PRACTICE OF MALARIA PREVENTION AMONG JUNIOR SECONDARY SCHOOL STUDENTS IN KADUNA STATE, NIGERIA

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Abstract
The study was conducted to assessed the practice of malaria prevention among Junior Secondary School Students in Kaduna State, Nigeria. To achieve this purpose, ex-post facto research design was used. A total sample of 450 of junior secondary school students in Kaduna State from the population of 158,274 was selected through multi-stage sampling procedures of simple random sampling, proportionate and systematic sampling techniques. The instrument used for the study was the researcher's structured questionnaire. Out of the 450 copies of the questionnaire distributed, 441 were valid for analyses. Inferential statistics of one sample t-test was used to test the formulated hypothesis at 0.05 level of significance. The results revealed that the practice of malaria prevention among Junior Secondary School Students in Kaduna State is not significant (p = 0.7). Based on the results it was concl that, the practice of malaria prevention among Junior Secondary School Students in Kaduna State is not good. It was therefore recommended that non-governmental organisations in collaboration with the ministry of health should conduct student workshop or symposiums in schools so as to help in encouraging and correcting poor practices of malaria prevention into good and healthful ones among junior secondary school students in the state.

Key words: Practice, Malaria, Prevention, Students.

Introduction
Malaria is a social and medical problem receiving multidisciplinary and multidimensional solution and has been a major public health problem in sub-Saharan

Africa (World Health Organization, WHO, 2013). Malaria is one of the most serious causes of morbidity in the world.vector-borne infectious disease caused by eukaryotic protists of the genus Plasmodium. It is transmitted by female Anopheles mosquitoes, which carry the infective sporozoite stage of Plasmodium parasite in their salivary glands (Okwa, 2013). In Nigeria, malaria is responsible for 60 per cent of outpatient visits to health facilities, 30 percent of which are students. Malaria in Nigeria accounts for 25% of malaria burden in sub-Saharan Africa (Malaria Indicator Survey, 2010). The disease is estimated to cost the country about 132 billion Naira every year, taking into account the cost of treatment and prevention and loss of working hours (World Health Organization, 2011).

Malaria can be transmitted through blood transfusion or acquired congenitally, so, preventing bites from infected mosquitoes will expectedly reduce malaria transmission. The recognition of the unacceptable morbidity and mortality arising from malaria in Africa and the availability of evidence-based cost-effective interventions led to the launch of the Roll Back Malaria (RBM) initiative in 1988 (UNICEF, 2014). The RBM movement aimed to have half deaths attributable to malaria by 2010 and half of it again by 2015 through the use of 3 tools; Insecticide-treated bed nets (ITN), effective artemisinin-based anti-malarial combination therapy and the use of insecticides which have also been documented to be cost-effective interventions (Sherman, 2012). Other cost-cutting interventions include advocacy, communications and social mobilization, effective programme management, monitoring and evaluation, partnerships and collaboration (RBM, 2015).

There has been a renewed emphasis on preventive measure among junior secondary school students. Malaria prevention plays a significant role in reducing human-vector contact and lowering malaria morbidity and mortality is well documented in areas of both high and low endemicity **(Abdisalan, Judith, Abdinasir, Dejan and Robert, 2013)**. In spite of this, malaria continues to significantly impact negatively on the health of Nigerian, thus signifying no reduction in the transmission of the disease. Insecticide-treated nets were developed in the 1980s for malaria prevention. Newer, Longer Lasting Insecticide Nets (LLIN) are starting to replace ITNs in many countries. ITNs are estimated to be twice as effective as untreated nets and offer greater than 70% protection compared with no net. These nets are dip-treated using a synthetic pyrethroid insecticide such as deltamethrin or permethrin which double the protection over a non-treated net by killing and repelling mosquitoes (Okwa, Bello & Olundegun, 2011). An insecticide-treated net is a mosquito net which repels, disables and kills mosquitoes coming in contact with the insecticide on the netting material (Ajose, 2012).

In spite of measures taken against malaria, it has continued to rank high among the most prevalent and severe disease in Nigeria (WHO, 2015). This is linked to the rapid development and sustenance of resistant strains of the parasite (Hournsou, Amuta, Wama, Bingbeng & Hile, 2012). Attempts at different periods by governments and concerned

organizations in the West-African region aimed at control and eradication of malaria have not been satisfactory (WHO, 2015). This perhaps informed the shifts in the campaign from eradication to control (Roll Back Malaria Partnership, World Health Organization, United Nations International Children Emergency Fund and World malaria report, 2015).

