Epidemiology: Open Access

Malaria Treatment Seeking Behaviour among Pregnant Women in Ondo, Nigeria

Olafusi Oluwatosin S[1]* and Ajayi Ikeoluwapo[2]

[1]Department of Epidemiology, University of Medical Science Teaching Hospital, Ondo, Nigeria
[2]Department of Epidemiology, University of Ibadan, Nigeria

Abstract

A descriptive cross-sectional study was conducted among 240 pregnant women in 44 health institutions in Ondo, who have presented with signs and symptoms of malaria. A set of interviewer-administered, semistructured questionnaire was used to collect data on socio-demographic characteristics, knowledge, reporting practices, and major influencing factors of treatment seeking behaviours for the study. Knowledge of malaria was assessed on a scale of 100 points with score ≥ 75 as high-level knowledge while score of 50-74 as average knowledge. Descriptive statistics (frequencies) were used to tabulate and describe the data. For inferential statistics, logistic regression was used at 5% level of significance. The mean age of the respondents was 22 ± 1.1. One hundred and eighty-three (76.3%) had high knowledge of malaria transmission, symptoms, and prevention, despite this; only 100 (41.7%) sought early malaria treatment. Pregnant women with high level of malaria knowledge were 4.55 times more likely than those with average knowledge to seek for early malaria treatment (OR=4.55, C.I=2.17-9.55). Those with no formal education were 99.7% less likely than those with post tertiary education to seek early malaria treatment (OR=0.003, C.I=0.00- 0.07). Also, those who have only primary education were 96% less likely than those with post tertiary education to seek for early malaria treatment (OR=0.04, C.I=0.05-0.30). The pregnant women within age group of 18-24 years were 82% less likely than those of 35 years and above to seek for early malaria treatment (OR=0.18, C.I=0.04- 0.84). Pregnant women who made health centres/clinic as their first point of seeking treatment were 44.2 times more likely than those who use local herb to seek for early malaria treatment (OR=44.2, C.I=11.6-55.4). In conclusion, whereas the knowledge of pregnant women about malaria cause, transmission, signs and symptom was good, most of the pregnant women still sought late for malaria treatment. It was noticed from the result that level of education, age, religion, level of knowledge and first place of seeking treatment, have significant relationships with treatment seeking behavior. Therefore, it is recommended to improve the dissemination of appropriate information on malaria in Ondo Metropolis through active education campaigns to encourage early treatment seeking behaviour and utilization of health centres especially among younger women and uneducated pregnant women in Ondo Metropolis.

Keywords: Treatment seeking behaviours, Malaria knowledge, Pregnant women

Introduction

Malaria is a life-threatening parasitic disease transmitted mostly by female Anopheles mosquitoes and caused by different species of Plasmodium parasites. Human malaria is caused by *Plasmodium vivax, P.ovale, P.malariae* and *P.falciparum* [1]. Malaria is the commonest cause of hospital attendance in all age groups in all parts of Nigeria. It is also one of the four commonest causes of childhood mortality in the country, the other three being acute respiratory infection (pneumonia), diarrhoea and measles [2]. Malaria has severe negative effects on maternal health and birth outcomes. It causes maternal anaemia, increases miscarriage and low birth weight.

Malaria continues to be a leading cause of morbidity and mortality in many tropical regions of the world, despite global efforts to eradicate the disease. While the disease is easily preventable, curable and treatable, it remains a big health threat to many communities the world over, most especially insub-SaharanAfrica.

