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# Survey of Knowledge, Attitude and Management of Malaria in Rural Communities in Khana Local Government Area, Rivers State, Nigeria

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**A B S T R A C T**

Malaria is still an important mosquito-borne disease and a critical public health concern in Nigeria. This study was carried out to survey the knowledge, attitude and management of malaria in some rural communities of Nyo-Khana District of Khana Local Government Area, Rivers State. A cross sectional survey was adopted for the study using self-designed questionnaires. Out of the 400 questionnaires distributed, only 316 were answered and returned. Despite some wrong perceptions, 241(76.3%) of respondents implicated mosquitoes bite as the major cause of malaria while 94.6% of the respondents agreed that mosquitoes is responsible for the transmission of malaria. Again, 93.0% and 77 .5% of the respondents agreed that mosquitoes breed in stagnant water and bite at night respectively. The major symptoms mentioned by respondents included fever (85.4%), headache (85.4%), body weakness (56.9%) and shivering (56.9%). Almost all the respondents (93.9%) agreed that malaria is preventable. chemoprophylaxis (97.8%) and use of chemoprophylaxis (97.8%) use of chemoprophylaxis (97.8%) were the major means of prevention mentioned by the respondents. The treatment-seeking behaviour of the respondents included use of herbs (57.3%) and use of modern drugs (35.1%). The study indicates that the malaria related knowledge in the area is high, hence government and stakeholders can adopt a community-base approach in the management of the disease.



**Key words:** *Malaria, Knowledge, Attitude, Management, Nyo-Khana*



## Introduction

Malaria is a major parasitic disease common to all tropical and sub-tropical countries of the world where anopheles mosquitoes can survive and reproduce. It is however prevalent in sub-Saharan Africa which accounts for an estimated 80% of global cases and 78% of death (WHO, 2015). Globally, there are 214million cases of malaria with African region, South East Asia region and Eastern Mediterranean region accounting for 88%, 10% and 2% respectively (WHO, 2015).

About 97% of Nigerians live in malaria endemic region of the country (USE, 2011). To this end, the socioeconomic impact of the disease on productivity is very noticeable. Nigeria losses an estimated 132billion naira in loss of man-hour, prevention and treatment cost (FMH, 2007). Again, an estimated 50% of the population experience at least one episode of malaria while children under the age of five years have 2-4 bouts (FMH, 2005., Omolade et al., 2016). The infection is closely related to climatic conditions and poverty, and perception about the causes and management of the disease lie in the community (Heggenhougen et al., 2003), hence effective control of the infection is influenced by the belief and culture of the people (Adara, 2003).

Knowledge, attitude and management of malaria among residents of urban and rural population have been investigated in Africa ( Ukpom et al., 2007, Okral et al., 2002; Rupashree et al., 2014).

In Nigeria, similar studies have revealed misconception about causes, symptoms and prevention of malaria (Erhun et al., 2004). Hence, deliberate and appropriate education and orientation of the population have been advocated to enhance effective control program (Erhun et al., 2002). In spite of financial and material efforts by the World Health Organization, partner

agencies and home government to control the disease, it is still a major health challenge especially in the study area. Therefore, this study is aimed at the assessment of knowledge of the people and residence of the study area in relation to malaria.

**Materials And Methods**

**Study Area**

The study was conducted in Nyo-khana district of Khana Local Government Area (Fig. 1), Rivers State, Nigeria. The Local Government Area occupies an area of 560 square kilometres and lies in the Niger Delta within latitude $4^{0}42^{1}$NE and longitude $8^{0}21^{1}$NE. The indigenes are majorly subsistent farmers and traders living mostly in thatch houses within an environment heavily polluted and devastated by crude oil (UNEP, 2011). It has a population of about 294,217 as at 2006 (NPC, 2006). The Local Government Area is politically segmented into four major regions, namely Nyo-Khana, Ken-Khana, Babbe and Bori Urban. Besides Bori (Headquarters) with an urban flavour, peripheral towns around Bori and other communities in the Local Government Area are rural in very sense of it. The communities lack social amenities and healthcare facilities.

**Sampling Area**

Seven communities within Nyo-Khnana District where randomly selected for this study. The communities included Gbene Nyobe-Beeri, Taabaa, Lueku, Okwale, Kabagha, Luuwa and Bianu.


