

Prevalence and pattern of malaria management practices in a rural community in southern Nigeria

Abstract

A study of the prevalence of malaria was carried out in Ibusa, rural community in Oshimili North Local Government Area of Delta State, Nigeria. Thick blood films of 600 individuals attending the Fenlab Diagnostic and Research Laboratory Ibusa were used to determine the prevalence. Structured questionnaire were also administered to 600 individuals in order to obtain information on malaria management practices of the people. The study was carried out between the months of June and November, 2006 which corresponds to the wet season in Nigeria. The prevalence rate was found to be 73.3% and all were infections of *Plasmodium falciparum*. The age prevalence though showed a gradual increase with age followed by a slight decrease in age group 30 and above, the prevalence was highest among subjects of age group 20 – 29 years (31.81%) and least in age group 40-49 years (8.64%). Chi-square analysis showed no significant difference ($P>0.05$). The prevalence by sex showed higher prevalence in females (60.22%) than male (39.78%), this difference was not statistically significant at ($P>0.05$). The malaria management practices showed that (20.83%) buy antimalarials from shop (17.33%) visits hospitals, while (16.33%) employ traditional medicine from local healers. However, some of the subjects employ a combination of approach. (13.83%) get antimalaria from shops, hospital and local healers, (10.50%) get antimalarials from shops and hospitals, (9.67%) visits local healers and hospitals, while (0.33%) don't employ any management practices. Proper education of the people on the need to employ proper malaria management practice is essential.

Key words: Malaria, Prevalence, Treatment, Seeking-behaviors, Nigeria, Africa.

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 malaria treatment measures, and the need for greater understanding of barriers to malaria management in this tropical rural setting, this study was conducted to evaluate the current prevalence and malaria management practices among this community.

46 **Methods**

47 **Study area and Subjects:**

48 Ibusa is located between Latitude $6^{\circ} 11^{\text{I}}$ N and Longitude $6^{\circ} 38^{\text{I}}$ E, in Delta State,
 49 Southern Nigeria. The area experiences abundant rainfall, with a peak in July to October. The
 50 mean annual rainfall is about 2000mm. The vegetation ranges from mangrove thick forest to
 51 mixed rainforest and grassland with almost all year round year rainfall, with the temperature of
 52 between $25^{\circ\text{c}}$ and $30^{\circ\text{c}}$. The state is made up of twenty-five local government area in which Ibusa
 53 is under Oshimili North Local Government Area. The Ibusa community has a population of
 54 about 125,000 people. Their occupation ranges from civil service to subsistence farming, with
 55 petty trading as a complement to augment their meager earnings. The main crops cultivated in
 56 this area include cassava, plantain and maize among others.

57 The survey was carried out between June and November, 2006 in the Fenlab Diagnostic and
 58 Research Laboratory Ibusa, Delta state, Nigeria. The laboratory is major laboratory serving the
 59 Ibusa people of Delta State; hence it was chosen as the study point. The subjects were patients
 60 who reported at the Fenlab Diagonistic and Research Laboratory Ibusa, Delta state of various
 61 test. Using systematic random sampling, 600 (360 females and 240 males) aged between 3 and
 62 60 years were selected out of a total of 3,875 people who visited the laboratory between June –
 63 November 2006. A well-structured and validated questionnaire was used to obtain information
 64 on the management practice of malaria. Prior to completing the survey instrument, informed
 65 consent was obtained and only those who consented were involved in the study. Data was
 66 analyzed using SPSS version 10.00 and 0.05 level of significant was considered.

67 **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 case of malaria detected were only infections of *Plasmodium falcipaium*. Also 600 people were interviewed with questionnaires in order to ascertain the malaria management practices among these rural dwellers.

Figure 1 reveals that the malaria prevalence decreases with an increase in age. The prevalence in decreasing order are; 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 ($p > 0.05$).

Data on figure 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 ($p > 0.05$).

Table 1 shows the malaria management practices among the Ibusa people Of the 600 subjects, 20.83% uses antimalarial from shops, 17.33% visits hospitals, while 16.33% uses local healers. Table 1 also revealed that the subjects employed a combination of strategies. About 14.00% used antimalarials from shops, hospitals and local healers Also, 10.50% used antimalarials from shops and hospitals, 9.67% visits local healers and Hospitals while 0.03% do not use any management strategies. There was no significant differences in the management practices employed by the subjects ($p > 0.05$).