Preventive practice of students towards malaria prevention are associated with some factors that include socio-demographic characteristic, the students' knowledge about malaria and their attitude toward malaria prevention. Having the right knowledge about malaria among junior secondary school student enables practices of preventive strategies (Ahmed, Haque, Haque, & Hoissan, 2014).

Malaria remains one of the most serious health problems worldwide and it is a major public health problem in Nigeria. It accounts for about 60 percent of all hospital admission and 30 percent of schools absenteeism. Malaria increases the morbidity and mortality rates as well as health problems in secondary schools. Malaria remains one of the most infectious diseases and still poses a lot of public health problem. Epidemiologically malaria account for 250 million cases of fever and approximately one million deaths annually (Roll Back Malaria Partnership, World Health Organization, United Nations International Children Emergency Fund and World Malaria Report, 2015). The vast majority of cases occur among junior secondary school students. The research also observed that junior secondary school students are reluctant or do not comply with the use of insecticide-treated to prevent malaria. The researcher also observed that the school surrounding is mostly occupied with weeds, this implies that the students do not take time to weed their environment, stagnant water can be seen all over the school premises, no proper water drainage to rid breeding grounds for mosquitoes. Wire mesh for mosquito screening in doors and windows are lacking in the classes. Therefore, it is based on all the problems stated that the researcher was prompted to assess the practice of malaria prevention among Junior Secondary School Students in Kaduna State, Nigeria.

Research Questions

1. What is the knowledge of malaria prevention among Junior Secondary School Students in Kaduna State?
2. What is the attitude of malaria prevention among Junior Secondary School Students in Kaduna State?
3. What is the practice of malaria prevention among Junior Secondary School Student in Kaduna State?

Hypothesis

1. There is no significant knowledge of malaria prevention among Junior Secondary School Students in Kaduna State.
2. Attitude towards malaria prevention among Junior Secondary School Students in Kaduna State is not significant.

3. The practice of malaria prevention among Junior Secondary School Students in Kaduna State is not significant.

Methodology

The researchers employed an ex-post facto research design. The sample size for the study was 450respondents. The researcher employed a multi-stage sampling approach that involved a stratified random sampling technique, simple random sampling technique and proportionate sampling technique to get the respondents used for the study. The Data collected was analysed using the Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics of frequency, percentages, mean score and standard deviation were used to describe the demographic information of the respondents and to answer the research questions. While inferential statistics of one-sample t-test was used to test the formulated hypothesis at 0.05 level of significance.

Results

Table1: Demographic Characteristics of the Respondents

S/N	Variable	Option	Frequency	Percentage %
1.	Age Range of student	10 – 15 years	215	48.7
		16 years and above	226	51.3
		Total	**441**	**100.0**
2.	Gender	Male	245	55.6
		Female	196	44.4
		Total	**441**	**100.0**
3.	Class	JSS I	152	34.5
		JSS II	174	39.5
		JSS III	115	26.1
		Total	**441**	**100.0**

Table 1 above shows that 215 (48.7%) of the respondents were between the age range of 10 – 15 years while 226 (51.3%) of the respondents fell within the age range of 16 years and above. Furthermore, table 4.1 revealed that 245 (55.6%) of the respondents were male while 196 (44.4%) of the respondents were female. Table 4.1 showed that 152 (34.5%) of the respondents were JSS I students, 174 (39.5%) of the respondents were JSS II students while 115 (26.1%) were JSS III students.

Research Question: What is the practice of malaria prevention (nets, electric mosquito zapper, insect repellent, protective cloths, spraying of insecticide) among Junior Secondary School Students in Kaduna State?