Epidemiology of Malaria among pregnant women

The pregnant women are at greater risk of malaria infection and of symptomatic malaria disease than non-pregnant adults. According to Lindsay et al. Pregnant women are more attractive to mosquitoes and the malaria-parasite densities are also higher in them [3]. Malaria is an important parasitic disease estimated to affect100 to 300 million people globally and 1.5-2.7 million people die of it yearly. Each year, 25-30 million women become pregnant in malaria endemic area of Africa, and similar numbers are exposed to malaria in Asia, Oceania, and South America [4]. According to Nigeria's Federal Ministry of Health [5], malaria is associated with 11.0% of all maternal deaths and 70.5% of morbidity in pregnancy. By contrast, less attention has been given to the severe problems posed by malaria occurring in pregnant women. The prevalence of malaria in pregnancy varies considerably in different parts of Africa. In Ile-Ife, Okonofua and Abejide reported an incidence of 16% Plasmodium parasitaemia [6]. During the past decades, numerous large-scale initiatives have been undertaken with the goal of reducing or eradicating the burden of malaria in the developing world. However, the ambitious goals set by these programmes for reducing the burden of malaria in the near future has not been achieved.

Malaria treatment seeking behaviours

Health-seeking behaviour studies acknowledge that health

*Corresponding author: Olafusi Oluwatosin S, Department of Epidemiology, University of Medical Science Teaching Hospital, Ondo, Nigeria, Tel: 234803853124; E-mail: oluwabryan@gmail.com

control tools, where they exist, remain greatly under or inadequately used. Understanding human behaviour to treatment is prerequisite to improve health practices. In order to respond to community perspectives and needs, health systems need to review their strategies, taking into account the findings from behavioural studies [7]. Clinical suspicion is based on fever or history of fever in the last 24hrs and/or the presence of anaemia, therefore it is important to present early for malaria diagnosis and treatment.

Pregnant women are vulnerable to malaria as pregnancy reduces a woman's immunity to malaria, making her more susceptible to infection and increasing risk of severe anaemia and death. In areas of Africa with stable malaria transmission, P.falciparum infection during pregnancy is estimated to cause as many as 10000 maternal deaths each year, 8% to 14% of all low birth weight babies, and 3% to 8% of all infant deaths [8]. In addition, malaria has also more pregnancy related problems like foetal wastage, prematurity, dysmaturity, stillbirth and congenital malaria, jaundice, malnutrition, etc. among children. Again, women with semi immunity to malaria who live in regions where the disease is endemic are at increased risk for more frequent and severe episode of malaria during pregnancy [9].

Poor physical access to public health facilities is a recognized impediment to the provision of early treatment in

Developing countries, especially insub-Saharan Africa, and, in order to cope, communities have resorted to self medication through the unregulated private and in formal sector [10].

It is now widely acknowledged that access to appropriate and effective treatment for malaria should be provided within 24 hours of onset of symptoms. A strategy to provide such access should take into account poor rural populations in malaria-endemic countries who are particularly inadequately served by the health system [11]. Delay in diagnosis and treatment of malaria increases morbidity and mortality among pregnant women. Socio cultural beliefs about the causation of disease and its curability have direct correlation with the treatment seeking behaviour of the people. The choice of treatment source has been found to be influenced by accessibility, disease type and severity, patient's gender and parents' educational level [12]. Attitude of users towards healthcare providers is also an important factor. Patients are more likely to start with self- treatment at home as this practice yields them to minimize expenditure and sufferings in remote areas where transport and health facility are the problem.

Although patterns of health-care seeking behaviour in Africa have been shown to be related to cultural beliefs and the perceived cause of the illness, the choice of treatment is greatly influenced by the access that individuals have to healthcare. The determinants of treatment seeking behaviour are the distance to be travelled, the cost of care, care providers' attitudes, times pent at the facilities and the overall availability of the services and medicines. A strategy to enable timely access to treatment will therefore need to address all these issues. Treatment seeking for febrile children has been well studied, but not much for pregnant women. Self-treatment is a common phenomenon in this environment but has implications in pregnant women, ANC attendance is suboptimal and there exist some cultural beliefs and taboos which inform steps taking by pregnant women when ill in pregnancy. There is little on the treatment behaviour of pregnant women in Ondo State and they have their peculiarities like other states/ tribe in terms care of pregnant women. Ondo state is a malaria-endemic region and the pattern of malaria transmission is unstable, therefore it is important to know how the pregnant women seek for malaria treatment. This study is aimed to identify factors associated with

different malaria treatment behaviours among pregnant women and explore these factors in strategizing for the prevention and treatment of malaria among pregnant women in Ondo West Local Government area, Nigeria.