Figure 1: Map of Khana Local Government
Source: The Archives, Rivers State Ministry of Information

**Sampling Techniques**

The study was conducted using a cross sectional survey design. A total of 400 questionnaires containing self-designed questions were produced and randomly distributed among the indigenes of these communities.

**Ethical Approval**

Approval for this study was made by the Ethics Committee, Ignatius Ajuru University of Education, Port Harcourt.

**Data analysis**

Data from the answered questionnaires were analysed at statistical difference of $P<0.05$ using SSPS version 18.0 software package and comparison made using Chi square.

**Results**

The socio-demographic characteristics of the respondents are indicated that substantial percentage of respondents were males (90.8%) while the remaining 9.2% were females (Fig. 2.0). Again, majority of the respondents were in the age

group of 36-49years 191(60.5%) and approximately 90(28.5%) were within the age group of 25-35. Less than 10% was below the age of 25years while about 6.6% was above 49years old. About 19.3% of respondents have no formal education while majority of the respondents 132(41.8%) had secondary education, 11(3.5%), 21(6.6%) and 132(41.8%) had primary school, junior secondary school and senior secondary school education respectively (Fig. 3.0). The results indicated that 114(36.0%) of respondents were farmers followed by traders 93(29.4%) and students 59(18.6%).

The most commonly reported cause of malaria was mosquito bite 241(96.3%). This was statistically significant ($P<0.05$) compared to other causes reported by the respondents. Other causes of malaria reported by the respondents included dirty surrounding 89(28.2%) and working in the sun 56(17.7%). The less common causes included sharing eating utensils 8(2.5%), contact with malaria patient 10(3.2%) and eating contaminated food 29(9.2%) (Table 2).

Majority of the respondents (94.6%) mentioned mosquitoes in the transmission of malaria, while 6(1.9%) and 11(3.5%) agreed that housefly and ants transmit malaria respectively (Fig. 4.0). Mosquitoes were mainly believed to bite human beings at night 245(77.5%), reproduce in stagnant water 294(93.0%), and rest in dark places in the house at day time 277(87.7%). The study subjects also reported that mosquitoes bite in the day 101(31.9%), and rest in dirty areas 181(57.2%) and at the edges of stream 21(6.6%) (Table 3).

Many of the respondents 297(93.9%) agreed that malaria is preventable while 18(5.7%) thought that malaria was not preventable (Table 4). Among those who believed that malaria was preventable, 309(97.8%) agreed to the use chemoprophylaxis, 217(68.7%) reported elimination of breeding site as preventive measure while 151(47.8%) agreed to the use of insecticide treated net. The most commonly used orthodox drug in the treatment of malaria included Artemisinin and Lumefantrine 211(66.8%), followed by Chloroquine/primaquine 38(12.0%).

Fever, headache, body weakness, shivering and loss of appetite were the most frequently mentioned symptoms of malaria reported by 270(85.4%), 270(85.4%), 180(56.9%),180 (56.9%) and 99(31.3%) of respondents respectively (Table 5).

The respondents claimed to adopt different treatment seeking behaviour to malaria (Fig. 4.0). The most adopted treatment seeking behaviour by respondents included use of herbs (57.30%) and use of orthodox medicine (35.30%).

