Original Article

Knowledge, Health Seeking Behaviour on Febrile Conditions and Management Practices among Mothers of Under-Five Children in Selected Facilities in Ibadan, Nigeria

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Abstract

Background: Fever is the most common symptom of childhood illnesses and parents have been said to develop what is called "fever phobia" because of fear of death of their child. Due to this, parents' resort to various practices to manage fever which is also a function of the parents' knowledge about fever.
Objectives: This study investigated the knowledge, health seeking behaviour, and management practices of fever among mothers of under-five children.
Methodology: A cross-sectional descriptive design was used with a multistage technique to select 122 mothers from the Ibadan North and Akinyele Local government area of Oyo state. A self-developed instrument was used for data collection. Data were analysed and presented in frequency and percentages. Association between variables were tested using fisher's test, p value was set at 0.05.
Results: The mean age of the respondents was 30 years. Majority (75.5%) of mothers had good knowledge about fever in children. A majority (91.6 %%) stated that fever is a serious illness. More than half agreed that dehydration and discomfort (74.5%), convulsion and brain damage (83.4%) are negative outcomes of fever. Most (72.9%) of the mothers took their children to a health facility on account of fever. Majority (79%) gave drugs to manage fever in a child. Other methods used to manage fever include bathing the child (46.3%), tepid sponging the child (50.5%), prayer (43.8%), ventilation (37.7%), and a sprinkling of anointing oil (19.7%).
Conclusion: Findings from the study showed that mothers have good knowledge of fever. However, there is a gap in management. In the light of this, it will be imperative for nurses and midwives to educate mothers using on the management and prevention of fever in children.

Keywords: fever, knowledge, perception, management practices, Nigeria

Introduction

Fever is the most common symptom of illness during the period of infancy and toddlerhood, and the highest reason for referral of children to the hospital (Ravanipour, Akaberian, & Hatami, 2014). Consequently, fever is defined as a core body temperature greater than or equal to 38^0 C, and in isolation does not require any treatment (Kelly et al. 2016). Also, fever has been identified as the most common symptom in the under-five causing presentation to the clinic and is associated with nearly all possible diseases that can affect an under-five. Although fever is as a result of self-limiting viral infections and other forms of childhood infections like malaria (Kiemde et al. 2018), the annual child mortality and morbidity caused by childhood diseases can be reduced significantly with early intervention and proper care (Chandwani & Pandor, 2015), by early diagnosis and treatment of the root cause of the fever. Also, from studies that provided insight into the knowledge of mothers or

care-givers about fever in children, it was asserted that the level of knowledge in a caregiver influences the management and outcome of a fever incident. A national survey in France on parents' knowledge and practices in managing fever in children by Bertille et al. (2013), discovered that parental knowledge and concordance with recommendations in terms of measuring fever was high and low in physical and drug treatment. In another based on febrile convulsions in children, it was ascertained that 85% of the parents were unaware of the fact that convulsion can occur due to fever (Srinivasa et al. 2019).

In Africa, fever is usually the starting point for malaria and most other infectious diseases such as typhoid, and pneumonia in children in tropical countries where it serves as a useful diagnostic and prognostic marker (Obi-Nwosu, Nwosu Obi & Nnaji, 2016). Nigeria currently ranks 173rd in child mortality, and febrile conditions alongside diarrheal illnesses contribute > 60% of deaths in the under-five (UNICEF, 2012). Sometimes, the management of fever at home results in various unanticipated problems. Research has discovered that parents in a bit to manage fever, often do self-medication and misuse antipyretics by administering an overdose or underdose to the child. According to Babalola et al. (2018), the under-five mortality rate in Nigeria was 108.8 deaths per thousand live births for the year 2015, also febrile conditions and diarrheal illnesses accounted for > 60% of under-five mortality.Furthermore, under-five children are highly dependent on their caregivers, and their mothers are usually their primary caregivers. Mothers irrespective of the socio-demographic characteristics make the first diagnosis of their child's febrile illness by defining and interpreting changes in their child's behaviour and temperature despite this they still seek health care late (Lungu, Darker, & Biesma, 2020). Therefore, the decisions and interventions mothers provide in the home or before the presentation of the child in a clinic, are key to the treatment and recovery of the child from a fever condition. It is also worthy to note that the interventions provided by the mother or the primary caregiver could be based on their knowledge on child care. In furtherance, a major factor that can influence the management and outcome of a fever episode in a child is the socioeconomic status of the mother such as education, occupation, and income (Obi-Nwosu, Nwosu & Nnaji, 2016). Consequent to the poor knowledge about fever in mothers of under-five, mothers will inevitably utilize inappropriate or less acceptable practices to treat fever in their children. A work by Bertille et al. (2013) discovered that parents used a lower threshold as against the recommended (38^{0c}) to administer antipyretic. The study also showed that parents did not carry out the physical treatments (ventilation, undressing, etc) and under -five's had complications. Therefore, it will not be out of place to study the situation in a developing country like Nigeria. Hence, the need to investigate the knowledge, health seeking behaviour and management practices of febrile conditions among mothers of under-five children.

