

# Evaluation of Malaria Parasitaemia and Assessing the Knowledge, Attitude and Practice of Pregnant Women Attending Health Facilities in Owerri Metropolis towards Malaria Prevention and Control

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## Abstract

There are a few investigations on malaria in pregnancy; however, examinations zeroing in on the discernment and current acts of malaria counteraction and treatment among pregnant women are scanty. This examination was pointed toward evaluating the information, recognitions about malaria anticipation with accentuation on information about placental malaria too consistency to utilization of LLIN and IPTP among pregnant women in Owerri, South Eastern Nigeria. A cross-sectional descriptive study was conducted at an emergency department, Federal Medical Centre, Owerri using a pretested questionnaire from 200 randomly selected consenting pregnant women. Acknowledgment of malaria manifestations during pregnancy, information about IPTP and placenta malaria were things used to survey the degree of information about malaria in pregnancy. Their blood tests were additionally diagnosed for malaria parasitaemia. Malaria prevalence in the examination populace by microscopy was 13.5%. Additionally 62% of the respondents were learned about the conceivable impeding impacts of the existences of malaria during pregnancy. About 79.5% of the respondent decidedly related

mosquitoes to malaria contamination while 31% and 14% related reason for malaria disease to messy encompassing and stale water individually. Malaria Prevention Mentality and Practice in this examination was acceptable (60%) while 18.5% had reasonable practice. All the more so and 15.5% of the respondents had been associated with helpless practice. About 34% of the pregnant ladies rested under a mosquito net frequently study watched factual criticalness between age, occupation and malaria counteraction rehearses ( $p = 0.014, 0.0089$ ). There was likewise measurably huge relationship between respondent's training and respondent mentality ( $p = 0.0034$ ). Information with respect to the utilization of Sulphadoxine primethamine (SP) as medication of decision during pregnancy was restricted (12.0%) as utilization of chloroquine was positioned most elevated (48%). The study showed low peripheral malaria prevalence and furthermore exhibited that pregnant women's knowledge, mentality and practice towards malaria avoidance was impressively all things considered. Be that as it may, there was helpless information about discontinuous preventive treatment of malaria (IPTP) or suggested antimalarial during pregnancy.

## Keywords

Malaria, Parasitaemia, Pregnant Women, Knowledge, Practice

## 1. Introduction

Malaria is one of the greatest medical issues in sub-Saharan Africa [1], making a colossal weight wellbeing and economy. Malaria disease during pregnancy is a critical general medical condition with considerable dangers for the pregnant lady, her embryo, and the infant kid. Pregnant women are bound to get contaminated with malaria and other extreme disease than non-pregnant women. Unconstrained fetus removal, preterm conveyance, low birth weight, stillbirth, inherent disease, maternal demise, maternal and fetal passing because of maternal weakness intra uterine development hindrance are a portion of the impacts of malaria contamination during pregnancy. It is more continuous and serious in primigravidae, both during pregnancy and at the hour of conveyance [2].

The seriousness of clinical appearances is dictated by the degree of insusceptibility before pregnancy, which relies upon the power and soundness of nearby malaria transmission. Women gain a defensive resistance preceding pregnancy in regions of high malaria transmission. Malaria contaminations in such zones are commonly asymptomatic, and the current control procedure depends on the avoidance of diseases which includes the organization of intermittent preventive treatment (IPT) of malaria in pregnancy utilizing sulfadoxine pyrimethamine (IPTp-SP) during pregnancy, joined with the utilization of enduring insecticidal nets (LLINs) and case the executives [3] [4] [5] [6].

A few investigations have been directed in different endemic zones to evaluate

the information, disposition and practices of pregnant women in forestalling malaria during pregnancy, especially the utilization of IPTp-SP [3] [5]. A few examinations indicated that the utilization of IPT was imperfect [7] [8] [9]. Regardless of a few progressing malaria end endeavors, the pace of use of preventive measures, particularly IPTp, is as yet inadmissible and is a long way from being general [10].

