

## Response to childhood fevers among Mbaise parents and caregivers in Imo State, Nigeria: does the sex of the child matter?

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**Abstract:** This study was carried out to determine the relationship between the sex of a child and response to childhood fever among Mbaise communities in Imo State, Nigeria. The household head and one caregiver of < 5 years children with fever in 1154 households were surveyed using a structured questionnaire, focus group discussions and in-depth interviews. In both cases of the male and female children, mothers were often the first to recognize fever in the children, followed by the other caregivers and then the fathers. The response to childhood fever was faster when a male child was sick ( $P < 0.001$ ). The longer the delay the poorer the outcomes of the first action taken in response to childhood fevers ( $R^2$ change = 0.011). The boys improved faster after first treatment than the girls ( $P < 0.001$ ) because more timely and appropriate responses were taken in the case of the boy child than the girl child. More shopping for treatment takes place for the girl child whose case often gets complicated before the appropriate response is given. In both cases of the male and female children, mothers were often the first to recognize fever in the children, followed by the other caregivers and then the fathers. It is thus concluded that the gender is a major factor in response to childhood fevers and it is often faster when the child is male. Programmes should be designed to address the sex difference attitudes in the management of childhood fevers.

**Key words:** childhood fever, gender, malaria, treatment seeking, Nigeria

### Introduction

Evidence on trends in infant and child mortality rates during the last decade indicates exceedingly high childhood mortality in Sub-Saharan Africa especially in West Africa (Ayoola *et al.*, 2005; Fenn *et al.*, 2005; Etard *et al.*, 2004; Jaffar *et al.*, 1997; De *et al.*, 1993). According to WHO/UNICEF (2003) estimates, the child mortality rate for Nigeria is 183/1000. Ten per cent of children born in West Africa die before their first birthday (UN, 2001) and this compares with 6% in Asia, 4% in Latin America and 1% in Europe.

Malaria is implicated as a leading cause of morbidity and mortality among children less than 5 years of age in developing countries. The disease is responsible for 300 to 500 million clinical cases every year, and 1.5 million deaths among children (Tulloch, 2002; Diallo *et al.*, 2001). Severe malaria has been noted as the commonest cause of hospital admissions for children in tropical Africa, with 10% mortality. Malaria is endemic in Nigeria with an estimated annual mortality of 200,000-300,010. It is estimated that about 25% of a family income is spent annually on malaria control in Nigeria (Federal Ministry of Health, unpubl.). In rural Nigeria, it has been estimated that farmers lose between US\$0.25 and 0.44 per hour of complete disability due to malaria (Eboh & Okeinbunor, 2005).

The enormity of the problems associated with malaria made the promotion of early

appropriate treatment, following the recognition of childhood fevers, the foundation of malaria control, expedient in malaria endemic zones (Sirima *et al.*, 2003). This strategy is hoped to help realise the global target of halving malaria-associated morbidity and mortality by 2010 compared to the levels in 2000. However, the culturally defined gender-equity response, which favours the boy-child among the Ibos with strong male-dominance ideology, could engender inequalities in the response to childhood fevers.

According to Mwenesi (1994) gender differentiation and dynamics may be a constraint on the ability of mothers to respond promptly and appropriately to childhood fevers when recognised. However, Bujra (1978) has noted that, while gender may be a universal social category, its categorical imperatives differ widely and may vary not only between societies, but even within the same society, according to situation and social location. There is still relatively little literature on malaria that takes into account the possible influences of gender factors and gender relations. This paper looks at the influence of the sex of a child on response to febrile illness.

### Materials and Methods

#### *Study area*

The study was carried out in Mbaise, Imo State, Nigeria. Mbaise is one of the most culturally distinct rural communities in Imo State, with an

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alarmingly high rate of procreation and attachment to traditionalism and child bearing. Mbaise community consists of three local government areas (LGAs), namely Aboh-Mbaise, Ahiazu-Mbaise and Ezinihitte with different levels of development. Ezinihitte was randomly selected for this study. The projected population in Mbaise was 259,164 in 2004. However, this study was limited to the population of persons aged 15 years and above, which constituted only 57% of the entire population. The target population included persons of this age group who were involved in care giving to under-five year old children in the LGA. Ezinihitte LGA had nine autonomous communities with indigenous leadership (that is Ezes) and villages with village heads and Chiefs. The villages in these areas were of varying sizes ranging from 250-300 households.

