Send Orders for Reprints to reprints@benthamscience.ae

The Open Public Health Journal, 2017, *10*, 1-6

The Open Public Health Journal

Content list available at: www.benthamopen.com/TOPHJ/

DOI: 10.2174/1874944501710010001

RESEARCH ARTICLE

The Study on the Awareness, Knowledge and Perception of Malaria among Selected Secondary School Students in Akure Metropolis, Nigeria

Omoya F. Oluyemi* and Ajayi K. Oluyemi

Department of Microbiology, School of Sciences, The Federal University of Technology, P. M. B 704, Akure, Nigeria.

Received: January 04, 2017 Revised: February 15, 2017 Accepted: February 16, 2017

Abstract:

Background:

The negligence of health education and promotion has contributed to increase in morbidity and mortality of malaria among children.

Method:

This study was carried out in selected secondary schools in Akure, South-western Nigeria to assess the level of awareness, knowledge and perceptive of the use of treated mosquito nets among children of age group 9 and 17 years. 200 pieces of questionnaires were distributed randomly to the respondents.

Results and Discussion:

Demographic information of respondents, awareness, knowledge and perception on malaria was obtained. 96% of the respondents know that mosquito transmits malaria parasite. The respondents' knowledge on the symptoms of malaria as persistence headache was 94% while 6% wrongly said itching and bleeding were among the symptoms of malaria. 74% have experienced mosquito bites while 26% haven't experienced it. Sleeping under treated net by the respondents was poor as only 2% of them always sleep under insecticide treated net and 44% never sleep under it. Although, awareness of malaria among the secondary school students is high, there is a high percentage (%) of the respondents who never sleep under insecticide treated net.

Conclusion:

Therefore, health education on awareness of insecticide-treated net should be emphasised for successful elimination of malaria.

Keywords: Awareness, Knowledge, Bed treated net, Malaria, Children.

1. INTRODUCTION

Malaria is an internationally devastating disease. According to WHO [1], the global tally of malaria reached 212 million cases and 429 000 deaths. Children are especially vulnerable, accounting for more than two thirds of global malaria deaths. In 22 African countries, the proportion of children with a fever who received a malaria diagnostic test at a public health facility increased by 77% over the last 5 years. This test helps health providers swiftly distinguish between malarial and non-malarial fevers, enabling appropriate treatment. Some children suffer an acute attack of cerebral malaria that quickly leads to coma and death; others succumb to the severe anaemia that follows repeated infections, or to the consequences of low birth weight caused by malaria infection in the mother's womb [2]. In areas where malaria is highly endemic, protective semi-immunity against *Plasmodium falciparum* is acquired during the first 10 - 15 years of life and the majority of malaria related morbidity and mortality happens in young children [3]. Where

* Address correspondence to this author at the Department of Microbiology, Federal University of Technology, P. M. B 704, Akure, Nigeria; Tel: +2348033708650; E-mails: fomoya@yahoo.com, ooluyhemikehinde@yahoo.com

the risk of infection is low, almost all exposed people are at a substantial risk of debilitating or severe disease. Where the risk of infection is high, the risk of severe disease is limited to visitors, infants, young children, and pregnant women. In general, the more intense the transmission, the earlier and more confined the age range of susceptibility to disease [4]. It is transmitted by infected female *Anopheles* mosquito. It is a disease that can be treated in just 48 hours, yet it can cause fatal complication if the diagnosis and treatments are delayed. Although, malaria has been endemic for centuries in many tropical countries, it is re-emerging as the number one priority tropical disease of the world because of population movements from endemic to non-endemic areas [5]. Pregnant women and their unborn child are also particularly vulnerable to malaria which is a major cause of prenatal death, low birth weight and maternal anaemia [6]. Today, approximately 40% of the world population mostly those living in the world's poorest countries are at risk of malaria. The disease was wide spread but was successfully eliminated from many countries with temperate climate during the mid- 20th century [7]

Environmental factor, behavioural patterns and vectors and human population combine to provide favourable conditions for malaria transmission. While much is known about vector biological and behavioural and the malaria parasite, the importance of human behaviour in malaria transmission has been largely overlooked. Failure to consider community attitudes and beliefs regarding malaria has contributed to inability of programs to achieve sustainable control. Perception about malaria illness, and belief about the seriousness of the disease are important preceding factors for decision making concerning preventive and corrective actions. The understanding of the preventive and control measure varies from community to community and among individual households. This study therefore aimed at investigating the awareness, knowledge and perception of malaria among children who are regarded most vulnerable.

