

## **MALARIA TREATMENT PRACTICES IN AKPABUYO, CROSS RIVER STATE.**

**Udofia, Lydia Etuk<sup>1</sup> and Asor, Joseph Elele<sup>2</sup>**

1. Department of Biological Sciences, Akwa Ibom State University, Mkpata Enin, Akwa Ibom State. 08035845445 email- [lydiaetuk@gmail.com](mailto:lydiaetuk@gmail.com)
2. Department of Zoology and Environmental Biology, University of Calabar, Cross River State. 08037236472 email- [asorjoe@yahoo.co.uk](mailto:asorjoe@yahoo.co.uk)

Corresponding author:- Lydia Etuk Udofia - [lydiaetuk@gmail.com](mailto:lydiaetuk@gmail.com)

### **ABSTRACT**

This study sought to gather information on perceived causes of fever, symptoms, diagnosis and home medications used in treating malaria and also to compare malaria treatment outcomes (frequency, duration, severity and mortality of attack) among households that use traditional herbal treatment for malaria versus households that use prescription anti-malarial drugs. Household heads (522) were interviewed with a structured questionnaire divided into two sections involving demographic information about the respondent and information on knowledge, attitude and treatment outcomes. Fever, headache and body pains were the most frequently mentioned signs and symptoms. 405 (80%) of the respondent had the knowledge that malaria occurred through mosquito bites. 477 (94%) believed malaria can kill and sought treatment within 24 hours of the onset of malaria. 214 (41.9%) visited a health facility as first practice when a child was sick, 132 (25.8%) got drugs from patent medicine dealers while 109 (21.3%) used enema and 41 (8%) used local herbal treatment. The most common anti-malarial drug administered was Artemisinin combination therapy 215 (51.2%), chloroquine 83 (19.8%) and paracetamol 41 (9.8%). Herbs used include Brazillian tea leaf (*Starchylarpherta mutabilis*), Siam weed (*Chlomolaena odorata*), Pawpaw leaves (*Carica papaya*), Lemon grass (*Cymbopogon citratus*) and Dogoyaro leaves (*Azadirachta indica*). Results showed that herbal therapy practiced locally for malaria treatment compared favourably with anti-malarial prescription drugs.

**Keywords:** Herbal, treatment, practices, anti-malarial, prescription drugs

## **INTRODUCTION**

Malaria is one of the most debilitating and widespread disease of man especially in sub-Saharan African (Hartman *et al.*, 2010; United Nations, 2005). Malaria is holoendemic in Nigeria with transmission occurring all year round. Malaria is caused by the protozoan parasite of the genus Plasmodium and is transmitted by the bite of female Anopheles mosquito. Multidrug resistance of malaria parasite and lack of a tenable malaria vaccine has made eradication of malaria cumbersome and challenging. This has led many settlements in malaria endemic areas to seek remedy in plants within their locality (WHO, 2002; Zihiri *et al.*, 2005). Malaria management in homes is practiced based on available resources. These practices include reducing body temperature by sponging the body with warm water, use of herbs, purchase of malaria medicine from patent medicine dealers and visit to health facilities (FMOH, 2005). The knowledge of household caregivers about malaria plays an important role in its management. Factors which affect health behaviour include availability and accessibility of health personnel, perception of how serious the disease is and the ability to ascertain, diagnose and treat the disease (Lubanga *et al.*, 1997; Salako *et al.*, 2001).

Yearly, malaria causes almost 1 million deaths worldwide, especially in children below five (Breman *et al.*, 2004). In Nigeria, 25% of infant death and 30% of childhood deaths is caused by malaria (Uzochukwu *et al.*, 2009). Malaria is also responsible for illness and death among pregnant women (Ayoola *et al.*, 2008; WHO, 1995). This study investigated the perceived causes of fever, symptoms associated with fever, diagnosis and home medications used in treating malaria in households. It also compared malaria treatment health outcomes (frequency, duration, severity and mortality of attack) among households that use traditional herbal treatment for malaria versus households that use prescription anti-malarial medicine.

