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Prevalence, Perception and Knowledge in the Management of Malaria Disease amongst the People of Kubwa, Abuja FCT, Nigeria

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Abstract

There is a huge burden of malaria in Africa which cripples economic development of the continents. Malaria is endemic in all States in Nigeria including Abuja FCT. The objective of the study is to determine Kubwa people's knowledge and perception and prevalence of Malaria disease in Kubwa, Abuja, F.C.T. A simple random sampling technique was used on a sample of 500 (50% of the population) Kubwa residents, Abuja F.C.T using a questionnaire, in-depth interview and Focus Group Discussion. The findings reveal that 79.6% of the respondents have knowledge of malaria disease and its control strategies yet do not adhere to the preventive measures while 19.8% of the population does not have knowledge of malaria. In assessing the relationship between residence and those that had malaria, ($\chi^2=5.058$, $df=4$, $P\text{-value} = 0.230 > 0.005$). This then implies that prevalence of malaria in Kubwa among the residents in the last six months depended on other factors like presence of vector, poor environmental sanitation, lack of sleeping under mosquito treated nets, lack of use of insecticides etc. Overall It was concluded that Environmental management, sanitation/hygiene, and attitudinal change, play key role in malaria prevention and control not only of Kubwa residents but to Nigerians at large.

Keywords: Prevalence, Perception, Knowledge, Management, Malaria Disease

Introduction

Malaria is a disease that is spread through the bite of infected female anopheles mosquito. Annually, Malaria is responsible for about a million death in Africa, 90 % of global malaria cases occur in Sub-Saharan Africa annually. Malaria hampers individual and national development in African countries by 1.3% per year as a result of which GDP for African countries is now 37% lower than it would have been in the absence of malaria (RBM, 2000). Poor people living in rural areas who lack access to health care are at greater risk for this disease. As a result of all these factors, an estimated 90% of deaths due to malaria occur in Africa south of the Sahara; most of these deaths occur in children under 5 years of age.

By the latest WHO estimates (which, notably, include changes in estimates for past years), there were 241 million cases of malaria in 2020 and increase of 6% from 227 million in 2019 (WHO, 2021) Estimates of malaria deaths included a change in the distribution of mortality in young children, markedly raising estimates for past years. Malaria symptoms usually appear 10 days to one

month after the person was infected. Depending on the type of parasite, symptoms can be mild.

Social and cultural factors affects people's perception about the disease which in turn affects their attitude towards control. For instance, in south-Western and South-Eastern Nigeria, People are of the opinion that excessive heat, fried and oily food, dirty environment, alcoholism and witchcraft are responsible for malaria. Malaria contributes between 5-8% of school absenteeism among African children. It causes morbidity and mortality among school aged children (Halliday *et al.*, 2020).

Long-lasting insecticide-treated bed nets (LLINs) have been a key tool to prevent malaria, but their effectiveness has been challenged by resistance of anopheline vectors to pyrethroids, until recently the only compounds incorporated into LLINs. Now, new LLINs incorporating combinations of compounds to control malaria vectors are available. These include LLINs containing a pyrethroid plus 1) the synergist piperonyl butoxide, which inhibits metabolism of pyrethroids

by mosquitoes (Staedke et al., 2020) the insect growth regulator pyriproxyfen or 3) a second insecticide, chlorfenapyr (Mosha et al., 2021).

Statement of Research Problem

In 2020, an estimated 627,000 people died of malaria—most were young children in sub-Saharan Africa. Within the last decade, increasing numbers of partners and resources have rapidly increased malaria control efforts. This scale-up of interventions has saved millions of lives globally and cut malaria mortality by 36% from 2010 to 2020, leading to hopes and plans for elimination and ultimately eradication (CDC, 2021).

Literature suggests that people in different places have different knowledge, attitude and perception in the management of malaria disease which impacts their activities to manage the disease. Therefore knowledge and perception have become important topic for investigation (Oyeleye, 2023).