2. MATERIALS AND METHODS

Study Area

The study was carried out between 2014 and 2015 in Akure South Local Government Area. Akure South Local Government Area was carved out of Ondo Municipal Government of Akure central in 1996 after the creation of Ekiti State. It covers a land area of 15, 500 squarekilometers. It has a population density of 3, 300 persons per square kilometer (National Population Census, 2006). The Akure South Local Government Area shares boundaries with Akure North Local Government Area and Akure East Local Government Area respectively.

Akure South Local Government Area has a total population of 360, 268; comprising of 173, 153 males and 187, 115 females according to the 2006 national population with 2010 estimated population of 459,164 using a growth rate of 3.2% from 2006 census. It is an urban area and therefore, no major farming activities take place. Yoruba and other tribes dominate the area. The residents are engaged in various economic activities such as trading, transportation business, civil service and education.

Five secondary schools were selected within Akure metropolis in Ondo State Nigeria and students within the age range of 9-17 years were selected at random for this study with forty students each from each secondary school.

Data Collection Techniques, Tools and Procedures

Interview was used as data collection technique from respondents, using structured questionnaires. Information gathered include age, education level, occupation of guardian, method of transmission of malaria, use of insect treated net, information on their medical check-up, and knowledge on prevention of malaria. Source of information and help seeking behaviour on malaria was also obtained. The study objectives and methods were also explained to each of the respondents prior to interviews or administration of questionnaire prepared in English language which is the official language in Nigeria.

Data Processing and Analysis

Data were analyzed using analytical method of malaria survey by calculating the rate of prevalence and percentage of the data collected.

Ethical Considerations

This study was approved by the Department of microbiology of Federal University of Technology Akure, Ondo State, Nigeria. Permission to carry out this survey was also sanctioned by the School principal of each secondary school.

Competing Interest

The members of this group declared that they have no competing interest.

3. RESULTS

Demographic and Socio-economic Characteristics of the Respondents

Among the 200 respondents, 64 were male accounting for 32% of the population while 136 were female accounting for 68% of the population. Parent occupations were Trading 44%, Farming 2%, Military 4%, Civil service50%and para-millitary0%. The median age was twelve and half $(12^1/_2)$ years ranging from (10 -15) years (Table **1**).

Table 1. Demographic and socio-economic characteristics of the respondents (N = 200).

CHARACTERISTICS		NUMBER OF RESPONDENTS (N)	PERCENTAGE (%)
SEX	(a) Male (b) Female	64 136	32 68
Age (Years)	(a) 9-11 (b) 12-14 (c) 15-17	4 116 80	2 58 40
Respondent 's level of education	(a) Junior secondary school (JSS) (b) Senior secondary school (SSS)	88 112	44 56
Religion	(a) Christain (b) Muslim	188 12	94 6
Parent occupation	(a) Trading (b) Farming (c) Military (d) Civil service (e) Paramilitary	88 4 8 100 -	44 2 4 50 -
Parent educational background	(a) primary (b) secondary (c) tertiary	20 28 172	10 14 76

Evaluation of Knowledge and Perception of Malaria Among the Respondents

Respondents' awareness on transmission of malaria by mosquito was 96% while only 4% was not fully aware of mode of transmission. 100% of the respondents perception was that malaria is a disease. The respondents' knowledge on the symptoms of malaria as persistence headache, high temperature and shivering was 94% while 6% said itching was among the symptoms of malaria infection non respondent agreed that bleeding was among the symptom (Table **2**).

Table 2. Evaluation of knowledge and perception of malaria among the respondents(N=200).

CHARACTERISTICS		NUMBER OF RESPONDENTS (N)	PERCENTAGE (%)
(i) Awareness of malaria and symptoms			
Have you seen mosquito before?	(a) Yes (b) No	**200** **-**	**100** **-**
Have you seen mosquito bites?	(a) Yes (b) No	148 58	74 26
Have you heard the word 'malaria' before ?	(a) Yes (b) No	200 -	100 -
Symptoms of malaria	(a) Headache, high temperature and shivering (b) Itching and bleeding	188 12	94 6
(ii) Perception of the respondents on malaria			
Definition of malaria	(a) Disease (b) Sweet (c) Ice cream	200 - -	100 - -
Mode of transmission	(a) through mosquito (b) through man (c) through housefly	192 8 -	96 4 -

(Table 2) contd.....