## **II MATERIALS AND METHODS**

### **Study Area**

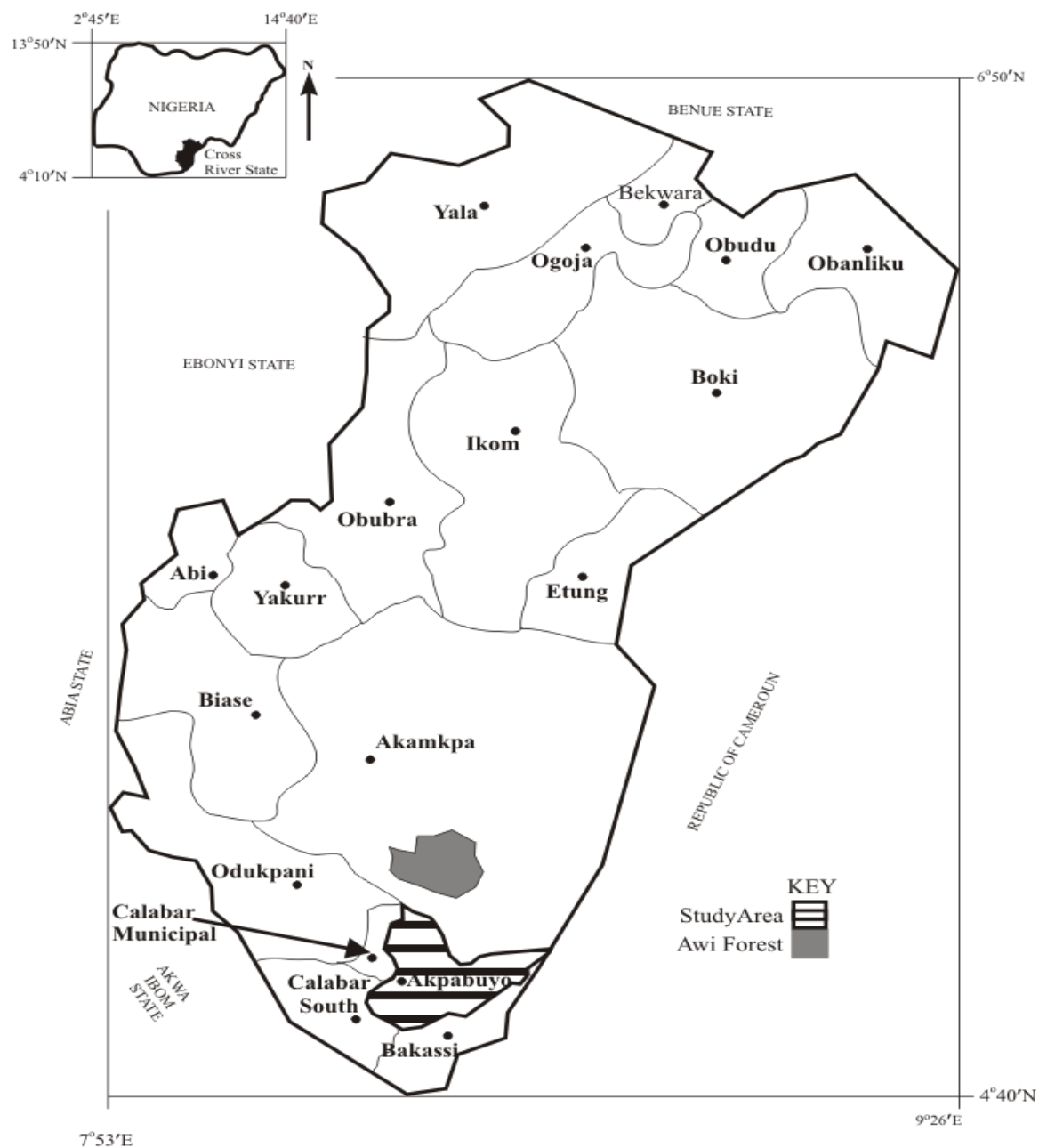
This study was carried out in Akpabuyo Local Government Area of Cross River State. It is situated between latitude 4° 5' and 5° 40' and longitude 8° 25' and 8° 32' East. It is found within the vegetational belt of southern Nigeria and is bounded to the East by Bakassi along the Atlantic coastline to the West by the Republic of Cameroon. Its headquarters is located in the town of Ikot Nakanda and consists of 10 council wards. It has an area of 1,242Km<sup>2</sup> and a population of 271,395 in the 2006 census. The Efiks, Efuts and Quas are the major ethnic groups speaking English and Efik as the major language. These ethnic groups share similar ancestral and cultural heritage. Majority of people in Akpabuyo are farmers and fishermen who produce cassava, cocoyam, kolanut, coconut, palm produce and sea foods.

