

Management and Outcome of Fever among Mothers of Children (0-5years) in Edim Otop Community, Calabar, Cross River State, Nigeria

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Abstract

Fever is one of the most common symptoms of childhood diseases, it is a passive rise in body temperature that subsides after a short time. This study aimed at assessing the management and outcome of fever among mothers of children (0-5years) in Edim Otop Community, Calabar, and Cross River State, Nigeria. Three objectives with the corresponding research questions were formulated. A descriptive research design was adopted for the study. The population and sample comprised of 351 mothers who were indigenes of Edim Otop Community. Convenient sampling technique was employed to select 122 mothers of under-five children to form the sample for this study. A self-developed and structured questionnaire was used to obtain data and analyzed using simple frequency and percentage tables obtained revealed that majority of the respondents, 97(79.5%) affirmed that they carried out home management of fever when their child was sick while 25(20.5%) did not. All of the respondents, 122(100%) applied wet sponge on their child to alleviate the febrile condition. 87(71.3%) Respondents used a thermometer to check the temperature of their child when feverish; 91(74.6%) foot bathed their children with cold water as a way of reducing the feverish condition of their children. From the findings, it was concluded that a greater percentage of the mothers of children (0-5years) exhibit good fever management practices despite the fact that there were factors influencing their home management.

Keywords: Fever, Management, Mothers of Under-Five, Outcome.

Introduction

Globally and in the health care delivery system and also in Nigeria contemporary societies, fever is said to occur in children when the body temperature is above 37°C (98.6°F). When a fever reaches or exceeds 38° Centigrade, it is no longer mild and should be checked every couple of hours. It occurs when various infectious and non-infectious processes interact with the host's defense mechanism. In most children fever is either due to identifiable microbiologic agent or occurs during exposure to excessive environmental heat or during heavy physical work (1) Kio, Agbede, Olayinka, Omeonu, & Dire-Arimoyo, (2016). A high body temperature, or fever, is one of the ways our immune system attempts to combat an infection. Usually, the rise in body temperature helps the individual resolve an infection. These temperatures refer to oral measurement, when the thermometer is put in the mouth. For normal armpit temperatures, the

temperature measures lower than it actually is and the numbers are reduced by about 0.2–0.3° Centigrade. However, sometimes it may rise too high, in which case, the fever can be serious and lead to complications. Malaria accounts for over 60% of outpatient visit in Nigeria and other Sub-Saharan African countries and in areas with stable malaria or high transmission season like Nigeria, a recent history of fever is enough a criterion for diagnosis of uncomplicated malaria. Fear and anxiety attached to fever by most mothers and some physicians are so much that it is labelled Fever Phobia. One such fear is the belief that death may result from fever (2) (Oshikoya, 2014); (3) Schmitt, 2013; (4) May & Bauchner, 2012).

Parents and caregivers see fever as a useful indicator of whether a child is seriously ill and commence treatment at home before presentation in the hospital making the case to be worst. This is a very common practice among caregivers in Nigeria and other malaria endemic countries in

Sub-Saharan Africa (5) (Fawole & Onadeko, 2014). In Togo, only 20% of the children with suspected fever are seen at a health centre while the remaining 80% are treated at home with an antimalarial drug. In Nigeria between 60% and 80% of children would have been treated at home prior to reporting at health facilities. Majority of these children are treated with antimalarial drug (6). (Rath, 2013) Thus, going by the large population of children in Nigeria and a small proportion of health facilities available to cater for them, there is need to involve mothers in the management of minor diseased conditions presenting with fever. Such conditions include malaria and respiratory tract infections; the two common causes of fever in Nigerian children (5) (Fawole & Onadeko, 2014; (7) Deming, Gayibor & Murphy, 2014).

Roles of parents especially mothers in Nigeria in the treatment of fever in their children could better be determined from their perception of fever and the understanding of its management. Health seeking behaviour had been shown in the past to be influenced by several factors such as: accessibility and availability of drugs; availability of health personnel; cost of treatment including drugs; perception of seriousness of the disease; knowledge of its cause and ability to diagnose and treat (5) (Fawole & Onadeko, 2014).