Methods

A descriptive cross-sectional study design was used to conduct the study among mothers of under-five children in Ibadan North and Akinyele Local government, Ibadan Oyo State. A multi-stage sampling technique was used to select the calculated sample size of 122 respondents who met the inclusion criteria, using the Taro Yamane, 1967 formula.A structured interviewer-administered questionnaire was used for the data collection on socio demographics, knowledge, health seeking behaviour and management practices of febrile conditions among mothers of under-five children. The responses were coded and assigned scores. The inferential statistics were analysed using chi-square at a 5% significance level. Ethical approval was sought and obtained from the institutional review board of the University of Ibadan/ University College Hospital (UI/UCH). Ethics Committee with no UI/EC/20/0063. The ethical principles of research were maintained. The consent of the respondents was sought by first explaining the purpose of the research and informing them that their participation was voluntary and they have the permission to withdraw at any given time without any penalty or punishment and then informed consent was obtained. They were also made to know that there is no monetary value attached to their participation in the study. They were assured of their anonymity and confidentiality, which was held as high a priority.

Data were analyzed using Statistical Package for Social Sciences (SPSS) Version 21. Data entry and

coding was done. The results were presented using frequencies, percentages and association between variables were tested using chi square. While p value was set at 0.05.

Results

Table 1.0. Socio-demographic characteristics of Respondents.

The mean age of respondents in the study is 30±7.93years with the majority (54.9%) of their children between ages 1-4 years old. Some of the respondents (41.8%) were within twenty-nine years and below. A majority (79.5%) of the respondents are from the Yoruba ethnic group. Majority (66.4%) of the respondents are Christians with the highest in terms of occupation being professionals (28.7%), followed by traders (21.3%), then the self-employed (15.6%). Slightly (58.2%) more than half of the respondents had tertiary education, and 4.1% of the respondents had only a primary education as reflected in table 1.0.

Figure 1.0: Knowledge about Fever

The figure reveals that (24.5%) had poor knowledge while (75.5%) had good knowledge of fever.

Table 2.0: Management and Practices on Fever

Table 2.0. Majority (79%) gave drugs to manage fever in a child. Other methods used to manage fever include bathing the child (46.3%), tepid sponging the child (50.5%), prayer (43.8%), ventilation (37.7%), and a sprinkling of anointing oil (19.7%).

Table 3.0 Health Seeking Behaviours

Most (72.9%) of the mothers took their children to a health facility on account of fever, with many (63.9%) taking the children to hospital. Other health facilities used include primary health centre (60.7%) and pharmacy (28.6%). 35.2% of the respondents took their children to a health facility during one hour onset of fever while 62.9% waited for 24 hours or less 87.4% of mothers responded that the gender of the child does not determine if the child would be taken to hospital or not. Also 41.1% of mothers responded they need permission from their spouse before taking the child to a health facility.

Table 4.0: Relationship between Knowledge about fever and Level of Education

There was no significant relationship between the level of knowledge about fever and the level of education of respondents with a *p*-value 0.748 as reflected in table 4.0

Table 5.0: Association between Level of education and Health Seeking Behaviour

There was a significant association between level of education and health seeking behaviour from the Hospital when child had fever *p*-valve 0.000 as reflected in table 5.0

Table 1: Socio-demographic characteristics of the respondent

Variables	Frequency (%)
Age (in years) mean age ±30 years	
≤29	51(41.8)
30-40	42(34.4)
≥41	11(13.1)
No response	18(14.8)
Age of child	
<1	24(19.7)
1-4	67(54.9)
>5	24(19.7)
No response	7(5.7)
Ethnicity	
Hausa	6(4.9)
Igbo	15(12.3)

