

# Maternal perception and care-seeking patterns for childhood febrile illnesses in rural communities of Osun State, south-western Nigeria

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**Abstract:** *Introduction:* Febrile illnesses have been known to have considerable impact on childhood morbidity and mortality. Mothers are primary caregivers and are usually first to recognize illness in their children. Appropriate care-seeking behaviour of mothers could prevent significant number of child deaths and complications due to childhood illness. *Objectives:* To assess the perception and care-seeking behaviour of mothers of febrile under-five children in rural communities of Osun State. *Methods:* A descriptive cross-sectional study was carried out among mothers of febrile children presenting in rural primary health care facilities of Osun State using questionnaire survey. Focus group discussions (FGD) were also carried out among mother of under-fives. Two-hundred and forty mothers were selected using multistage sampling. FGD participant were purposively selected. Descriptive statistics were used to summarize information on socio-demographic characteristics of respondents, chi-square tests to determine association between variables and logistic regression to determine predictors of appropriate care-seeking behaviour. *Result:* Mean age of mothers 28.2( $\pm$ 7.7) years, majority of the mothers patronize patent medicine stores (39.2%) and traditional healers (22.9%) Appropriate care was sought by only 82 (34.2%). Mothers age <35years [AOR=3.1, (1.2-7.7)]; employment status [AOR= 4.4, (2.3-8.5)]; and perceived severity of illness [AOR= 2.5, (1.4-5.0)] were significant predictors of appropriate care-seeking behaviour. FGD reveals that misconceptions about febrile illnesses and traditional beliefs are prevalent in these areas. *Conclusion:* There is need to focus on interventions targeted towards addressing misconceptions about childhood febrile illnesses thus ensuring improvement in care-seeking behaviours of mothers. Training of patent medicine vendors may complement government effort in ensuring provision of appropriate health services in rural areas.

**Keywords:** Mothers' Perception, Care-Seeking, Under-Fives, Febrile Illnesses, Rural, Nigeria

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## 1. Introduction

Fever is a common symptom accompanying many childhood illnesses such as malaria, respiratory tract infections, measles, diarrheal diseases, and urinary tract infections. Worldwide, Febrile illnesses have been known to have considerable impact on childhood morbidity and mortality with over 10 million children dying annually [1]. The incidence of these febrile illnesses among children under-five is comparatively higher in sub-Saharan Africa, Nigeria inclusive[2,3,4]. In Nigeria, malaria, acute

respiratory illness and diarrheal diseases are the three leading causes of fever which contributes to childhood deaths [5]. Majority of these deaths could be averted with prompt and effective health care interventions. Home treatments and self-medication for childhood febrile illnesses are prevalent in Nigeria, especially in rural areas, so also the beliefs, traditional practices and misconceptions related to childhood febrile illnesses [6,7,8]. The knowledge and perception of mothers about febrile illnesses in children usually determines

the way the fever is initially managed at home as well as their care-seeking behaviour. The ability of these mothers to recognize fever in their children is also an important step in seeking prompt and effective care.

The World Health Organization estimates that seeking prompt and appropriate care could reduce childhood deaths due to pneumonia by about 20% [9] thus improving mothers care-seeking behaviour could contribute significantly to reduction in child mortality. Several studies have demonstrated that delay in seeking appropriate care usually contributes to large number of child deaths mostly affecting the rural and highly marginalised sector. Rural settings have been shown to be highly marginalized in terms of geographic accessibility, financial and cultural composition thus posing a great threat to the health of children living in these areas [10, 11]. In a study carried out in southeastern Nigeria, disparities exist between urban and rural areas in terms of practices and types of care sought for childhood illnesses, most of the rural mothers' usually rely on herbal remedies, self treatment with drugs bought over the counter from patent medicine vendors and usually visits the health facilities when the problem persist or becomes worse [10].

In Nigeria, the various sources of health care are available, these includes 'Western or orthodox medicine' comprising of primary, secondary and tertiary health care services; 'alternative medicine' comprising of traditional facilities, indigenous and faith-oriented facilities and 'patent medicine stores and drug vendors'. However, the choice of this treatment sources by mothers or caregivers have been found to be influenced by cultural and traditional beliefs [12,13,14], knowledge of signs and symptoms of the illness[15], type of home treatment[16], perceived severity of the illness[7,17] or socioeconomic status[6,18,19].