CHARACTERISTICS		NUMBER OF RESPONDENTS (N)	PERCENTAGE (%)
Mosquito breeding place	(a) walls	24	12
	(b) stagnant water	124	62
	(c) bushes	52	26
Mosquito biting time	(a) Day time	40	20
	(b) Night time	148	74
	(c) Anytime	12	6

Knowledge of Medical Check up and Awareness of Bed Insecticide Treated Nets

Table **3** shows that 100% of the respondents said that they have seen mosquitoes. 74% have seen it bites while 26% have not seen mosquito bite before. 62% of the respondents do go for medical checkup while 38% were not opportune to go for medical checkup. 12% out of the 62% that do go for medical checkup always go to the health centres for checkups. 26% of the respondents do go for medical checkup every one month interval. 62% cannot remember when last they have visited the hospital for medical checkup. The prevalence of the disease was also examined, 8% of the respondents were infected two weeks prior to the period of the survey, while 60% were infected 1 month before. 24% and 48% were infected 6 months and 1 year respectively prior to this period of the malaria survey in the school.12% of the respondents believe in self-medication in the treatment of malaria, while 16% do visit pharmacist for their treatment. 66% do visit the hospital for their treatment. 6% only used local herbs (concoction) for their malaria treatment. Knowledge and awareness about insecticide treated net use in preventing mosquito bites was also observed. 94% of the respondents have seen insecticide treated net before, while just 6% have not seen it before. 2% sleep always under the treated net. 24% sleep under it every night. 30% occasionally sleep under it while 44% have never slept under insecticide treated net. 92% were correctly aware of what insecticide treated net prevent which is mosquito, while 4% said that it prevents air and housefly respectively. 72% heard about insecticide treated net on mass media (Television, radio or internet), 8% heard through friends, while 20% of the respondents heard from schools.

Table 3. Knowledge of medical check up and awareness of bed insecticide treated nets.

4. CHARACTERISTICS		NUMBER OF RESPONDENTS	PERCENTAGE (%)
Whether they go for medical check up	(a) Yes	124	62
	(b) No	76	38
How often do they go up for medical check up	(a) always	24	12
	(b) 2 weeks	-	-
	(c)1 month	52	26
	(d) cannot remember	124	62
Last episode of malaria infection	(a)2 weeks	16	8
	(b)1month	12	6
	(c) 6 month	28	14
	(d) cannot remember	96	48
Treatment	(a) self- medication	24	12
	(b) in pharmacy	32	16
	(c) in hospital	132	66
	(d) use of concotion	12	6
Have you seen insecticide treated net before	(a)yes	188	94
	(b)no	12	6
What does insecticide treated net prevent	(a) Mosquito	188	92
	(b) Housefly	8	4
	(c) Air	8	4
How often do you sleep under insecticide treated net	(a)always	4	2
	(b) all night	48	24
	(c) occasionally	60	30
	(d) never	88	44
How do you get information about insecticides treated net	(a)mass media	144	72
	(b) religious houses	-	-
	(c) friends	20	10
	(d)schools	36	18

4. DISCUSSION

Our study, revealed that awareness of malaria among the respondents was very high (100%). The awareness of the respondents that malaria is caused and transmitted by a bite of mosquito is usually a common knowledge in malaria endemic countries like Nigeria, India, Ghana and some other tropical Africa countries as well as the Latin American

countries [7, 8]. However, only a small number of the respondents inaccurately stated that man was the cause and transmitting agent for malaria infection while a large percentage of the respondents correctly stated that mosquito is the causative agent, thus a clear believe about the awareness of malaria in the study schools is high. There was also a high knowledge of classical signs and symptoms of uncomplicated malaria infection cases. This was not surprising because Nigeria is a holoendemic region of malaria and all the respondents have been infected with malaria before. This is agreement with the reports from other studies [9, 10]. The massive education campaign about effective treatment of malaria was known to show significantly among the respondents where large population of the respondents prefer treating their malaria infection in the hospital while just few proportion of the population adopt the use of concoction in treating malaria. Also the last episode of malaria infection by the respondents was another factor that was considered. Large number of the total respondents stated that they cannot remember the last time they were infected with malaria, this might be as a result of acquired immunity against malaria which increases with age in endemic region. Also [3] reported that in areas of heavy transmission, the prevalence of parasitemia and the risk of morbidity and mortality caused by malaria decrease markedly with age beyond early childhood. The advocate for the use of insecticide treated net has contributed greatly to the reduction in the reported cases of malaria especially among school children. An increased public awareness and health benefits of the insecticide treated nets have been reported and documented across African indigenous communities [11, 12]. Majority of the respondents have seen and slept under treated net which could be connected with the report on the episode of malaria among the subjects. According to [13] correct use of insecticide treated nets could prevent as much as 336 000 malaria related deaths in children every year. The largest population heard about the treated net and its importance in preventing and controlling malaria through the social media. More health education on the consistent use of insecticide treated nets should be ensured.