The target population for the study was households with a child aged less than five years and who had been ill within two weeks preceding the study. Respondents were the household head and one other caregiver, which in most cases meant the inclusion of the father and mother of the recently ill child. Two communities, namely, Itu which is the Headquarters of the LGA and Onicha, one of the least developed communities in terms of social infrastructures, such as electricity, pipe-borne water and more importantly, health facilities were selected for the study.

### **Study design**

The multi-stage sampling approach was used to select villages and households as well as respondents for the study. The simple random sampling approach was used in selecting six villages from each community. Five of the six chosen village were assigned 96 households each while the sixth village, which was allocated by ballot got 97 households in order to arrive at the 577 households required for each of the study communities. However, Ubonukam and Umuekwere in Onicha and Oguleke in Itu were later enlisted and used to achieve the needed sample for the study. In each selected household, the head of the household and the caregiver, who in most cases are both parents, were selected. Subsequent routes were selected through the same process to get the sample size.

A uniform set of questionnaire was administered to all respondents, selected randomly. The questionnaire sought information on the decision-making patterns and processes at the onset of fever and their knowledge, attitude, perceptions and practice in the treatment of febrile illness in children. Qualitative data were obtained through the use of focus group discussions (FGDs) and in-depth interviews, which came before the

administration of the questionnaires. This provided in-depth knowledge and information on the community perceptions, and attitudes on fever in children under the age of five years.

For the qualitative data, a total of 16 FGDs were conducted with about 6-8 persons in each group. In each community, FGDs were held with 2 old ( $\geq 35$  years) and 2 young (18-34) father groups, as well as 2 old ( $\geq 35$  years) and 2 young (18-35 years) mother groups. Discussions were held with homogeneous groups and the moderator was the same sex with each group. FGDs were conducted in culturally appropriate locations chosen by the participants, and on a non-market and festival free days. Participants in the FGDs were purposively selected from persons not interviewed in the questionnaire study. In addition to the FGDs, in-depth interviews were conducted with community/opinion leaders who are the custodians of community norms and traditions, which mould the community perceptions and opinion about development.

### **Data analysis**

The ATLAS.ti was employed in generating illustrative quotes from the qualitative data to support the quantitative data. The quantitative data were analysed using Epi-info and SPSS computer software. Simple descriptive statistics such as percentage, mean, median and graphic illustrations were employed in presenting the main characteristics of the study subjects. The chi-square ( $\chi^2$ ), Pearson's R and the Goodman and Kruskal's Gamma ( $\tau$ ) illustrated the relationship between certain socio-demographic variables and the respondents' response to childhood fever.

## **Results**

### **Socio-demographic characteristics**

Responses from a total of 1008 (43.6%) male and 1298 (56.4%) female respondents were included in this analysis. Of the respondents, 44.6% (males= 97.7%; females= 3.4%) were household heads while the others were caregivers (mothers of the sick child= 96.6%; male care givers=2.3%). Most (86.2%) of the respondents had polygamous marriages (Female= 81.7%; Male= 91.9%). Others included single (3.3%), married polygamous (5.5%), divorced/separated (0.3%) and widowed (4.7%). Of the respondents in this study, 41%, 50.4% and 8.5% were fathers, mothers and caretaker of the children, respectively. Of the 61 caretakers, 6.1% were males and 10.4% were females.

The ages of the respondents ranged from 15 to 99 years (mean age = 36.7 $\pm$ 11.3 years). The mode and median ages were 30 and 35 years, respectively.

Christians accounted for the majority (90.5%) of the respondents. A significant difference in the occupational distribution was observed ( $\chi^2 = 316.11$ ;  $P < 0.001$ ). More females than males were into farming and petty trading. More than half of the respondents earn US\$3.85 or less from their respective income earning activities. This differed with sex ( $P < 0.001$ ). The respondents also differed academically by sex ( $\chi^2 = 16.47$ ;  $df = 5$ ;  $P < 0.006$ ) (Table 1).

### **History of child's fever and pattern of health care seeking**

Mothers were the first to notice fever in the children (87.3%) (Table 2). Some of the symptoms noticed in the children and which were indicators of fever included dullness, weakness, loss of appetite and inactivity. On average, the proportion of any response to childhood illness was 95.8%. This was slightly higher for male children (96.8%) than for female children (94.8%).

