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Perception and Prevalence of Malaria: A Case Study of Yola South LGA of Adamawa State

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Abstract:

Malaria has been a global public health problem and this has been proven by the recurrent world health reports which repeats obviously similar records of new cases of malaria in hundreds of millions every year and Africa has maintained the position of accounting for most global cases of malarial disease. Nigeria as a nation has suffered greatly from malaria and has caused a good record of death toll, treatment and prevention as well as loss of working hours. A study on prevalence and perception of the locals in Yola South local government area of Adamawa State conducted and the study population was selected randomly, questionnaires were administered, verbal interview was carried out were necessary and the opinions of three hundred and sixteen persons were sampled out in the study area, a preliminary survey of mosquito breeding site carried out showed abundance of mosquito breeding sites in the study area and a microscopic examination of blood for malaria parasite infection was done using thick blood film. Total prevalence of malaria was found to be at (81.2%) in relation to sex, (80.8%) in relation to educational status and (81.7%) in relation to age and occupational status. Self-medication and drug resistance to malaria treatment as well as inconsistent use of ITNS were some of the factors that hinders malaria control in the study area. Working towards solving these existing mitigating factors would be a great achievement in the trend of malaria control.

1. Introduction

Across the globe, there is a reason to celebrate success with regards malaria, According to WHO on the occasions towards the 2017 world malaria day, express that the rate of new malaria cases has decreased by 21% between 2010 and 2015 on the global scale while malaria death rates drops by 29% within the same year [20]. Malaria has been a known disturbing public health problem in Africa, were Nigeria as a nation suffers the greatest burden with approximately 51 million cases and 207,000 deaths reported annually [12,8,10]. On its own, Malaria is simply a disease transmitted through a female Anopheles mosquito, though this disease is curable and preventable. It is also defined as a human disease that is caused by sporozoan parasites (genus plasmodium) in the red blood cells, is transmitted by the bite of female anopheles mosquitoes, and is characterized by periodic attacks of chills and fever [19].

Malaria have for long been a problem in Nigeria and the rate at which the disease thrive in the country far differs that of it burdens to other countries in the Sub-Saharan Africa. Hence, Nigeria account for more cases and death caused by malaria than any other country in the world [11]. Records shows that about 97 % of Nigerians are exposed to the risk of contracting malaria, the exceptional 3% are those living in malaria highlands. There has been an estimate of 100 million malaria cases with over 300,000 deaths with 70-110 million cases of malaria per year while the estimated annual death for children under 5 have a record of 250 – 300,000 [9, 11] it can also be said that death scenarios caused by malaria that cannot be accounted for are in numbers greater than those accounted for. From the urban to the rural areas of Nigerian states and local governments, there are unrecorded deaths caused by malaria that occurred at home without confirmation of the disease diagnosis [5]. Malaria does not limit it borders of effect to only human health, it also has economic and social effect in the lives of the people. It has long been recognized that a malicious community is an impoverished community [22]. Malaria and poverty are intrinsically linked and feed each other. To this note, one of the Millennium Development Goals states that fighting malaria is a powerful way to reduce extreme poverty (MDG1). To achieve universal primary education, children need to stay healthy to be able to attend school. Malaria is the number one cause of child morbidity and mortality in Africa and reducing malaria prevalence is a potent driver of school attendance [18]

Curing malaria is a known fact among the populace but the drive for it prevention has been the ultimate struggle over the years, the roll back malaria strategy for curing and preventing malaria recommends combination of interventions. To this effect, Zanzibar implemented Artemisinin-based Combination Therapy ACT for uncomplicated malaria and the use of long

lasting insecticide nets LLINs. Following these, there was a remarkable decrease in malaria associated morbidity and mortality and in 2006 a 10-fold reduction on malaria and parasite prevalence was recorded [4]. In this study, the perception of correspondents on malaria is captured, prevalence and factor affecting the disease control is being evaluated.

Materials and Methods there are ten wards in Yola south L.G, five of those wards was used. Ten households and areas within each ward randomly selected was used for preliminary study of mosquito breeding habitat. (Stagnant pools, ponds, empty cans, unused tires and gutters.) There are ten wards in Yola south L.G, five of those wards was used. Ten households and areas within each ward randomly selected was used for preliminary study of mosquito breeding habitat. (Stagnant pools, ponds, empty cans, unused tires and gutters.) To ascertain the prevalence of malaria among the inhabitant, malaria test was conducted among the inhabitant selecting ten "10" households randomly selected from each word in Yola Town. Thick and thin blood films were collected on a glass slide by pricking the left thumb finger of each participant.

