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A Study of Knowledge, Attitude, and Practices Regarding Malaria Among Inhabitants of Ezinihite Local Government Area, Imo State, Eastern Nigeria

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ABSRACT

Accurate knowledge, attitudes, and practices of the individuals of a community remain vital to effective malaria control. The study assessed the knowledge, attitudes, and practices regarding malaria among respondents in selected communities of Ezinihite L.G.A. of Imo State using structured questionnaires. Four communities in Ezinihite L.G.A with indigenous malaria cases were randomly selected. All the household heads were visited prior to the study. A total of 443 respondents from the four communities participated. Sociodemographic data showed that the respondents were of different age groups and educational, marital, and occupational status. The Knowledge, Attitude, and Practices (KAP) studies regarding the infection showed that there was a high level of knowledge on the causative agent of malaria (65.01%). Many respondents resorted to self-medication (42.0%). On different symptoms of malaria, 65.68% reported fever as a major symptom of malaria. Regarding treatment, a good number (55.08%) visited patent drug stores for treatment of malaria. A few of the respondents (37.47%) used mosquito treated nets. Data obtained were analyzed using SPSS version 16.0. The knowledge, attitudes, and practices of respondents in this study about malaria were moderate but in general need to be improved upon with proper educational programs.

Keywords: Malaria, Practices, Attitudes, Ezinihite, KAP, Imo State

1. INTRODUCTION

Irrespective of continued effort targeted at eradicating the disease, malaria has remained a major public health problem in about 91 countries and territories especially in tropical and subtropical regions of the world. Globally, approximately 214 million cases of malaria have been reported to occur yearly where 3.2 billion people are at severe risk of the infection. Approximately 438,000 deaths were attributed to malaria in the year 2015, particularly in sub-Saharan Africa, which records 90% of all malaria deaths (WHO, 2016). Nigeria suffers the world's greatest malaria burden accounting for 26%–29% of the global total deaths and 55% of estimated malaria cases (WHO, 2016). Malaria accounts for 60% of outpatient visits to hospitals leading to approximately 11% of maternal mortality and 30% child mortality, especially among children younger than 5 years (*Nigeria Malaria Fact Sheet*, 2011). In Nigeria, several efforts have been geared towards improving the malaria situation by distributing long-lasting insecticide-treated nets in various communities of the region through the Federal, State, and Local Ministries of Health. Irrespective of control and preventive measures taken against malaria, it has continued to be first amongst the notable prevalent and severe parasitic infections. Factors that are attributable to this feat include resistance of strains of the parasite to commonly affordable antimalarials, making its control a difficult task to achieve. Malaria knowledge helps the host to strengthen its capacity to affect transmission intensity through the modification of attitudes and behavior (Shimaponda-Mataa et al.,2017). Studies have shown that a deep and proper understanding of the knowledge about malaria transmission and attitudes towards prevention of the disease are essential in designing and implementing preventive interventions and also monitoring their effectiveness among the inhabitants of an endemic community (Iwueze et al., 2003; Kinung'hi et al., 2010; Mazigo et al., 2010; Fuge et al., 2015). Programs targeted at controlling malaria at the community level must take cognizance of their knowledge, attitude, and practices regarding the disease. A considerable number of reports about knowledge, attitudes, and practices regarding malaria exist in parts of Africa. From the findings of these studies, misconceptions concerning malaria are still in existence, and the various practices towards its control leave much to be desired (Mboera et al*.,* 2007; Mazigo et al., 2010). Therefore, failure to consider this indicator will result to inability in achieving sustainable control of the disease (Singh et al., 2014; Fuge et al., 2015). Studies to understand knowledge, attitude, and practices, which are a necessary precursor to identifying vulnerable populations and ensuring successful implementation of malaria control programs, have previously been carried out in diverse locations within Nigeria (Okrah et al., 2002; Erhun et al*.,* 2004; Amaechi & Ukpai, 2013). However, there is no information on the knowledge, attitudes, and practices regarding malaria in the study area. The present paper reports the results of a survey carried out to assess the knowledge, attitudes, behavior, and practices of inhabitants of Ezinihite Local Government Area, Imo State, Nigeria, regarding malaria.