In the study location, Osun State, Nigeria, health care services are provided freely in all government health care facilities, yet, many people still do not access to these services. The contributions of the factors related to seeking prompt and appropriate care is yet to be fully understood. This study therefore aims to assess mother perceptions of febrile illnesses in their children and to determine the factors influencing care-seeking behaviour for childhood febrile illnesses in rural areas of Osun State.

## 2. Methods

### 2.1. Study Area

The study area is Osun state situated in southwestern Nigeria. Osun State occupies a landmass of 14,875km<sup>2</sup>; it has a projected population of 4,268,081 inhabitants based on 2006 population census [20]. Osun State is bounded in the west by Oyo State, in the east by Ondo and Ekiti State, in the north by Kwara State, and in the south by Ogun State. Osun State has three senatorial districts namely osun East, Osun west, and Osun central. There are thirty Local Government Areas distributed evenly within the three senatorial districts. Osogbo is the State capital and is famous for the annual

'Osun Osogbo' festival which attracts tourists from different part of the world being a UNESCO World heritage site. Osun State is predominantly rural with over 55% of the population residing in rural areas. Farming and trading is the predominant occupation in the State. There are a total of 736 government health facilities located in different parts of the state including 678 primary health care facilities, 54 secondary health care facilities and 4 tertiary health care facilities together with 349 private health facilities [21].

### 2.2. Study Design

The study is a descriptive cross-sectional study utilizing both quantitative and qualitative methods.

*Study population:* This comprised of 240 mothers of under-fives accompanying febrile children to the health facilities.

*Inclusion criteria:* Mothers of children 2-59 months who have been residing in study location for at least 12 months and accompanied a febrile under-five child to health facility.

*Exclusion criteria:* Mothers who had febrile children presenting with signs and symptoms necessitating urgent management or referral and mothers who are temporary visitors in the area.

### 2.3. Sampling Technique

Multistage sampling technique was used, at the first stage; One LGA was selected randomly from each of the 3 senatorial district by ballot given a total of three LGAs. At the second stage, the list of all wards in the selected LGAs was obtained and stratified into urban and rural wards. Two rural wards were then selected randomly giving a total of six rural wards. At the third stage, one primary health care facility was selected randomly from each of the selected wards thus giving a total of six primary health care facilities. Questionnaires' were equally allocated to the selected health facilities and all consenting mothers who met the inclusion criteria were recruited into the study until the sample size is met.

### 2.4. Data Collection

Data was collected using qualitative and quantitative data collection methods. The quantitative aspect comprised of the use of pretested interviewer administered questionnaires. The questions were in four sections as follow: Sociodemographic characteristics of mothers and children; perception and beliefs about childhood febrile illnesses; home treatment practices and care-seeking behaviour, including types of care sought, duration and factors influencing care-seeking. The questionnaires' were administered by trained community health workers.

The qualitative aspect comprised of focus group discussions (FGD), in which mothers of under-five children were the target. A total of 3 FGD were conducted, one in each LGA, two groups consist of 8 mothers while the third group consist of 9 mothers given a total of 25 mothers. FGD participant were purposively recruited. A focus group guide

was used to gather information on knowledge, beliefs, and home treatment practices and care-seeking behaviours of mothers in relation to febrile illnesses in children and each FGD session lasted for 45-60minutes. The sessions were audio taped and subsequently transcribed verbatim.

### 2.5. Outcome Variable

The primary outcome variables for the study were 'Appropriate health care-seeking behaviour' [ACSB] and Inappropriate health care-seeking behaviour' [ICSB].

ACSB was defined as care sought from trained health care practitioner in a health care facility such as PHC centers and dispensaries, hospitals and

ICSB was defined as care sought from drug vendors, traditional healers, religious and indigenous facilities and patent medicine stores.

### 2.6. Data Analysis

Questionnaires were entered and analysed using Statistical Package for Social Sciences SPSS version17. Chi square test was used to describe association between categorical variables, multivariate analysis was also done using binary logistic regression models to identify the predictors for care seeking behaviour. All analyses were done at 95% significance level with p-value  $\leq 0.05$ . FGD responses were coded and transcribed verbatim, and then analyzed using thematic analysis.