Due to the endemic nature of malaria in Nigeria and Abuja, its federal capital territory, several attempts and its control have not been effective such as use of insecticides, larvicides and predators. This is because of the treatment centered nature of the control measures such as establishment of many Hospitals, clinics and treatment of reported cases of epidemics in different parts of Nigeria including the F.C.T. Hence the need to research into the F.C.T areas of Kubwa where the epidemic is still in high prevalence with high incidence of health related especially malaria and infections towards its effective controls or eradication.

Lack of resources and political instability can prevent the building of solid malaria control programs. In addition, malaria parasites are increasingly resistant to antimalarial drugs, presenting one more barrier to malaria control on that continent. However the practice of malaria preventive measures has been related to the knowledge and belief of people and have been found to be low and difficult to implement when malaria risk is perceived to be low (Winch et al., 1994).

Aim and Objective

The aim of this study is to determine the prevalence, perception and level of knowledge in the management of Malaria disease in Kubwa community of Abuja, F.C.T. However, the specific objectives include the following amongst others;

- a. To determine the prevalence rate of Malaria disease in Kubwa community, Abuja F.C.T.
- b. To assess the level of Kubwa residence knowledge of Malaria; its causes, signs/symptoms and mode of transmission in the community, Abuja, F.C.T. environment.

Research Methodology

Study area and Population

This study was carried out at Kubwa in Bwari Area Council Abuja FCT, Nigeria. Kubwa is a satellite town in Abuja which consists of the low-lying plains of agricultural land. It has derived savanna vegetation resulting from human activities. The people are mainly Civil servants, traders, students etc. Kubwa have developed infrastructures like electricity, pipe-born water, markets, hospitals, schools, churches and mosques, good major roads though some segments of Kubwa has poor road networks. Abuja is the capital city of Nigeria. The city co-ordinates of Abuja are Latitude 9⁰4 N and longitude 7⁰29E (<http://www.fct.gov.ng/>). According to the 2006 census, Kubwa had the population of 23,150 people while Bwari Area Council had the population of 229,274 people (NPC, 2006).

Methods/Techniques of Data Collection

Multi-stage sampling technique was used to select the respondents, and involves the combination of simple random sampling and stratified random sampling. In this study, Kubwa was divided into phases (strata's) and each phase was further divided into streets (strata's), then the respondents were selected randomly without replacement from the streets and households respectively.

A total number of 500 well-structured questionnaires were carefully administered to respondents. A team of three (3) interviewers were trained by the researcher for three days before the start of data collection who helped in conducting the oral/in-depth interviews and distribution of the questionnaires. The questionnaires are all written in English Language. The questionnaire sought the respondents' information on their sex, age groups, level of Education attainment, Occupation, causes and symptoms of malaria transmission, knowledge and attitude about the preventive methods of malaria of the respondents. The Focus Group Discussion (FGDs) was also organized among medical personnel's in Kubwa which includes six (6) questions lasting for

approximately one-half to two hours, with the permission of the study participants. The FGDs was conducted by two researchers – one working as a moderator, while the other took notes during the discussion.

The FGDs was conducted in English language. The oral interview was organized among members of Kubwa community, environmental sanitary inspectors and community leaders as well as women, women are necessary because of health shoppers, they interact with the hospital & patients from the family units.

Statistical Analysis

In this study, data analysis was carried out using the statistical package for social science (SPSS) version 17. Data collected was sorted into related groups or categories and was analyzed using tables, calculation of percentages and Chi-square analysis.