2. METHODS

Description of Study Area

The study was carried out in four communities under Ezinihite Local Government Area, Imo State, Nigeria (longitude 6° 50'N and latitude 7° 25'E), namely, Umuevu, Umuawada, Umuoma, and Umuekpeke. The area enjoys two main climate regimes: a dry season that is from November to April and a wet season that starts in April

and ends in October. Relative humidity ranges between 77% and 86%, occurring mostly during the wet season, while the rates of evaporation and transpiration are 3.0 mm per day and 136 mm per month, respectively (Chukwuocha & Dozie, 2011). The mean annual rainfall is between 1,500 and 2,800 mm per year. The temperature ranges from 22.2°C–24.1°C (minimum) to 29.1°C–32.1°C (maximum), and the daily sunshine rate is about 4.4h (Chukwuocha & Dozie, 2011). The vegetation is typically rainforests. The area experiences stable malaria transmission all year round with an entomological inoculation rate of 15.0 lying on an altitude of 182 above sea level. The annual mean malaria morbidity rate was 52.8% (Chukwuocha & Dozie, 2011). The study was carried out from January to July 2014. The area, apart from being a tropical rainforest, which favors the breeding of mosquito vectors, does not have a reticulated water supply system; hence, the inhabitants rely on boreholes, streams, and roof catches during raining months for water supply. Water from different sources is stored in drums, clay pots, and all sorts of metal and plastic containers. Some of the inhabitants are civil servants while majority of the subjects are farmers on either a part-time or a full-time basis.

Ethical Considerations

Ethical approval for this study was sought from and received from the Health Department of Ezinihite Local Government Area before carrying out the study. Before commencement of the study, the principal investigator and her research team conducted meetings with local leaders and community members in all the study communities during which the objectives of the study including the procedures to be followed were properly explained in the local Igbo language for proper understanding. The participants were also told that they could voluntarily withdraw from the study at any time without any consequences. All participants gave informed oral and written consent before being included in the study. Parents and guardians of children younger than 16 years gave consent on behalf of their wards after the details of the study were explained to them.

Study Design and Sampling Procedure

The study was a community-based cross-sectional survey that was conducted between January and July 2014 in four communities of Ezinihite Local Government Area of Imo State, southeastern Nigeria. The four communities were selected using a multistage simple random sampling procedure, and thereafter, a cluster sampling method was used at the final stage. In selecting the households in the four different communities, 40 households in each community were randomly selected with at least 3 household members resident in such houses interviewed. In total, 443 participants aged 9 years and older attended the interviews and were included in the study.

Data Collection

Data was collected through the instrument of questionnaires

Administration of Questionnaires

Structured questionnaires were administered to consenting adult respondents, while the younger age groups were guided by their parents or researchers in filling out the questionnaires. The questionnaires sought to obtain information on sociodemographic and epidemiological data.

Data Management

All collected data were analyzed with SPSS version 16.0. Descriptive analysis and the

chi-square test were used to compare different groups.

3. RESULTS

Sociodemographic Characteristics of the Respondents

Sociodemographic characteristics of the respondents showed that 258 (58.2%) were females while 185 (41.8%) were males. Many of them fell within age brackets of younger than 9 years 71 (16.0%) and 10–19 years 73 (16.5%). Distribution by occupation as reported by respondents showed that 30.47% were students, 18.28% were farmers, 17.83% were civil servants, 16.96% were retirees, 9.93% were traders, 6.77% were artisans, and 4.74% were housewives (Tables 1 and 2). The mean age of the subjects was 54.9 years. The educational status of the subjects showed that about 40.41% of the respondents had secondary education, 23.70% had primary education, and 20.77% and 15.12% had tertiary and informal education, respectively. On the marital status of the respondents, 52.14% were married, 34.54% were single, 10.84% were widowed, and 2.48% were separated (Tables 3 and 4).

Knowledge, Attitude, and Practices (KAP) of Subjects Regarding Malaria

Results of the KAP studies of the respondents regarding malaria showed that 65.01% attributed the cause of malaria to mosquito bites, 33.63% attributed it to dirty environments, 19.86% attributed it to bushy environments, and 15.12% and 11.51% attributed it to fatty foods and poor hygiene, respectively (Table 5). Majority of the respondents 72.91% had a local name for malaria such as *Akum* or *Iba.*

Knowledge of Malaria Symptoms

Results from the KAP survey on malaria symptoms showed that more than half of the respondents reported fever (65.69%) as a major malaria symptom. Other symptoms reported include weakness (35.67%), headache and body pains (33.63%), nausea (26.19%), flu and cold (14.22%), sweating (8.80%), vomiting (7.67%), sour mouth (6.55%), and dizziness (5.19%) (Table 6).