Table 2: Mean scores of the Practice adopted by Junior Secondary School Students towards Malaria Prevention

Items	Mean	Std. Dev.
I wear protective clothes (long pants and long sleeve shirt) prevent mosquito bites	2.2176	0.90209
I use window nets to prevent mosquitoes	2.5324	0.96394
I cut bushes around the house to prevent mosquitoes breeding	2.1875	1.03941
I dispose of empty containers harbouring water to avoid breeding of mosquitoes	2.2381	0.80224
I use door net to prevent the entrance of mosquitoes to my room	3.0139	1.18836
I use an insecticide-treated mosquito net to prevent mosquito bites	2.1296	1.32072
I use Indoor residual spraying of insecticide to prevent mosquitoes	2.2315	0.5307
I use insect repellent to prevent mosquitoes from biting	1.3194	0.41195
I use electric mosquito zapper to kill mosquitoes from biting	2.7593	1.01862
I use mosquito coil to prevent mosquitoes from entering	3.2501	0.61271
Aggregate Mean	**2.39**	

Table 2 shows the mean score of the responses on the practices adopted by Junior Secondary School Students towards malaria prevention strategies. The aggregate mean score of the items is 2.39 which was found to be less than the fixed mean score of 2.50. This implies that junior secondary school students in Kaduna state do not practice malaria prevention strategies.

Hypothesis: The practice toward malaria prevention (nets, electric mosquito zapper, insect repellent, protective cloths, spraying of insecticide) among junior secondary school student in Kaduna State is not significant.

Table 3: one-sample t-test analysis on practice of malaria prevention among Junior Secondary School Students in Kaduna State.

Variable	Mean	Std	Df	t-value	P value
Practice	2.3879	0.8791	439	1.074	0.7

(p=0.7, > 0.05)

Table 3 showed observed t-value of 1.074 at 439 degree of freedom (df) and a significance level of 0.7 (p> 0.05). With this observation, there is enough evidence to accept the null

hypothesis which states that junior secondary school student in Kaduna State does not significantly practice malaria prevention strategies. This is because junior secondary school students in Kaduna state do not practice malaria prevention strategies.

Discussion

The results of this study revealed junior secondary school students in Kaduna State do not significantly practice malaria prevention which is in agreement with the findings of Falade, Ogundiran and Bolaji (2013) which found out in their study that many of the students do not even believe malaria can be prevented because of series of myths and misconceptions they associate with fever in students, that practice of preventive measures like screening of windows and doors with nets, spraying the house with insecticides aerosol, application of insecticide repellents cream, wearing of long-sleeved clothes and destruction of mosquito breeding sites are not common. This study is also in consonance with the study conducted by Erhun, Agbani and Adesanya (2015) which assessed malaria prevention: knowledge, attitude and practice in a south-western Nigerian community. They found that students' knowledge, attitude and practice of prevention of malaria have a significant effect on the health of the students. The use of the insecticide-impregnated net is uncommon amongst the respondents. Treatment seeking practice in malaria was related to level of education and religion. The finding of the study revealed that convenience and the severity of the disease affected respondents' choice of treatment in more than 50% of the cases.

The findings of this study is in agreement with the findings from a study conducted by Amaechi and Ukpai (2013) that assessed knowledge, attitude and practice about malaria among students and care-givers in Aba South Local Government Area, Abia State, Nigeria. The findings of the study revealed that the respondents in Obuda Aba community, Aba South LGA do not use insecticide-treated bed nets and other malaria preventive methods. The findings of this study is in consonance with a study conducted by Ashikeni, Envuladu, and Zoakah (2013) on the perception and practice of malaria prevention and treatment among students in Kuje area council of the Federal Capital Territory, Abuja, Nigeria. The findings of the study revealed that students in Kuje had poor practice of malaria prevention method, more so they do not use recommended drug by the Federal Government of Nigeria (ACTs) for the treatment of uncomplicated malaria. The findings of this study is in agreement with the study conducted by Adeyemo, Oluwatosin, Amodu and Taofeeq (2014) who assessed home management and prevention of malaria among Junior Secondary School Students in Egbedore LGA in Osun State South West of Nigeria. The findings of this study revealed that Junior Secondary School Students manifested poor practice of prevention of malaria.

Conclusion

The Practice of malaria prevention among Junior Secondary School Students in Kaduna State is not good. This is because majority of junior secondary school students do not

practice wearing of protective clothing, cutting of bushes around their houses and using of repellents to prevent mosquito bites.

Recommendations

On the basis of the conclusion drawn, the following recommendation was made:

1. School authorities should periodically organise health talks and awareness on malaria prevention to junior secondary school students for to get the knowledge of malaria prevention.