Organization of IPTp-SP during antenatal visits is viewed as one of the three key mediations suggested by the World Health Organization (WHO) for controlling MiP in stable malaria transmission territories [10]. Prophylactic organization of SP has been discovered to be compelling in forestalling the outcomes of malaria in pregnancy (MiP) (e.g., low birthweight) [11]. WHO suggests in any event three dosages of SP during pregnancy.

In the study, territory little data exists fair and square of information, mentality and consistence of pregnant women to malaria anticipation and treatment. Great information about the preventive proportions of malaria is a significant propelling power that decides the acknowledgment and severe consistence being used of ITN just as wise take-up of recommended IPT. In this way, it is of need to assess current information about malaria, demeanor and practice towards its avoidance among pregnant women going to a tertiary wellbeing office in Imo state, south eastern Nigeria wherein the results will be emphatically pushed for use in production of sharpening and mindfulness on malaria anticipation and Treatment among pregnant women.

## **2. Materials and Methods**

### **2.1. Study Area/Population**

The study region is Imo State. Imo State is one of the 36 states of the Federal Republic of Nigeria. It is explicitly in South Eastern Nigeria. It lies between geographic co-ordinates of scope 4045' and 7015'N and longitude of 6050'E with a region of around 5100 sqkm [12] (Imo State Government, 2010). Malaria is endemic and lasting around there, with a top during the blustery season (April to September). The individuals of Imo State are generally open and government employees, nearby economy depends on farming, and the proficiency level is high

### **2.2. Study Design**

The plan of the study was descriptive and cross-sectional. Questionnaire was regulated to 288 pregnant women who were going to antenatal centers in both public and private wellbeing offices, among July and December 2017. The offices which were arbitrarily chosen included Federal Medical Center Owerri, Holy Family Hospital Ikenegbu, Owerri, St David's Hospital Owerri. Government clinical focus Owerri was utilized for the research center examinations. The medical clinic fills in as a reference place for essential and auxiliary, private and general wellbeing organizations and to the individuals in the state and neighboring States (Abia state on the East, Anambra state on the North and Rivers State on the south). Moral freedom was gotten from the Ethical panel of Federal

Medical Center, Owerri. A very much organized arbitrary inspecting technique was utilized to enlist understanding into the study and educated assent was gotten from the women remembered for the study. The incorporation measures for the study included pregnant women with fever or 2 days history of fever with no sign recommending serious malaria going to different antenatal centers in the chose Health offices. The women in this study included primigravida, and multigravida, and were of various instructive foundations and equality.

### 2.3. Data Collection

A structured questionnaire was pretested and administered to the respondents. The first part of the questionnaire included socio demographic characteristics of the respondents and the second part assessed respondent's head knowledge on malaria transmission, recognition of symptoms, preventive measures, knowledge about IPTp and placenta malaria.

Data were analyzed using the Statistical Package for Social Sciences (SPSS version 16). Associations between variables were tested using Chi-square tests. A *P*-value less than 0.05 were considered statistically significant.

### 2.4. Sample Collection

Blood samples were collected and analysed for malaria parasitaemia using Malaria Rapid Diagnostic kit (RDT-SD BIOLINE) and Malaria Blood film microscopy following the standard operating procedures [13]. Parasite density was measured as the number of parasites per 500 leucocytes on a thick film and was calculated as parasites per microlitre of blood assuming an average white blood-cell count of 8000 per  $\mu\text{l}$  of blood [14]. The parasite density of blood is expressed as:

$$\text{Parasite density per } \mu\text{l of blood} = \frac{\text{No of Parasite Count} \times 8000}{\text{No of Leucocytes/WBC count}}$$

As part of the Standard Operating Procedures (SOPs) for slide reading in this study another WHO certified Malaria Microscopist re-read each slide and only parasite counts with less than 20% discordance between the first and second reader were accepted. Parasite counts with >20% discordance were read by a third reader, who served as the tie breaker.

