (1.3)**
	I don't know	**18 (3.4)**
Location of measuring body temperature	**Rectum**	**113 (9.1)**
	Ears	**304 (24.5)**
	Armpit	**441 (35.6)**
	Oral	**363 (29.3)**
	I don't know	**18 (1.5)**
Symptoms associated with high temperature	**Apathy**	**378 (37.2)**
	Vomiting	**175 (17.2)**
	Spasm	**318 (31.3)**
	dizziness	**118 (11.6)**
	I don't know	**28 (2.8)**
What causes the body temperature to rise?	**infection**	**262 (50)**
	otitis	**305 (58.2)**
	tonsillitis	**422 (80.4)**
	gastroenteritis	**256 (48.1)**
	Pneumonia	**174 (33.2)**
	I don't know	**47 (9)**
First response to a child hyperthermia	**Reduce clothes**	**52(9.9)**
	Cooling measures	**223(42.6)**
	Using antifebrile	**159(30.3)**
	Visit a doctor	**90(17.2)**
The peripheral cooling places	**Forehead**	**74(14)**
	Head	**43(8)**
	Axilla	**230(44)**
	Arms	**31(6)**
	Legs	**120(23)**
	Body	**21(4)**
	I don't know (IDK)	**5(1)**
The dose of antifebrile is adjusted based on what?	**High body TMP**	**99 (18.9)**
	Age/weight	**425 (81.1)**
The response to an uncontrolled hyperthermia	**Visit a doctor**	**460(87.8)**
	Using antibiotics	**53(10.1)**
	waiting	**11 (2.1)**
What is your source of information about high body temperature and how tomanage?	**Family and friends**	**182 (34.7)**
	Internet and social media	**79 (15.1)**
	health care provider	**236 (45)**
	Others	**27 (5.2)**

In our study, the majority of the mothers demonstrated a fairly good knowledge about normal body temperature but still inadequate. About fifty percent of mothers considered 36.4 °C as a normal body temperature and 44.3% considered 37.5°C as a normal body temperature. Also, a study conducted in Riyadh, Saudi Arabia showed very little information about normal range body temperature parents (Al-Eissa et al, 2000) [22]. These findings are also in compliance with the results of Rajput et al. (2014) where a little percentage of Indian parents had knowledge about normal body temperature [23]. In Qassim, KSA, high number of parents considered ≤37°C as normal temperature and > 50% of them considered ≥38°C as fever temperature 24 [23].In India more than one third of the parents did not know the correct temperature for fever (38.9%)[25].Regarding to location of measuring body temperature, the majority preferred the armpit (35.6%) (Figure 1). But more than 90% preferred armpit in Turkey [19], and study done by Baysoy[18] and other study in India[25].In Qassim, KSA, half of parents use the armpit site for measuring temperature [24], and 63% in Riyadh, KSA [21]. While other study by Stagnara, parents preferred the rectal measurement (82%) [26].

