International Journal of Biomedical Research
ISSN: 0976-9633 (Online); 2455-0566 (Print)
Journal DOI: https://dx.doi.org/10.7439/ijbr
CODEN: IJBRFA

Original Research Article

Knowledge and practice of methods of malaria prevention among nursing and midwifery students in Plateau state North Central Nigeria

Bello A Danjuma[1], Afolaranmi O Tolulope[1], Hassan I Zuwaira[1], Yusuf K Olatunde[2], Ajayi E Olufemi[2], Egga, Akpomushi[2] and Moses P Chingle[1]

[1]*Department of Community Medicine, University of Jos. Jos, Plateau State, Nigeria*
[2]*Faculty of Medical Sciences, University of Jos, Jos Plateau State, Plateau State, Nigeria*

QR Code

***Correspondence Info:**
Dr. Tolulope O. Afolaranmi,
Department of Community Medicine,
University of Jos, P. M. B. 2084, Jos, Plateau State, Nigeria

***Article History:**
Received: 01/04/2017
Revised: 10/04/2017
Accepted: 10/04/2017
DOI: https://dx.doi.org/10.7439/ijbr.v8i4.4070

Abstract

Background: Malaria affects 3.3 billion people in 106 countries and territories of the world. In spite of the fact that malaria is treatable and easily preventable, it still remains a big health threat to lives in many communities globally but most especially in Sub-Saharan Africa. In Nigeria, malaria is a major public health problem, where it contributes significantly to cases of hospitalization and deaths annually. Prevention and control of malaria remains the veritable pathways to addressing this scourge. However, human element poses significant challenge towards achieving this. Hence this study was conducted to determine the knowledge and practice of methods of malaria prevention among students in Nursing and Midwifery College in Plateau State North central Nigeria.

Methodology: This was a cross sectional study conducted among 153 nursing and midwifery students using quantitative method of data collection.

Result: The mean age of the respondents was 22.0 ±3.6 years with majority (80.4%) of the respondents being females. Good knowledge of malaria prevention was found among 111 (73.2%) of the respondents while 102 (66.7%) of the respondents engaged in good practice of malaria preventive methods.

Conclusion: This study revealed a relatively good level of knowledge of malaria prevention with a slightly lower level of practice. In view of this, it is imperative to further study the factors that influence the practice of malaria preventive method among this population and proffer practicable strategies for sustaining the knowledge of malaria prevention as well as improving its practice.

Keywords: Knowledge and practice, malaria prevention methods, Nursing and midwifery, Plateau state.

1. Introduction

Malaria still remains one of the leading causes of morbidity and mortality in many tropical regions of the world despite the global efforts targeted at it eradication. [1] Malaria affects 3.3 billion people in 106 countries and territories of the world. In spite of the fact that malaria is treatable and easily preventable, it still remains a big health threat to lives in many communities globally but most especially in Sub-Saharan Africa. [1] In Nigeria, malaria is a major public health problem, where it contributes significantly to cases of hospitalization and deaths annually.[2] This has significant implications on the economic growth as it is responsible for an estimated annual reduction of 1.3% in economic growth. [2]

Prevention and control of malaria remains the veritable pathways to addressing this scourge. However, human element poses significant challenge to it.[1,3]. This often relates to behavioural factors, such as socio cultural practices that promote mosquito breeding and access to

people, as well as the failure of the vulnerable population to use proven and effective methods of malaria control promptly and appropriately.[3] Hence this study was conducted to determine the knowledge and practice of methods of malaria prevention among students of college of Nursing and Midwifery in Plateau State North central Nigeria.

2. Methodology

2.1 Study area

This study was conducted in the school of Nursing and Midwifery Vom, one of the post secondary institutions in Plateau State for training of health workforce. Vom is a quiet rocky settlement situated 1,285meters above sea level with the nearest towns being Bukuru and Jos, 12.8 and 24 kilometres, to the north-east respectively.[4] The college was established in 1938 and is involved in training students in basic and post basic Nursing and Midwifery . It offers admission to and admits about 70 students annually.