### 2.7. Ethical Clearance

Ethical approval was obtained from the LAUTECH Teaching Hospital ethical review committee. Permission to carry out the survey was also sought from the Osun State Ministry of Health and the selected Local Government Area through their respective Medical Officer of Health. The heads of selected health facilities were duly informed and approval was granted for the administration of questionnaire. Written informed consent was obtained from each participant after explaining the purpose of the study to them. Respondent privacy and confidentiality were assured.

## 3. Result

### 3.1. Socio-Demographic Characteristics of Mothers and Febrile Under-Five Children

A total of 240 mothers and their children were surveyed; Table 1 shows the socio-demographic characteristics of the mothers and children; 70% of the mothers were between age's 20-29years, mean ( $\pm$ SD) age was 28.2( $\pm$ 7.7) years. Majority (92.1%) of the mothers were married, 57.5% were Muslims, only 97 (40.4%) had secondary school education or higher; Table 1 also shows the age and sex distribution of the children, majority (54.2%) were aged  $\leq 12$  months; with mean ( $\pm$ SD) age of children 16.7 (11.3) and 143 (59.6%) were males.

**Table 1.** Socio-demographic characteristics of mothers and under-fives in rural communities, Osun State.

Sociodemographic characteristics of mothers and their children	Frequency	% (N=240)
<b>Mothers</b>		
<b>Age (Years)</b>		
<20	4	1.7
20-29	168	70.0
30-39	42	17.5
$\geq 40$	26	10.8
Mean ( $\pm$ SD) 28.2 ( $\pm$ 7.7)		
<b>Marital Status</b>		
Single	14	5.8
Married	221	92.1
Widowed	5	2.1
<b>Level of Education</b>		
No formal	43	17.9
Primary	100	41.7
Secondary	83	34.6
Tertiary	14	5.8
<b>Occupation</b>		
Skilled Labour	63	26.3
Unskilled labour	96	40.0
Housewife/unemployed	77	32.0
Others	4	1.7
<b>Religion</b>		
Christians	102	42.5
Muslim	138	57.5
<b>Average monthly income (1US\$=₦160)</b>		
<₦10,000	159	66.3
$\geq$ ₦10,000	81	33.7
<b>Children</b>		
<b>Age(Months)</b>		
$\leq 12$	130	54.2
13-24	75	31.2
25-36	24	10.0
$> 36$	11	4.6
Mean( $\pm$ SD) 16.7( $\pm$ 11.3)		
<b>Child sex</b>		
Male	143	59.6
Female	97	40.4
<b>Birth position</b>		
1st	75	31.2
2nd	88	36.7
3 <sup>rd</sup> or higher	77	32.1
<b>Number of children in family</b>		
<3	145	60.4
$\geq 3$	95	39.6

### 3.2. Childs' Current Febrile Illness Characteristics

**Table 2.** Childs' Illness Characteristics

Variables	Frequency (N=240)	%
<b>Duration of fever onset (Days)</b>		
1-3	196	81.7
4-6	32	13.3
$\geq 7$	12	5.0
Mean duration of fever 3.3 (SD $\pm$ 2.9)		
<b>Other symptoms*</b>		
Loss of appetite	88	36.7
Cough	61	25.4
Diarrhea	33	13.8
Abdominal pain	28	11.7
Vomiting	36	15.0
Chills and rigor	10	4.2
Skin rash	7	2.9

\*Multiple responses

Table 2 shows information on the current child's febrile illness; mean duration of fever onset before presentation to health facility was 3.3 ( $\pm 2.9$ ); others symptoms associated with febrile episode in the children are as shown with majority having loss of appetite (36.7%), vomiting (15.0%) and cough (25.4%).

### 3.3. Mothers Perception on Childhood Febrile Illness

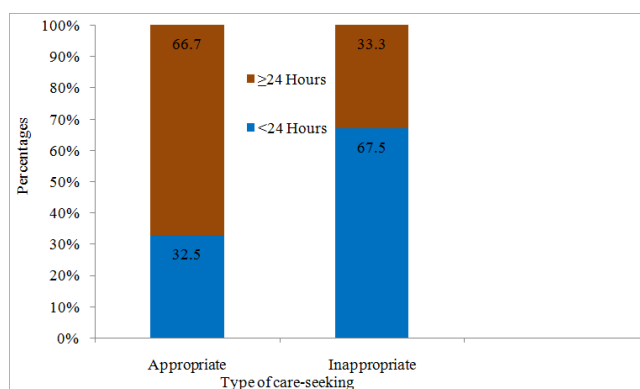
**Table 3.** Mothers perception on childhood febrile illness in rural communities of Osun State