Specific objectives include

Assessment of knowledge of malaria, its prevention and treatment among pregnant women. Determination of the attitudes and practices of pregnant women towards the risk factors of malaria. Determination of the malaria treatment seeking behaviours among pregnant women Determination of the factors that

Influence malaria treatment seeking behaviours among pregnant women.

Methods

The study was carried out in Ondo West Local Government area of Ondo state. Ondo west local government is situated at Lat.7.1°N and Long.4.83°E, and 277 m elevation above the sea level. The land mass is about 70 km² and population of 283,673 people. There are 62 registered completed and functioning health facilities in the local government, comprising of state owned and private health institutions. The Antenatal clinics are runned twice in a week, and the activities include; health education, distribution of ITNs, administration of drugs. This study was a hospital-based descriptive cross-sectional study designed to determine the treatment seeking behaviours and associated factors among pregnant women in Ondo West Local Government area in Ondo state. The study population consisted of pregnant women who have presented for diagnosis and treatment after symptoms of fever and raised body temperature and have been confirmed to have malaria through laboratory diagnosis-Rapid Diagnostic Test (RDT). All pregnant women presenting for malaria diagnosis and treatment in the selected health facilities. Willingness to participate in the study as evidenced by signing of consent form after explaining nature and reason for study to the pregnant women (participants). Pregnant women who have not presented themselves for malaria treatment in selected health facilities, severely ill pregnant women were excluded from the study. The minimum sample size for this study was obtained using the formula for cross-sectional descriptive studies:

$$nf = \frac{N}{1 + {}^{N}/n}$$

nf = desired sample size when population <10,000

n = the estimate of the population size,

Prevalence of malaria among 2848 pregnant women in Ondo is 20.3%.

20.3% of 2848 = 578

N = Derived sample size when

population>10,000

$$N = \frac{Z^2 pq}{d^2}$$

Z =the standard normal deviation, usually set at1.96 which corresponds to 95% confidence level

P=Proportion in the target estimated to have late treatment seeking behaviour (24 hrs after onset of symptoms). From similar studies conducted in Ibadan, the percentage of pregnant women that presented

late for malaria treatment was found to be 55%

q=1.0–p

d=degree of accuracy desired usually set at 0.05

Based on the above information,

$$N = \frac{(1.96)x0.55\ x(1-0.55)}{(0.05)^2} = 388.08{\sim}388$$

$$nf = \frac{384}{1+{}^{384}/578} = 232.15{\sim}232$$

A sample size of 240 was used.

Multi-stage sampling technique of three steps was used to select two hundred and forty pregnant women from among those presenting for malaria treatment. Out of the 62 registered health institutions, only 44 have facilities for malaria laboratory diagnosis. In the first step, antenatal centres (that have facilities for malaria laboratory diagnosis) were identified in Ondo West Local Government. In this stage, four ANC centres were randomly selected from the government hospital and private hospital. Thereafter, two hundred and forty pregnant women that have presented themselves for malaria treatment were selected through convenient sampling method across the four selected ANC centres (i.e.60 pregnant women with malaria were selected from each of the 4 centres). A set of interviewer-administered, semistructured questionnaire was used to collect data for the study. The questionnaire was developed using findings and questions from related earlier studies. It included sections and variables on socio-demographic characteristics, knowledge, reporting practices, and major influencing factors of treatment seeking behaviours.

Early treatment seeking behaviour

Any pregnant woman who presented to health facility within 24 hours of noticing symptoms (raised body temperature, fever) of malaria is said to have early treatment seeking behaviour.