It is noteworthy that the majority of these mothers used Violets and Manna. 61.9% had no information regarding the proper fever temperature for the use of medicinal herbs. Furthermore, garden violet antipyretics were used by 20.9% of the mothers at fever temperatures above 38°C, while 17.1% used these compounds at fever temperatures above 37°C. As for other pharmaceutical agents for the alleviation of fever, the majority of the studied mothers used acetaminophen (95.3%). On the same note, 59.7% and 29.5% of the mothers used antipyretics every four and six hours, respectively. According to the results of this study, 83.7% of the mothers woke up their febrile child for antipyretic administration. Among the mothers who applied a wet sponge to reduce body temperature, 37.2% used lukewarm water, 22.5% used cold water, and 20.2% used salted water. It should be noted that use of wet sponges is one of the first steps to alleviate fever. Only 4.7% of the mothers used ibuprofen to reduce the body temperature of febrile children. With respect to

the information sources of the mothers about fever, 57.3% of our participants consulted a physician or referred to a healthcare center, 27.1% received advice from friends or family members, and only 10.9% of the mothers mentioned the media (e.g., television) as their main source of information (1) (Kio, Agbede, Olayinka, Omeonu, & Dire-Arimoyo, 2016).

In a research by (8) Nouri, Rajayi & Bariri (2008) on effects of antipyretic of acetaminophen and ibuprofen in children 6months to 10years, mothers in India used ibuprofen which was observed to be more effective in the reduction of fever and maintaining low body temperature compared to acetaminophen. Employing simple random sampling technique, 283 mothers of children less than 10years of age were selected from urban settlements in India. Findings from the study revealed that in children aged more than six months, use of ibuprofen is recommended by physicians in cases where acetaminophen is not able to reduce fever. In another research, few mothers carried out fever management at home for their under-five children (9) (Al-Eiss, Al-Zamil, Al-Sanie, Al-Salloum, Al-Tuwajri & Al-Abdali, 2010). After applying multi-stage sampling to recruit 183 mothers from Egypt, Al-Eiss *et al.* (2010) (9) reported that only 33% of 183 mothers of under-five children had satisfactory performance in terms of fever control in children.

(20) Shahrbanou, Hadi, Ali, Somayeh & Mohammad (2016) reported positive outcome of fever management among 340 mothers with children aged less than 10 years in healthcare centers of Sabzevar city, Iran. Findings from the study showed that majority of the mothers asserted that their children recovered fully after treatment while only 2.8% of the mothers said their child had died as a result of poor fever management. This negative outcome was found among mothers with low income earnings and no education background. According to (11) Parmar, Sahu & Bavdekar (2011) opined that short term convulsion, constipation, weight loss and malnutrition were the only outcomes of fever management. In South Wales, (12) Desnous *et al.* (2011) reported recovery (51.2%), malnutrition (21.7%), convulsion (11.4%), weight loss (10.4%) and deaths (5.3%) among under-five children of 174 mothers. The results of the study by (21) Talebian, Honarpisheh, Mohajeri and Taghdoshi, (2013) and (18) Brycs, Bachi-Pinto,

Shibuya & Black (2014) indicated that deaths of under-five child was high (61.2%) among 150 mothers who took no action before referring the febrile child to the hospital, (22) Schaffner (2016). This was as a result of the poor socioeconomic background of the mothers and their traditional beliefs/customs.

(13) Walsh & Edward (2016) opined that several factors influence the management practices by mothers employ in treating febrile conditions in their under-five children. Past studies have reported educational status, income, traditional beliefs/customs and maternal attitude. Furthermore, the authors reported correlations existing between the above-mentioned factors and management of fever among mothers of under-five.

(10) Kim *et al.* (2009) observed that among 533 mothers of under-five children, admitted into the Pediatric Emergency Department in St. Luke's International Hospital, Tokyo, Japan income was the major factor influencing home management of fever. Correspondingly, (14) Kilmon (2015) factors like income, maternal age, educational level and maternal knowledge on fever treatment influenced home management of fever among 205 parents from France. Only children with wealthy parents were adequately treated by mother on special advice from a special health care worker who was always visiting their home to check on the outcome of treatments.