Variables	Frequency (N=240)	%
<b>Interpretation of fever</b>		
Increase in body temperature	191	79.6
Malaria	23	9.6
Reduced activity in child	21	8.7
Change in facial appearance	5	2.1
<b>Cause of fever</b>		
Teething	125	52.1
Malaria	66	27.5
Respiratory tract infection	33	13.6
Measles	13	5.4
Others	3	1.3
<b>Complications of fever</b>		
Convulsion	95	39.6
Anaemia	84	35.0
Dehydration	33	13.6
Yellowness of the eyes	3	1.3
Difficult breathing	4	1.7
Neck stiffness	11	4.6
Coma	10	4.2

Table 3 shows the perceptions of mothers about the interpretation of fever, causes of fever and associated complications. Majority of the mother's interpreted fever as an increase in body temperature; while a few (9.6%) defined it as malaria and 8.1% perceived fever as reduction in child's activity and change in facial appearance respectively. The most common perceived cause of fever was teething (52.1%) while 27.5% believed that febrile illnesses are associated with malaria while other believed fever is caused by infections. Findings from the FGD also revealed that mothers' perception of causes of febrile illnesses includes teething and child playing in the sun. *'Fever is a common thing in children it happens in all children when they are 'teething' usually called (igbona eyin) meaning 'teething fever'. When a child goes around playing in the hot sun always, he will eventually come down with fever'*. The most commonly reported complication of febrile illness is convulsion (39.6%). However misconceptions still exist about this complication; a respondent stated that *'Convulsion can eventually lead to epilepsy (Warapa) in the child, which is believed to be caused by a 'spirit' that is why we normally take a child with convulsion to the traditional herbalist so that he can cast out the spell'*.

### 3.4. Care Seeking Patterns of Mothers of Febrile Under-Five Children

Care-seeking patterns of mothers are as shown in Table 4; the most common sources of health care were patent medicine store (39.2%) primary health care facilities (28.8%) and traditional herbalist (22.9%). From the FGD a respondent stated *"I took my child to the chemist shop because the health facility is a far distance to my house, more so my child took ill on a Saturday, if I choose to go to the centre, the health worker will not be there because it is weekend."* The decision to seek care was initiated by the mother in 64.2%, father in 22.9% and both parent in 10.0%. Almost all (95.5%) mothers sought care within 24 hours of illness. Overall 82 (34.2%) had appropriate care-seeking behaviour although only a few (32.5%) of those who sought appropriate care sought care within 24 hours (Figure 1).



**Figure 1.** Duration after onset of illness for seeking care.

**Table 4.** Care-seeking patterns of mothers for childhood febrile illness in rural communities of Osun State

Variables	Frequency	%
<b>Source of care</b>		
Patent medicine store	94	39.2
Traditional herbalist	55	22.9
Primary health care centres'/health post	69	28.8
Private clinics	13	5.4
Drug hawkers	6	2.5
Self medication at home with left over drug	3	1.3
<b>Decision to seek care taken by</b>		
Mother alone	154	64.2
Father alone	55	22.9
Both parent	24	10.0
Other relatives	7	2.9
<b>Duration for seeking care</b>		
≤24hours	228	95.5
>24hours	12	5.0
<b>Walk-time to nearest health care facility (minutes)</b>		
<30	108	45.0
30-59	92	38.3
≥60	40	16.7
<b>Classification of Care-seeking behaviour</b>		
Appropriate	82	34.2
Inappropriate	158	65.8

### 3.5. Determinants of Appropriate Care-Seeking Behaviour of Mothers

Table 5 shows the determinants of 'appropriate care-seeking' behaviour; four factors: maternal age <35yrs ( $p=0.02$ ), employment of mother ( $p<0.001$ ), duration of seeking care <24hours ( $p=0.02$ ), perceived severity of illness ( $p=0.02$ )

were significantly associated with seeking appropriate care at bivariate analysis. However, based on binary logistic regression, maternal age <35years (aOR =3.1; 95% CI, 1.2–7.7), mothers' employment status (aOR = 4.4; 95% CI, 2.3–8.5), and perceived severity of febrile illness in child (aOR =2.5; 95% CI, 1.4-5.0) remained significant predictors of appropriate care-seeking behaviour of mothers.

