

Health Care Seeking Behavior for Malaria among Laboratory Confirmed Outpatients in a Rural Community, Southern Nigeria

Jephtha C. Nmor^{1*}

¹Department of Animal and Environmental Biology, Delta State University, Abraka, Nigeria.

Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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ABSTRACT

Background: For effective malaria control at the community level, information on the treatment practices are essential. However, there is no information on malaria treatment practices in Ibusa community. Thus, this study seeks to assess the prevalence of malaria and health care seeking behaviors in Ibusa community.

Study Design: A descriptive cross-sectional study.

Place and Duration of Study: Ibusa, Oshimili North Local Government area in Nigeria. The study was undertaken between June and November, 2006.

Methods: Malaria treatment practices including sources of anti-malarial of the 600 individuals who visited the Fenlab Diagnostic and Research Laboratory Ibusa, Delta State were obtained using a previously validated structured questionnaire. Microscopy was used to establish malaria infection and species identification.

Results: The prevalence rate was found to be 73.3% and all were infections of *Plasmodium falciparum*. The age prevalence showed an undulating pattern however, the prevalence was highest among subjects within age group 20-29 years (31.81%) and least in age group 40-49 years (8.64%). Chi-square analysis showed no significant difference ($X^2 = 13.61$, $df=5$, $P=0.183$). The prevalence by sex showed higher values in females (60.22%) than males (39.78%), but the

*Corresponding author: Email: jcnmor@yahoo.com;

difference was not statistically significant at ($X^2=0.027$, $df=1$, $P=0.870$). The malaria management practices showed that 20.83% participants buy anti-malarials from shops, 17.33% visit hospitals, while 16.33% employ traditional medicine from local healers. However, some of the subjects employ a combination of approaches. 13.83% get anti-malarials from shops, hospitals and local healers, 10.50% get anti-malarials from shops and hospitals, 9.67% visit local healers and hospitals, while 0.33% do not employ any treatment practices.

Conclusion: Given the high prevalence of malaria infection in Ibusa community, proper education of the people on the need to employ proper malaria treatment practice is essential.

Keywords: Malaria prevalence; treatment practices; health care seeking behavior; Nigeria; Africa.

1. INTRODUCTION

Malaria causes approximately 500 million infections and about 650,000 deaths every year worldwide [1,2], and represent a major health and economic threat to about 40% of the world's population [3,4]. *Plasmodium falciparum* malaria is responsible for the majority of the disease burden [5,6]. In Nigeria, malaria has been prevalent throughout the country and still represents a major public problem. It is widely acknowledged that early diagnosis and appropriate treatment of malaria can avoid impending complications and death [7,8]. However, in most rural settings in the poor nations, the required infrastructures and personnel among other factors is a strong limitation to early and accurate diagnosis and treatment. Thus, many episodes of malaria are treated outside the formal health system, often with inappropriate or incorrectly used drugs. Most household care givers begin treatment of malaria with anti-malarial drugs which are usually purchased over the counter from drug sellers without prescription and usually without appropriate doses. This is particularly common in rural and remote populations where the right perceptions about the disease are low and contributes both to worsening morbidity patterns and increased drug resistance [9,10].

Given the mixed pattern of health care seeking behavior for malaria, treatment practices, and the need for greater understanding of barriers to malaria treatment in this tropical rural setting, this study was conducted to assess the prevalence and health care seeking behavior among the inhabitants of this community.

2. METHODS

2.1 Study Area

Ibusa is located between Latitude 6°11'N and Longitude 6°38'E, in Delta State, Southern Nigeria. The area experiences abundant rainfall,

with a peak in July to October. The mean annual rainfall is about 2000mm. The vegetation ranges from mangrove thick forest to mixed rainforest and grassland with almost all year round rainfall, with a temperature between 25°C and 30°C. The state is made up of twenty-five local government areas and Ibusa is under Oshimili North Local Government Area. The Ibusa community has a population of about 125,000 people. The main crops cultivated in this area include cassava, plantain and maize among others. The community is serviced by just one general hospital and a health center. However, affordability and accessibility of the health facilities may drive the inhabitants towards seeking other means for malaria treatments.

2.2 Subjects

The subjects were patients who reported at the Fenlab Diagnostic and Research Laboratory, Ibusa, for various laboratory investigations. They are from various socio-economic backgrounds and their occupation ranges from civil service to subsistence farming, with petty trading as a complement to augment their meager earnings. Using systematic random sampling, 600 (360 females and 240 males) aged between 3 and 60 years were selected out of a total of 3,875 people who visited the laboratory between June and November, 2006. A well-structured and validated questionnaire was used to obtain information on the malaria treatment practices including health care seeking behavior. Prior to completing the survey instrument, informed consent was obtained and only those who consented were involved in the study. Fenlab Diagnostic and Research Laboratory Ibusa, is one of the major diagnostic centers serving the Ibusa people hence it was chosen as the study point.