Chemotherapy and Preventive Measures Employed Against Malaria

On the chemotherapy and preventive measures employed by the respondents regarding malaria, more than half of the respondents—244 (55.08%)—used drugs from patent drug stores, 37.47% reported using mosquito nets, and 16.25% used insecticides. Herbal mixtures and repellents were used by 15.35% and 13.77%, respectively. Some respondents reported using a combination of measures such as drugs and mosquito nets (14.22%) and mosquito nets and insecticides (11.51%); 4.74% did not use any preventive or control measures (Table 7).

Table 1. Age and Gender of the Respondents

Age (Years)	Male	Female	Total	Percentage
≤9	34	37	71	16.03
10–19	42	31	73	16.48
20–29	17	40	57	12.87
30–39	10	23	33	7.45
40–49	10	29	39	8.80
50–59	15	32	47	10.61
60–69	23	37	60	13.54
70–79	25	28	53	11.96
80–89	8	1	9	2.03
90–99	1	0	1	0.23
Total	185 (41.76%)	258 (58.24%)	443	100

Table 2. Occupational Status of the Respondents (n = 443)

Occupation	No. of Respondents	Percentage
Civil servants	79	17.83
Farmers	81	18.28
Students	135	30.47
Retirees	53	11.96
Traders	44	9.93
Artisans	30	6.77
Housewives	21	4.74
Total	443	

Table 3. Educational Status of the Respondents in the Study (n = 443)

Education	Number	Percentage
Primary	105	23.70
Secondary	179	40.41
Tertiary	92	20.77
Informal	67	15.12

Table 4. Marital Status of the Respondents in the Study (n = 443)

Marital Status	Number	Percentage
Married	231	52.14
Single	153	34.54
Widowed	48	10.84
Separated	11	2.48

Table 5. Knowledge of the Causative Agent of Malaria Among Respondents (n = 443)

Reported Causes	No. of Respondents	Percentage
Mosquito bites	288	65.01
Dirty environment	149	33.63
Bushy surroundings	88	19.86
Fatty foods	67	15.12
Poor hygiene	51	11.51

Table 6. Signs and Symptoms Associated With Malaria (n = 443)

Reported Symptoms	No. of Respondents	Percentage
Fever	291	65.69
Weakness	158	35.67
Headache and body pains	149	33.63
Nausea	116	26.19
Flu and cold	63	14.22
Sweating	39	8.80
Vomiting	34	7.67
Sour mouth	29	6.55
Dizziness	23	5.19

Table 7. Measures Employed Against Malaria (n = 443)

Reported Measures	No. of Respondents	Percentage
Drugs (patent drug store)	244	55.08
Mosquito nets	166	37.47
Insecticides	72	16.25
Herbal mixtures	68	15.35
Drugs and mosquito nets	63	14.22
Repellents	61	13.77
Mosquito nets and insecticides	51	11.51
No response	21	4.74

DISCUSSION

Malaria is a major public health problem, especially for vulnerable groups such as children younger than 5 years and pregnant women in sub-Saharan Africa. It is an important disease of the tropics and has far-reaching public health implications particularly in countries with constrained resources (WHO, 2004). For a successful and sustainable strategy at ensuring feasible malaria control in a community, programs ought to take cognizance of local beliefs and knowledge related to disease transmission, prevention, and treatment, as these can define people's behavior (Ruberto et al., 2014). On the KAP survey, the sociodemographic characteristics showed that the respondents had representation in all the age groups though more of them fell within the age brackets of 0–9 years (16.03%) and 10–19 years (16.48%). This differed from the work of Ukpong et al. (2007) in Ukanafun Local Government Area of Akwa Ibom State, where majority of the respondents fell between 20 and 29 years, and Singh et al. (2014) as carried out in Kano, where most of the respondents fell within the age group of 19–45 years. All the respondents were involved in different occupations, but most were civil servants (30.47%), followed by farmers (18.28%). This contrasted the report by Ukpong et al. (2007), who reported more of farmers (32.0%) and Amaechi and Ukpai (2013), who reported that 45.82% were traders or businesswomen. This shows that no occupation group is exempted from being infected with malaria. A representation of more civil servants could be because more civil servants took part in the study. More than half of the respondents were married (52.14%), which was followed closely by those who were single (34.5%). This is in line with the reports of Amaechi and Ukpai (2013) and Sam Wobo et al. (2010), who reported that 90% and 78.5%, respectively, of their respondents were married.