In our study, a high percentage of mothers considered the most common symptoms associated with high temperature was apathy (37.2%), followed by a spasm (31.3%) (Figure 2)., while a study conducted in turkey showed the cough (94 %) and sore throat (83 %) as a common symptom of fever [27].
In our study, the majority of mothers (80.4%) selected tonsillitis as a cause of elevated body temperature, followed by (58.2%) selected otitis, (17.8%) selected infection, (17.3%) selected gastroenteritis, (11.5%) selected pneumonia, and only (3.3%) of mothers did not know the causes of elevated body temperature (Figure 3).Regarding to causes of the body temperature to rise, majority of mothers believed tonsillitis as a cause followed by otitis. A study in Kuwait showed that (37%) don't know about causes of fever, 37% of parents replied infections is responsible for causing fever, (17%) parents think that diarrhea cause fever in children while only (10%) answered malaria as a cause fever [28], while in India said that infection was considered as a cause of fever (64%) [25].
There's a wide range of different responses to a child's fever according to the differences of knowledge and attitude among countries. In this study, most of mother's response to a child hyperthermia was by using cooling measures (42.6%), followed by using antifebrile drugs (30.3%). Most of mother's agreeable place to use cooling measures was the axilla part (44%) and the legs (23%). Most of the studies found that the mother's first response to a high fever is administration of anti-febrile drugs [19]. The present work shows that the first response was by using a peripheral cooling measures (42.6%) in a favor of reducing fever and relieving discomfort associated with, followed by using anti-febrile drugs (30.3%) (Figure 4). Other study stated that about 69% would use a water shower as a cooling measure[19]. In addition, Skin cooling measures lowers skin temperature to a much greater extent than it lowers core temperature as the capacity of external cooling may be limited by inducing both cutaneous vasoconstriction and shivering. Recent study (2018) in Riyadh, KSA 84% of parents applied cold compression and 75% gave no prescribed fever medication[21]. Therefore, for febrile children, the combination of sponging and administration of antipyretic drugs appears to lower temperature more rapidly as reported by other studies [29]. Parents used ice pack (62.7%) followed by wet sponging (23.3%) [24].Acetaminophen was the commonly used antipyretics in addition to using ice packs 24[23].Poor fever management was observed by 73% of parents [25]. About 90% of parents used antipyretics as fever management practice, followed by tepid sponging (75%). About 80% of parents used antibiotics to reduce temperature after being prescribed by doctors. Only eight percent of parents visit doctor for complete fever management[25].Recent study in Saudi Arabia showed that sixty percent of parents used acetaminophen to reduce fever, but majority of parents not sure from using antibiotics for treating infection. [30].Majority of the mothers consider a child age/weight in mind as regard dosage of an anti-febrile drugs (81.1%), while 18.9% concerning about elevated body temperature to relate the dosage regarding degree of elevation (Figure 5).Regarding mother's considerations about dosage adjustments of an anti- febrile drugs, most of the mothers positively consider the age/weight rather than the degree of body temperature, similarly reported by other study conducted in Turkey [19]. While in other study in AL Qassim showed that about 80% of parents didn't recommend the importance of weight in for adjusting the dose of antipyretic [24].Furthermore, (62%) of Saudi Arabia capital city population did not know the minimum temperature for administrating antifebrile drugs as stated by Youssef A. Al-Eissa[22] which may reflect a negative response as well. In this study, majority of the mothers (87.8%) prefer to visit a doctor as a response to an uncontrolled fever while (10.1%) of them would use an antibiotic. Recent study (2018) in Riyadh, KSA about 64% visit the physician as a response towards high temperature [21].
High percentage (45%) of mothers had gained their information regarding fever from a medical staff followed by family and friends (34.7%) (Figure 6).Using antibiotic without visit a doctor or determine the exact cause may inversely harm the child and may reduce his resistance. In illustrating the reasons of giving antibiotics to febrile child, 62% of parents depend on physicians or a medical prescription, while, 28% reported that they used it whenever they suspected infection. Only 9.6% of the parents insisted on prescribing antibiotics to their children, even if it was not considered necessary by the doctor. Only 10% believed that antibiotic should be prescribed to all children who developed fever [24]. In illustrating the reasons of giving antibiotics to febrile child, more than 60% of parents depend on physicians or antibiotics in the prescription to treat fever, while, 28% used antibiotics in case of suspected infection. About 10% of the parents insisted to give antibiotics to their children, even if it was not necessary [24].According to the source of gaining information about fever in Hail city, (45.4%) obtained knowledge from a medical staff followed by family and friends as a part of other experiences. Information provided from health care services considered as a protective and positive influence on the level of knowledge among such a community [19]. Study in Ireland, 2019 showed that education interventions give the parents clear and simple information and decrease the mismanagement of fever in children [31].