**Table 5.** Determinants of appropriate care-seeking behaviour for childhood febrile illness in rural communities of Osun State

Variables	Bivariate Analysis		Multivariate Analysis (Binary logistic regression)		
	Appropriate care-seeking		Chi -square (p-value)	aOR*	95% CI
	Yes (%)	No (%)			
<b>Mothers Age (years)</b>					
≥35	14 (53.9)	12 (46.1)		(1)	
<35	68 (31.8)	146 (68.2)	5.02 (0.02) †	3.1	1.2-7.7††
<b>Educational level</b>					
Secondary/Tertiary	29 (31.5)	63 (68.5)			
No formal or Primary	53 (35.8)	95 (64.2)	0.46 (0.49)		
<b>Religion</b>					
Christians	42 (41.2)	60 (58.8)			
Muslim	40 (28.9)	98 (62.1)	3.88 (0.06)		
<b>Occupation status</b>					
House wife/unemployed	42 (54.6)	35 (45.4)		(1)	
Employed	40 (24.5)	123 (75.5)	20.9 (<0.001) †	4.4	2.3-8.5††
<b>Marital status</b>					
Currently married	79 (35.8)	142 (64.2)			
Single/widowed/divorced	3 (15.8)	16 (84.2)	3.09 (0.08)		
<b>Average monthly income</b>					
<₦10,000	59 (37.1)	100 (62.9)			
≥₦10,000	23 (28.4)	58 (71.6)	1.81 (0.18)		
<b>Child gender</b>					
Male	50 (35.0)	65 (67.0)			
Female	32 (33.0)	93 (65.0)	0.10 (0.75)		
<b>Child age (months)</b>					
≤ 12	47 (36.2)	83 (63.9)			
>12	35 (31.8)	75 (68.2)	0.49 (0.48)		
<b>Child birth order</b>					
Third or higher	20 (25.9)	57 (74.1)		(1)	
First/second	62 (38.1)	101 (61.9)	3.38 (0.06)	0.3	0.2-1.1
<b>Number of children in the family</b>					
<3	52 (35.9)	93 (64.1)			
≥3	30 (31.6)	65 (68.4)	0.47 (0.49)		
<b>Duration of seeking care</b>					
≥24 hours	8 (66.7)	4 (33.3)		(1)	
<24 hours	74 (32.5)	154 (67.5)	5.93 (0.02) †	2.5	0.8-13.8
<b>Perceived severity of febrile illness in child</b>					
No	31 (46.3)	36 (53.7)		(1)	
Yes	51 (29.5)	122 (70.5)	6.05 (0.02) †	2.5	1.4-5.0††
<b>Walk-time to nearest health facility (mins)</b>					
<30	37 (34.3)	71 (65.7)			
≥30	45 (34.1)	87 (65.9)	0.012 (0.54)		

Reference (1) \*Adjusted odds ratio (aOR)

†Significant at bivariate analysis; only variables that were significant in bivariate analysis were included in logistic regression model

†† Significant at multivariate analysis

## 4. Discussion

This study sets out to assess mothers' perception of febrile illnesses in their children with a view to determine their care-seeking behaviour and its associated factors. The perception of mothers about childhood febrile illnesses in this study location reveals that misconceptions about febrile illnesses still exist. Majority of the mothers' perceived febrile illnesses to be caused by teething process in children, which is a natural process of growth, more than half the respondent reported teething as a major cause of fever in their children this finding corroborates other studies in south-western Nigeria [14,22]. About a quarter of the respondents in this study mentioned malaria as a major cause of childhood febrile illness, similar to other studies in Nigeria [7, 14]. This could be explained partly by the fact that malaria is holoendemic in Nigeria, as a result more than seventy percent of cases of fever presenting in health facilities are presumptively treated for malaria before further evaluations, hence reinforcing the knowledge of the mother about childhood febrile illnesses [23]. Findings from FGD revealed that few mothers believed that fever in children may be as a result of environmental exposure to heat from the sun; this supports the findings in rural parts of Imo, southeastern Nigeria, which showed that about half of mothers studied perceived fever to be caused by exposure to intense heat from the sun [24]. These misconceptions may likely affect their initial decision to seek medical care and may result to development of complications in children.