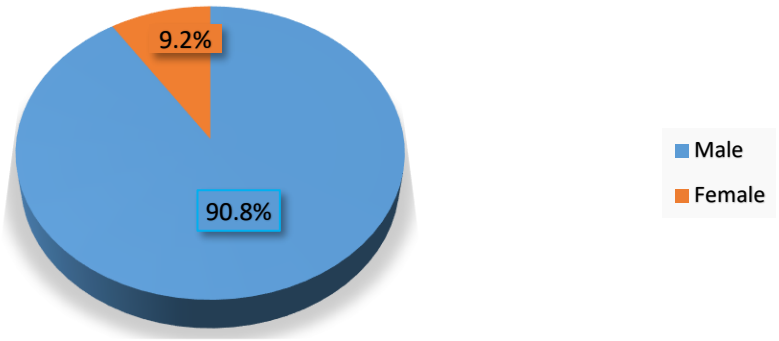


Figure 2.0: Sex of Respondents

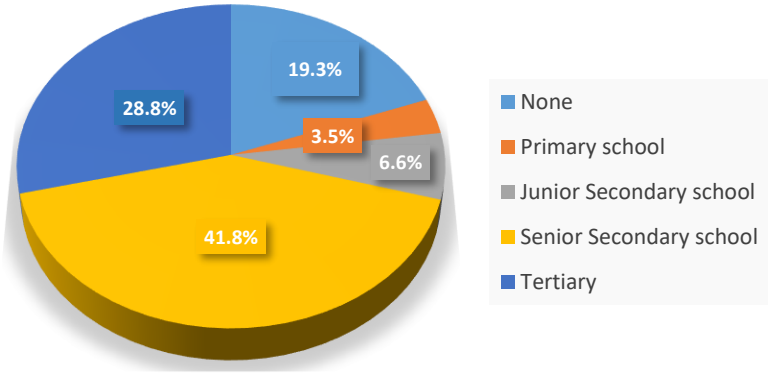


Figure 3.0: Educational levels of respondents

Table 1: Socio-demographic characteristics of respondents

| Variables | No. of Respondents (%) |
|---|---|
| Age | |
| 14-18 | 2 (0.6) |
| 19-24 | 12 (3.8) |
| 25-35 | 90 (28.5) |
| 36-49 | 191 (60.5) |
| 50-59 | 20 (6.3) |
| 60-Above | 1(0.3) |
| Occupation | |
| Farmer | 114(36.0) |
| Trader | 93(29.6) |
| Private/self-employed | 30(9.5) |
| Public/Civil servant | 10(3.1) |
| Student | 59(18.6) |
| Clergy | 5(1.6) |
| Others | 5(1.6) |

Table 2: Knowledge in relation to causes of malaria (n=316)

| Causes of malaria | No. of Respondents(%)[a] |
|---|---|
| Mosquito bites | 241 (76.3) |
| Dirty surrounding | 89 (28.2) |
| Eating contaminated food | 9(2.8) |
| Working in the sun | 56(17.7) |
| Eating oily food | 29(9.2) |
| Sharing eating utensils | 8(2.5) |
| Close contact with malaria patient | 10(3.2) |

[a] Percentage totally exceed 100% because of multiple responses

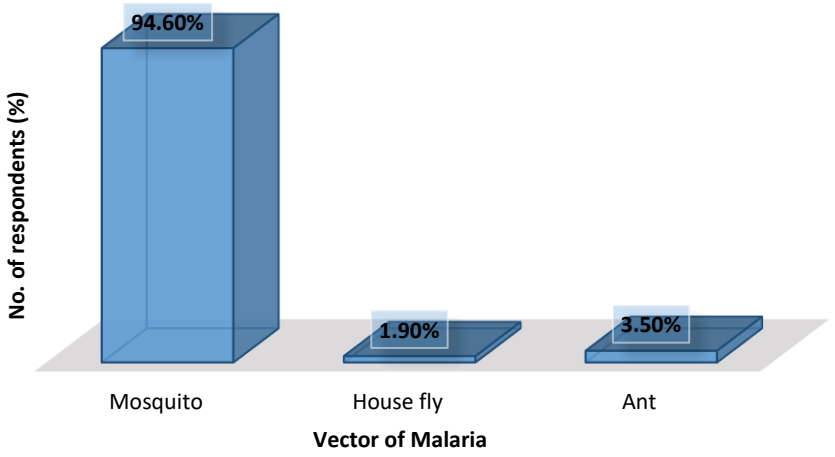


Figure.4.0: Knowledge in relation to vector of malaria

Table 3: Knowledge and attitude regarding malaria transmission and the behaviour of mosquito vector (n=316)[a].

| Variables | No. of Respondents (%) |
|---|---|
| Usual biting time | |
| Day | 101(31.9) |
| Night | 245(77.5) |
| Don't know | 0 (0) |
| Common breeding sites | |
| Stagnant water | 294(93.0) |
| Running water | 15(4.7) |
| Others | 7(2.3) |
| Common resting places | |
| Dark places inside house | 277(87.7) |
| At edges of streams | 21(6.6) |
| Dirty areas | 181(57.2) |
| Others | 34(10.8) |

[a] Percentage totally exceed 100% because of multiple responses.