The common belief on the ability of mothers to notice childhood fever before any other person was captured in the expression of women from Itu in an FGD session, as they opined that: *"mothers are often the ones to notice illness in children*

*because fathers are not always around. They either go out to earn a living for the family or to enjoy themselves after what they consider a hard day's work"*.

Another group of women, from the same Itu community, noted that *"the father may check, if the mother is not around, otherwise it will be the house help, caretaker or any person the mother entrusted with the care of the child in her absence"*

The women from Onicha agreed with this view and they see it as a natural phenomenon, akin to the stereotypical association of women with nature and men with culture.

It is often argued that women are 'of nature' because of their capacity to create life while men are 'of culture' as a result of their involvement in the economic and political realms. According to one of the women in the FGD session in Itu, *"the mother is closer to the kids so she should be the one to find out first, naturally. You as a woman then report to the father and he tells you where to take the child because he pays the bills"*. Another Onicha woman supported this argument when she stressed that: *"the mother finds out and father being the head will bring money and also gives the directives on where to go"*

**Table 1: Distribution of respondents by socio-demographic characteristics and sex (%)**

Characteristics	Respondents		Total
	Male	Female	
<b>Occupation</b>			
Farming/hunting/wine-tapping	186 (18.5)	335 (25.8)	521 (22.6)
Petty trading	137 (13.6)	362 (27.9)	499 (21.6)
Housewife/unemployed	193 (19.1)	401 (30.9)	594 (25.8)
Professionals	168 (16.7)	86 (6.6)	254 (11.0)
Artisans	228 (22.6)	92 (7.1)	320 (13.9)
Business	96 (9.5)	22 (1.7)	118 (5.1)
<b>Average weekly income</b>			
None	230 (22.9)	547 (42.2)	777 (33.7)
<US\$ 0.8	59 (5.9)	112 (8.6)	171 (7.4)
US\$ 0.0-3.85	277 (27.5)	411 (31.7)	688 (29.9)
US\$ 3.85-7.70	107 (10.6)	98 (7.6)	205 (8.9)
>US\$ 7.70	333 (33.1)	129 (9.9)	462 (20.1)
<b>Level of education attained</b>			
No formal education	98 (9.7)	164 (12.6)	262 (11.4)
Primary (uncompleted)	142 (14.1)	184 (14.2)	326 (14.1)
Primary (completed)	314 (31.2)	403 (31.0)	717 (31.1)
Secondary (uncompleted)	99 (9.8)	169 (13.0)	268 (11.6)
Secondary (completed)	229 (22.7)	254 (19.6)	483 (20.9)
Post Secondary	126 (12.5)	124 (9.6)	250 (10.8)

**Table 2: Distribution of respondents by identification of response to childhood fever and sex of index child (%)**

	Sex of Index Child		Total
	Male	Female	
<b>First to notice fever</b>			
Father	46 (4.1)	64 (5.5)	111 (4.8)
Mother	1002 (88.4)	1023 (87.3)	2025 (87.9)
Caregiver	85 (7.5)	85 (7.3)	170 (7.4)
<b>Symptoms noticed</b>			
Dullness	66 (5.8)	75 (6.4)	141 (6.1)
Weakness	91 (8.0)	56 (4.8)	147 (6.4)
Loss of appetite	48 (4.2)	54 (4.6)	102 (4.4)
Did not play	19 (1.7)	12 (1.0)	31 (1.3)
Vomiting	37 (3.3)	59 (5.0)	96 (4.2)
Hotness of body	516 (45.5)	562 (48.0)	1078 (46.2)
Excessive crying	321 (28.3)	324 (27.6)	645 (28.0)
Cannot say	35 (3.1)	30 (2.6)	65 (2.8)
<b>Gap in response to symptoms</b>			
Gap<4 periods	1031 (93.8)	1018 (91.6)	2049 (92.7)
Gap<7 periods	29 (2.6)	52 (4.7)	81 (3.7)
Gap≥7periods	18 (1.6)	25 (2.3)	43 (1.9)
Cannot Say	21 (1.9)	16 (1.4)	37 (1.7)
<b>Gap in response to fever</b>			
Gap<4 periods	1020 (92.8)	983 (88.5)	2003 (90.6)
Gap<7 periods	39 (3.5)	78 (7.0)	117 (5.3)
Gap≥7periods	16 (1.5)	31 (2.8)	47 (2.1)
Cannot say	24 (2.2)	19 (1.7)	43 (1.9)
Give herbs	19 (1.7)	24 (2.2)	43 (1.9)
Give home drugs	292 (26.6)	274 (24.7)	566 (25.6)
Chemist	523 (47.6)	487 (43.8)	1010 (45.7)
Government clinic	40 (3.6)	38 (3.4)	78 (3.5)
Private clinic	186 (16.9)	229 (20.6)	415 (18.8)
Traditional healer	7 (0.7)	11 (1.0)	18 (0.8)
Traditional home management	32 (2.9)	48 (4.3)	80 (3.6)
<b>Condition of child after first response</b>			
Improved greatly	590 (53.7)	574 (51.7)	1164 (52.7)
Improved somewhat	408 (36.9)	391 (35.2)	797 (36.1)
About the same	90 (8.2)	100 (9.0)	190 (8.6)
Worse	13 (1.2)	46 (4.1)	59 (2.7)