Late treatment seeking behaviour

Any pregnant woman who presented to health facility after 24 hours of noticing symptoms (raised body temperature, fever) of malaria is said to have late treatment seeking behaviour. There are various factors that are associated with malaria treatment seeking behaviours among pregnant women, but those that were emphasized in this study include socio-demographic factors (age, religion, ethnicity etc), education level, socio-cultural belief, accessibility of health facility, socio economic status (income, job etc), knowledge and awareness (health education, antenatal visit) and risk perception.

Independent (Explanatory) Variable

There are various factors that are associated with malaria treatment seeking behaviours among pregnant women, but those that were emphasized in this study include the following:

- Socio-demographic factors (age, religion, ethnicity etc)
- Education level
- Socio-cultural belief
- Accessibility of health facility
- Socio-economic status (income, job etc)
- Knowledge and awareness (health education, antenatal visit)
- Risk perception

Data management

Data collected were entered into a data base and analysed with statistical package for social science (SPSS). Serial number was assigned to each question for easy identification and for correct data entry and analysis. A coding guide was developed to code and enter each question into the computer for analysis. Descriptive statistics (frequencies) were used to tabulate and describe the data. For inferential statistics, logistic regression was used. Bivariate analysis between dependent and independent variables was performed during binary logistic regression. Finally, information obtained were summarized and presented in tables and charts.

Knowledge grading

Responses to questions on knowledge of malaria on the likert scale were scored 1-5 marks. Strongly- is agreed response was given 1 mark, while disagreed response was assigned 2 marks. Responses that were neutral to the questions asked were given 3 marks, while those that agreed were assigned with 4 marks. Maximum 5 marks were given for all responses that strongly agreed to the questions asked. Over all scores were placed on percentage to determine the level of malaria knowledge. Respondents who scored above 74% were categorized as those with high level of malaria knowledge, while those who scored between 50-74% were categorized as those with average knowledge of malaria knowledge.

Result

Table 1 shows the distribution of age, marital status, religion, level

Characteristic	Frequency	%
Age(years)		
18-24	78	32.5
25-29	73	30.4
30-34	48	20
35-highest	41	17.1
Marital status		
Married	208	86.7
Unmarried	25	10.4
Divorced/Separated	7	2.9
Occupation		
Self-employed	82	34.2
Student	50	20.8
Government employee	45	18.8
Artisan	26	10.8
Nongovernment	19	7.9
Nonpaid	18	7.5
Religion		
Christianity	190	79.2
Islam	50	20.8
Level of Education		
Secondary	146	60.8
Tertiary	41	17.1
Primary	20	8.3
No education	17	17.1
post tertiary	16	6.7
Ethnicity		
Yoruba	187	77.9
Others	19	7.9
Igbo	17	7.1

Table 1: Socio-Demographic characteristics of study populations.

of education and ethnicity of the study population. The total number of respondents studied was 240 pregnant.

Assessment of malaria knowledge (Transmission)

All the respondents (240) have heard about malaria. Out of the 240 pregnant women, the majority (n=185, 77.1%) associated malaria with mosquito bites. Other reported transmission were drinking of contaminated water (n=34, 14.2%), eating of contaminated food (n=12, 5.0%), and contact with malaria patients (n=9, 3.2%) as shown in the Table 2 below.

Knowledge about signs and symptoms

Respondents were asked about the signs and symptoms of malaria from pool of various signs and symptoms (correct and incorrect). They indicated awareness of common signs and symptoms (multiple responses) as shown in Table 3.

The most frequently mentioned signs and symptoms of malaria included high temperature/fever (n=228, 95%), headache (n=185, 77.1%), loss of energy (n=158, 65.8%), vomiting (n=103, 42.9%), body pains (n=89, 37.1%), loss of appetite (n=63, 26.3%) and itching (n=60, 25%).

	Frequency	%
Vector		
Mosquito	230	95.8
Rat	6	2.5
Cockroach	4	1.7
Transmission		
Mosquito bite	185	77.1
Eating contaminated food	12	5
Contact with person with malaria	9	3.8

Table 2: Knowledge about the transmission of malaria (N=240).