2.2 Study population

The study population comprised of registered students of both Nursing and Midwifery in the college of Nursing and Midwifery Vom.

2.3 Study design

This was a descriptive cross sectional study conducted among nursing and midwifery students conducted between February and April 2015.

2.4 Inclusion and exclusion criteria

All registered students of the institution studying basic nursing and midwifery who consented to participate in the study were included. All students who declined consent as well as students undergoing post nursing and midwifery courses were excluded from the study

2.5 Sample size determination

A minimum sample size was determined using the sample size determination formula for cross-sectional study.[5]

$n=Z^2pq/d^2$

Where n is the minimum sample size

Z is the standard normal deviate at 95% confidence interval which is 1.96

P is the proportion of respondents from a previous similar study who knew Insecticide Treated Bed Nets (ITNs) as a method of prevention of malaria, which was 88.8%. [3]

q is the complementary probability 1-p (1-0.888 = 0.112)

d is the precision of the study set 0.05

Therefore

$$n= \frac{(1.96)^2 \text{ x}0.888\text{x}0.112}{(0.05)^2}$$

n = 153

2.6 Sampling technique

College of nursing and midwifery Von was selected for the study from the list of the 3 nursing and midwifery training institutions in plateau state. Following which the number of students sampled from each of the levels for nursing and midwifery sections respectively was determined using proportion to size technique (number of eligible students in each level divided by total number of eligible students for the study multiplied by the sample size). This gave 34, 19 and 19 students for years 1, 2 and 3 nursing respectively and 34, 14 and 33 students for years 1, 2 and 3 of midwifery section respectively. Numbers were allotted to all the eligible students in each of the levels for nursing and midwifery respectively then computer generated table of random numbers from WINPEPI statistical software was used to select the respondents sampled in this study.

2.7 Data collection

A semi structured interviewer administered questionnaire comprising of three sections namely demographic characteristics, knowledge of malaria and its preventive method and practices of malaria preventive methods was used in this study. The data collection tool was pretested among students of Plateau state school of nursing and midwifery Jos University Teaching Hospital (JUTH) before the commencement of the study. Three research assistants were trained on the data collection instrument prior to the commencement of the study by the lead researcher. Ethical clearance was sought and obtained from Jos University Ethical Review Committee. Written and verbal informed consent was obtained from all the respondents with confidentiality and anonymity of their responses assured.

2.8 Data management and analysis

Five questions were used to determine the level of knowledge of the respondents on malaria prevention. A total of 32 options with 18 correct options were used, a correct response attracted 2 points. Scores greater than 18 was regarded as good knowledge while scores below 18 was regarded as poor knowledge.

Similarly in determining the level of practice of malaria prevention, 5 questions were used with a total of 18 options with 9 correct options. A correct response was awarded 2 points, scores greater than 9 was regarded as good practice of malaria prevention while scores below 9 was regarded as poor practice of malaria prevention. Data collected was processed and analyzed using Epi info statistical software version 7 and presented appropriately with frequency tables.

3. Results

The age distribution of the respondents ranged from 17 to 36 years with a mean age of 22.0 ±3.6 years. Slightly above half of the respondents 81(52.9%) were in the age group 18-22 years. One hundred and twenty three respondents (80.4%) were females, while 30 (19.6%) were males. Slightly above half of the respondents 78 (51%) were Midwifery students while 75(49%) were Nursing students. First year respondents were 82 (53.6%), 26(17%) second year and 45(29.4%) third year. (Table 1)

Table 1: Socio-demographic data

Variables	Frequency	Percentage
Age (Years)		
≤17	5	3.3
18 - 22	81	52.9
23 - 27	53	34.6
28 - 32	12	7.8
≥32	2	1.3
Total	153	100.0
Sex		
Female	123	80.4
Male	30	19.6
Total	153	100.0
Marital status		
Married	19	12.4
Single	134	87.6
Total	153	100.0
Course of Study		
Midwifery	78	51.0
Nursing	75	49.0
Total	153	100.0
Year of Study		
1st year	82	53.6
2nd year	26	17.0
3rd year	45	29.4
Total	153	100.0