2.3 Malaria Microscopy

Thin and thick blood films for the diagnosis of malaria were prepared on the same slide. For the thick film, 12 μ L of blood was taken with an adjustable micropipette (P20 Pipetman, Gilson)

and spread over a diameter of 15 mm, while 2 μ L of blood was used to make the thin film. The slides were made in duplicates and labeled appropriately. The thin film end of the slide was fixed by dipping the prepared film in absolute methanol for one to two seconds, and both films were allowed to air dry and subsequently stained with 3% Giemsa at pH 7.2 for 30 minutes. Parasitaemia was expressed as a number of parasites per microliter of blood. Smears were considered negative after the examination of 100 oil immersion fields. Thin blood smears were used for species identification.

Data were analyzed using SPSS version 10.00. Test of statistical significance was set at *P* value less than 0.05 at 95% confidence interval.

3. RESULTS

Of the 600 subjects (360 females and 240 males) examined, 440 were positive for malaria parasite, hence showing a general prevalence of 73.3% among the people of Ibusa community. The cases of malaria detected were only infections of *Plasmodium falciparum*. Also 600 people were interviewed with questionnaires in order to ascertain the malaria treatment practices among these rural dwellers.

Fig. 1 shows the prevalence of malaria with respect to age. It reveals an undulation pattern of

prevalence with age for example; malaria prevalence gradually increased with age group up to age group 20-29 and then generally declined with ascending age group. The prevalence values in decreasing order were; 0-9 (13.64%), 10-19 (22.73%), 20-29 (31.81%), 30-39 (12.27%), 40-49 (8.64%), 50 and above (10.91). Chi-square analysis shows no significant difference ($X^2 = 13.61$, $df=5$, $P=0.183$).

Data on Fig. 2 shows that the prevalence was relatively higher among females (60.22%) than male counterparts (39.78%). However, there was no significant gender difference in the prevalence of malaria infection ($X^2 = 0.027$, $df= 1$, $P= 0.870$).

Table 1 shows the malaria management practices among the Ibusa people. Of the 600 subjects, 20.83% used anti-malarial from shops, 17.33% visited hospitals, while 16.33% used local healers. Table 1 also revealed that the subjects employed a combination of strategies. Fourteen percent used anti-malarials from shops, hospitals and local healers Also, 10.50% used anti-malarials from shops and hospitals, 9.67% visited local healers and Hospitals while 0.03% did not use any management strategies. There was no significant difference in the treatment seeking practices employed by the subjects ($P=0.341$).