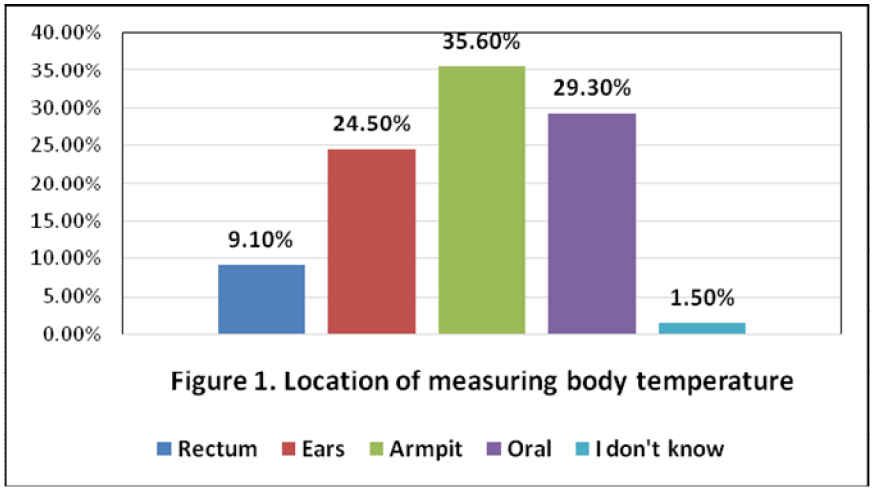

Figure 1. Location of measuring body temperature

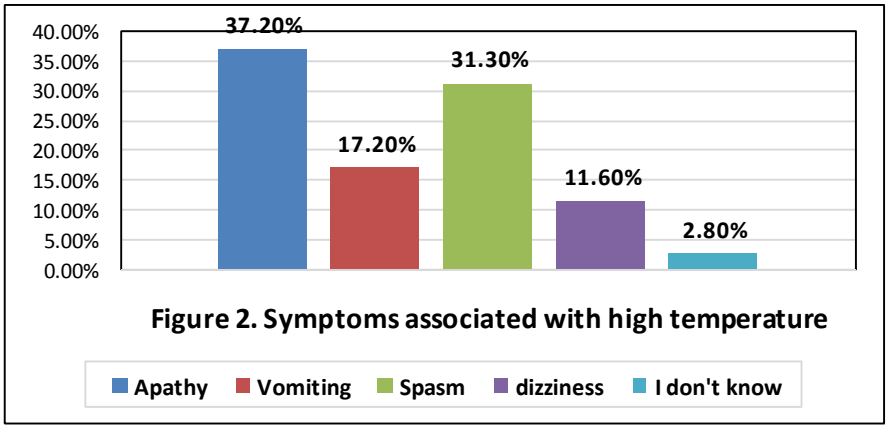

Figure 2. Symptoms associated with high temperature

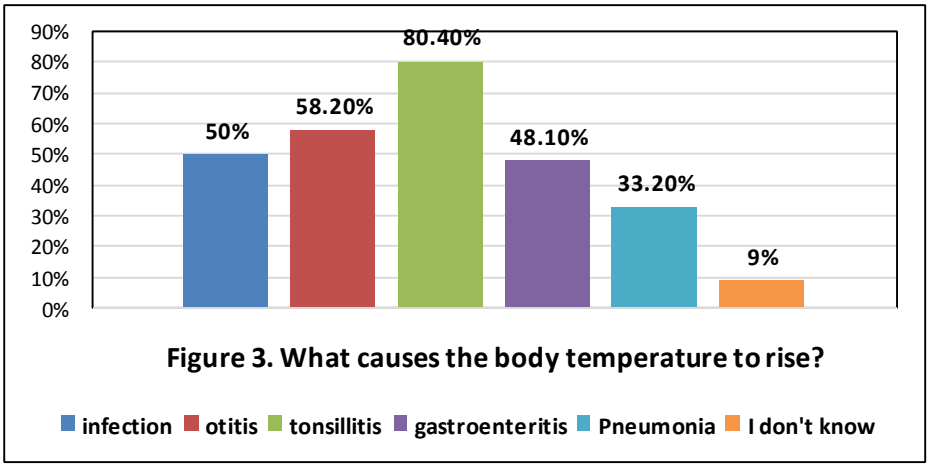

Figure 3. What causes the body temperature to rise?