Majority of the respondents 146 (95.4%) knew that Malaria can be transmitted through the bite of a female Anopheles mosquito while 7(4.6%) stated that Malaria can be transmitted by sleeping in the open. Most of the respondents 94.8% knew that sleeping under insecticide treated bed nets can prevent against mosquito bite. Knowledge about trimming of bushes 77.1%, use of insecticide spray 75.8% and draining of stagnant water 73.9% were also high. Overall knowledge of prevention of malaria was found to be good among 112 (73.2%) of the studied students while 41 (26.8%) of the respondents had poor knowledge. (Table 2)

Table 2: Knowledge of Methods of Malaria Prevention

Variables	Frequency	%
Mean of transmission of malaria		
Bite by female Anopheles mosquito	146	95.4
Sleeping in the open	7	4.6
Total	153	100.0
Method of prevention of malaria known *		
ITNs	145	94.8
Clearing of surrounding bushes	118	77.1
Use of insecticide spray	116	75.8
Draining of stagnant water	113	73.9
Use of mosquito repellants	92	60.1
Good nutrition	46	30.1
Wearing of long sleeved clothing	39	25.5
Level of knowledge		
Good	112	73.2
Poor	41	26.8
Total	153	100.0

***= Multiple responses allowed

Majority of the respondents (85.0%) used Insecticide Treated Nets (ITNs), 58.8% used insecticide spray and 54.9% of them had window nets as methods of prevention.On the utilization of ITNs only 85 (65.4%) affirmed that it was always used. Practice of malaria prevention methods was assesed to be good among 102 (66.7%) of the respondents. (Table 3)

Table 3: Practice of Malaria prevention

Variables	Frequency	Percentage
Methods malaria prevention currently practiced*		
ITNs	130	85.0
Insecticide spray	90	58.0
Window/door nets	84	54.9
Mosquito repellants	59	38.6
Utilization of ITNs		
Always	85	65.4
Sometimes	45	34.6
Total	130	100.0
Level of practice		
Good	102	66.7
Poor	51	33.3
Total	130	100.0

***= Multiple responses allowed

4. Discussion

The age distribution of the respondents in this study was found to share similarity that of another Nigerian study.[21]

However, other studies conducted in Ethiopia and Uganda showed variation in age distribution of the participants.[1,7]

The variation in age distribution observed could be attributable to the fact that these studies were community based as against our study which was school based. The proportion of females respondents in this study was similar to what was obtained in studies carried out in Cameroon and Ethiopia while another Nigerian study had more male respondents.[7,8,9] Most of the respondents in the study were single while the findings of another west African study had more of married subjects as respondents. [9] This could be attributable to the setting were the studies were conducted since this study was carried out in a tertiary institution where most of them were single as against a community setting with mixed population.

The good level of knowledge of malaria prevention methods observed in this study is in keeping with what was found in a Cameroonian study and contrary to the findings of studies conducted Uganda and Ethiopia respectively.[1,7,9] Malaria transmission through bites of female Anopheles mosquito was mentioned by majority of the respondents however misconception still exist which is similar to what was observed in another Nigerian study and contrary the findings of a Botswana study where malaria transmission as the result of bites of female Anopheles mosquito was mentioned by only few respondents.[3,10] Majority of the respondents knew that sleeping under bed nets, trimming of bushes, use of insecticide spray and draining of stagnant water as methods of prevention of mosquito breeding sites and transmission. This knowledge on malaria preventive methods synergizes with the findings of studies in Ethiopia and Nigeria .[7,8,11] This similarities observed could be due to the fact these studies were carried out in malaria endemic areas and as such information about malaria and its means of prevention readily disseminated.