Thick and thin film were used for the blood analysis collected to conduct malaria test. Stained slides were examined under a microscope using X100 objective. The number of malaria parasites asexual parasitic forms on each slide was counted per 200 leucocytes number of parasite, the thin blood was counted per 100 microscopic fields and recorded. A slide is considered negative when no parasites were found after 100 microscopic fields were scanned. The use of questionnaires and verbal interview was also employed to sample participant's opinion concerning their perception on malaria, treatment and prevention control. Data collected were recorded, transferred to Statistical Package for the Social Science (SPSS) version 23.0 and analyzed to determine if there were associations between the variables.

2. Results

2.1. Socio-Demographic Characteristics of Respondents

A total of three hundred and thirty-two (332) persons opinion were sampled for the study. One hundred and ninety-one (57.5%) were females and 141 (42.5%) were males. The age range was between 10 and 60 years. The mean age was 28 years. The median age was 31 while the modal age group was 30 years. Majority of the respondents 218 (65.7%) had attained post-secondary education, 80 (24.1%) were business men and women, farmers were 78 (23.5%) and 110 (33.1%) were students as regards to occupation of the respondents (Table 1)

Prevalence of Malaria Infection in Relation to Sex the prevalence rate of 129 (83.2 %) was recorded for female of the 155 whose blood samples were examined and out of 162 males, 130 (80.2 %) prevalence rate was recorded. However, when the values were subjected to Chi Square (X^2) test, there was no significant difference between the sexes ($P>0.05$) table 2

Prevalence of Malaria Infection in Relation to Age group of the 317 respondents, 161 were examined within the age range 0-19, of which 137 (85.1%) had prevalence of malaria parasite, within the age range of 30-39, 45 respondents were examined and the prevalence rate was at 36 (80%), (Table 6). All of the age range value on malaria prevalence was subjected to chi square (X^2) test and there was a significant difference on the prevalence of malaria parasite among the different age range ($P<0.05$) table 2

Distribution of Malaria Infection in Relation to Educational status of the respondents out of one hundred and forty-five 145 of the 317 tested for malaria parasite infection, 115 (79.3%) were primary school pupils. 45 (81.8%), out of 55 had attended secondary school and 24 (75) out of 32 have post-secondary school qualification and 72 (84.7) out of 85 had informal education. However, when their values were subjected to Chi-Square (X^2) test, there was a significant difference between the prevalence and the educational status ($P<0.05$) table 3

Prevalence of Malaria Infection in Relation to Occupation one hundred and eighty-one 181 students were examined for the prevalence of malaria parasite and 146 (80.7%) had the prevalence rate record (Table 8). Sixty-one 61 farmers were examined and the prevalence rate stood at 53 (86.9%), for civil servants, 30 were examined and 24 which is (80%) had the prevalence rate recorded while 45 business men and women were examined and their prevalence stood at 36 (80%). Subjecting the values to Chi-square (X^2) test; result showed that there was a significant difference regarding the occupational status and malaria prevalence. ($P<0.05$) table 3

2.2. Response of Participants on Perception to Health Seeking and Treatment Type Preference In Relation to Malaria Control

When respondents sensed some symptoms of malaria, they resolved to either seeking help/treatment or held on to self-medication. To this regard, 278(83.7%) sought for help in hospitals or clinics 35(10.0%) preferred to implore traditional means of treating malaria while 19(5.7%) admits that they use self-medication whenever they had malaria symptoms. Table 7 Administering or receiving treatment in malaria condition, 219(66%) of respondents admits they use conventional drugs, 45(14.5%) implore the use of herbal drugs (traditional medicine) for treatments while 64(19.3%) implore the use of both conventional and traditional means to treat malaria. Table 3

| Factor | Frequency | Percentage (%) |
|-----------------------------|------------------|-----------------|
| Age Group: | | |
| 0-19 | 33 | 09.9 |
| 20-29 | 94 | 58.4 |
| 30-39 | 82 | 24.7 |
| 40-49 | 15 | 04.5 |
| 50 and above | 08 | 02.4 |
| Mean = 28 | Median = 31years | Mode = 30 years |
| Sex: | | |
| Female | 191 | 57.5 |
| Male | 141 | 42.5 |
| Educational Level Attained: | | |
| Primary | 09 | 02.7 |
| Secondary | 89 | 26.8 |
| Tertiary | 218 | 65.7 |
| Qur'anic | 16 | 04.8 |
| Occupation: | | |
| Farmers | 055 | 16.6 |
| Civil servant | 078 | 23.5 |
| Students | 110 | 33.1 |
| Business men/women | 080 | 24.1 |
| Public servants | 009 | 02.7 |