Table 4: Knowledge and attitude about preventability and preventive measures (n=316)

| Variables | No. of respondents (%)[a] |
|---|---|
| Malaria is preventable | |
| Yes | 297(93.9) |
| No | 18(5.7) |
| Don't know | 1(0.4) |
| Preventive measures | |
| Chemoprophylaxis | 309(97.8) |
| Spraying of insecticide | 110(34.8) |
| Elimination of mosquito breeding sites | 217(68.7) |
| Use of mosquito repellent cream | 81(25.6) |
| Use of insecticide treated net | 151(47.8) |
| Use of herbs to repel mosquito | 72(22.8) |
| Common malaria drug use to treat malaria | |
| Artemisinin/Lumefantrine | 211(66.8) |
| Chloroquine/ Primaquine | 38(12.0) |
| Others | 59(18.7) |
| Don't know | 8(2.5) |

[a] Percentage totally exceed 100% because of multiple responses.

Table 5: Knowledge regarding the symptoms of malaria (n=316).

| Symptoms | No. of respondents (%)[a] |
|---|---|
| Body weakness | 180(56.9) |
| Fever | 270(85.4) |
| Loss of appetite | 99(31.3) |
| Convulsion | 30(9.5) |
| Headache | 270(85.4) |
| Vomiting | 47(14.9) |

| | |
|---|---|
| Dizziness | 7(2.2) |
| Cough | 30(9.5) |
| Shivering | 180(56.9) |
| Fatigue | 11(3.5) |
| Others | 9(2.8) |

[a] Percentage totally exceed 100% because of multiple responses.

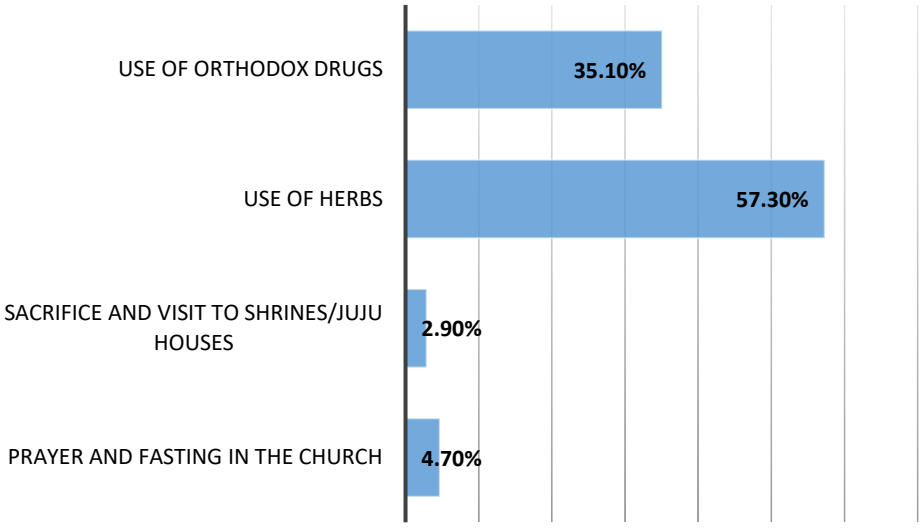


Figure 4.0: Knowledge and perception in relation to treatment seeking behaviour

**Discussion**

This study investigated the knowledge, attitude and management of malaria among the people of Nyo-Khana District of Khana Local Government Area, Rivers State. Results obtained implies that residence of the study area have good knowledge of the infection. A statistically significant (P<0.05) number of respondents 241(76.3%) implicated mosquito bite in causing malaria. The respondents also agreed that 299(94.6%) agreed that mosquitoes transmits malaria.

This results is lower than the 89% recorded by Enato et al (2007) among pregnant women that attended two health facilities in Edo state, Nigeria but lower than the 11.8% recorded by Ruspashree et al (2014) in rural communities of Aliero local government area in Kebbi Sate, in northern Nigeria but higher than the 39.7% recorded in a study conducted in south-east Nigeria by Okeke and Okafor (2008).

The level of awareness recorded in this study is also higher than 52% recorded in a study conducted in Central Ethiopia (Ongore et al., 1989, Yeneneh et al., 1993) but slightly lower than the 92% recorded by Dauda (2004) and AID (2004) in some districts in Uganda. The awareness recorded in Pacific Coastal Plain of Guatemala by Klein et al (1995) showed that 93% of respondents believed that the bite of mosquitoes that had bitten malaria patients could cause malaria, but higher than the 66% in Butajira District in Southern Ethiopia recorded by Wakgari et al (1999).

