



## **Knowledge of Malaria and Malaria Interventional Practices Among Gravid Women Following an Advocacy Programme on Malaria Control.**

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### **ABSTRACT**

**Objective:** This study was designed to assess the knowledge and practice of malaria intervention measures among women who participated in a malaria advocacy programme.

**Methods:** About 800 households (each having a woman who has been previously pregnant and reached term) in Igueben local government area in Edo state, Nigeria were sampled and their level of malaria knowledge and practices after a government funded malaria advocacy programme was assessed with the use of pretested, structured questionnaires.

**Results:** Out of 800 respondents, 729 valid responses were received. About 718 (98.5 %), 669 (91.8 %), and 545 (74.8%) women responded that indoor insecticide spraying, insecticide-treated mosquito bed nets (ITNs), and intermittent preventive treatment (IPTp) respectively, can prevent one from contracting malaria. Insecticide Treated nets (ITNs) were reportedly available in 571 (78.3 %) households, of which a total of 335 women reported that their children sleep in ITNs always. In all the households, the women reported that the adults did not sleep in ITNs always. The practice of indoor insecticide spraying was done either frequently (38.7 %, 282/729) or occasionally (56.4 %, 411/729). During the women's immediate past pregnancy, a total of 598 (82 %), 47 (6.4 %), and 84 (11.5 %) women reported to have received antenatal care from health care facilities, attended to by traditional birth attendants and did not seek antenatal care from any source, respectively. Despite the fact that not all the women received antenatal care from health care facilities, all reported the use of antimalarial drug for IPTp. Sulphadoxine-pyrimethamine (n=545, 74.8 %) and artemisinin-based combination therapies (n = 49, 6.7 %) were the most frequently used antimalarial drugs for IPTp. Out of the 545 women that practiced intermittent preventive treatment using sulphadoxine-pyrimethamine (IPTp-SP), a considerable percentage (n = 426, 78.2 %) reported twice intake of the drug. Of all the sources of information on malaria, the health care personnel (n = 599, 82.2 %) was most frequently reported source of information by the women.

**Conclusion:** The respondents had substantial knowledge about malaria and antimalarial measures. However the practice of sleeping in ITNs was suboptimal.

**KEYWORDS:** households, antimalarial, insecticide-treated mosquito bed nets, intermittent preventive treatment

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### **INTRODUCTION**

Malaria remains a leading cause of morbidity and mortality world-wide, especially in pregnant women and younger children, and particularly in tropical Africa, where at least 90% of the malaria deaths occur.[1]. It affects five times as many people as Acquired Immune Deficiency Syndrome (AIDS), leprosy, measles, and tuberculosis combined [2]. Although malaria is preventable and curable, it still remains one of the major health problems in Nigeria [3]. Prevention and treatment of malaria requires

substantial financial commitment. In a study, using willingness to pay approach, households were found to be willing to pay an average of about NGN 1,112 (USD 9.3) per month for the treatment of malaria than bear the burden of the disease on their physical, mental, and social aspects of life [4]. Influencing the uptake and practice of the malaria interventions are economic, socio-cultural and political factors. Thus, it is believed that a community-directed educational intervention may



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lead to enhanced understanding of the disease and result in improved health interventional practices of people. There is need to enhance political commitment and enhance social, economic and cultural policies that affect people's lives.

Several malaria control programmes both international and national have been established with the primary objective to achieve high levels of commitment in malaria control. In 1998, the Roll Back Malaria was established as a global malaria intervention programme with strategies for prevention, early detection, prompt treatment, and focused research on malaria. Educating the community and empowering them on malaria prevention and control is an essential component of several of these malaria control programmes. Evaluating the effectiveness of such educational intervention on malaria prevention and control is deemed imperative. This study was aimed at evaluating the impact of advocacy in improving the knowledge and practice of antimalarial interventions in Igueben local government area of Edo state as well as, furnishing data that may reveal areas that need to be improved on while considering malaria interventions at the grass roots. Women particularly mothers are an important factor in the outcome of malaria infection in children, therefore it is important to assess their knowledge and practice of anti-malarial measures.