Results

Table I: Showing the Relationship between Gender and those that had Malaria for the past six months (Prevalence)

Gender	Had Malaria for the past 6 months			Total
	Yes	No	No Opinion	
Male	176(64.5%)	92(33.7%)	5(1.8%)	273(100.0%)
Female	175(77.1%)	48(21.1%)	4(1.8%)	227(100.0%)
Total	351(70.2%)	140(28.0%)	9(1.8%)	500(100.0%)

(Field Work, 2011)

($\chi^2 = 9.793$, df = 2, P-value = 0.007)

It was realized from table II above that there is no relationship between gender and Prevalence of Malaria. The respondents that had malaria in the past six months are male were 64.5% while 77.1% were female. Gender does not determine the prevalence of malaria since ($\chi^2 = 9.793$, P=0.007, P>0.005), it then implies that the association is no statistically significant.

Decision

If $X^2_{\text{tab}} > X^2_{\text{cal}}$, we accept the hypothesis (H_0), otherwise we reject it.

$X^2_{0.007 \text{ df } 2} = 9.792$

$X^2_{\text{tab}} > X^2_{\text{cal}}$, so we accept H_0 and conclude that there is no significant difference between Gender and those that had malaria in the past six months.

Table II: Showing Educational attainment and those that had Malaria for the past six months

Educational Attainment	Had Malaria for the past 6 months			Total
	Yes	No	No Opinion	
Primary school	62(71.3%)	22(25.3%)	3(3.4%)	87(100.0%)
Secondary school	111(71.2%)	42(26.9%)	3(1.9%)	156(100.0%)
Tertiary institution	70(76.9%)	21(23.1%)	0(0.0%)	91(100.0%)
University Education	72(62.1%)	41(35.3%)	3(2.6%)	116(100.0%)
Senior Executive (CS)	36(72.01%)	14(28.0%)	0(0.0%)	50(100.0%)
Total	351(70.2%)	140(28.0%)	9(1.8%)	500(100.0%)

(Field Work, 2011)

($\chi^2 = 9.314$, df = 8, P-value = 0.316)

From table II above, it was observed that there is no relationship between the level of Educational attainment and the Prevalence of Malaria. The respondents that attended University Education had Malaria in the past six months consists of 61.2%, those that attended tertiary institution had malaria consists of 76.9%, while 72.01% of the Senior Executives had malaria. Hence Malaria disease occurs irrespective of one's level of Educational attainment. Since ($\chi^2 = 9.314$, P=0.316, P<0.005), it indicates that it is not statistically significant.

Decision

If $X^2_{\text{tab}} > X^2_{\text{cal}}$, we accept the hypothesis (H_0), otherwise we reject it.

$\chi^2 = 0.316$ df 8 = 9.314

$X^2_{\text{tab}} > X^2_{\text{cal}}$, so we accept H_0 and conclude that there is no significant difference between Level of Educational attainment and those that had malaria in the past six months.

Table III: Showing the relationship between how frequent symptoms of Malaria is experienced and those that had Malaria for the past six months

How frequent do you experience symptoms of Mal.	Had Malaria for the past 6 months			Total
	Yes	No	No Opinion	
Once	137(63.7%)	73(34.4%)	4(1.9%)	215(100.0%)
Twice	121(78.6%)	31(20.1%)	2(1.3%)	154(100.0%)

Thrice	36(69.2%)	15(28.8%)	1(1.9%)	52(100.0%)
Four	30(73.2%)	9(22.0%)	2(4.9%)	41(100.0%)
Five	10(90.9%)	1(9.1%)	2(0.0%)	11(100.0%)
Six	6(66.7%)	3(33.3%)	0(0.0%)	9(100.0%)
Others	11(61.1%)	7(38.9%)	0(0.0%)	19(100.0%)
Total	351(70.2%)	140(28.0%)	9(1.8%)	500(100.0%)

(Field Work, 2011)

($\chi^2 = 16.225$, df = 12, P-value = 0.181)

From table III, it was realized that the frequency of symptoms of Malaria disease does not depend on its prevalence. Those that had malaria disease yet experienced the symptoms once consists of 63.7%, those that had malaria yet experienced the symptoms five times 90.9%, while 66.7% experienced Malaria and yet had the symptoms six times. Since $P = 0.181$, $P > 0.005$, this implies that the association between the variables is not statistically significant.

