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Awareness on the Prevention and Treatment of Malaria among Residents in Abraka, Delta State, Nigeria

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ABSTRACT: Nigeria, the most populous nation in the Sub-Saharan African region, remains ravaged with a high occurrence of malaria infections which accounts for one-fourth of malaria cases globally. Communal awareness is important in the total eradication of malaria in Africa and the world at large. This study is to ascertain the awareness of individuals in Abraka communities on the transmission, prevention and treatment of malaria. A cross-sectional survey was carried out among people of Abraka, Delta State, Nigeria, using 200 structured questionnaires. Data was presented as percentage (%) using descriptive statistics. Majority of the respondents were females (51%), 83.5% practiced Christianity, 63% of the subjects are single, and a total of 60.4% either into business, employed or self-employed with 38% being students. Eighty-nine percent (89%) of the respondents indicated that mosquito bite is the mode of transmission of malaria and 82.5% of the respondents stated that refuse dump is the major factor that breed mosquito. A large number of the respondents (95%) have been engaged in one or more malaria preventive (control) methods. A greater percent (30%) commonly used artesunate in treating malaria, while 25% took Coartem® (artemether/lumefantrine), 23% took Lonart® (artemether/lumefantrine), 10% took quinine and 12% had other drugs they took for the treatment of malaria. There was much awareness on the spread, prevention and treatment of malaria in Abraka, Delta State.

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Malaria is a life-threatening protozoan disease caused by a *Plasmodium* parasite. For over 50,000 years, this disease has been a plague to the human race (WHO, 2011). There are four species of human plasmodium namely; *P. falciparium, P. malariae, P. ovale and P. vivax* (Paniker *et al*., 2003). In Nigeria, malaria is holo-endemic with *P. falciparium* as the dominant specie (Uko *et al*., 2002). Although, not a pandemic, malaria is alarmingly reputed as infectious epidemic disease and has remain a main cause of morbidity and mortality across the globe (Ashley *et al*., 2019). Africa is highly rated as the epicenter of the disease prevalence (WHO, 2019). Nigeria, the most populous nation in the Sub-Saharan African region, remains ravaged with a high occurrence of malaria infections which accounts for one-fourth of malaria case globally (Onyiri, 2015; WHO, 2019). Currently, therapeutic approach in the management of malaria infections depend majorly on orthodox medicines (especially the artemisinin-based combination therapy – ACT) (Pousibet-Puerto *et al*., 2016, WHO, 2018). Traditional herbal medicines have been used to treat malaria for thousands of years (Willcox and Bodeker, 2004), amongst other medicinal uses (Umeh *et al*., 2014; Moke *et al*., 2019; Okafo *et al*., 2019; Moke *et al*., 2020). Herbal remedies are still being employed by indigenous natives of the sub-Saharan African tribe to treat malaria (Ojezele *et al*., 2017; Ameade *et al*., 2018). The introduction of artemisinin together with other remedies have reduced malaria mortality rate in Africa by half (Prokurat, 2015). The rational use of an effective anti-malarial not only reduces the risk of the severe disease and shortens the duration of the illness, but also contributes to slowing down the development of the parasite's resistance (WHO, 2011). Research has shown that adequate knowledge, attitudes and practice (KAP) are very essential for the control and prevention of any disease (Arute *et al*., 2016). Communal

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awareness through proper education by healthcare professionals is a key in the total eradication of malaria in Africa and the world at large (Dawaki *et al*., 2016). Ascertaining the level of knowledge of malaria and attitude towards its treatment at the community level have been favorably recommended to be highly beneficial in the eradication process of malaria (Iwueze *et al*., 2013). The failure to consider community's knowledge about malaria has contributed to the increase rate of malaria in Africa (Tyagi *et al*., 2005). Without a rational concept of the nature of a disease it is impossible to visualize a management procedure. Therefore, it is very crucial for local communities to have a sound understanding of malaria preventive measures and health seeking behavior (Esse *et al*., 2008).

Inadequate knowledge of disease coupled with wrong perception can result to delay in health seeking treatment (Okwa *et al*., 2012). Despite the documentation of several health compromising factors, different studies have emphasized the importance of adequate knowledge of malaria in order to ensure that individual apply preventive measures, and seek prompt and appropriate treatment for themselves and their household (Ahorlu *et al*., 2006). Hence, it is very essential that people's knowledge and practices with regard to malaria is regularly assessed and promoted. Similar studies on the awareness and prevention of malaria have been carried out across six different communities in Delta State whereby 90.9% of respondents were found to be aware of the mode of transmission of malaria while 10% were not aware (Arute *et al*., 2016), but little or no study has been carried out in Abraka community on the awareness and prevention of malaria. Hence, the main objective of this study is to ascertain the knowledge of individuals in Abraka communities on the mode of transmission, prevention and treatment of malaria.