## METHODS

The study was undertaken in Igueben Local Government Area of Edo State, Nigeria. Igueben has an estimated population of 69,639 [5] with ten wards, each ward consists of 200 – 250 households with at least a primary health care centre. This study area had received an advocacy programme on malaria control organized by the health department of the local government authority 10 months prior to the study. The components of the advocacy programme included: education of the people on malaria, malaria control and interventional practices in various ward halls, distribution of insecticide treated bed nets as well as educational materials.

The primary means of livelihood in the town are farming and sale of locally produced wares and industrially manufactured goods which the traders bought from neighbouring cities.

The study population was obtained by systematic random sampling of households in all the wards of Igueben Local Government Area, Edo state. Each household must have at least one woman who has been pregnant and that has reached term previously. Excluded from the study were males,

health personnel, and women who have been pregnant but are mentally unstable. Informed consent was obtained from each woman prior to inclusion into the study. The women were assured of confidentiality of personal information. Before the study permission was obtained from the LGA and ward leaders.

Pretested structured questionnaires sectioned into four parts and consisting of both closed and open-ended questions were administered to the study participants. The first part of the questionnaire included socio-demographic characteristics while the second part elicited the various sources of information about malaria that the women have received. The third and fourth parts assessed the women's general knowledge on malaria and anti-malarial interventions, and the practices of malaria preventive measures in each household.

The data were entered in Microsoft Excel spreadsheet 2010 software package, and cross-checked for accuracy. Descriptive analysis was carried out and categorical variables were presented in frequencies and percentages.

## RESULTS

Out of the 800 questionnaires that were distributed to the women, a total of 783 questionnaires were retrieved. Fifty-four questionnaires were invalidated because they were filled by men and health personnel. Therefore, 729 questionnaires were valid for the study.

### Socio-demographic characteristics of postpartum women

The modal age group was 26 – 30 years constituting 33.5% (224) of the total respondents. There were more married women (81.8%, 596), and Christians (88.1%, 642). Only 29 (4%) women had no formal education while 353 (48.4%) of the respondents had tertiary education. More than 50% (417) of the respondents had income of  $\geq$  25, 000 NGN per month. Table 1 shows details of the socio-demography of the respondents.

Apart from the advocacy programme conducted in the study area, the study participants further identified sources of information on malaria prevention. Table 2 shows details of information on malaria and control measures as reported by the women. Health care personnel were the most frequently reported source of information as reported by 599 (82.2%) of the respondents, this was followed by the media 202 (27.7%). Majority of the respondents also reported that they have heard

about measures to prevent malaria which include indoor insecticide spraying, sleeping in ITNs, practice of IPT, fixing of door and window nets and clearing, draining of stagnant water around homes. Table 2. 706 (96.8%) also reported that the point of care for suspected malaria is a hospital or a health centre.

**Table 1: Socio-demographic characteristics of the study participants**

Characteristics	Number of respondents	Percentage (%)
<b>Age range (Years)</b>		
15-20	91	12.5
21-25	216	29.6
26-30	244	33.5
≥ 30	177	24.3
Not indicated	1	0.1
<b>Religion</b>		
Christianity	642	88.1
Islam	65	8.9
African tradition	22	3.0
<b>Marital status</b>		
Divorced	10	1.4
Married	596	81.8
Separated	9	1.2
Single	96	13.2
Widowed	18	2.5
<b>LEVEL OF EDUCATION</b>		
No formal education	29	4
Primary	129	17.7
Secondary	215	29.5
Tertiary	353	48.4
Not indicated	3	0.4
<b>Monthly income (NGN)</b>		
< 18, 000	136	18.7
18,000 – 25,000	124	17.0
25,000 – 30,000	200	27.4
30,000 – 50,000	127	17.4
50,000 and above	90	12.3
Valid (not indicated)	52	7.1

#### Reported sources of information on malaria prevention

#### Respondents' knowledge of malaria and anti-malarial interventions

Generally, the respondents had good knowledge of malaria. Almost all the women 719 (98.6%) knew that malaria could be transmitted from bites by an infected mosquito. Majority of the women 694 (95.2%) agreed that pregnant women and children are the most vulnerable groups. A total of 712