Yoruba	97(79.5)
No response	4(3.3)
Religion	
Islam	37(30.3)
Christianity	81(66.4)
No response	4(2.9)
Occupation	
Professional	35(28.7)
Student	2(1.6)
Trader	26(21.3)
Business man/woman	11(9.0)
Self employed	19(15.6)
artisan	14(11.5)
No response	15(12.3)
Level of education	
Primary	5(4.1)
Secondary	41(33.6)
Tertiary	71(58.2)
No response	5(4.1)

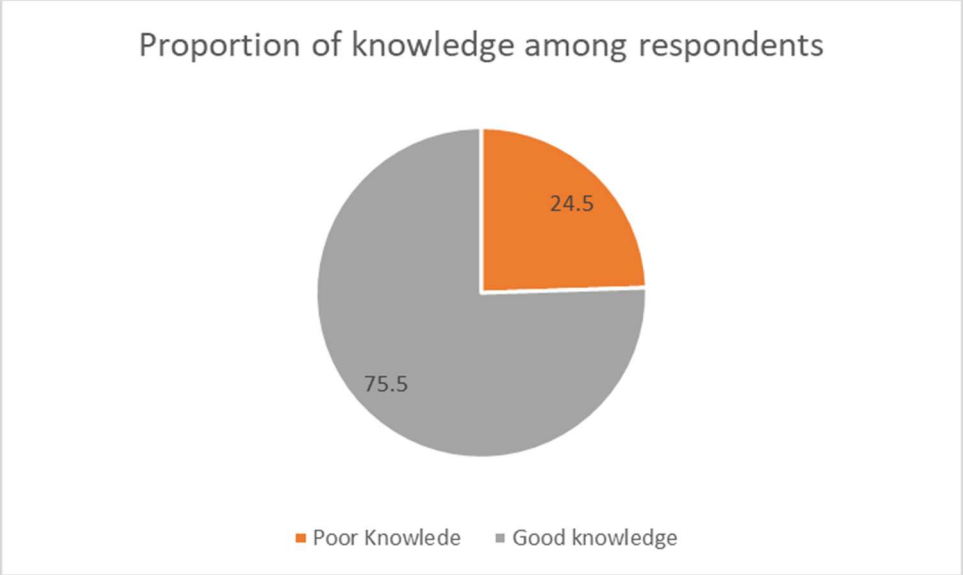

Fig1.0: Knowledge of participants about Fever

Table 2.0: Management and Practices on Fever

Variables	Frequency	Percentage
Has thermometer at home to check child's temperature		
Yes	50	40.9
No	66	54.2
No response	6	4.9
	Yes n(%)	No n(%)
Ways of managing fever in a child		
Drugs	83(79.0)	22(21.0)
bathing the child	37(46.3)	42(53.7)
use of wet towel to sponge the child	46(50.5)	45(49.5)
giving herbal preparations	18(25.0)	54(75.0)
praying for the child	35(43.8)	45(56.3)
sprinkling of anointing oil or water	14(19.7)	57(80.3)
removing the child's clothes	26(32.5)	54(67.5)
covering the child with a very thick cloth	11(15.1)	62(84.9)
Opening doors and windows to air the room	29(37.7)	48(62.3)
	Frequency	**Percentage**
Gives child drug whenever there is fever		
Yes	92	75.4
No	27	22.1
no response	3	2.5
Gives child antibiotics each time fever occurs		
Yes	61	50.0
No	58	47.5
no response	3	2.5
Use of anti-malaria drug each time there is fever		
Yes	80	65.6
No	36	29.5
no response	6	4.9
Temperature at which drug was given (in celcius)		
36-37.9	28	22.9
>38	35	28.7
No response	59	48.4
Use of aspirin to treat fever		
Yes	53	43.4
No	69	56.6
Diagnosing fever in children	Yes n(%)	No n(%)
child is crying	21(35.0)	39(65.0)
child is restless	47(62.7)	28(37.3)
feeling with hands	42(60.9)	27(39.1)
use of thermometer	36(48.6)	38(51.4)