A young woman in Onicha emphasised the predisposition of the mother to spot fever in children before the fathers. According to her, *“it is mothers who detect when their children are sick or not. So it is her duty to notify her husband that the child is sick. In fact, it is the mother's responsibility because some fathers here do not realize their responsibility to the sick child especially where the children are many or are mainly females. They always tell you that it is a woman's work to cater for the children, sick or not”*. Yet another mother in the FGD in Onicha noted that: *“it is the mother that discerns when the sickness becomes serious or otherwise. So in that case, it is left for her to tell her husband that the child is sick”*.

All of these go to suggest that mothers are better disposed to identify illness in children than the men. However, one of the male discussants in Onicha argued to the contrary. According to him, *“in my house I am always the person who finds out when my child is sick and whenever I notice fever in my child I will call my wife's attention to that child. If it is during the night I will wait till morning before I can take the child to the clinic....”*. This was however an exception. All the same the man went on to adduce reasons why he is always the first to recognize illness in the children. In his words, *“having been involved in the task of keeping watch over people's lives and properties for so long I have formed the habit of vigilance and care. If I do it for other people I should be able to cater for my family too”*. His wife confirmed his claims in an in-depth interview. In her words, *“Nnanyi (meaning our father, as the women in the community address their husbands, and as a mark of respect), is different from other men in this community. For instance, he was the one who first observed the change in the body temperature of this child and complained that I should do something about it. The day I went to market I returned to find the child shaking but by then Nnanyi had taken him to the Chemist. He really takes care. You will see him always feeling the children's body”*. The same woman however agreed that his husband was an exception to the rule. According to her, *“the men here do not care. They leave everything to their wives while they wander about the place aimlessly”*.

Where symptoms as well as actual fever were noticed in the children, the care givers did nothing to resolve the problem in 4 of every 100 cases. This was common among the girl child ( $\chi^2=5.83$ ;  $P<0.02$ ).

The following statements are typical of the reasons care givers mentioned for not responding to symptoms of childhood fevers during an in-depth interview in Onicha. *“Not every fever is sickness. We needed to wait and watch the nature of the illness before rushing for treatment (a mother in Onicha). “It is the mother's responsibility to take the child for treatment. She has to make the request for*

*money and she will be given”*(a father in Itu). *“We cannot take a child for treatment unless the father approves of it. If you take the child without the father's prior approval, you will be held responsible if anything happens to the child”* (a mother in Itu).

From a focus group discussion in Onicha, it was observed *“it was only the men who decide when a child is taken for treatment”*. All the same, 92.7% of the cases received treatment within the initial periods of the onset of symptoms of fever. Periods here were defined in terms of the local classification of timing and activities in the study area. Thus we had 'isi ututu', 'ututu', 'oge ehihe', 'ehihe', 'oge abali', 'abali', and 'etiti abali', corresponding to the early hours of the day (04-06 hours), morning (06-10 hours), late morning (10-12 hours), afternoon (12-16 hours), evening (16-18 hours), night (18-24 hours) and mid night (00-04 hours), respectively.

However, a significant difference was observed in the delay patterns for cases involving the male children vis-à-vis the female children (Table 2). Delay was more in cases of the female children. For instance, while only in 2.6% of the cases where treatment for the male children was delayed for more than four periods, this was the case for 4.7% of the female children ( $P=0.014$ ). The  $R^2$ -change of 7.0% is an indication that a unit change in the sex of the index child would result in 7.0% change in promptness of response to fever in children.