(97.7%) women believed that malaria can kill if not properly treated while a slightly greater number of the women 719 (98.6%) knew the major signs and symptoms of malaria. Of the 729 respondents, 718 (98.5%), 669 (91.8%), and 545 (74.8%) women responded that indoor insecticide spraying, insecticide-treated mosquito bed nets (ITNs), and intermittent preventive treatment (IPT) can prevent one from contracting malaria, respectively. However, 17 (2.3%) women did not agree that malaria could kill if not treated.

**Table 2: Reported sources of health information on malaria**

Variables	Number	Percentage (%)
<b>Sources of information on malaria</b>		
Place of worship	12	1.7
Health care personnel	599	82.2
Media (Radio/Television)	202	27.7
Traditional leaders	34	4.7
Family members / Friends	36	4.9
<b>Heard about anti-malarial measures</b>		
Indoor insecticide spraying	704	96.6
Door and window nettings	717	98.4
Sleeping in ITNs	696	95.5
IPT	545	74.8
Clearing bushes, removing stagnant water	601	82.4
<b>Places to seek treatment for suspected malaria</b>		
Hospital / Health centre	706	96.8
Health personnel's houses	-	-
Patent medicine shops	-	-
Traditional healers	11	1.5
Self medication	12	1.7
Church	-	-

#### Practice of the use of insecticide treated bed nets and indoor insecticide sprays

A total of 571 (78.3%) women had insecticide-treated bed nets (ITNs) in their households. These ITNs were either sourced by purchase (45.5%, 332) or freely given by friends, traditional rulers or from the health centers (32.8%, 239). Out of the 571 women that reportedly had ITNs in their households, a total of 335 (50%) of them reported that their children sleep in ITNs always. In all the households, the women reported that the adults did

not sleep in ITNs always. The influential sources for use of ITNs as reported by the women were health personnel 483 (66.3%), the electronic media 45 (6.2%), friends 41 (5.6%), personal opinion 160 (30%). About 95% (693) of the study participants reported the use of insecticide sprays in their households, frequently 38.7%, (282) or occasionally 56.4%, (411). Most of the respondents 56.2% (410) who used insecticide sprays at their homes were influenced by health personnel.

### **Intermittent preventive treatment during pregnancy**

During their immediate past pregnancy, a total of 598 (82%) women reported that they received antenatal care from health care facilities, 47 (6.4%) women were attended to by traditional birth attendants while the remaining 84 (11.5%) women did not seek antenatal care from any source. All the women reported the use of antimalarial drug for prevention of malaria during the immediate past pregnancy either prescribed by health care personnel or self medicated. The most frequently used antimalarial drugs for prevention of malaria during pregnancy were SP, 545 (74.8%), artemisinin-based combination therapies, ACTs 49 (6.7%), chloroquine 5 (7.0%), quinine 29 (4%), and others 55 (7.5%). Out of the 545 women that took IPTp-SP, an appreciable percentage 426 (78.2%) reported twice intake of the drug.

### **DISCUSSION**

The results of this study show that a large proportion of the respondents had good knowledge of the malaria vector. Similar high indices of knowledge of malaria had been reported in another study on the assessment of knowledge of malaria and the practices towards its control among urban dwellers in Benin City, Edo state [6]. Conversely, a poor level of knowledge of cause of malaria was documented in a study carried out among caregivers of children less than five years of age in southern West, Nigeria where only 49% of 678 rural dwellers knew the cause of malaria. [7]. The fairly good knowledge of the cause of malaria, risk groups and malaria interventions observed among the respondents might be due to the advocacy on malaria control which was recently held in the local government area. Positive impact of malaria advocacy in the prevention, control and reduction of malaria worldwide has been previously reported [8]. In a study on the role of information and communication networks in malaria survival, the results suggest that information and communication networks can substantially scale up the