Table 3:0: Respondents' Health Seeking Behaviours

Variables	Frequency	Percentage
Takes the child to a health facility when there is fever		
Yes	89	72.9
No	6	4.9
No response	27	22.2
Health facilities used to care for child	**Yes n(%)**	**No n(%)**
Chemist	4(8.3)	44(91.7)
Pharmacy	16(28.6)	40()
Religious leader/centre	9(17.6)	42()
primary health Centre	37(60.7)	24(39.3)
Hospital	53(63.9)	30(36.1)
Length of time waited before taking the child to any of the facilities above		
one hour or less	19(35.2)	35(64.8)
one day or less	43(62.3)	26(37.7)
2 days	27(43.5)	35(56.5)
more than two days	7(13.2)	46(86.8)
Age of child determines if he/she would be taken to hospital		
Yes	12	12.5
No	84	87.5
Gender of child determines if he/she would be taken the hospital		
Yes	12	12.6
No	83	87.4
Takes permission from the child's father before taking the child to hospital?		
Yes	39	41.1
No	56	58.9

Table 4.0: Knowledge about fever and Level of Education

Level of education	Knowledge about fever		Total	Fisher's Test	p-value
	Poor	Good			
Primary	1(20.0)	4(80.0)	5	0.582	0.748
Secondary	11(29.7)	26(70.3)	37		
Tertiary	13(23.2)	43(76.8)	56		

Table 5.0: Level of Education and Health Seeking Behaviour

Level of Education			Total	Fisher's Test	p-value
	Visited Hospital (Health Seeking Behaviour)				
	No	Yes			
Primary	6(75)	2 (25)	8(100)	13.888	0.000
Secondary	23(65.7)	12(34.3)	35(100)		
Tertiary	16(29.6)	38(70.4)	54(100)		

Discussion

It was found out that the majority of the participants in this study are of the Yoruba ethnic group and are Christians. This is might be because this study was conducted in Ibadan which is majorly inhabited by people of Yoruba ethnic origin. Also, the mean age for participants in this study is 30 years and this finding is similar to the findings of Raffaeli et al. (2016) and Obi-Nwosu et al. (2016). It was observed that less than half were professionals followed by self-employed and artisan categories while slightly more than half have tertiary education and a few had only primary education. This means that the majority of the mothers are not professionals, however, they are at least literate. This study was conducted in the urban area of the capital city, and this may have largely accounted for the high level of education seen in this study.

Knowledge about Fever

In this study, most mothers had good knowledge of fever. While, the majority of them stated that fever starts at 38 ^{0}C, and over half stating that fever is a normal body response. The level of knowledge in this study is consistent with the findings of Chang et al. (2013) who stated that parents believed a temperature of 38.0-38.4 ^{0}C was indicative of high fever, and this is inconsistent with the findings of Rkain et al. (2014), and AlAteeq et al. who discovered in their studies that mothers could not identify the correct temperature for fever. However, the majority of the respondents stated that fever is a serious illness and can lead to death. This is not true as fever is only a symptom precipitated by an underlying cause or pathology and manifested outwardly. Moreover, in many parts of the developed countries, fever is caused by self-limiting viral infections. Hence, fever cannot directly be the cause of death of a child (de Bont et al. 2014). Fever in developing and underdeveloped countries of the world is largely caused by infectious diseases such as malaria, diarrhea, pneumonia, measles, etc. (Pillai & Lodhi, 2015).

Management Practices for Fever

Majority of mothers do administer drugs as first-line therapy to manage fever (self-medication). This is in line with the findings of Raffaeli et al. (2016), de Silva et al, (2017). Other methods utilized by mothers to manage fever in their children include were; bathing the child, tepid sponging, administration of herbal preparations, and opening of doors and ventilation. This is consistent with the findings of Ravanipour et al. (2014), Raffaeli et al. (2016), and Kassam et al. (2016). Our findings also showed that in addition to the physical methods, spiritual measures were also used and these include praying for the child and sprinkling anointing oil. The use of spirituality has been shown in the literature to relieve parents of anxiety when their child has a fever, and helps them to remain calm and allays fears (Ravanipour et al. 2014). Furthermore, the findings from this study reported that drugs (self-medications) were perceived by mothers to be the most effective measure to manage fever while covering the child was the least effective measure to manage fever. This could be a result of the accessibility and affordability of antipyretic medications in the local pharmacies in developing countries. Slightly more than half of the mothers who responded in this study do not have a thermometer at home to check their child's temperature. This conforms with findings of Nwosu et al. (2016) which reported that many women who participated in their study do not have a thermometer at home, but rather measured the temperature of their child using the back of their palm to check the temperature of their child or observing changes in their behaviour but different from the result of AlAteeq et al. (2018) and Bertille

et al. (2013) which discovered in their study that parents used thermometers in various routes (oral, axillary, aural) to measure a child's temperature. Our finding could be as a result of ignorance of mothers on the importance of a thermometer in a low resource setting. While some mothers do not see the purchase of a thermometer has a priority in their homes.