Signs and symptoms	Frequency	%
High tempertaure/ Fever		
Yes	228	95
No	12	5
Loss of Energy		
Yes	158	65.8
No	82	34.2
Vomiting		
Yes	103	42.9
No	137	57.1
Sweating		
Yes	71	29.6
No	169	70.4
Headache		
Yes	185	77.1
No	55	22.9
Body pains		
Yes	89	37.1
No	151	62.9
Itching		
Yes	60	25
No	180	75
Loss of appetite		
Yes	63	26.3
No	177	73.8
Dizziness		
Yes	153	63.8
No	87	36.3

Table 3: Respondents' knowledge about malaria signs and symptoms (N=240).

Malaria prevention and treatment

The vast majority of respondent (n=92.9%) stated the use of insecticide treated mosquito nets is a good way of preventing malaria as shown in Table 4. However, some respondents also mentioned spraying insecticide (n=65.8%), wearing protective clothes (n=45%), cutting bushes (n=29.6%) and making fire and smoke (n=24.6%) as ways of preventing malaria.

Levels of malaria knowledge

The score of knowledge of malaria by the respondents was assessed by the use of likert scale. Score of 75% and above was adjudged to be a high level of knowledge, while 50-74% was average and below 50% was low level of knowledge. Out of the 240 respondents, 183 (76.3%) were assessed to have a high knowledge of malaria while 53 (23.7%) had average knowledge of malaria, as shown in the Table 5.

Treatment seeking behaviours

According to the results (figure3), out of 240 pregnant women, 100 (41.7%) presented within 24 hours of malaria symptoms (early treatment seeking behavior), while 58.3% presented after the first day (late treatment seeking behavior). As shown in Table 6, Health centers/clinics were the first places of seeking malaria treatment by (n=150,

	Frequency	%
Use of insecticide treated net		
Yes	223	92.9
No	17	7.1
Wearing Protective clothes		
Yes	108	45
No	132	55
Making fire and smoke with leaves		
Yes	59	24.6
No	181	75.4
Spraying insecticide		
Yes	158	65.8
No	82	34.2
Cutting bushes around the house		
Yes	71	29.6
No	169	70.4
Cleaning dark corners around the house		
Yes	54	22.5
No	186	77.5

Table 4: Knowledge about malaria prevention and control (N=240).

	Frequency	%
Knowledge level		
High knowledge	183	76.3
Average knowledge	57	23.8

Table 5: Levels of knowledge of malaria (N=240).

	Frequency	%
Treatment seeking Behavior		
Early Treatment	100	41.7
Late Treatment	140	58.3
First place of Treatment		
Health centers/clinic	150	62.5
Drug Shop/pharmacy	73	30.4
Local herb	9	3.8
Church/ mosque	8	3.3

Table 6: Treatment seeking behaviours (N=240).

62.5%), drug shops were the first point of seeking treatment for (n=73, 30.4%), local herbs (n=9, 3.8%) while church/mosque were cited by (n=8, 3.3%) of respondents.

Attitude and practices towards malaria risk factor

Out of the 240 pregnant women, 154 which amounts to 64.2% slept under insecticide treated net. Among these 154 women, 75 (31.3%) slept under it everyday, 52 respondents rarely (21.7%), 22 frequently (9.2%) and just 5 (2.1%) sleeps under insecticide treated nets only during rainy season. Ninety-two pregnant women (38.3%) have presence of water bodies (streams, drainages, stagnant water) in their environments. Two hundred and thirty-four (97.6%) of the respondents have toilet in their house. Out of this, majority (n=188, 78.3%) use water closet type of toilet, while pit latrines (n=23, 9.6%), and buckets are used by 23 (9.6%) of the respondents.

Association between socio demographic characteristics and treatment seeking behaviors

Pregnant women within age group of 18-24 years are 82% less likely than those of 35years and above to seek for malaria treatment early, this relationship is significant. (OR=0.18, C.I=0.04-0.84). Pregnant women with no formal education are 99.7% less likely than those with post tertiary education to seek malaria treatment early, the relationship is significant (OR=0.003, C.I=0-0.07). Also, those that only have primary education are 96% less likely than those with post tertiary education to seek malaria treatment early, the relationship is significant (OR=0.04, C.I= 0.05-0.3).