Decision:

If $X^2_{\text{tab}} > X^2_{\text{cal}}$, we accept the hypothesis (H_0), otherwise we reject it.

$X^2_{\text{tab}} 0.181$ df 12 = 16.225

$X^2_{\text{tab}} > X^2_{\text{cal}}$, so we accept H_0 and conclude that there is no significant difference between how frequent the symptom of malaria is experienced and those that had malaria in the past six months.

Table IV: Showing respondents' knowledge about what causes Malaria and those that had Malaria for the past six months

Cause of Malaria	Had Malaria for the past six months			Total
	Yes	No	No Opinion	
Mosquito bite	148(69.2%)	64(29.9%)	2(0.9%)	214(100.0%)
Unhygienic Environment	47(64.4%)	21(28.8%)	5(6.8%)	73(100.0%)
Stagnant water	33(70.3%)	14(29.8%)	0(0.0%)	47(100.0%)
Tall grasses and trees	34(75.6%)	10(22.2%)	1(2.2%)	45(100.0%)
Lack of sleeping with mosq. net	42(80.8%)	9(17.3%)	1(1.9%)	52(100.0%)
Lack of use of insecticides	23(82.1%)	5(17.9%)	0(0.0%)	28(100.0%)
Plasmodium Parasites	18(60.0%)	12(40.0%)	0(0.0%)	30(100.0%)
Stress	3(50.0%)	3(50.0%)	0(0.0%)	6(100.0%)

Much Oil	3(60.0%)	2(40.0%)	0(0.0%)	5(100.0%)
Total	351(70.2%)	140(70.2%)	9(1.8%)	500(100.0%)

(Field Work, 2011)

($\chi^2 = 23.072$, $df = 16$, $P\text{-value} = 0.112$)

From table IV above, it is observed that the respondent's knowledge about the cause of malaria does not determine the prevalence of malaria in Kubwa F.C.T. From the table, it could be seen that both those that have the knowledge of the cause of Malaria and those that does not know what the cause of Malaria is suffered Malaria in the past six months. Since ($\chi^2 = 23.072$, $P = 0.112$, $P > 0.005$), it implies that the association is not statistically significant.

Decision

If $X^2_{\text{tab}} > X^2_{\text{cal}}$, we accept the hypothesis (H_0), otherwise we reject it.

$X^2_{0.112 \text{ df } 16} = 23.072$

$X^2_{\text{tab}} > X^2_{\text{cal}}$, so we accept H_0 and conclude that there is no significant difference between respondents knowledge of cause of malaria and those that had malaria in the past six months.

Table V: Showing relationship between places to get effective treatment for Malaria and those that had malaria for the past six months.

Where to get effective treatment for Malaria	Had malaria in the past 6 months			Total
	Yes	No	No Opinion	
Chemist/Pharmacy	29(72.5%)	10(25.0%)	1(2.5%)	40(100.0%)
Hospital	121(64.0%)	67(53.4%)	1(0.5%)	189(100.0%)
Health Centre	41(74.5%)	14(25.5%)	0(0.0%)	55(100.0%)
Road side drug sellers	29(69.0%)	11(26.2%)	2(4.8%)	42(100.0%)
Clinic	38(76.0%)	11(22.0%)	1(2.0%)	50(100.0%)
Herbalist	32(88.9%)	2(5.6%)	2(5.6%)	36(100.0%)
Traditionalist	23(63.9%)	11(30.6%)	2(5.6%)	36(100.0%)
Prayer house	26(68.4%)	12(31.6%)	0(0.0%)	38(100.0%)
Self-Medication	12(85.7%)	2(14.3%)	0(0.0%)	14(100.0%)
Total	351(70.2%)	140 (28.0%)	9(1.8%)	500(100.0%)

(Field Work, 2011)

($\chi^2 = 27.746$, $df = 16$, $P\text{-value} = 0.034$)

Table V above shows respondent's attitude to effective treatment for Malaria, 88.9% indicated that they go to herbalist yet had Malaria for the past six months, those that indicated Chemist/pharmacy yet had Malaria in the past six months were recorded as 72.5%, those that indicated hospital yet had Malaria in the last six months were recorded as 64.0% etc, it could be observed that the respondent's knowledge on the cause of Malaria does not depend on the prevalence of Malaria. Since ($P=0.034$, $P>0.005$), it then shows that the association is not statistically significant.