### **Ethical consideration**

Approval was sought and given by the Department of Zoology and Environmental Biology, University of Calabar and the traditional ruler and village heads in Akpabuyo who helped in mobilizing the villagers. Individual consent was sought and participation was voluntary.

### **Questionnaire administration**

A cross-sectional survey in the community consisting of five hundred and twenty two (522) randomly selected households made up the study population. A pre-tested questionnaire was used in obtaining data from 522 consenting head of each household. This was structured into seven sections. Section one gave demographic information. The heads of the households, or in their absence, whoever was in charge was interviewed to document information on educational status, age group, occupation of household breadwinner and decisions on treatment received during illness. Section two contained questions on knowledge about malaria, its causes and symptoms. Section three contained questions on attitude towards malaria in terms of actions taken when someone has malaria in the household, how soon treatment begins, type of treatment given whether herbal or orthodox medicine and herbs commonly used in treating malaria. Section four contained questions on malaria treatment and prevention practices, on duration of use of herbal or orthodox medicine and who prescribed the treatment used. Section five contained questions about frequency and duration of malaria occurrence. Section six contained questions on severity of malaria experienced in terms of abnormal behaviour and convulsion. Section seven enquired about death cases related to malaria in the last six months. Most questions were closed-ended in structure. Data thus collected were analysed using SPSS software package.



**Figure 1.** Map of Cross River showing the study area.

## RESULTS

A general questionnaire was administered to 522 participants (Table 1). Of the population under investigation, 199 (38.1 %) were males and 323 (61.9 %) were females. Respondents who had primary education (attempted or completed) were 226 (45.3 %), those with secondary education 171 (34.3 %), tertiary education 96 (19.2 %), while 6 (1.2 %) of the study population are illiterate. Occupation of respondents include fishermen 60 (11.5%), Farmers 182(34.9%), civil servants 44(8.4%), students 62(11.9%), Traders 120(23.0%), artisans 36(6.9%) and Pensioners 18(3.4%). Christianity is the main religion of the people 504 (96.6%), while a few 18(3.4%) did not practice Christianity. Different age groups for the study include 15-24 years 143(30.4%), 25-34years 186(39.6%), 35-44 years 77(16.4%), 45-54 years 46(9.8%). 55-64 years 11(2.3%) and 65 years and above 7(1.5%).

Table 2 summarises respondent's knowledge about malaria. Majority, 405 (80 %) of the respondents indicated mosquito bite was responsible for malaria. Others claimed that bad water and air 14(2.8 %), too much of sunshine 25(4.9 %), hard work 2(0.4 %), too much oily food 17(3.4 %) was responsible and others 24(4.7 %) while 19(3.8 %) claimed they do not know. The most frequently mentioned symptom of childhood malaria was fever 207(41 %). Other interviewees associated it with headache, joint and body pains 72(14.3 %), discolouration of the eyes 76(15 %), cold and catarrh 20(4 %), rashes and itching 19(3.8 %) weakness 46(9.1 %), and other symptoms like strange breathing 46(9.1 %). Out of those interviewed, majority 477(93.5 %) agreed malaria can kill while 33(6.5 %) disagreed. Majority 383(75.2 %), agreed malaria can make one poor while 126(6.5 %) did not agree. Health seeking and treatment practices for malaria (Table 3) summarises practices, medications and treatment seeking time. Out of 522 respondents, 214 (41.9 %) said the first practice is to visit a health facility for treatment when household member has malaria. 132(25.8%) said they would get drugs from patent medicine dealers, 109(21.3 %) would use enema (stomach pump), 41(8%) would get local herbal therapy using the following herbs Brazillian tea leaf (*Starchylarpherta mutabilis*), Siam weed (*Chlomolaena odorata*), Pawpaw leaves (*Carica papaya*), Lemon grass Lemon grass (*Cymbopogon citratus*) and Dogoyaro leaves (*Azadirachta indica*) and 15(2.9%) would use other means. Artemisinin combination therapy (ACT) was mentioned frequently 215 (51.2 %) as the drug used in treating malaria in their households. Chloroquine and other quinine based drugs by 83(19.8%), panadol/paracetamol tablets by 41(9.8 %) and 29(6.8%) would use other drugs while 52(12.4%) did not know the names of the medicine used. Majority of the respondents 476(94.1 %) would seek treatment immediately (within day one) when a household member had malaria while 30(5.9%) would seek treatment from the second day. Most respondents 335(66.1%) would get prescriptions from a doctor, nurse, pharmacist or patent medicine dealer while 172(33.9%) indicated self medication, a relation or other means.