Association between first point of seeking treatment and malaria treatment seeking behaviors

The only significant association exists in the category of pregnant women who make health centres/clinic as their first point of seeking treatment. They are 44.2 times more likely than those who use local herb to seek for malaria treatment early (OR=44.2, C.I=11.6-55.4).

Association between levels of knowledge and malaria treatment seeking behaviors

Pregnant women with high level of malaria knowledge are 4.55 times more likely than those with average knowledge to seek for malaria treatment early, the relationship is significant (OR=4.55, C.I=2.17-9.55).

Discussion

From this study it was noted that younger pregnant women (18-24 years) present late for malaria treatment. This may be due to lack of knowledge of malaria signs and symptoms, as most of them are presenting with their first pregnancies. This contradicts the finding of Mwanje in 2013 which states that youth tend to have better malaria practices towards malaria prevention and control compared to older people. There was a significant association between education and treatment seeking behaviour in the study. Pregnant women who are unemployed, without formal education/primary education presented late for malaria treatment. This corroborates the findings of Adedotun where he found out that education clearly influences knowledge about modes of malaria transmission [13]. Educated communities also have multiple sources of information when compared with their uneducated counterparts. Ethnicity and religion were also shown to have significant influences on treatment seeking behaviours. This study revealed that Muslim pregnant women seek for early malaria treatment, also Igbo pregnant women; however, Hausa pregnant women don't come early

enough for malaria treatment. This may probably be due to their cultural and religious beliefs. Socio cultural beliefs about the causation of disease and its curability have direct correlation with the treatment seeking behaviour of the people [14].

Majority of the respondents (95.8%) have the knowledge about the cause and transmission of malaria, however some of them (14.2%) still believe that malaria can be transmitted through drinking of contaminated water. Reasonable percentage of the respondents (76.3%) has high knowledge about malaria, but only 41.7% showed up early for malaria treatment. This may be the due poor attitude towards malaria treatment. Knowledge, relating to causation, transmission, prevention and treatment are key factors influencing malaria treatment seeking behaviors. Findings have shown that good knowledge, attitude and practices of any public health disease by individuals and communities seems necessary if effective treatment and preventive measures are to be realistic [15]. Also, Singh et al. revealed that studies pertaining to knowledge, attitude and practices (KAP) showed that direct interaction with community, plays an important role in circumventing malaria problem. There was high number of pregnant women, 150 (62.5%) whose first point of seeking malaria treatment was health centres. Also, the relationship between Health Centre as first point of seeking treatment and treatment seeking behaviour was significant. This could be due to high level of malaria knowledge. However, this contradicts the findings of Bategain, which revealed that in all studies about health care seeking practices, there is a high level of preference for home treatment outside of the formal health system, as first level of treatment [16]. Distance to nearest health centre did not appear to have a significant bearing on treatment seeking behaviour in this study. This may be due to the high number of respondents who live close to health centres. This contradicts the findings of Nyamongo where they found out that patients are more likely to start with self-treatment at home as this practice yields them to minimize expenditure and sufferings in remote areas where transport and health facility are the problem [17]. Finally, although it was revealed that high level of knowledge of malaria signs and symptoms, and first point of resort has a positive association with malaria treatment seeking behavior, the response to early treatment of malaria is still very low. With 76.3% of the respondents possessing high knowledge of malaria symptoms, and 65% seeking first treatment from health centres/clinic, only 41.7% of the pregnant women presented early for malaria treatment. This confirms the negligence and poor attitude towards malaria control and treatment in the finding of Mwanje in 2013.

Conclusion

This present study shows that whereas the knowledge of pregnant women about malaria cause, transmission, signs and symptom was good, there was poor response by the pregnant women to early treatment seeking behaviour. The fact that many pregnant women used the health facilities for treatment of malaria is encouraging, and this was associated with early treatment seeking behavior.