CONCLUSION

Although awareness of malaria among the respondents was high, there is high number (%) of the respondents who either occasionally sleep under treated net or never sleep under treated net. Although not investigated, sleeping under mosquito treated net decreased the prevalence of malaria by 77% [14]. Hence, the awareness as well as lack of the use of mosquito treated nets may account for high morbidity in the spread and prevalence of malaria infection among the children. Lack of continuous medical checkup or even the inability to go for medical checkup also pose a great threat to their health, because adequate and constant medical checkup proffers immediate solution to one's health problem once they are detected earlier. Therefore, health education which includes proper awareness about treated net and important of medical checkup for the children should be reviewed and intensified in order for the children to have sound and lasting health conditions.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Department of microbiology of Federal University of Technology Akure, Ondo State, Nigeria. Permission to carry out this survey was also sanctioned by the School principal of each secondary school.

HUMAN AND ANIMAL RIGHTS

No Animals/Humans were used for studies that are base of this research.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the supports of the school principals where this study was conducted.

REFERENCES

[1] World Health Organization (WHO). Malaria Report Sheet 2016 13th December WHO ‘s World Malaria factsheet. 2016.

[2] Roll back Malaria A Major Cause af Child Death and Poverty in Africa 2015. Available from: http://www.rollbackmalaria.org/files/files/financing/unicef_malaria_en.pdf

[3] Marielle KB, Denisa EI, Modeste MM. Prevalence of *Plasmodium falciparum* infection in pregnantwomen in Gabon. Malar J 2003; 18.

[4] Denise LD, Carlota D, Baird JK. Acquired immunity to malaria. Clin Microbiol Rev 2009; 22(1): 13-36.

[5] Kakkilaya BS. Rapid diagnosis of malaria. Lab Medicine 2003; 8(34): 602-8.

[6] Desai M, ter Kuile FO, Nosten F, *et al.* Epidemiology and burden of malaria in pregnancy. Lancet Infect Dis 2007; 7(2): 93-104. [http://dx.doi.org/10.1016/S1473-3099(07)70021-X] [PMID: 17251080]

[7] World Health Organization 2008. Global malaria control and elimination: Report of a technicalreview WHO 2008.

[8] Adedotun AA, Morenikeji OA, Odaibo AB. Knowledge, attitudes and practices about malaria in an urban community in south-western Nigeria. J Vector Borne Dis 2010; 47(3): 155-9. [PMID: 20834085]

[9] Abate A, Degarege A, Erko B. Community knowledge, attitude and practice about malaria in a low endemic setting of Shewa Robit Town, northeastern Ethiopia. BMC Public Health 2013; 13: 312. [http://dx.doi.org/10.1186/1471-2458-13-312] [PMID: 23566168]

[10] Deressa W, Ali A, Enquoselassie F. Knowledge, attitude and practice about malaria the mosquito and antimalarialdrugs in a rural community. Ethiop J Health Dev 2003; 17: 99-104.

[11] Singh R, Musa J, Singh S, Ebere UV. Knowledge, attitude and practices on malaria among the rural communities in aliero, northern Nigeria. J Family Med Prim Care 2014; 3(1): 39-44. [http://dx.doi.org/10.4103/2249-4863.130271] [PMID: 24791235]

[12] Muller O, Allegri MD, Becher H, *et al.* 'Distribution systems of insecticide treated bed nets for malaria control in rural burkina faso: cluster randomised controlled trial'. Malaria Control in Africa 2008; 3(9): 1-9.

[13] Osondo NB, Jerome OO. 'Effectiveness of Insecticide-TreatedBednets (ITNs) in Malaria PreventionamongChildrenAged Six Months to 5 years in a Rural Community in Imo State, Nigeria'. Int J Trop Med 2009; 4(1): 41-9.

[14] Alaii JA. Insecticide-treated bednets (ITNs) for malaria control: factors relevant for utilisation in a western kenyan community A Report. Unigraphic Maastricht 2003.