With respect to the actual case of fever in children, there was a clear indication that more of the male children (92.8%) than the female children (88.5%) received treatment within 12 hours of the onset of fever. It was hypothesized that delay in response to fever was shorter in the boy-child than in the girl-child. The analysis of variance revealed that there was a statistically significant difference ( $P<0.001$ ) between the promptness of response between the cases involving the male children and female children. The regression ( $R^2$ -change of 12%) showed that a unit change in the sex of the sick child could lead to 12.0% change in the speed of treatment of fever in a child.

The first response for 45.7% of the care givers was to purchase drugs from the Chemists. This represented the commonest first response among the respondents. However, in more of the cases with the girl child than the boy child, the respondents took to local concoctions (2.2% and 4.3%) for female children ( $P=0.007$ ).

The qualitative data also exposed a number of actions taken and the justification for each step. For instance, for young Onicha women, *“it is not any type of sickness that we take the child to hospital for. If a child is having just fever we would go to chemist and buy*

drugs and give to the child. But if it is serious we take the child to the hospital". Another segment of the young Onicha women noted that, "first we go to Chemist and buy paracetamol. If it does not get better we go to hospital". Another participant in the discussion with young mothers in the Onicha community however noted that, "it all depends on the type of illness. When you have treated and there is no improvement you can go to herbalist in the community, because there are types of fever that do not go with drugs from Chemist or hospital". Confirming the assertion, another young mother, noted that, "herbal medicines are given to children who are a bit grown and this is only when we have tried medical treatment...."

The sex of the child may also influence multiple health seeking although this did not come out clearly from the discussions. Instead, one of the women in an FGD session had this opinion: "a child is a child irrespective of the sex. I have both and we value them equally. No one knows which child will be productive in future so we treat them alike". The other women in the group made to concur with her. All the same an older mother in another FGD, with mainly female children noted that, "only we the old ones know the difference. When the children are grown the girls can be as valuable as the boys. But our husbands think more of the continuation of their lineage that is why they give preference to the male child especially when women find it difficult to bear male children. This is extended to the health care of the children".

In both the male and female children, the respondents took steps in 95.8% of the cases to respond to the fever in the children. However, the response was statistically faster more in the male than female children with fever ( $P<0.02$ ). Whereas a delay of less than four periods were observed in the case of 93.8% of the male children, only in 91.6% of the female children was such a gap observed. Instead, longer gaps of about 7 periods were observed for more of the female children than the male children ( $P=0.014$ ). The difference was even more glaring with the delay pattern in response to actual childhood fever ( $P<0.0001$ )

In the case of the male children the health seeking was concentrated around the orthodox medical care of using home drugs or Chemists in 50% of the cases. For the female child however, health seeking was diffused and even extends to unorthodox methods.

In 52.7% of the cases the children improved greatly. In 36.1% of the cases the children improved somewhat. However, 8.6% and 2.7% of the cases were about the same and even worse, respectively. A break down of the condition of the children by sex however revealed that whereas 53.7% of the

boys improved greatly after first action, slightly fewer females (51.7%) felt the same way. The conditions of more of the female children worsened after the first action compared to the males was observed ( $P<0.001$ ).

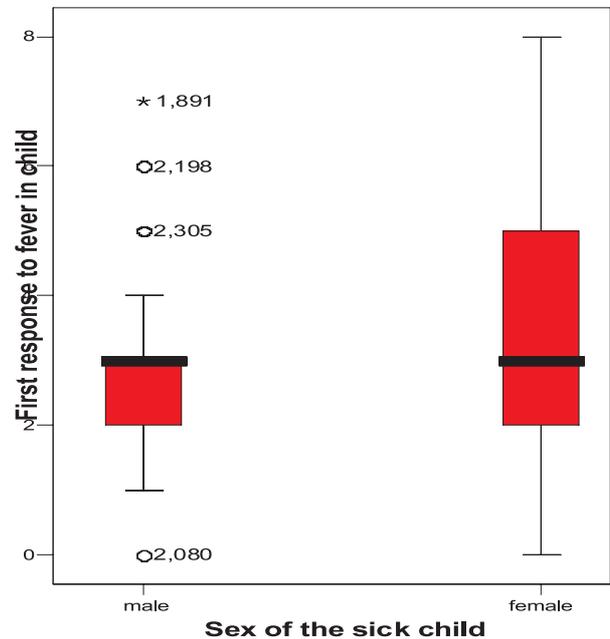


Figure 1: First response to childhood fever by sex of the sick child

A significant association between the conditions of the sick children with the delay in response to treatment ( $P<0.001$ ) was observed using logistic regression model. This implies that the longer the delay the worse the condition of the child (Figure 1). Furthermore the  $R^2$  linear of 0.01 implies that a unit change in the gap between onset of fever and first treatment would bring about 1.0% change in the condition of the sick child.