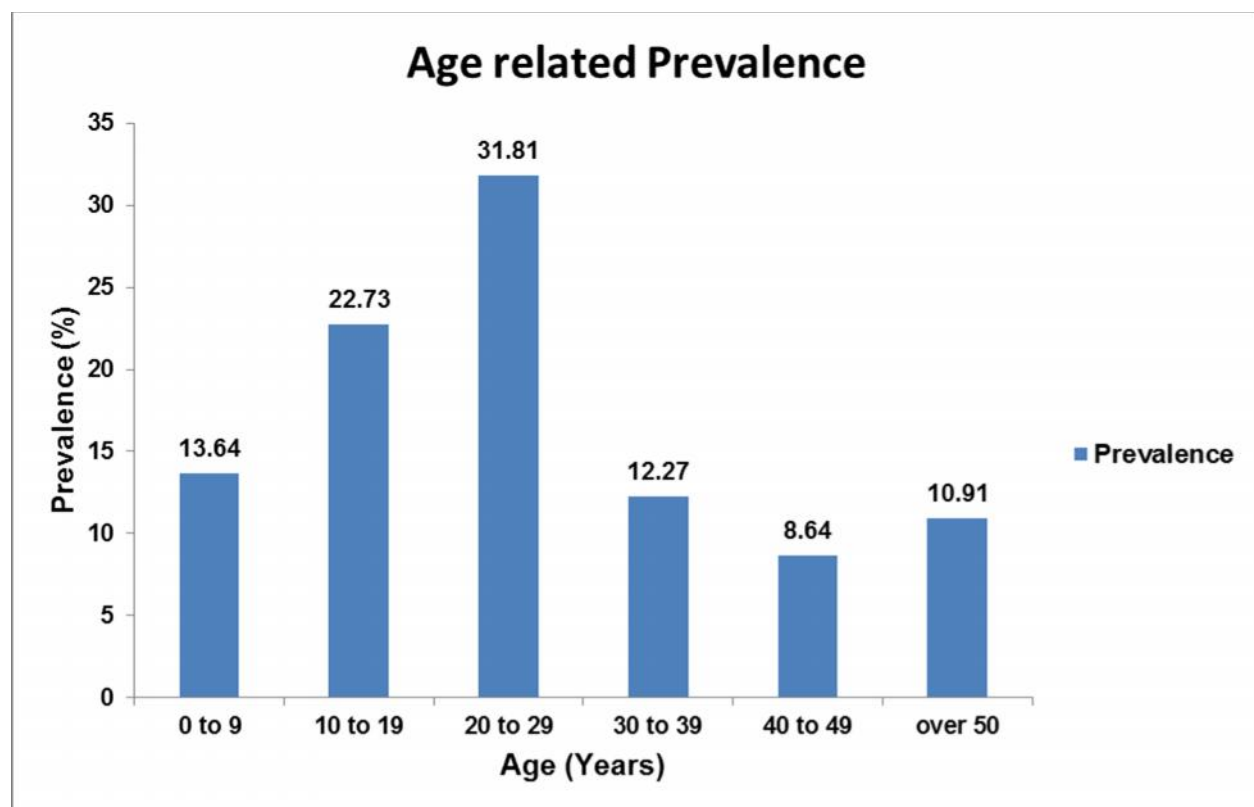


Figure 1. Age related prevalence of malaria infection

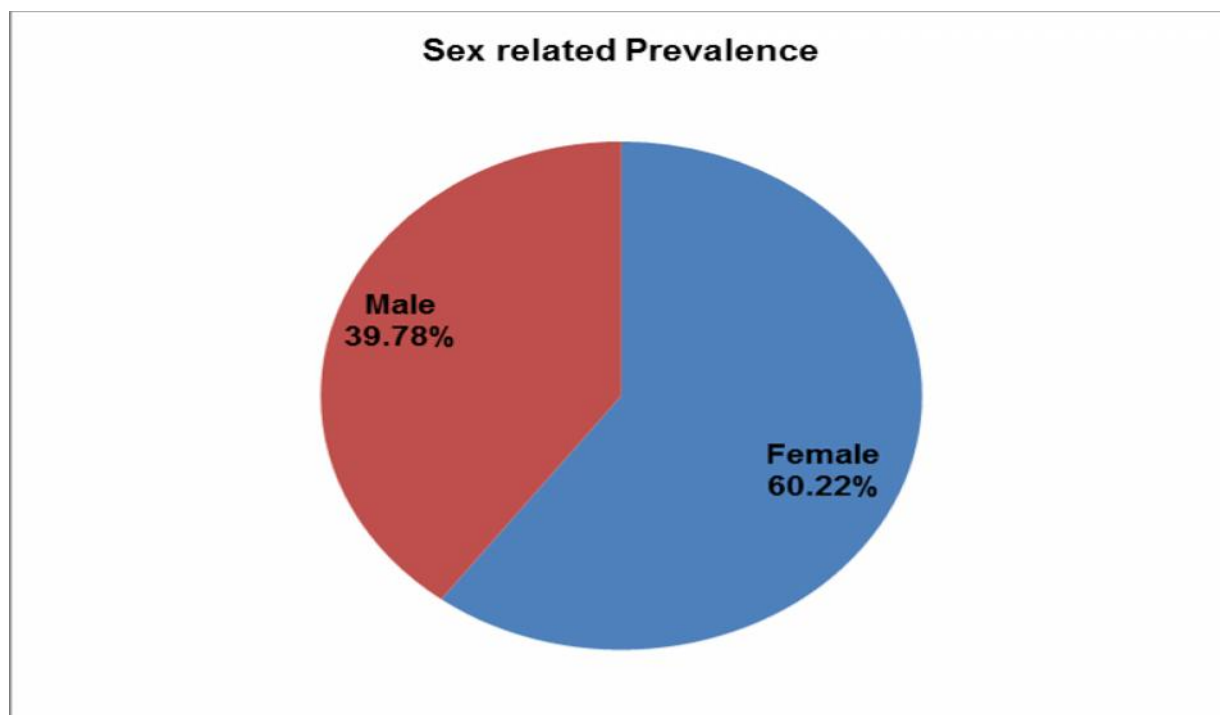


Figure 2. Sex related prevalence of malaria infection

Table 1: Malaria Management Practices of People of Ibusa Community in Delta state.

Management practices	No of respondents		Overall (%)
	Female	Male	
Anti malarial from shops	75	50	125(20.83)
Hospital	72	32	104(17.33)
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	38	25	63(10.50)

And hospitals			
Hospitals and local healers	32	24	56(9.33)
None	0	2	2(0.33)
Total	341	259	(600.00)

Discussion

This study highlights the high prevalence of malaria transmission in the study area as well as the range of malaria management strategies practiced by the inhabitants of the study community, including traditional and other unproven management 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. Similar observation was reported by [10,14,].

This study also accessed the prevalence of malaria in a rural community in Delta State. It was found that the prevalence of malaria infection among female was two-third that of male, though

118 there was no significant difference. Although, malaria prevalence decreases with age, the rate of
 119 infection was higher among age group 10-29 years. The lack of statistical difference in the sex
 120 prevalence of malaria infection supports the findings that malaria infection is not associated with
 121 gender and male and female are equally exposed to malaria infectious. Furthermore, the decrease
 122 of malaria prevalence with age is an expected finding. This may be explained by the possibility
 123 of development of acquired immunity with age due to repeated re-infection.

124 Like any other study, several limiting factors were recognized. First, Not all participants who
 125 were approached gave responses and they might have had different characteristics from the
 126 individuals who participated in this study. Second, our subjects were recruited primarily people
 127 who attended Fenlab diagnostic center for laboratory examination, and thus this study did not to
 128 capture the views of healthy people within the community. There is need to conduct community