## 3. Results

### 3.1. Demographic Characteristics of the Pregnant Women

The demographic characteristics of the respondents are summarized in **Table 1**. All the respondents considered in this research work are pregnant women. (56%) of the respondent fell in the bracket of 21 - 30 consequently the age group of 31 - 40 was about (44%), following the marital status of the respondent only (0.5%) where divorced while single mother (16%) and the highest recorded group was the married (83.5%). The highest concentration of these married women was traders with (30.5%) and the lowest was unskilled labourer (11%). Based on the

**Table 1.** Distribution of respondent by demographic characteristics.

Demographic Characteristics	Responses	Frequency	Percentage (%)
<b>Age</b>	21 - 30	112	56
	31 - 40	88	44
	Total	200	100
<b>Marital Status</b>	single mother	32	16
	Married	167	83.5
	Divorced	1	0.5
	Total	200	100
<b>Occupation</b>	Trader	61	30.5
	Farmer	47	23.5
	civil servant	70	35
	unskilled labourer	22	11
	Total	200	100
<b>Level of Education</b>	Informal	9	4.5
	Primary	20	10
	Secondary	58	29
	Tertiary	113	56.5
	Total	200	100
<b>Parity</b>	1-pregnancy	80	40
	2-pregnancy	73	36.5
	3-pregnancy and above	47	23.5
	Total	200	100
<b>Gestation</b>	first trimester	59	29.5
	second trimester	76	38
	third trimester	65	32.5
	Total	200	100

level of education, majority of the respondents had a tertiary education (56.5%) and just about 9% had an informal education.

### 3.2. Respondent's Knowledge about Malaria

From **Table 2**, we observed that 54% of respondents believed that everyone is susceptible to getting a serious case of malaria, followed by the pregnant women (32.5%). The major signs of malaria infection as observed in this study were Fever (80%), headache (69%), body weakness (59.5%), poor appetite (37.5%) and the least is convulsion (5%).

In the course of this research work, various questions were administered to the various respondents to examine their knowledge level of malaria such as: avoidance, can it be treated, signs, causes, and most vulnerable etc as seen in **Table 3**.

**Table 2.** Percentage distribution of positivity rate of malaria using RDT and SLIDE.

Response	RDT		SLIDE	
	Frequency	Percent (%)	Frequency	Percent (%)
NEG	171	85.5	173	86.5
POS	29	14.5	27	13.5
Total	200	100	200	100

**Table 3.** Respondents knowledge about Malaria.

Questions	Frequency	
	Yes (%)	No (%)
<b>Are there ways to avoid getting malaria?</b>		
· Yes	148 (74)	52 (26)
· No	5 (2.5)	195 (97.5)
<b>Can Malaria be treated?</b>		
· Yes	146 (73)	54 (27)
· No	4 (2)	196 (98)
<b>As a pregnant woman, do you think having Malaria has any effect on you if not treated?</b>		
· Yes	124 (62)	76 (38)
· No	1 (0.5)	199 (199.5)
· Don't know	35 (17.5)	165 (82.5)
<b>Signs of presence of malaria in the respondents</b>		
· Fever	160 (80)	40 (20)
· Chills	65 (32.5)	135 (67.5)
· Headache	138 (69)	62 (31)
· Joint Pain	61 (30.5)	139 (69.5)
· Poor Appetite	75 (37.5)	125 (62.5)
· Vomiting	59 (29.5)	141 (70.5)
· Convulsion	10 (5)	190 (95)
· Body Weakness	119 (59.5)	81 (40.5)
· Others	7 (3.5)	193 (96.5)
· Don't know	3 (1.5)	197 (98.5)
<b>Who is most likely to get a serious case of malaria?</b>		
· Children	48 (24)	152 (76)
· Pregnant women	65 (32.5)	140 (70)
· Adults	12 (6)	188 (94)
· Elderly	10 (5)	190 (95)
· Everyone	108 (54)	92 (46)

## Continued

What causes malaria?		
Mosquitoes	159 (79.5)	41 (20.5)
Stagnant water	28 (14)	172 (86)
Dirty Surroundings	62 (31)	138 (69)
Beer	10 (5)	190 (95)
Certain Food	21 (10.5)	179 (89.5)
Others	1 (0.5)	199 (99.5)
Don't know	3 (1.5)	197 (98.5)

About 74% of the pregnant women believes that there are ways to avoid getting malaria, also 73% believed that malaria can be treated, a huge percentage about 62% are knowledgeable that the presences of malaria in their pregnancy stage is detrimental to the pregnancy. About 79.5% of the respondent positively associated mosquitoes to malaria while 31% believed it is as a result of dirty surrounding (31%) while about 14% also associated malaria to stagnant water.