Health Seeking Behaviours

The findings from this study revealed that most of the mothers took their children to a health facility on account of fever. And other health facilities utilise by mothers include primary health centre and pharmacy. Our finding is at variance with a study conducted in Nigeria among mothers of under-five children where it was reported that mothers were aware of malaria and they believed it is caused by witchcraft. These mothers seek health care in the nearby chemist and sometimes self-medicate (Adeyemo et al. 2016). Also, in a study carried out by Glane et al. (2019) in Udupi District, Karnataka, India, is in contrast to the findings from the present study. Mothers of under five children have average knowledge of childhood illness and majority of the mothers do not visit health facilities for treatment of childhood illnesses. The findings from the present study may be attributed to the fact that, in the state that the present study was conducted government made provision for basic amenities including medications for childhood illness. Maybe, this has prompted the mothers to patronize these facilities.

Association Knowledge about fever and Level of Education

There is no significant association between the mother's level of education and knowledge about fever. This is consistent with the findings of Raffaeli et al. (2016) who reported that parents' knowledge of the guidelines concerning the management of fever is not certainly influenced by their age, gender, or education. However, this contradicts Rkain et al. (2014) which asserted that parents with higher educational levels demonstrated a significantly higher rate of accuracy in their knowledge of fever definition. It can be inferred from our study that although a mother might be educated, there is still a lack of knowledge about fever. This explains the reason why there is a gap in the right knowledge about fever even when mothers have a high level of education.

Association between Level of education and Health Seeking Behaviour

The findings from the study showed that there is association between the level of education and health seeking behaviour. This is at variance to the finding of Urbane et al. (2019) which reported that level of education and multiple numbers of children did not affect or determine the level of knowledge about fever and health seeking behaviour. This may be largely due to the misconceptions held by people in society with regards to fever in children. There are many misconceptions held by mothers, hence the term 'fever phobia' has been used in literature to explain the fear that parents encounter each time an episode of fever occurs in a child.

Strengths and limitations: The limitations of the study are that a cross-sectional design was used to gather information, in two local government area in Ibadan, Oyo state. Also, the limited sample size may form a basis for non-generalization. In spite of the limitations, this study still provides empirical information on the subject matter. Therefore, an intervention studies might be provided to under-five mothers based on the outcome of this study.

Conclusions: The findings from this study revealed that mothers despite being educated still have a gap in knowledge, health seeking behaviour and management. Mothers also try to manage fever at home which is not wrong to them, however, they manage it poorly with many of them using drugs as their first line of treatment (self-medication). This increases the chances of drug abuse and overdose by mothers. Also, mothers take their under-five to healthy facility such as primary health centers and pharmacy. Therefore, there is a need to include fever knowledge and management as part of infant welfare activities in various facilities. This will help to equip mothers with the right knowledge and management practices.

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References

Abdulkadir M.B, Ibraheem R.M & Johnson W.B.R. (2015). Socio-demographic and Clinical Determinants of Time to Care-Seeking Among Febrile Children Under-Five in North-Central Nigeria. Oman Medical Journal 30:331–335.

Adeyemo, Moridiyat Omolara Adeyinka Abimbola Oluwatosin, Eunice O Osuala, Margaret Moyosola Oladpo, Amina Adesola Lawal- Adeyemo. (2016). Awareness and Utilisation of Arteminisinin -Based Combination Therapies among Mothers of Under-Five Children in a Local Government Area in Nigeria. Journal of Applied Science 17: 35-40.

AlAteeq M.M, AlBader B.O, Al-Howti S.Y, Alsharyoufi M, Abdullah J.B. (2018). Parent's knowledge and practice in home management of fever in their children in Riyadh, Saudi Arabia. Journal of Family Medicine Primary Care 7:1012-8.

Athamneh L., El-Mughrabi M., Athamneh M., Essien E.J., & Abughosh S., (2014) "Parents' Knowledge, Attitudes and Beliefs of Childhood Fever Management in Jordan: a Cross-Sectional Study. Journal of Applied Research on Children: Informing Policy for Children at Risk. 5:1

Babalola T.E, Ijadunola K. T, Oyetoke T. T, Oyeniyi K. O, Shittu A. A, & Salawu S. A. Caregivers' Perceptions of Causes and Treatment of Fever and Diarrhea among Under-Fives in Ile Ife (2018). Journal of Pharmacy and Pharmacology 6:854-858

Bertille N, Fournier-Charrie`re E, Pons G, Chalumeau M (2013) Managing Fever in Children: A National Survey of Parents' Knowledge and Practices in France. PLoS ONE 8:e83469.