 129 based studies to assess more representative malaria prevalence and management practices that
 130 would be reflective of the reality with the study area. Thus caution should be applied when
 131 generalizing results of this study to other communities of similar settings. However, despite these
 132 limitations, this study adds to the growing pool of studies on community malaria prevalence and
 133 management practices in southern Nigeria. Also results obtained from this study highlight some
 134 strong point where actions are urgently needed to positively affect use of malaria prevention and
 135 treatment methods in rural among communities in southern Nigeria. First, the subject's use of
 136 unproven means for malaria management suggests that improving education on malaria
 137 prevention and treatment in rural settings essential and could play a vital role in reinforcing
 138 correct knowledge on malaria management. Second, it was observed that various patterns were
 139 used in the management malaria and mostly used were anti-malaria drugs or/ and combination of
 140 other approach including the use of herbs from local healers. This support the reports of Nwoke

141 et al [10], and Ameh et al [15] that there is also a world-wide interest in herbalism as new
142 sources for new drugs

143 **Conclusion**

144 Malaria prevalence appears to be high in the study area and the co-existent of different
145 management practices. It is highly important to increase knowledge of effective malaria
146 prevention and treatment methods such community where the use of unproven prevention and
147 treatment methods are common. Improving knowledge and availability of effective malaria
148 control strategies in these areas has the potential to build on a high degree of accurate
149 knowledge, openness to trying new prevention and treatment approaches [13]. Also Sabin et al
150 [13] advocated that educating communities about the safety of modern antimalarial drugs, and
151 ensuring the supply of medications in health facilities are essential to improving malaria control.

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