(15) Mohammadi (2010) reported that family income, maternal age, educational status and mothers' attitude were the factors that shaped the level of fever management among mothers in Iran. Consequently, findings from the study of (16) Golestan *et al.* (2015) showed that maternal income level, educational status and maternal age determined the extent to which febrile conditions was managed in children (0-5years) among 145 mothers in certain rural communities of Iran. Results of the hypothesis test revealed that there was significant relationship between maternal age, income level, educational status and fever management. This was obvious as responds from most of the mothers, 96(66.2%) revealed mother asserting that they were mostly unable to treat

febrile conditions in children because as at the time of ailment, they had inadequate finances to cater for the family's needs.

Materials and Methods

The research design adopted for this study was the descriptive design which enabled the researchers to assess the management and outcome of fever among mothers of children (0-5years) in Edim Otop Community, Calabar, and Cross River State, Nigeria.

The research setting was chosen because it was accessible. The target population of the study consisted of all mothers who are indigenes of Edim Otop Community. This summed up to 351 mothers (Calabar Municipality Council, 2018). The accessible population was 122 mothers of under-five children who were indigenes of Edim Otop Community and were willing to participate in the study.

The sampling technique used was convenient sampling to enable the researchers select the one hundred and twenty-two (122) mothers that constituted the sample for this study. The sample was calculated with the aid of Yaro Yamane's formula as shown below;

The sample used for this study was one hundred and twenty-two (122) mothers of under-five children. Data collected through the questionnaire were analyzed using descriptive statistics (simple percentages and frequency tables), while the hypothesis was tested using the Chi-Square test statistic at 0.05 level of significance.

Ethical consideration

The researchers introduced themselves by presenting a copy of letter of introduction she obtained from the ethical committee with registration number of CRS/ADM/HREC/APP1161 was presented to the Clan Chiefs of Edim Otop Community for approval to carry out the study in the community. The consent of the respondents was adequately gained by giving them adequate information to enable them to express their feelings.

Results

Table 1. Socio-Demographic data of respondents (n= 122)

Variable	Frequencies	Percentage (%)
Age		
18-22years	14	11.5
23 -27years	24	19.7
28-32years	47	38.5
33-37years	21	17.2
38-42years	16	13.1
Total	122	100
Marital status		
Married	56	45.9
Single	32	26.2
Separated	23	18.9
Widowed	11	9.0
Total	122	100
Religion		
Christianity	118	96.7
Muslim	4	3.3
Total	122	100
Educational qualification		
Primary	31	25.4
Secondary	64	52.5
Tertiary	27	22.1
Total	122	100
Number of children		
1-3	69	56.6
4-6	46	37.7
7 children & above	7	5.7
Total	122	100

Source: Fieldwork, 2020

Out of the 122 respondents, 14(11.5%) were between 18-22years of age, 24(19.7%) were between 23 -27years, 47(38.5%) were between 28-32years, 21(17.2%) were between 33-37years and 16(13.1%) were between 38-42years. Most of the respondents, 56(45.9%) were married, 32(26.2%) were single, 23(18.9%) were separated and 11(9.0%) were widowed. A greater proportion of the respondents, 118(96.7%) were

Christians while 4(3.3%) were Muslims. Out of the 122 respondents, 31(25.4%) had only attained primary educational level, 64(52.5%) had attained secondary educational level and 27(22.1%) had attained tertiary educational level. Most of the respondents, 69(56.6%) had between 1-3 children, 46(37.7%) had between 4-6 children while 7(5.7%) had 7 children and above.

Table 2a. Practices employed by mothers of under-five children in managing fever

Variable	Response		
	Yes (%)	No (%)	Total (%)
Has your child ever suffered from fever before?	122(100)	0(0.0)	122(100)
Did you apply home management of fever when your child was sick?	97(79.5)	25(20.5)	122(100)
Did you applied wet sponge on your child to alleviate the febrile condition?	122(100)	0(0.0)	122(100)
When your child was feverish did you measured his/her body temperature by thermometer?	87(71.3)	35(28.7)	122(100)
Was foot bathing applied for bathing with cold?	91(74.6)	31(25.4)	122(100)
Pharmacological or herbal remedy used to manage febrile condition of children (0-5years)			
Acetaminophen	31(25.4)	91(74.6)	122(100)
Ibuprofen	19(15.6)	103(84.4)	122(100)
Aspirin	122(100)	0(0.0)	122(100)
Paracetamol	122(100)	0(0.0)	122(100)
Giving of water from boiled herbs/leaves with crushed ginger	88(72.1)	34(27.9)	122(100)
Crushed garlic in hot water	67(54.9)	55(45.1)	122(100)
Crushed ginger mixed with honey in hot water	41(33.6)	81(66.4)	122(100)

Source: Fieldwork, 2020.