**Table 1:** Socio demographic characteristics of Respondents in Akpabuyo LGA, Cross River State.

<b>Variable</b>	<b>Number of responses</b>	<b>Percentage (%)</b>
<b>Age group</b>		
15-24	143	30.4
25-34	186	39.4
35-44	77	16.4
45-54	46	9.8
55-64	11	2.3
65+	7	1.5
Total	522	100%
<b>Gender</b>		
Male	199	38.1%
Female	323	61.9%
Total	522	100%
<b>Educational Status</b>		
Primary attempted /complete	226	45.3%
Secondary attempted/ completed	171	34.3%
Tertiary attempted/completed	96	19.2%
No Education	6	1.2%
<b>Occupation</b>		
Fishermen	60	11.5%
Farmers	182	34.9%
Civil servants	44	8.4%
Traders	120	23%
Students	62	11.9%
Artisans	36	6.9%
Pensioners	18	3.4%
Total	522	100
<b>Religion</b>		
Christian	504	96.6
Other Religion	18	3.4
Total	522	100

**Table 2:** Respondents' knowledge about malaria

<b>Variable</b>	<b>Number of responses</b>	<b>Percentage (%)</b>
<b>Perceived Causes of Malaria</b>		
Mosquito/plasmodium	405	80
Eating too much oily foods	17	3.4
Too much exposure to sun	25	4.9
Much hard work	2	0.4
Bad water/air	14	2.8
Don't know	19	3.8
Others	24	4.7
<b>Perceived Symptoms of Malaria</b>		
Fever	207	41
Headache/body/joints pains	72	14.3
Discoloration of the eyes	76	15
Coloured urine	16	3.2
Rashes/itching	19	3.8
Oily skin	3	0.6
Cold/catarrh	20	4
Weakness	46	9.1
Others	46	9.1
<b>Malaria Can Kill</b>		
Yes	477	93.5
No	33	6.5
<b>Malaria Can Make Poor</b>		
Yes	383	75.2
No	126	24.8

**Table 3:** Health seeking and treatment practices for malaria

<b>Variable</b>	<b>Number of responses</b>	<b>Percentage (%)</b>
<b>First Practice in response to malaria</b>		
Visit health facility for treatment	214	41.9
Get medicine from PMD(Patent medicine dealers)	132	25.8
Use stomach pump (Enema)	109	21.3
Get local herbal therapy	41	8
Others	15	2.9
<b>Medications administered</b>		
ACT	215	51.2
Chloroquine/other quinine based	83	19.8
Panadol/paracetamol	41	9.8
Others	29	6.8
Don't know	52	12.4
<b>Treatment seeking time</b>		
Immediately (Day 1)	476	94.1
From Day 2	30	5.9
<b>Drugs usually prescribed by</b>		
Doctor/Nurse/Pharmacist/PMD	335	66.1
Herbalist/Self/Relations/others	172	33.9
<b>PMD- Patent medicine dealer</b>		