Table 1: Socio-Demographic Characteristics of Respondents

| Sex | Number Examined | Prevalence (%) |
|--|-----------------|----------------|
| Female | 155 | 129 (49.8) |
| Male | 162 | 130 (50.2) |
| Total | 317 | 259 (81.7) |
| Prevalence of Malaria Infection in Relation to Age group | | |
| Age group | Number Examined | Prevalence (%) |
| 0-19 | 161 | 137 (85.1) |
| 20-29 | 48 | 42 (87.5) |
| 30-39 | 45 | 36 (80) |
| 40-49 | 35 | 23 (65.7) |
| 50 and above | 28 | 21 (75) |
| Total | 317 | 259 (81.7) |

Table 2: Prevalence of Malaria Infection in Relation to Sex

χ^2 Value = 0.470, Df = 1, (P>0.05) P Value = 0.493

χ^2 Value = 9.231, Df = 4, (P<0.05), 0.056

| Educational Status | Number Examined | Prevalence (%) |
|--|-----------------|----------------|
| Primary | 145 | 115 (79.3) |
| Secondary | 55 | 45 (81.8) |
| Tertiary | 32 | 24 (75) |
| Informal | 85 | 72 (84.7) |
| Total | 317 | 256 (80.8) |
| Prevalence of Malaria Infection in Relation to Occupation | | |
| Occupational Status | Number Examined | Prevalence (%) |
| Student | 118 | 146 (80.7) |
| Farmer | 61 | 53 (86.9) |
| Civil servant | 30 | 24 (80) |
| Business men/women | 45 | 36 (80) |
| Total | 317 | 259 (81.7) |
| Behavioral Attitude towards Health Seeking and Treatment Preference of Malaria | | |
| Factor | Frequency | Percentage (%) |
| Health Seeking Behavior | | |
| Hospital/clinic | 278 | 83.7 |
| Traditional means | 035 | 10.0 |
| Self-medication | 019 | 05.7 |
| Treatment Preference | | |
| Conventional Drug use | 219 | 066 |
| Herbal drug use | 048 | 14.5 |
| Both Drug | 064 | 19.3 |

Table 3: Prevalence of Malaria Infection in Relation to Educational Status

$\chi^2 = 5.114, Df = 4, (P < 0.05), 0.276$

$\chi^2 = 1.372, Df = 3, (P < 0.05), 0.712$

3. Discussion

This study was conducted to determine prevalence, perceptions and the possible factors mitigating malaria control in Yola metropolis of Adamawa state. The findings generally showed that there was a high prevalence rate of 259 (81.7%) of malaria in Yola South Local Government Area of Adamawa State. The findings of this study also showed that human behaviours which majorly includes negligence and undermining malaria as a major challenge poses a threat to prevention of the disease. Most people that have been exposed to numerous factors that made them susceptible to malaria also happened to show little or no idea on how to control malaria vectors for a long-lasting period.

The promotion and distribution of insecticide-treated nets has long been recognized both national and internationally as a key cost-effective intervention to control malaria, and it has been the primary focus for scale-up prevention strategy over the past few years. Although, this means of employing long lasting insecticide treated net to be used by the masses to control malaria could have been the best and easiest means of both the malaria parasite and vector control. But instances of lack of supply, and interest to make use of the ITNs when available has been among the list of factors mitigating the disease control which include poverty rate among the highly affected populace and literacy level of the masses.

Providing an enabling environment for preventing malaria [15] cannot be over emphasized. This gesture can be made obvious in the act of empowering community, especially those in the rural settings. An overall strengthening of the health system sourcing and making utilization of the available skilled workforce, strong political commitment on sustainable financing of project on malarial control strategies [6, 1]

Malaria has pose much effect in terms of economic output [14] to this effect, suppressing malaria will reduces worker absenteeism and increases productivity in key economic areas, such as agriculture, business, and especially for those who are manual labors that have to involve physical strength to earn a living. [3, 14, 13] In economies that depend heavily on agriculture, reducing malaria increases the performance of intensive agricultural production, contributing to national food security and greater rural prosperity.

This study has demonstrated that human behaviors are the major factors that hinders the elimination of malaria from the study area. Though malaria drug resistance is one other issue to be considered, since the emergence of chloroquine-resistant strains of *P. falciparum*, the rate of resistance has been increasing and limiting adequate treatment of malaria [7]. But today trends in malaria management advocate for combination therapy which is believed to curb the development of antimalarial resistance. malaria prevention and treatment are among the most cost-effective public health interventions and it's also an appreciable fact that investments in human health, wellbeing and capital is a drive towards having a healthier, more productive societies capable of providing an attractive labour market. [1,18,16] working towards investing on all possible means of preventing malaria from thriving in the community which include providing enough mosquito net at a subsidized rate if it can't be provided at free rate, engaging the community on consistent sanitation practice, community education on ways to prevent malaria, abolishing patient medicine store in the community and encouraging the establishment of a standard

pharmacy to the most remote community, extensive malaria treatment to pregnant women and children from the age nine years and below.

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