MATERIALS AND METHODS

The design of this study is cross-sectional study carried out in 2018. It is a community based survey comprising both males and females in Abraka, Delta State, Nigeria. The data for this research was collected using a total of 200 structured questionnaire corresponding to the research. The research was carried out in Abraka, which is one of the 25th Urhobo kingdoms in Delta State, Nigeria. It is situated at the eastern bank of River Ethiope in Ethiope East Local Government Area of Delta State (Ugbomeh and Atubi, 2010). Ethical approval was obtained from the 'Ethical Committee of the Faculty of Basic Medical Sciences'. Informed oral consent was obtained from individual respondent as they willingly filled out well-structured questionnaires which were used as the instrument for data collection. The questionnaire comprised of information on socio-demographic characteristics, knowledge on malarial transmission, prevention and treatment. Data was presented as percentage (%) using descriptive statistics.

RESULTS AND DISCUSSION

The result from Table 1 indicates the socio-demographic data of the respondents. A greater proportion of the respondents were between the ages of 21-30 years which is about (39%). Majority of the respondents were females (51%), 83.5% practiced Christianity, 63% of the subjects are single, and a total of 60.4% either into business, employed or self-employed with 38% being students. The result from Table 2 shows the awareness of respondents on how malaria is transmitted. Eighty-nine percent (89%) of the respondents indicated that mosquito bite is the mode of transmission of malaria and 82.5% of the respondents stated that refuse dump is the major factor that breed mosquito. Majority stated correctly the signs and symptoms of associated with malaria.

Table 1: Socio-Demographic Data

Parameters	Category	Frequency (%)
Age (years)	10 – 15	34 (17%)
	21 – 30	78 (39%)
	31 – 40	41 (20.5%)
	41 – 50	36 (18%)
	51 – Above	11 (5.5%)
Gender	Male	98 (49%)
	Female	102 (51.00%)
Marital Status	Single	126 (63%)
	Married	62 (21%)
	Not Indicated	12 (6%)
Religion	Christian	167 (83.5%)
	Islam	28 (14%)
	Not Indicated	5 (2.5%)
Education	Primary School	17 (8.5%)
	Secondary School	61 (30.5%)
	Tertiary	119 (59.5)
	None	3 (1.5%)
Occupation	Students	76 (38%)
	Traders	31 (15.5%)
	Civil Servants	42 (21%)
	Entrepreneurs	9 (4.4%)
	Self-Employed	39 (19.5%)
	Not Indicated	3 (1.5%)

The result from Table 3 showed that most of the respondents (82%) were aware that malaria can be prevented and 97.5% of the respondents stated that malaria can be cured. The result also showed that 92.5% of the subject stated that they have used environmental sanitation in preventing/controlling malaria, 86.5% have used insecticide spraying, 81% mosquito nets, 65% mosquito coil and 27% mosquito repellent. Furthermore, 71.5% indicated that the malaria preventive method was helpful while the remaining 28.5% said otherwise. Greater percentage (43.5%) treat malaria quarterly, this is followed by

22% of the respondents who treat malaria monthly, then weekly (13.5%) and yearly (8.5%).

Table 2: Knowledge about malaria and its transmission

Statement	Category	Frequency (%)
How malaria is commonly transmitted?	Mosquito bite	178 (89%)
	Sex	2 (2%)
	Drinking dirty water (germs)	6 (3%)
	Don't know	11 (5.5%)
	Other	3 (1.5%)
Which of these factors help breed mosquito?	Refuse dump and stagnant water	168 (84%)
	Heap of books	5 (2.5%)
	Wearing black clothes at night	10 (5%)
	I don't know	17 (8.5%)
Do you think any of these are the signs and symptoms of malaria?	Fever and fatigue	
	Yes	125 (62.5%)
	No	75 (37.5%)
	Headache and Joint Pain	
	Yes	118 (59%)
	No	82 (41%)
	Constipation	
	Yes	30 (11.5%)
	No	170 (88.5%)
	Body itching and boil	
	Yes	20 (10%)
	No	180 (89%)

From the result, 31% of the respondents got their drugs prescribed by a pharmacist, family and friends (25.5%), doctors (24%), and by themselves (19.5%). A greater percent (30%) commonly used artesunate in treating malaria, while 25% took Coartem® (artemether/lumefantrine), 23% took Lonart® (artemether/lumefantrine), 10% took quinine and 12% had other drugs they took for the treatment of malaria. With regards to completion of medication, 80.5% of the respondents usually completed their malaria dose; about 52% felt relieved after taking medication, 11.5% felt partially relieved and 37.5% did not feel relieved. The findings of this study showed that general awareness about malaria, its prevention and treatment is high among residents of Abraka, Delta State. A total of 200 individuals from different locations in Abraka were randomly selected to participate in this study. The study revealed that a large percentage of people in Abraka (89%) were aware of the mode of transmission of malaria, which is through mosquito bite. This goes a long way in reducing the risk of getting infected with plasmodium parasite through mosquito bite. The observed knowledge about vector transmission may have been influenced by information, education and communication facilities which the respondents are exposed to.