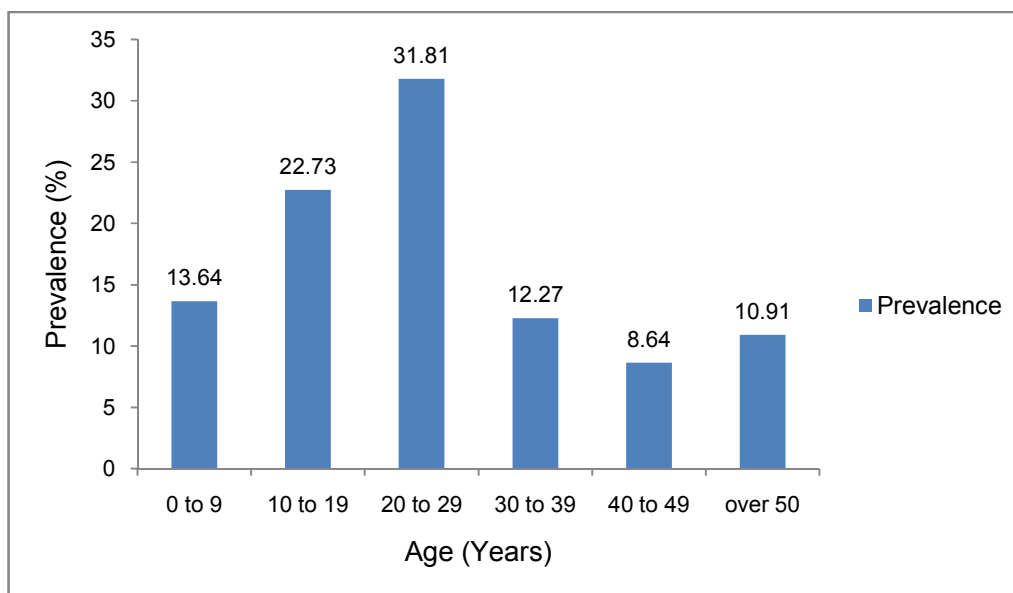


Fig. 1. Age related prevalence of malaria infection

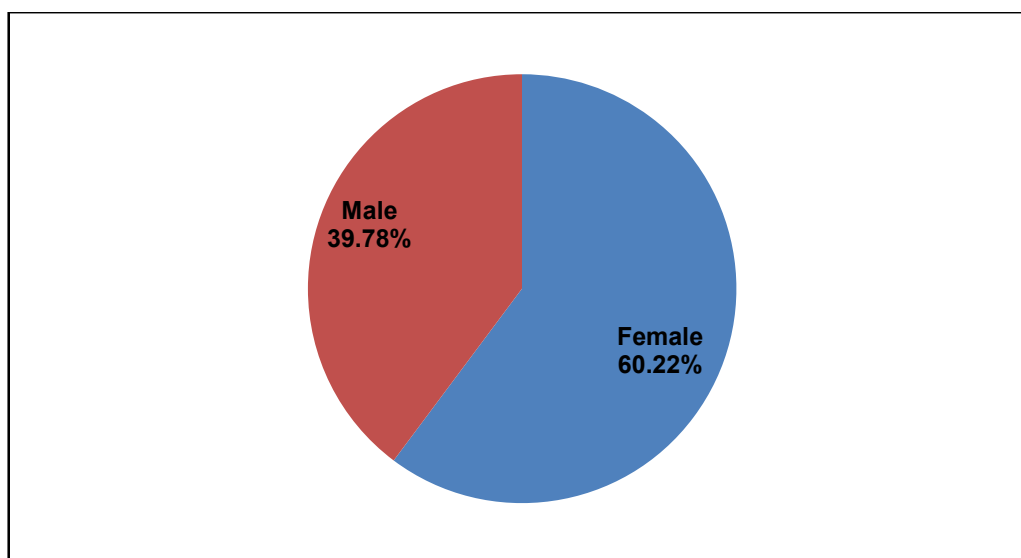


Fig. 2. Sex related prevalence of malaria infection

Table 1. Malaria treatment practices of people of Ibusa Community, Delta state, Nigeria

Source of anti-malarial	No of respondents		Overall (%)
	Female	Male	
Anti-malarial from shops	75	50	125(20.83)
Anti-malarial from hospital	72	32	104(17.33)
Anti-malarial from local healers	38	60	98(16.33)
Anti-malarial from shops and local healers	45	38	83(13.83)
Anti-malarial from shops, hospitals and local healers	41	28	69(11.1.50)
Anti-malarial from shops and hospitals	38	25	63(10.50)
Hospitals and local healers	32	24	56 (9.33)
None	0	2	2 (0.33)

4. DISCUSSION

This study highlights the high prevalence of malaria transmission in the study area as well as the range of malaria treatment strategies practiced by the inhabitants of the study community, including traditional and other unproven treatment practices. These observations are in line with those of other developing country studies, underscoring the way that traditional and modern beliefs and practices, both effective and ineffective, may coexist in developing societies [11-13]. Similarly, in terms of health seeking behavior when malaria is suspected, majority patronize patent medicine stores, visit health centers/hospital, visit herbalists and local healers while some used a combination of methods. This observation is in line with similar studies elsewhere [10,14].

This study also assessed the prevalence of malaria in a rural community in Delta State. It

was found that the prevalence of malaria infection among females was two-thirds that of males, though there was no significant difference. The lack of statistical difference in the sex prevalence of malaria infection supports the findings that malaria infection is not associated with gender and males and females are equally exposed to malaria infections. The prevalence rate was higher among the age group 10-29 years though, the age prevalence showed no clear pattern as malaria prevalence gradually increased with ascending age group up to age group 20-29, and then generally declined with ascending age group. The lower prevalence for age group 0-9 years may suggest that younger children may be using some protective measures against mosquito bites such as sleeping under nets while the higher prevalence for age group 20-29 years could be attributed to higher level of exposure vectorial inoculation due to their farming activities. Greater population of the subjects is

engaged in farming. The decrease of malaria prevalence with age among older age group may be explained by the possibility of development of acquired immunity with age due to repeated re-infection as well as reduced mobility due to age.

Like any other study, several limiting factors were recognized. First, not all participants who were approached gave responses and they might have had different characteristics from the individuals who participated in this study. Second, our subjects were recruited from people who attended Fenlab diagnostic center for laboratory investigation. There is need to conduct community based studies to assess more representative malaria prevalence and management practices that would be reflective of the reality with the study area. Third, survey was carried out in 2006, it is not impossible that the trend might have changed over the years. Thus caution should be applied when generalizing results of this study to other communities of similar settings. However, despite these limitations, this study adds to the growing pool of studies on community malaria prevalence and management practices in southern Nigeria. Also results obtained from this study highlight some strong points where actions are urgently needed to positively affect use of malaria prevention and treatment methods in rural communities in southern Nigeria. First, the subject's use of unproven means for malaria management suggests that improving education on malaria prevention and treatment in rural settings is essential and could play a vital role in reinforcing correct knowledge on malaria treatment. Second, it was observed that various patterns were used in the treatment of malaria and mostly used were anti-malaria drugs or/and combination of other approaches including the use of herbs from local healers. This supports the reports of Nwoke et al. [10], and Ameh et al. [15] that there is also a world-wide interest in herbalism as new sources for new drugs.

5. CONCLUSION

Malaria prevalence appears to be high in the study area and there is a co-existence of different sources of anti-malarial and treatment practices among people of Ibusa community. It is highly important to increase knowledge of effective malaria prevention and treatment methods in communities where the use of unproven treatment source or methods is common. Educating communities about the

safety of modern antimalarial drugs are essential to improve malaria control.

CONSENT

Informed consent was sort from all subjects and participation in the study was purely voluntarily.

ETHICAL CONSIDERATION

Administrative clearance was obtained from the Fenlab Diagnostic and Research Laboratory.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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