Most of the respondents had good practice of Malaria prevention methods, this is not in agreement with a study carried out in Nsaabwa village Uganda where majority of the respondents had poor practice of Malaria Prevention methods.[1] Majority of the respondents used ITNs, slighlty above average used insecticide spray and window nets as preventive methods . This is not in keeping with a study carried out in South Western Nigeria where window and door nets was the mostly used method of prevention of malaria while only a few used ITNs and insecticide spray.[4] This practice is better than that observed in another Nigerian study carried out in Plateau State where most of the respondents used of ITNs, a few clear their environment and use of insecticide spray.[12] Similarly the practice of Malaria prevention was found to be better than the practice observed in a study carried out South Western Nigeria where use of ITN and bush clearing was practiced by below average of the respondents. [3]This study could however not ascertain the actual practice of the various malaria preventive methods affirmed by the respondents in which directly observation may have yielded a more objective assessment.

5. Conclusion

This study revealed a relatively good level of knowledge of malaria prevention with a slightly lower level of practice. In view of this, it is imperative to further study the factors that influence the practice of malaria preventive measures among this population of future health care workers and proffer practicable strategies for sustaining the knowledge of malaria prevention as well as improving its practice.

Conflict of interest: Authors have declared no conflict of interest.

Funding source: This study was funded by the authors

References

[1] Nwanje LF. Knowledge, attitude and practices of malaria prevention and control in Uganda. A case study of Nsaabwa village in Mukono District. January 2013. Available from: http://www.musphcdc.ac.ug/files/pdf/knowlege, attributes and practice on malaria prevention and control in Uganda. Last accessed 02/12/2016.

[2] World Health Organization (WHO). Factsheet on the World Malaria Report 2014. Available from: http://www.who.int/malaria/media/world_malaria_report_2014. Last accessed 28/12/2016.

[3] Okoli CA, Enna MA. A cross sectional study on knowledge of, attitudes towards and practice of malaria prevention and control measures in Central Nigeria. *South Afr J Infect Dis*. 2014; 29(1):37-42.

[4] Plateau State of Nigeria; eNigeria Information and Guide. Available from: www.nigeriagalleria.com/Nigeria/states-Nigeria/Plateaustatehtml. Last accessed 02/03/2015.

[5] Ibrahim T. Sample size determination. In: Research methodology and dissertation writing for health and allied health professionals. 1st ed. Abuja, Nigeria: Cress global link limited; 2009.p.75.

[6] Agbolade OM, Akintola OB, Agu NC, Raufu T, Johnson O. protection practices against Mosquito Among Students of a Tertiary Institution in Southwest Nigeria. *World Applied Sciences* 2008; 5(1): 25-28.

[7] Yared L, Ayaleuw T, Tefera B, Kora T. Knowledge, attitude and practice of malaria prevention in urban

areas of Assosa Zone Western Ethiopia. *Ethiopia J. Health Dev*. 2007; 21(2): 157-165.

[8] Erhun WO, Agbani EO, Adesanya SO. Malaria prevention: knowledge, attitude and practice in a Southern Nigerian community. *African Journal of Biomedical Research* 2005; 8:25-29.

[9] Kimbi HK, Nkesa SB, Nduamukong-Nyanga JL, Sumbele IU, Atashili J, Atang MBA. Knowledge and perceptions towards malaria among vulnerable groups in the Buea Health District, Cameroon. *BMC Public Health.* 2014; 14:883. doi: 10.1186/1471-2458-14-883.

[10] Chirebvu E, Chimbari MJ, Ngwenya BN. Knowledge and practices on malaria in Tubu village, in a malaria-endemic area in Northern Botswana; implications for interventions. *Malaria World Journal* 2013; 4 (15): 1-9.

[11] Adegun JA, Adegboyega JA, Awosusi AO. Knowledge and the preventive strategies of malaria among Migrant farmers in Ado-Ekiti Local Government Area of Ekiti State Nigeria. *Am.J .SC. Ind. Res.*2011; 2(6): 883-889.

[12] Skeet J. Malaria: Its Causes, Treatment and Methods of Prevention. *Nurs Times*. 2005; 101(20): 43-45.