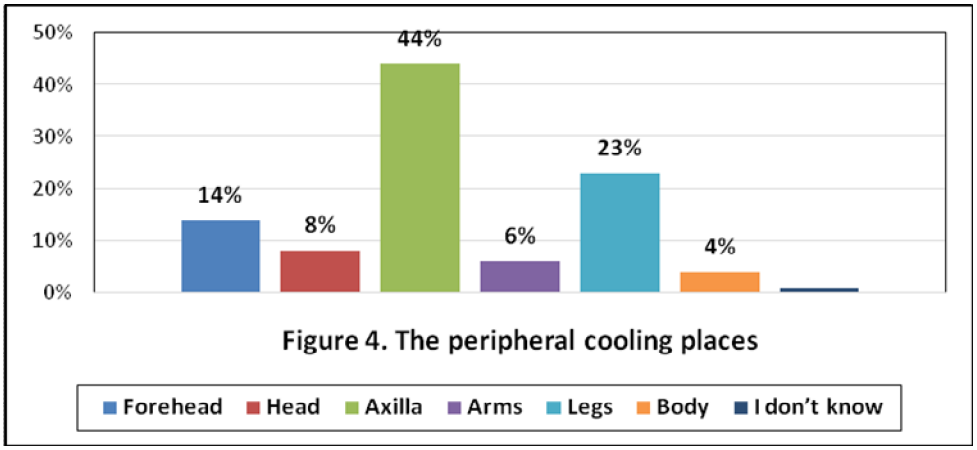

Figure 4. The peripheral cooling places

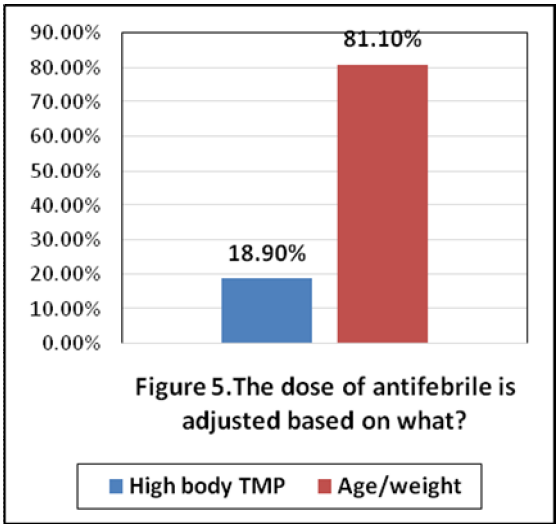

Figure 5.The dose of antifebrile is adjusted based on what?

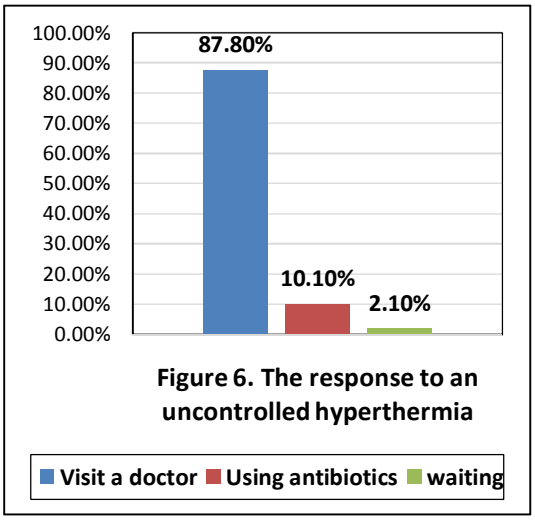

Figure 6. The response to an uncontrolled hyperthermia

CONCLUSION

The findings of this study show that most of the mothers in Hail region have baseline health knowledge regarding fever in children but it's insufficient. The percentages of wrong concepts are not acceptable. Thus, a multifaceted approach, targeting the mothers, is desired to maximize the awareness of mothers and to minimize misconceptions about fever that lead to inappropriate treatment and potential overutilization of healthcare services. Furthermore, educate parents about proper assessment, detecting, recording of fever and safe practicing of fever management at home should be enforced.

REFERENCES

1. Fields E, Chard J, Murphy M. Richardson, M.(2013).Assessment and initial management of feverish illness in children younger than 5 years: summary of updated NICE guidance. BMJ. 88(7):26.
2. Health Service Executive Ireland.(2015).Under the weather 2015 [Available from: http://undertheweather.ie/temperature-information. Last Accessed 25/4/16
3. O'Neill-Murphy K, Lyton B.(2001).Fever education: Does it reduce parent fever anxiety?. Pediatric Emergency Care. 17(1): 47-51.
4. D. Schmitt, B. (1984).Fever in Childhood. Pediatrics. 74 (5) 929-936
5. Rosti L, Crocetti M. (2002).'Fever phobia-Pediatrics, "Fever Phobia: The Pediatrician's Contribution." American Academy of Pediatrics. 09(7):555.
6. Sullivan, J. and Farrar, H.(2011).Fever and Antipyretic Use in Children. Pediatrics 127 (3) 580-587.
7. Langer, T., Pfeifer, M., Soenmez, A., Kalitzkus, V., Wilm, S. and Schnepp, W. (2013).Activation of the maternal care giving system by childhood fever – a qualitative study of the experiences made by mothers with a German or a Turkish background in the care of their children. BMC Fam Pract. 14, 35.
8. Ran D, Dennis G. (2004).Under-dosing of Acetaminophen by Parents and Emergency Department Utilization. Pediatric Emergency Care. 20(2):89-93.