Decision:

If $X^2_{\text{tab}} > X^2_{\text{cal}}$, we accept the hypothesis (H_0), otherwise we reject it.

$X^2_{0.034 \text{ df } 16} = 27.746$

$X^2_{\text{tab}} > X^2_{\text{cal}}$, so we accept H_0 and conclude that there is no significant difference between places to get effective treatment for malaria and those that had malaria in the past six months.

Discussion

Result from the research conducted on the Knowledge; attitude and Management practices of Malaria disease in Kubwa F.C.T shows that out of 500 respondents, male respondents were 54.6% while 45.5% were female. The study was conducted in Kubwa, Bwari Area council, Abuja F.C.T. The respondents that have the knowledge of Malaria disease consists of 79.6% while 0.6% have a No-opinion answer to Malaria disease in Kubwa. The respondents that had malaria in the past six months consists of 70.25%, 29.8% did not have Malaria in the past six months. However, intensive health education should be embarked upon to enlighten the less literate ones as failure to do so can have major implications for the planning of successful and sustainable control program as noted by Mazigo *et al.*, 2010.

With regards to Gender and the Prevalence of Malaria, it was observed that Gender does not determine the Prevalence of Malaria since ($\chi^2 = 9.793$, $P = P>0.005$). The respondents that had Malaria in the past six months that are male were 64.5% while 77.1% were female. The association is not statistically significant.

The relationship between Age of respondents and Prevalence of Malaria reveals that age is not dependent on the prevalence of Malaria disease in Kubwa F.C.T. 77.1% of the respondents between ages 0-17yrs had Malaria in the past six months, 42.9% of

the respondents between ages 54yrs and above had Malaria in the past six months. P-value was found to be 0.089 (χ^2 9.793, $P = 0.089 = P > 0.005$) which implies that the association is not statistically significant.

The study revealed that respondents' knowledge on where to get effective treatment for Malaria in Kubwa F.C.T, indicated herbalist yet had Malaria consists of 68.4%, those that indicated Chemist/Pharmacy yet had Malaria consists of 72.5% , while 60.0% indicated hospital yet had Malaria in the past six months etc. It was observed that the respondents' knowledge on the cause of Malaria does not depend on the prevalence of Malaria. P-value was found to be 0.034 ($P > 0.005$). It then implies that the association is not statistically significant.

Conclusion

The findings of the study indicate that the respondents Kubwa, Bwari Area Council have high knowledge of malaria transmission, symptoms, preventive measures and treatment options but do not apply them adequately, majority of the respondents have mosquito nets but do not sleep with them.

Although knowledge, attitude and management practices related to malaria in Kubwa is reasonable, it has been demonstrated that as the level of transmission the disease decreases, so does the perception about the importance of malaria control activities. All hands must therefore be on desk in order to prevent the menace of this disease that is eating deep into our society. The malaria elimination strategy should identify key socio-cultural and socio-economic indicators for monitoring progress. Individuals should ensure adequate personal and environmental sanitation, sleep under mosquito nets.

Effective communication between the health providers and the community will help members to be more involved in malaria control, enacting of good health policies, building of more hospitals and health care centers.

Recommendation

Public health campaigns on attitudinal and behavioral change is required. Furthermore, It is necessary promote preventive measures and to sensitize people on the need for house screening, the proper use of ITN, environmental management and other preventive measures.

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