#### **Sex of care giver vis-à-vis sex of index child and response to childhood fevers**

It has been surmised that the desire for a male child could translate into a definite pattern of response to childhood fevers that is predicated on the sex of the sick child. To examine this assumption, it was hypothesized that response to childhood fevers is faster among male care givers when the sick child is male than when the sick child is female. More male children came under the care of the male care givers. The statistical test of the hypothesis gave a t-test value of 1.738 at 95% confidence interval. Response to childhood fevers was faster among male care givers when the sick child was male than when the sick child was female.

## Discussion

In both cases of the male and female children, mothers were often the first to recognize fever in the children, followed by the other caregivers and then the fathers. This trend demonstrates high recognition ability for fever on the part of the mothers. It may also have to do with the fact that these underfive children tend to spend more time with their mothers/caregivers than with their fathers. However, early recognition of these fevers by the mothers/caregivers does not necessarily translate into prompt decision making for treatment because of the household power-parity between man and woman in Igbo communities in particular and Africa in general. Similar findings were made in Tanzania (Oberlander & Elverdan, 2000) and Zambia (Binka *et al.*, 1994).

The identification of common childhood fevers by correct symptoms is important, particularly for the rural communities because health personnel, often rely on clinical diagnosis to treat malaria and offer presumptive treatment based on these symptoms where no laboratory facilities exist. Other studies have also highlighted hot body as one of the commonest signs of fever in children in 3 rural areas in Nigeria (Salako *et al.*, 2001). In Kenya, "temperature"/hot body was cited as one of the common ways of "diagnosing" malaria in children (Munguti, 1998). In Zambia, it was also shown that when mothers felt the bodies of their children, they rarely missed a child with fever, though they over-estimated the number who had fever (Whybrew *et al.*, 1998).

In some societies, response to fever is influenced by the indigenous classification of fever as 'good' or 'bad' depending on the duration and outcomes. Brieger *et al.* (1996/97) noted that the good fever ushers in a positive change in the life of the child as perceived by the Yoruba of Nigeria. Similarly, the culture bound theory of disease argues the cultural basis of the definition of health and disease (Erinosho, 1998).

The promptness to respond to male children with fever has been reported by other workers. In a study conducted in Nigeria, most parents took some treatment action within 24hrs, although only a few of these actions were judged appropriate (W.R. Brieger *et al.*, unpubl.).

Although there is a strong desire for children of any sex among the Mbaise communities, at least one must be male to continue the family lineage Onyeneho & Okeibunor (2003). This implied some preference for the male child and which was also predicted to affect the response to childhood fever. The commonest first line treatment for the sick children in the study communities was the purchase of drugs from the

patent medicine vendors. Only 3.5% of the respondents sought treatment at a government owned health facility as a first line of action. The attraction of patent medicine vendors and use of home drugs may thus be due to their ubiquity, accessibility, cost and convenience relative to the nearest government and private hospital facilities. Moreover, it has recently been reported that the preference for drug vendors in Nigeria, included the lack of functional health facilities, affordability of vendor's drugs and their closeness to the people (Idowu *et al.*, 2006). Molyneux *et al.* (1999) and Salako *et al.* (2001) made similar conclusions. In this study appropriateness of treatment actions was based mainly on reported parental actions. As regards the first treatment action taken, more females than males, and more mothers than fathers/other caregivers gave appropriate treatments in the two communities. The greater tendency at multiple health-seeking in the girl child than in the boy child observed in this study is attributed to the trial and error tactics employed in managing the health of the girl child. This gives in to what Auer *et al.* (2000) referred to as shopping. People first try action they consider less expensive and only try other options when the first fails. This is likely to influence the recovery rate of the child

It is thus concluded that the gender is a major factor in response to childhood fevers and it is often faster when the child is male. Programmes should be designed to address the sex difference attitudes in the management of childhood fevers.

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