2. Health educators in collaboration with the school health team should carry out awareness campaigns so as to educate junior secondary school students on the need to apply their knowledge and attitudes into healthy or good practices of malaria prevention so as to reduce the disease burden among the students in the state.

References

Abdisalan, M.N., Judith, A.O., Abdinasir, A.A., Dejan, Z. & Robert, W.S. (2013).Wealth, mothers education and physical access as determinants of retail sector net use in rural Kenya. *Malaria Journal* 5(1):1- 5.

Adeyemo, M.O., Oluwatosin, O.A., Amodu, O.K. &Taofeeq, Y.O. (2014). Home Management and Prevention of Malaria among Students: Experiences of Mothers in a Nigerian Local Government Area. *African.Journal of Biomedical Resources. 17(2): 83- 91.*

Ahmed, S.M., Haque, R., Haque, U. &Hoissan, A. (2014).Knowledge on the transmission, prevention and treatment of malaria among two endemic populations of Bangladesh and their health-seeking behaviour. *Malaria Journal*, 8(1): 173 – 184.

Ajose, P.G. (2012). *Perception, importance and effectiveness of IRS in the control of malaria in Lagos State*.B.Scproject.Department of Zoology and environmental biology, Lagos State University.pp 75.

Amaechi, E.C. &Ukpai, O.M. (2013). Knowledge, attitude and practice about malaria among mothers and care-givers in Aba South Local Government Area, Abia state, Nigeria. *Animal Research International*, 10(3): 1786 – 1791

Erhun, W.O., Agbani, E.O. &Adesanya, S.O. (2014). Malaria prevention: knowledge, attitude and practice in a south-western Nigerian community. *African Journal of Biomedical Research*, *ISSN 1119 – 5096;* 8: 25 – 29. Available online at http://www.bioline.org.br/md.

Falade, C.O., Ogundiran, M.O. &Bolaji, M.O. (2013).The influence of cultural perception of causation, complication, and severity of studenthood malaria on determinants and treatment preventive pathways.*International Quarterly of Community Health Education, Journal of Policy and Applied Research*, 24(4): 347 – 363.

Hournsou, B., Amuta, E., Wama, S., Bingbeng, E. &Hile, K. (2012). ACT watch: evidence for malaria, medicine and policy outlet survey report (baseline), Nigeria www.actwatch.info.results.

Malaria Indicator Survey, (2010).*Programme NMC. Nigeria MIS Final Report*. Abuja, Nigeria: Federal Republic of Nigeria; 2010.

Okwa, O.O. (2013). The current trends in integrated prevention and control of malaria.A case study of some Nigerian communities.*Global Advanced Research Journal of Medicine and Medical Sciences,* 2(5): 104-107.

Okwa, O.O., Bello, B.A. & Olundegun, S.A. (2011). Social aspects of Malaria in two tertiary institutions in Lagos State, Nigeria.*Sierra Leone J. Biomed. Res.* 3(2): 97-103

Roll Back Malaria (2015). RMB *Partnership*. Available from: http://www.rbm.who.int/wmr2015/pdf/WMReport_Ir.pdf

Roll Back Malaria Partnership, World Health Organization, United Nations Students' Fund and World malaria report (2015). *RMB Partnership*. Available from: http://www.rbm.who.int/wmr2015/pdf/WMReport_Ir.pdf

Sherman, I.N. (2012). *A Brief History of Malaria and Discovery of the Parasites Life Cycle*. In: Malaria: Parasite Biology, Pathogenesis and Protection, Sherman, I.N. (Ed.). ASM Press, Washington, DC., USA: 97-108.

United Nations International Children Education Fund, UNICEF (2014).*The State of Africa's students and youth: Perspective from West and Central Africa*. Dakar: UNICEF. 9-16.

World Health Organization(2011).The Use of Antimalarial Drugs. Report of WHO Informal Consultation. Geneva. WHO (WHO/CDS/RBM/2011.33).

World Health Organization (2015). *What is Malaria Fact Sheet Geneva: WHO. Available on: www.mosquito.who.int/*

World Health Organization and UNICEF (2013).*The Africa Malaria Report 2013*.
Geneva: World Health Organisation (WHO). (WHO/CDS/MAL/2013.1093).