Results in Table 2a revealed that majority of the respondents, 97(79.5%) affirmed that they applied home management of fever when their child was sick while 25(20.5%) did not. All of the respondents, 122(100%) applied wet sponge on their child to alleviate the febrile condition. A greater proportion of the respondents, 87(71.3%) used a thermometer to check the temperature of their child when feverish; 91(74.6%) foot bathed their children with cold water as a way of

reducing the feverish condition of their children. Thirty-one mothers (25.4%) used acetaminophen to manage febrile conditions of children (0-5years); 19(15.6%) used ibuprofen; 88(72.1%) used water from boiled herbs/leaves with crushed ginger; 67(54.9%) used crushed garlic in hot water and 41(33.6%) used crushed ginger mixed with honey in hot water. Paracetamol and aspirin were used by all of the mothers.

Table 2b. Level of Practices employed by mothers of under-five children in Managing fever

Practice level	Mean scores	Frequency	Percentage
Those who practice and	≥ 6.5	94	77.1
Those who do not practice	<6.5	28	22.9
Total		122	100

Table 2b showed that 94(77.1%) mothers who had individual mean scores greater than or equal to 6.5 were considered to have exhibited good management practices of fever in under-five

children while 28(22.9%) who had individual mean scores less than 6.5 were considered to have exhibited poor management practices of fever in under-five children.

Table 3. Outcome of fever management among mothers of under-five children

Outcomes	Response		
	Yes (%)	No (%)	Total (%)
Weight loss	63(51.6)	59(48.4)	122(100)
Loss of appetite	96(78.7)	26(21.3)	122(100)
Nausea and vomiting	66(54.1)	56(45.9)	122(100)
Constipation	93(76.2)	29(23.8)	122(100)
Brain damage/memory loss	41(33.6)	81(66.4)	122(100)
Convulsions	23(18.8)	99(81.2)	122(100)
Recovery	113(92.6)	9(7.4)	122(100)
Death	9(7.4)	113(92.6)	122(100)

Source: Fieldwork, 2020

Results in Table 3 showed that 63(51.6%) identified weight loss as an observed outcome of the fever management they carried out. More than half of the respondents, 96(78.7%) identified loss of appetite; 66(54.1%) identified nausea and vomiting and 93(76.2%) identified constipation. Less than half of the respondents, 41(33.6%)

identified brain damage/memory loss as an outcome of fever management; 23(18.8%) identified convulsions and 9(7.4%) identified death. Furthermore, despite all other outcomes, 113(92.6%) respondents identified that their children recovered after fever management was carried out.

Table 4. Factors influencing the management of fever among mothers of under five children

Variable	Response		
	Yes (%)	No (%)	Total (%)
Financial Constrain?	115(94.3)	7(5.7)	122(100)
Age of Mothers	93(76.2)	29(23.8)	122(100)
Educational Background of mothers	70(57.4)	52(42.6)	122(100)
Cultural belief practice	59(48.4)	63(51.6)	122(100)
Mothers prior exposure to information on fever	118(96.7)	4(3.3)	122(100)
Personal belief by the mother	67(54.9)	55(45.1)	122(100)

Source: Fieldwork, 2020

Results in Table 4 showed that most of the respondents, 115(94.3%) were faced with financial constraint while 7(5.7%) weren't. 93 (76.2%) acknowledge age as a barrier while 29(23.8%) acknowledged that it isn't. Most of the respondents, 70(57.4%) mothers were limited because of their educational background 56(45.9%) claimed that it does not. 59 (48.4%) affirmed that their culture/beliefs barrier them; while 63(51.6) claimed it isn't, 118(96.7%) said yes on mother's prior exposure to information on fever, while 4(3.3) said no. 67(54.9%) respondents said yes on personal belief by mother influence while 55(45.1) said no.