**Table 4:** Malaria treatment outcomes

Variable	Overall proportion		Users of Prescription Drugs as 1st line of treatment		Users of Herbal therapy as 1st line of treatment		Odds Ratio
	N	%	N	%	N	%	
<b>Frequency of malaria occurrence in household in last 3 months</b>							
None	86	19.3	67	22.3	19	13.1	OR 1.9 (95% CI for OR = 1.10 - 3.28)
1 or more	360	80.7	234	77.7	126	86.9	
<b>Duration of malaria occurrence</b>							
5 days and below	94	76.4	54	75	40	78.4	OR = 0.82 (95% CI for OR = 0.35 - 1.94)
6 days and above	29	23.6	18	25	11	21.6	
<b>Death during malaria occurrence in the last 6 months</b>							
Yes	2	0.4	2	0.6	0	0	-
No	506	99.6	339	99.4	167	100	
<b>Convulsion during malaria occurrence</b>							
Yes	9	1.8	5	1.5	4	2.4	OR = 0.60 (95% CI for OR = 0.16 - 2.23)
No	497	98.2	336	98.5	161	97.6	
<b>Abnormal behaviour</b>							
Yes	6	2.1	4	2.2	2	2	OR = 1.08 (95% CI for OR = 0.19 - 6.0)
No	280	97.9	182	97.8	98	98	

Malaria treatment outcomes (Table 4) showed a significant or meaningful difference [OR 1.9 (95 % CI for OR= 1.10 - 3.28)] on the occurrence of malaria between households that use prescription drug and those who use herbal therapy. There was no significant or meaningful difference on the duration of malaria incidence [OR=0.82(95 % CI for OR= 0.35 - 1.94), convulsion during malaria incidence in the last 6 months [OR=0.60 (95 % CI for OR=0.16 - 2.23)], abnormal behaviour [OR=1.08 (95 % CI for OR=0.19 - 6.0)] and death during malaria incidence.

## DISCUSSION

Findings from this study showed that participants possessed good knowledge about signs, symptoms and treatment of malaria. Most interviewees had good idea of perceived causes and treatment practices about malaria. About 41.9% of participants reported health care facilities as the appropriate place to get treatment for malaria. This is in line with similar studies carried out by similar surveys (Dike *et al.*, 2006; Ukpong *et al.*, 2007), and this could also be attributed to health education promotional campaigns by organisations like the Red

Cross Society in collaboration with Roll Back Malaria, Nigeria through the distribution of mosquito bed nets. As regards health seeking and treatment behaviour, the report on treatment seeking behaviour was quite encouraging as almost all participants (94.1%) sought treatment within the first day of the onset of symptoms with over half of the participants (66.1%) , receiving prescriptions either from a doctor, nurse, pharmacist or patent medicine dealer. This result is in agreement with findings obtained by (Dike *et al.*, 2006; Khumbulani *et al.*, 2009; Tarimo *et al.*, 2000). This study showed that people who possessed good information about causes and transmission of malaria will most likely take correct treatment practices. Respondents who took ACT and other anti-malarial medicines for treating malaria were about 51.2%. Those who visited health facilities for malaria treatment were more than those who used self medication or herbal therapy.

Use of enemas ('stomach pump') popularly known as 'Ukebe' in the local dialect was common among respondents. This practice originates from the belief that a person's bowel gets dirty from time to time and needs to be cleaned to avoid onset of malaria. Herbal enema is the practice of using local plants in cleaning the system through the rectum. The leaves are harvested, washed and heated in water. The decoction is passed via the anus into the bowel with the aid of a rectal nozzle for children and a rectal catheter in the adults. Ukebe is therefore a traditional purgative practice of cleaning up the bowel (Ukpong, 2007). Respondents who treated themselves using medicine bought from patent medicine dealers were 25.8%, indicating this as the first action they would take when a household member has malaria. This is seen in related studies by (Malik *et al.*, 2006; Comoro *et al.*, 2003). It is quite obvious that self medication is responsible for lateness in going for appropriate treatment which eventually aggravates malaria. Self medication is also responsible for the observed failure in not complying with national malaria treatment regulations which affects the outcome of malaria treatment and builds up drug resistance as observed with malaria. Users of traditional herbal drugs as the first line of treatment had one or more malaria incidence in their household less frequently when compared to anti-malarial prescription drug users. Herbal therapy as malarial treatment practiced locally compared favourably with prescription drug as no significant differences in treatment outcomes (duration, abnormal behaviour and death) were observed except in frequency of occurrence. This was also observed by (Idowu, 2008).

### **Conflict of Interests**

The authors have declared they have no conflicting interest.

### **Acknowledgement**

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