Although health services are provided freely in all public health facilities, majority of mothers still sought care from patent medicine stores while few sought care from traditional healers, this corroborates the findings by Oreagba *et al.* that mothers in rural areas readily patronize patent medicine stores and traditional healers than mothers in urban areas [8]. Plausible explanations includes the geographical proximity to these informal sources, coupled with the fact that majority of these patent medicine stores and traditional healers may accept alternative means of payment for drugs such as trade by barter or even get treatment on credit as was previously demonstrated in other studies. Traditional beliefs about causes of fever may also have influenced their choice of traditional healers as revealed in the focus group discussions. Another major reason for their preferences may be as a result of dissatisfaction with public health services which may occur due to lack of drugs, poor health workers attitudes among others may have influenced their choices as have been demonstrated in most studies [10, 14, 25]. The preference of other informal sources of health care despite availability of free health services reflects that care-seeking behaviour is not only influenced by direct cost of treatment but rather depends on some intangible cost to seeking health care such as productive man-hours lost, psychological cost among others.

Although majority of mothers sought care from inappropriate sources, almost all of them sought care within 24hours of recognition of febrile illness in child, this

indicates that majority of the mothers have good attitude towards care-seeking although their preferences differ. The finding that majority of the mothers sought care within 24hours may have been influenced by the way 'time interval' was interpreted in this study. In many rural areas, most mothers rely on the traditional way of counting time. According to Ajayi *et al.*, counting nights of illness was the closest approximation of a 24hours time interval and most practicable way of estimating time [26]. Hence for this study, time interval for seeking care was ascertained as reported by the mother when a mother could tell time by a watch or clock, otherwise, mothers seeking care on same day of recognition of child febrile illness or after one night of illness were approximated to have sought care within 24hours. This also suggest the need to test the reliability and validity of using these traditional methods of estimating time in further research as suggested by some studies [27].

Major reasons influencing choice of sources of health care as demonstrated by mothers in this study includes lack of fund (32.5%), distance to health facilities (22.1%), long waiting in health facilities (22.9%), and perceived severity of illness (22.5%) which supports findings from other studies [24,30,33].

Considering the factors influencing care-seeking behaviour, many studies have demonstrated positive relationship between maternal education and care-seeking behaviour [17, 28, 33]. This study however did not find a positive association, this could be linked to the generally low educational level of most of the mothers interviewed hence the seemingly insignificance of educational status in this study. The NDHS report particularly emphasized that the children of more educated mothers are more likely to seek appropriate care [5]. Likewise, some other studies have demonstrated that education of fathers as well may have significant impact on the care-seeking behaviour as most often time in such areas fathers are the sole decision maker, however our study did not explore this factor [29]. In our study, majority of the mothers (64.2%) took sole decision for seeking care which is contrary to some other studies which showed that fathers play a dominant role in decision making.

Mothers' age was also found to be a significant predictor of care-seeking behaviour as older mothers were less likely to seek appropriate health care than younger mothers; this finding is contrary to others studies that showed that older women were more likely to have better health care practices and appropriate health seeking behaviour. Our finding may be attributed to the fact that younger women are better educated and as younger mothers may likely seek prompt appropriate health care due to their inexperience with childhood illnesses thus necessitating prompt assistance. Another significant predictor of appropriate care-seeking behaviour of mothers was occupational status; our study showed that women who are gainfully employed with any kind of occupation were more likely to seek appropriate care than women who are unemployed. Occupation has been demonstrated in several studies to have significance

influence on women's access to resources, and this has a significant influence on their treatment seeking behaviour for their children [31, 32]. In addition, our study established that mothers who perceived febrile illness in child as severe were much more likely to seek appropriate health care; this finding corroborates findings from other studies [17, 28-30,33].

## 5. Limitations

This study has some limitations; it was carried out among mothers presenting in health facilities; therefore the findings cannot be generalized to all rural communities. Furthermore the study utilized only those attending the facilities thus respondent were self-selected (self-selection bias) thereby excluding majority of the mothers within these rural communities. Future research on perceptions about childhood febrile illnesses can be extended to other rural communities using household

### 5.1. Conclusion

Misconceptions about the causes and complications of febrile illnesses in children still exist among mothers in the rural areas; these have implication on the initial type of care sought. Though majority of mothers sought care within 24hours, majority of them sought health care mostly from inappropriate sources with high patronage of patent medicine stores and traditional healers. There is need for health education and promotion of appropriate care- seeking practices among mothers. Training and retraining of patent medicine vendors may complement government effort in ensuring provision of appropriate health services in rural areas.

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