According to Ruebush et al (1992) and okeke and Okafor (2008), knowledge of the cause of malaria will have a positive impact on campaigns promoting the various anti-vector measures. Obviously, if mosquitoes are not associated with malaria transmission, the need to prevent mosquito bites using bed nets or any other vector control measure cannot be properly appreciated WHO (2004). The variation in the level of awareness of the causes of malaria may be related to the level of enlightenment received by the respondents (Yeneneh et al., 1993) and the different malaria intervention methods adopted in the study areas coupled with the period during which the studies were conducted in the different areas (Agyepong, 1990., Salako, 2001).

Other implied causes of malaria included dirty surrounding 89(28.2%), working in the sun 56(17.7%) and eating of contaminated food 9(2.8%). Similar factors were equally reported in a study conducted in Ugwuogo-Nike, Eastern Nigeria where 14.0% and 49.8% agreed that malaria was caused by dirty environment and too much sun respectively (Okeke and Okafor, 2008). In the Kenyan study, a considerable number of respondents (42.0%) related the causes of malaria to practices such as walking in cold water, nearby rivers and in flood waters (Ongore et al., 1989).

The results suggested that most of the population are aware of the causes and symptoms of malaria and this awareness was significantly (p<0.05) high. The entire study subject had knowledge of at least one of the clinical manifestations of the disease. This trend agreed with the report of (Wakgari et al., 1999). However, in a halo-endemic area of Western Kenya, only

approximately 30% of the respondents were aware of the symptoms of malaria (Ongore et al., 1989). The high level of awareness recorded in this study could be attributed regular enlightenments by government and other agencies concerning malaria transmission pattern.

In this results, a statistically significant ($P<0.05$) number of respondents had good knowledge of the vector of malaria, biting time of the vector, common breeding site and resting place of the insect. These results agreed with previous reports by Erhun et al (2002) and Wakgari et al (1999). Erhun et al (2002) recorded that 75% of respondents in semi-urban Ile-Ife, southwest Nigeria believed that stagnant water was the usual breeding site of mosquito and 63.2% agreed that night was the usual biting time of mosquito. Wakgari et al (1999)reported that 65.6% of the residents of Butajira District in southwest Ethiopia believed that mosquito was the vector of malaria, 73.2% agreed that night was the usual biting time, 71.0% believed that stagnant water was the usual breeding site and 44.3% reported that the common resting site of mosquito were dark places in the house.

Regarding preventability of malaria, many of the respondents (93.9%) believed that malaria is preventable. This result is collaborated by 85.7% recorded in Butajiran District in southern Ethiopia by Wakgari et al (1999) and the 66.9% recorded in Uganda by Dauda (2004). This could be explained by the high level of education of the respondents (more than 72% of respondents were educated). Again, it could be attributed to Malaria Control Program in the area which activities for several years might have enhanced their knowledge on the preventability of malaria (Okeke and Okafor, 2008). The respondents believed that malaria could be prevented by eliminated of mosquito breeding sites(68.7%), use of chemoprophylaxis(97.8%) and use of insecticide treated nets (47.8%).

Most of the study population (66.8%) used artemisinin and lumefantrine to treat malaria. This result is contrary to previous studies by Oyewole and Ibidapo (2007) and Aribodor et al (2003). Oyewole and Ibidapo (2007) reported that 11.3% of respondents in Ibadan, Oyo state used chemoprolaxis and fansider/maloxine and 4.2% used insecticide treated nets to prevent malaria while Aribor et al (2003) recorded that 25.0% of studied population in Ihiala Local Government Area, Anambra state used chemoprophylaxis to prevent malaria infection. The use of chloroquine by respondents in this study could be attributed to the efficacy of the drug against malaria parsite, an indication that chloroquine is still the first line drug for effective treatment of malaria (Snow et al., 2005).

## Conclusion

The study indicated malaria-related knowledge is high in the study area. It therefore necessary for policy makers, government, agencies and other stakeholders to adopt a community-based approach which will incorporate the culture and attitude of the people in the management of the disease. This will enhance community ownership of control programmes.

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