Table 3: Knowledge on the prevention and treatment of malaria

Statement	Category	Frequency (%)
Do you think malaria can be prevented?	Yes	164 (82%)
	No	36 (18%)
Do you think malaria can be cured?	Yes	195 (97.5%)
	No	5 (2.5%)
Do you carry out measures to prevent malaria?	Yes	196 (98%)
	No	4 (2%)
Have you ever used any of these methods in preventing malaria?	Environmental sanitation	
	Yes	185 (92.5%)
	No	15 (7.5%)
	Insecticide spraying	
	Yes	173 (86.5%)
	No	27 (13.5%)
	Mosquito nets	
	Yes	162 (81%)
	No	38 (19%)
	Mosquito coil	
	Yes	130 (65%)
	No	70 (33%)
	Mosquito repellants	
	Yes	54 (27%)
	No	146 (73%)
Was the malaria preventive method used helpful?	Yes	143 (71.5%)
	No	57 (28.5%)
How often do you treat malaria?	Weekly	27 (13.5%)
	Monthly	44 (22%)
	Quarterly	87 (43.5%)
	Yearly	17 (8.5%)
	None of the above	25 (12.5%)
Who prescribes your drugs?	Doctor	48 (24%)
	Pharmacist	62 (31%)
	Family and Friends	51 (25.5%)
	Self	39 (19.5%)
Which of these drugs do you most commonly use in treating malaria?	Coartem®	50 (25%)
	Lonart®	46 (23%)
	Quinine	20 (10%)
	Artesunate	60 (30%)
	Others	24 (12%)
Do you feel relieved after taking treatment?	Yes	161 (80.5%)
	No	39 (19.5%)
	Yes	104 (52%)
	Partially	73 (37.5%)
	No	23 (11.5%)

The awareness of respondents on the factors that help breed mosquito was very high. A total of 82.5% were aware that refuse dump and stagnant water could be a breeding site for mosquito. This is similar with the research done by John *et al.,* (2017) in Tanzania. Nevertheless, more awareness needs to be made on the factors that help breed the vector of the plasmodium parasite, as it cannot be over emphasized. Also, findings by John *et al.,* (2017) in Tanzania showed that the individuals are fairly aware on the symptoms of Malaria (30%). This is much lower compared to the results of this present study where the knowledge on the symptoms of malaria was higher, with 62.5% and

59% having a right knowledge of "fever and fatigue" and "headache and joint pain" respectively, as the symptom of malaria.

The knowledge of respondents on whether malaria can be prevented and cured was very high. It gave a result of 82% and 97.5% respectively. In agreement, a study conducted in Ethiopia reported higher knowledge of community on prevention and treatment of malaria (Alemu *et al.,* 2011). It was observed that a large number of the respondents (95%) have been engaged in one or more malaria preventive (control) methods, with environmental sanitation having the highest percentage of 92.5%, followed by insecticide spraying 86.5%, mosquito nets 81%, mosquito coil 65% and mosquito repellant 27%. The result from this study is line with the research done across six different communities in other parts of Delta State, Nigeria by Arute *et al*., (2016) where 90.9% of the respondents were found to be aware of the mode of transmission of malaria. Also, findings by Randell *et al.,* (2010) in a study in Mvomero, Tanzania, 83% of the respondents reported performing at least one of the different techniques for environmental sanitation to control malaria. Also, the study showed that about 43.5% of the respondents treat malaria quarterly which is quite often. According to the latest World Malaria Report released in November 2018 (WHO, 2018), it was observed that even with the various techniques to curb malaria, humans are still vulnerable to frequent malaria attack, especially under 5 years children (WHO, 2018). Artesunate which is a derivative of artemisinin, was seen in this work to be the most commonly used antimalarial drug with 30%. This could be due to its effectiveness and safety as recommended by WHO as one of the essential medicines for malaria treatment (WHO, 2018). Artemether/lumefantrine drug combinations were the most used for drug treatment of malaria, perhaps, because of its effectiveness as an artemisinin-based combination therapy (ACT) (Ștefan, 2015; Banda *et al.,* 2019). However, it was observed in this study that a few percentages of those who completed their dose still felt partially relieved or not relieved at all. A systematic review on 55 studies carried out by Bruxvoort *et al.,* (2014) showed that a large percentage of individuals who do not adhere to antimalarial treatment always return for medical treatment following frequent malaria attack.

*Conclusion***:** There was much awareness on malaria prevention and treatment among residents in Abraka, Delta State. There was also a general acceptance by the respondents on the interventions employed to control malaria such as the use of insecticides, mosquito nets, mosquito coils, mosquito repellents and environmental sanitation. However, this did not appear significantly in reduction of malaria cases, as a high percentage of respondents showed that they still treat malaria quarterly despite the control methods.

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