The respondents had attained various levels of education, but more had a secondary level of education (40.41%). This concurred with the work of Amaechi and Ukpai (2013), where more of the respondents (54.58%) had a secondary level of education, but was in disagreement with the findings of Ukpong et al. (2007) and Dawaki et al. (2016) in Kano, where more respondents (47.9% and 62.1%, respectively) had a primary level of education. This probably allowed for an easier effective communication and possible understanding of the health implications of malaria. It is believed that marriage confers some maturity and level of responsibility on those in the institution. This probably extended to their being able to detect symptoms of ill-health especially in children using bodily and

behavioral changes and consequently seeking for treatment and managing sick persons appropriately. The KAP study on malaria and its causative agents showed that many of the respondents (65.01%) attributed mosquito bites as the cause of malaria although they could not say what was in the bite that caused malaria. This agreed with the works of Amaechi and Ukpai (2013), who reported that 97.01% of the caregivers in Aba attributed the cause of malaria to mosquito bites. The result is also consistent with the findings of Dawaki et al. (2016) in Kano, who reported 75.3% awareness. Hlongwana et al. (2009) made similar reports, associating malaria with mosquito bites (99.7%) in Swaziland. This means that there should be more health education and awareness to beef up their knowledge about the actual causative agent of malaria in the study area. Some of the respondents alluded to self-medication (43.02%) as a factor that hindered their going for malaria diagnosis. Self-medication, which involved home treatment of malaria and prescription by unqualified family members and friends, were observed. This behavior often led to people treating with analgesics as a way of calming down the usual high body temperature. This practice of self-medication has also been reported in other parts of Nigeria (Idowu et al., 2008; Adedotun et al., 2010; Okeke & Okeibunor, 2010). This has been reported as a common practice in malaria-endemic countries (Amaechi & Ukpai, 2013).

Several symptoms associated with malaria were reported. The most common symptom mentioned was fever (65.69%). Others included weakness (35.67%) and headache and body pains (33.63%). This was in line with the findings of Hlongwana (2009) in Swaziland, Isah et al. (2007) in Benin, and Erhun et al. (2004) in Ile-Ife, where similar symptoms were reported. It is also in line with the observation of other studies in endemic regions (Oguonu et al., 2014). The knowledge of the signs and symptoms of malaria by some proportion of the respondents could be due to the fact that malaria has been an age-long health problem in the area, and information relating to it had been passed on from one generation to another based on personal experience or through informal sources such as relations, friends, and neighbours (Adeneye et al., 2013). This is quite encouraging because a correct knowledge of the signs and symptoms would significantly influence one's ability to take early and appropriate action to treat malaria at the onset of any of its signs and symptoms without delay.

Regarding measures employed against malaria, more than half of the respondents (55.08%) used drugs from patent drug stores while some resorted to the use of herbal mixtures (15.35%). This agreed with the finding of Amaechi and Ukpai (2013), who reported similar chemotherapeutic results. The use of mosquito nets (37.47%), insecticides (16.25%), and repellents (13.77%) were also reported as preventive measures, which was in line with the findings of Amaechi and Ukpai (2013), while Erhun et al. (2004) reported bush clearing as a preventive and control measure in Ile-Ife. The drug store option points to self-medication as a common practice in malaria-endemic regions. This agreed with the report of Mccombie (2002). They could have resorted to self-medication at the drug store on the premise that it was cheaper. This calls for health education on the danger of self-medication. The use of mosquito nets is encouraging as it has been reported to reduce malaria prevalence (Amaechi & Ukpai, 2013). There is a need to further educate the community members on the benefit and use of insecticide-treated bed nets and that using it is an appropriate intervention measure to achieve the required control of malaria in endemic areas (Erhun et al., 2004).

Some of the limitations of the study include the inability of the researchers to query biting

time, source of information by the participant, mosquito resting places, and a link to show that knowledge was adequately translated into practice for malaria control. Further research by the authors in the same study area will address such issues in the nearest future for a full understanding of the present situation.

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