9. Finkelstein J, Christiansen C, Platt R. (2008).Fever in Pediatric Primary Care: Occurrence, Management, and Outcomes. Pediatrics. 105(8):260-6.
10. El-Radhi,ASM. (2014).Fever management: Evidence vs current practice. World J Clin Pediatr. 1(4):29-33
11. Walsh A, Edwards H, Fraser J. (2008).Parents' childhood fever management: community survey and instrument development. Journal of Advanced Nursing. 63(4):376-388.
12. Taveras EM, Durousseau S, Flores G.(2004).Parents' beliefs and practices regarding childhood fever: a study of a multiethnic and socioeconomically diverse sample of parents. Pediatric emergency care. 20(9):579-87.
13. Impicciatore P, Violante A, Bonati M. Helping parents to cope whentheir preschool children are acutely ill. Educational interventions may defuse parents' concern. BMJ.1997;314:373.
14. Kallestrup P, Bro F.(2003).Parents' belief and expectations when presenting with a febrile child at an out-of-hours general practice clinic. Br J Gen Pract. 99(2):43-4.
15. KeatingeD, Rawlings K. (2005).Outcomes of a nurse-led telephone triage service in Australia. International Journal of NursingPractice. 11(1):5-12.
16. Betz MG, Grunfeld AF.(2006).Fever phobia'in the emergency department: A survey of children's caregivers. European Journal of Emergency Medicine.13(3):129-33.
17. Figueras Nadal, C ; De Miguel, Ma J ; Gomez Campdera, A ; Pou Fernandez, J ; Alvarez Calatayud, G ; Sanchez Bayle, M. (2002).Effectiveness and tolerability of ibuprofen-arginine versus paracetamol in children with fever of likely infectious origin. Acta Paediatrica. 91(4):383-90.
18. Baysoy G, Aydogmus T, Akın D, et al.(2005).Mothers' knowledge, attitudes and behaviors towards fever in their children. Turkish Pediatric Archive 40(4): 282.
19. Arica, S, Arica, V, Onur, H, Gülbayzar, S, Dağ, H. and Obut, Ö.(2011).Knowledge, attitude and response of mothers about fever in their children. Emergency Medicine Journal, 29(12), e4.
20. Parmar R, Sahu D, Bavdekar S.(2001).Knowledge, attitude and practices of parents of children with febrile convulsion. Journal of Postgraduate Medicine, 47(1);19-23.
21. AlAteeq, M. M., AlBader, B. O., Al-Howti, S. Y., Alsharyoufi, M. and Abdullah,J. B. (2018).Parent's knowledge and practice in home management of fever in their children in Riyadh, Saudi Arabia. J Family Med Prim Care. Sep-Oct; 7(5): 1012–1018.
22. Al-Eissa, Y., Al-Sanie, A., Al-Alola, S., Al-Shaalan, M., Ghazal, S., Al-Harbi, A., Al-Wakeel, A.(2000).Parental Perceptions of Fever in Children. Annals of Saudi Medicine, 20(3-4):202-205.
23. Rajput, U., Kulkarni, S., Wagh, S. (2014).Parental Knowledge, Attitude and Practices Regarding Fever in Their Children: A Hospital Based Observational Study. International Journal of Recent Trends in Science and Technology, 10(3):517-520
24. Almogbel, Y., Jouza H., Al-Qussair, Abdulrahman M. Alamri,Ahmad Alhowail and Mugahid A. Mobark.(2019).Parent's Attitude, Knowledge and Belief of Child's Fever Managements in Al-Qassim - Saudi Arabia.Journal of Pharmaceutical Research International, 31(1): 1-8.
25. Thota, S.B.,Ladiwala, N., Sharma, P. K., and Ganguly, E.(2018).Fever awareness, management practices and their correlates among parents of under five children in urban India. Int J Contemp Pediatrics. 5(4): 1368–1376.
26. Stagnara J, Vermont J, Durr F, et al.(2005).Parents' attitudes towards childhood fever. La Presse Médicale, 24:1129e36
27. Yavuz E, Yayla E, Cebeci S, Kirmili E, Gumustakim R, Cakir L, Dogan S.(2016).Parental beliefs and practices regarding childhood fever in Turkish primary care. Nigerian Journal of Clinical Practice.20(1):93.
28. Khan A, Khan H, Said A, Zeb A, Islam F.(2015).Knowledge, attitude and practice of parents regarding fever in children and its management at home.IJEHSR;3(3):p.01.
29. Axelrod P.(2000).External Cooling in the Management of Fever. Clinical Infectious Diseases. 31(5):224-229.
30. Alreshidi F, Albalawi G A Al Azmi K M, Al Rashdi Y D , Al-Rashidi A M, Ali N A. (2020).An exploration of Saudi parents' knowledge, attitudes, and practice toward childhood fever in Hail, Saudi Arabia. International Journal of Medicine in Developing Countries, 4(1):074–078.
31. Kelly,M., Sahm, L., SMcCarthy, S., O'Sullivan, R., Mc Gillicuddy,A., Shiely, F. (2019).Randomised controlled trial of an intervention to improve parental knowledge and management practices of fever BMC Pediatr, Nov 19;19(1):447. doi: 10.1186/s12887-019-1808-9.