Chandwani H & Pandor J. (2015) Healthcare-Seeking Behaviors of Mothers regarding their Children in a Tribal Community of Gujarat, India. Electron physician. 7: 990-997.

de Bont E.G.P.M, Lepot J.M.M, Hendrix D.A.S, Loonen N, Guldemond-Hecker Y, Dinant G.J & Cals J.W.L. (2015) Workload and management of childhood fever at general practice out-of-hours care: an observational cohort study. BMJ Open 5:e007365.

de Silva D, Hussain F.H, Ginige G, Kulathunge A, Kannangara H, Goonawardane S, Gamage M. (2017) Self-medication practices and misuse of medicine among mothers of young children attending a teaching hospital in Sri Lanka. Sri Lanka Journal of Child Health. 46: 122-127

Green R, Jeena P, Kotze S, Lewis H, Webb D, & Wells M. (2013) Management of acute fever in children: Guideline for community healthcare providers and pharmacists. South Africa Medical Journal 103:948-954.

Glane, Mathias Edlin, Pai Mamatha Shivananda, Nayak Shalini G, (2019). Knowledge, Symptom Management and Health Seeking Behaviour on Childhood Illness among Mothers of Under -Five Children. International Journal of Caring Sciences 12:313.

Heggenhongen K, Hackethal V, Vivek P. (2003) The behavior and social aspects of malaria and its control: An introduction and annotated bibliography, Geneva. 2003

Kassam R., Sekiwunga R., MacLeod D., Tembe J., & Liow E. (2016) Patterns of treatment-seeking behaviors among caregivers of febrile young children: a Ugandan multiple case study. BMC Public Health 16:160.

Kiemde F, Tahita M.C, Lompo P, Rouamba T, Some A.M, Tinto H, Mens P.F, Schallig H.D & Hensbroek M.B. (2018) Treatable causes of fever among children under five years in a seasonal malaria transmission area in Burkina Faso. Infectious Diseases of Poverty 7:60.

Kolawole O.T & Stephen A.O (2016). Mothers' Socioeconomic Differentials and Management of Malaria in Nigeria.

Lungu, E.A., Darker, C. & Biesma, R. (2020). Determinants of healthcare seeking for childhood illnesses among caregivers of under-five children in urban slums in Malawi: a population-based cross-sectional study. BMC Pediatr 20:20.

Novignon J., and Nonvignon J. (2012). Socioeconomic status and the prevalence of fever in children under age five: evidence from four sub-Saharan African countries BMC Research Notes 5:380.

Obi-Nwosu L.A, Nwosu O.B, Nnaji G. (2016) Family and Social Determinants of Health-seeking Behaviour of Caregivers of Febrile Children in an Urban City of Nigeria.Arch Medicine 8:3.

Ogundele O.A, Ogundele T, Olajide O.S, & Agunbiade O.I. (2016) Effect of community integrated management of childhood illness on mothers' healthcare-seeking behaviour and home management of childhood illness in Ile-Ife, South-West Nigeria: A household survey. South Africa Journal of Child Health 10:16-19.

Raffaeli G, Orenti A, Gambino M, Peves Rios W, Bosis S, Bianchini S, Tagliabue C & Esposito S. (2016). Fever and Pain Management in Childhood: Healthcare Providers' and Parents' Adherence to Current Recommendations. International Journal of Environmental Research and Public Health. 13: 499

Ravanipour M, Akaberian S, & Hatami G. (2014) Mothers' perceptions of fever in children. Journal of Education and Health Promotion. 3: 97

Rkain M, Rkain I, Safi M, Kabiri M, Ahid S & Benjelloun B.D.S. (2014) Knowledge and management of fever among Moroccan parents. Eastern Mediterranean Health Journal. 20:6

Urbane U.N, Likopa Z, Gardovska D & Pavare J. (2019) Beliefs, Practices and Health Care Seeking Behavior of Parents Regarding Fever in Children. Medicina 55:398.

UNICEF/WHO/Word Bank/UN. Levels and Trends in Child Mortality. New York, USA; 2012.