Discussion of Findings

From the findings of this study it was revealed that most of the respondents, 94(77.1%) mothers exhibited good management practices of fever in under-five children. The practices included;

applied wet sponge on their child to alleviate the febrile condition, foot bathing of children with cold water, administering of paracetamol, aspirin, and water from boiled herbs/leaves with crushed ginger. The findings of this study support the study by (20) Shahrbanou *et al.* (2016) who reported that 63.5% of 340 mothers selected from healthcare centers of Sabzevar City, Iran had average fever management. This also supports the findings from the study of (12) Desnous *et al.* (2011) who reported that there were good practices (81.6%) of fever management among 174 mothers in South Wales. The findings of this study are contrary to that of (9) (Al-Eiss *et al.* (2010) who observed that only 33% of 183 mothers of under-five children in Egypt had satisfactory performance in terms of fever control in children. This does not support the study of (10) Kim *et al.* (2009) who reported that 86.1% of 533 mothers in Tokyo who referred a febrile

child to a physician had poor knowledge of fever and did not know how to manage fever at home. Here, their action will be based on their level of knowledge on the risk factors associated with development of febrile conditions that the mothers are exposed to, the information available from diagnosis,

From the findings of this study, it was revealed that the outcome of fever management among mothers of under-five children in Edim Otop Community were; loss of appetite (78.7%), nausea and vomiting (54.1%), constipation (76.2%), weight loss (51.6%), brain damage/memory loss (33.6%) and recover (92.6%). Thus, the results obtained in this study supports the work of (15) Mohammadi (2010) who observed that long term convulsion and constipation were the outcomes of fever management in Iran. This is also in line with the study of (16) Golestan *et al.* (2012) who found out although under-five children experienced convulsion, their health was restored after 3weeks of febrile treatment. This also supports the findings of the study (10) Kim *et al.* (2009) who reported that out of the 533 mothers of under-five children, children recovered fully (75.8%) and 7.9% death of children due to febrile conditions in Tokyo. Nevertheless, the study is in line with (8) Nouri, Rajayi & Bariri (2008) documented in their study that the outcome of management or treatment of febrile conditions in under-five children is dependent on the kind of treatment. The authors opined that modern techniques of febrile treatment would always result in positive outcome while traditional/native strategies of febrile management would not always result in positive outcomes. Thus, the use of antipyretic of acetaminophen and ibuprofen in children 6months to 10years in India resulted in speedy recovery of health with low incidences of constipation and convulsion, (19) (Thota, Ladiwala, Sharma & Ganguly, 2018). (9) Al-Eiss *et al.* (2010) reported that weight loss/malnutrition (57.8%) and brain damage (9.2%) among under-five children of 183 mothers in Egypt. Resolution or recovery was also recorded among 33% mothers.

The findings of this study reveal that the factors influencing the management of fever among most mothers of under-five children in Edim Otop Community were; maternal knowledge on fever management (96.7%), inadequate finances (94.3%), maternal age

(76.2%), educational background (57.4%), mothers' perception of child (54.9%) and culture/beliefs (48.4%). This study is in line to the findings of (1) Kio *et al.* (2016) who reported that maternal age, educational level, income level, knowledge level and attitude were the factors influencing the management of febrile conditions in children (0-5years). This is also in-line with the observations of (14) Kilmon *et al.* (2015) who documented that factors like income, maternal age, educational level and maternal knowledge on fever treatment influenced home management of fever among 205 parents from France. This finding supports the study of (15) Mohammadi (2010) who discovered that family income, maternal age, educational status and mothers' attitude were the factors that shaped the level of fever management among mothers in Iran. This also agrees with the study of (16) Golestan *et al.* (2015) whose results revealed that maternal income level, educational status and maternal age determined the extent to which febrile conditions was managed in children (0-5years) among 145 mothers in certain rural communities of Iran

Implications for nursing

The findings of this study might enlighten nurses on the importance of applying nursing care interventions for quality fever management in healthcare facility.

This would in turn increase the level of recovery among febrile children as nurses will be equipped with knowledge on the various practices of fever management from the findings of this study.

Fever as management is a collaborative involvement researcher recommend that all team members should be represented in a seminar to adopt the best practices for the best interest of the individuals and families in the communities.

This study would serve as a resource material for other researchers in the nursing profession.

Conclusion

From the findings, it was concluded that a greater percentage of the mothers of children (0-5years) in Edim Otop exhibit good fever management practices despite there were factors influencing their home management of fever in their children.

Conflict

There is no conflict between the two authors as far as the publication is concerned.

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