Recommendation

Although knowledge about malaria transmission and prevention was generally good, it did not translate into early treatment seeking behaviour. Hence the following recommendation:

- Public education is necessary to address the few knowledge gaps highlighted by the study. Provision of mass education and health education campaigns will go a long way to ameliorate the negligence by pregnant women in Ondo Metropolis towards early treatment seeking behaviour.

- Also, the need improves the dissemination of appropriate information on malaria in Ondo WestLGA through active education campaigns to encourage early treatment seeking behaviour and utilization of health centres especially among younger women and uneducated pregnant women in Ondo Metropolis.

Study Limitations

Quantitative survey (FGD, KII and IDI) were initially proposed as part of the study, this was to probe various factors responsible for treatment seeking behaviours. But this could not be done because of industrial strike actions in study locations (health facilities). So, future study can address the qualitative aspect to further corroborate this study.

References

1. Ahmed SM, Haque RM, Haque UO, Hossain AS (2009) Knowledge on the transmission, prevention and treatment of malaria among two endemic populations of Bangladesh and their health-seeking behavior. Malaria J 8: 173-180.

2. Federal Ministry of Health. Rollback malaria 2005: Training manual on malaria control for primary health care workers in Nigerian. Federal Ministry of Health 9-13.

3. Chukwuocha UM, Dozie IN, Chukwuocha AN (2012) Malaria and its burden among pregnant women inparts of the Niger Delta area of Nigeria. Afr J Reprod Health 1: 147-151.

4. Arora DR, Arora BM (2005) Medical parasitology. 2nd edtn, NewDelhi. Bangalore (India): CBSPublishers and Distributors: 34-37.

5. Federal Ministry of Health (2011) National guidelines for diagnosis and treatment of malaria.

6. Abejide OR (2001) Prevalence of malaria parasitaemia in pregnant Nigerian women. J Obstr Gynoc 16: 48-52.

7. Mwanje LF (2013) Knowledge, attitudes and practices on malaria prevention and control in Uganda.

8. Goodman CO (2010) Economic analysis of malaria control in sub- Saharan Africa. Global Forum for Health, Geneva Switzerland.

9. Ramharter MO, Grobusch MP, Adegnika AA, Martin K, Norbert S, et al. (2005) Clinical and parasitological characteristics of puerperal malaria in a study from Lambarene. Gabon. J Infect Dis 191: 1005-1009.

10. Singh NS, Awadhia SB, Singh MP (2005) Evaluation of a rapid diagnostic test for assessing the Burden of malaria at delivery in India. Am J Trop Med Hyg 73: 855-858.

11. World Health Organisation (2008) Switzerland.

12. Amaechi EC, Ukpai OM (2013) Knowledge, attitude and practices about malaria among mothers and care-givers in aba south local government area, Abia State, Nigeria. Animal Research International 10: 1786-1791.

13. Adedotun AA, Morenikeji OA, Odaibo AB (2010) Knowledge, attitudes and practices about malaria in an urban community in South-Western Nigeria. J Vector Borne Dis 47:155-159.

14. Oberlander LM, Elverdan BO (2002) Malaria in the United Republic of Tanzania: cultural considerations and health seeking behaviour. Bull WHO 78:1352-1357.

15. Iwueze MO, Ezugbo IK, Umeanaeto PU, Egbuche CM, Anaso CI (2013) Knowledge, attitude and management practices on malaria: A case study of Amansea, Awka North local government area of Anambra State, Nigeria. The Bioscientist 1: 32-38.

16. Batega DW and Greer GM (2004) Home based management of malaria/fever in Uganda strategy. Assessment of implementation and operation at district and community level. MoH/WHO/BASICSII for USAID.

17. Nyamongo IK (2002) Health care switching behaviour of malaria patients in a Kenyan rural community. Soc Sci Med 54: 377-386.