effectiveness of the existing resources for malaria prevention [9]. These reports have revealed the benefits of effective advocacy, communication and health information in the control of malaria particularly in the rural communities. Expanded information and effective communication networks promote community-based "participatory development" which encourages the use of local information, knowledge and decision making. One of the objectives of advocacy for malaria control in communities is to ensure that community leaders are able to give correct information to households' heads and other community members about malaria and mobilize their communities to take timely and appropriate actions to prevent, treat and control malaria. Timely information, immediate care and collective knowledge-based treatment can be extremely important in reducing child mortality and achieving the millennium development goals [9]. The finding from our study that some women failed to register for antenatal care in health care facilities during their immediate past pregnancy is worrisome considering the consequences of such action. With reference to malaria in pregnancy (MiP), the four main components of prevention and control of the infection include quality focused antenatal care (ANC) and health education (and counseling), sleeping in insecticide-treated mosquito nets, intermittent preventive treatment in pregnancy and case management of malaria infection with appropriate antimalarial medications [10]. Quality focused ANC provides opportunity for early detection and treatment of certain pregnancy-related medical conditions such as malaria, anaemia, pre-eclampsia /eclampsia, sexually transmitted infections (including HIV/AIDS) [11]. Early antenatal registration would provide an effective avenue for rendering adequate malaria control interventions and health education and counseling about MiP to the pregnant women. All other components of control of MiP would be easily implemented if pregnant women take the issue of antenatal visits seriously. Thus, pregnant women who fail to register for ANC with the appropriate health care professionals endanger their lives and those of their fetuses as they tend to treat themselves "blindly" or seek advice from non-professionals in occasions of ill health. Despite the fact that a large percentage of households possess ITNs, the practice of sleeping in them was poor, particularly among adults. There may be need to investigate the factors that hinder the use of ITNs by adults even when the bed nets have been provided. Several researchers have emphasized the need to

consider the cultural beliefs and practices among people when designing public health measures aimed at improving their health [12,13]. A reasonable utilization rate of bed nets was reported in a survey carried out in northwest Tanzania where about 58% household heads (total number of households surveyed = 366) reported that everyone in their family was sleeping under bed nets [14]. In this present study, it could be that both the advocacy programme and health information received from various sources as mentioned by the respondents did improve the knowledge about malaria prevention strategies but led to little or no attitudinal change. This finding has been observed in another study that assessed the impact of health education intervention on malaria prevention practices among nursing mothers in rural communities in southwest Nigeria [15]. The practice of indoor insecticide spraying was generally accepted and practiced in almost all the households. This has been documented in other studies [14,16]. Intermittent preventive therapy (IPTp) was reportedly practiced by all the women; though there were cases of self medication with different antimalarial drugs by women who did not register for antenatal care in health facilities. IPTp is a key intervention for malaria control during pregnancy in Nigeria, and in most other sub-Saharan countries. IPTp was approved as an interventional policy against malaria disease by World Health Organization after it had been shown that chemoprophylaxis in malaria control no longer provided adequate protection to pregnant women and young children living in malaria-endemic areas; [17]. Most malaria-endemic countries including Nigeria adopted sulfadoxine-pyrimethamine (SP) as the drug of choice for IPTp, of which at least two treatment doses are administered to a pregnant woman.

The proportion of the IPTp-SP users who took two doses of the antimalarial drug was substantially high. The observed high utilization rate of IPTp-SP among the respondents could have resulted from the fact that the drug was given as part of antenatal care package for which the women had registered. Health personnel were identified as the main influential source of information about malaria and this is encouraging as it will ensure that the respondents receive right information.

In conclusion, the respondents had substantial knowledge about malaria and antimalarial measures. However the practice of sleeping in ITNs was suboptimal. There is need to continually provide accurate information regarding the choice of

places where women can seek appropriate treatment for suspected malaria. This can be done through proper community channels. It is also suggested that a longer and persistent health education intervention programme be implemented to achieve a significant change in respondents' attitude and practice.

#### Limitations of the study

This study might have been affected by recall bias as part of it relied on respondents' memory. The willingness of the study participants to answer honestly to the interviewer posed another limitation in this study.

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