### 3.3. Symptoms and Signs of Malaria in Pregnancy Mentioned by Respondents

**Figure 1** shows the occurrence of different Symptoms encountered in the present study. Analysis shows that fever (80%) had a significant higher occurrence followed by headache (69%), body weakness (59.5%), poor appetite (37.5%) and the least is convulsion (5%) ( $p < 0.05$ ).

### 3.4. Malaria Prevention/Avoidance Methods Practiced by the Respondents

Respondents answered questions which gauged their knowledge on malaria prevention. From the results as shown in **Table 4**, the respondents identified ways of avoiding malaria infection, clearing of the surrounding (65.5%) was ranked as the most frequent, using insecticide (37%), sleeping under the mosquito nets 24% while sleeping under LLIN had 11.5%. Chloroquine was recorded with the highest percentage as the most suitable drugs to treat malaria amongst adults with 48% and the lowest documented for adults is quinine (19.5%) while for children the highest was ACT (30%) followed by chloroquine (19.5%) and the lowest was Sp (5.5%). Furthermore, most of the pregnant women interviewed in the course of the work revealed that they don't know how many times they have had malaria parasite infection during the course of their pregnancy while about 21% reported that they have not had malaria parasite. 54% of the diagnosis was done by the Laboratory while about 2% reported were not diagnosed in the laboratory.

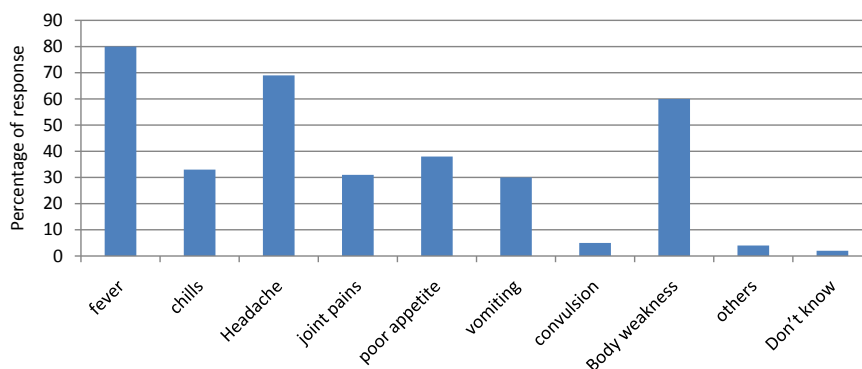
An overview of the Malaria Prevention/treatment Practice, Knowledge and Attitude of the respondent in this study showed that 60% of the pregnant women

**Table 4.** Respondent's knowledge about malaria preventive measures and treatment.

Knowledge About Malaria Preventive Measures And Treatment	Frequency	
	Yes (%)	No (%)
What are they ways to avoid getting malaria?		
· Sleep in net	48 (24)	152 (76)
· Sleep in LLIN	23 (11.5)	177 (88.5)
· Insecticide	74 (37)	126 (63)
· Mosquito coil	37 (18.5)	163 (81.5)
· Door windowed closed	31 (15.5)	169 (84.5)
· Insect repellent	56 (28)	144 (72)
· Clear surrounding	131 (65.5)	69 (34.5)
· Eliminate stagnant water	39 (19.5)	161 (80.5)
· Others	6 (3)	194 (97)
· Don't know	0 (0)	100 (100)
What drugs are used to treat pregnant women with Malaria?		
· Sp	24 (12)	176 (88)
· Chloroquine	96 (48)	104 (52)
· Quinine	39 (19.5)	161 (80.5)
· ACT	62 (31)	138 (69)
· Aspirin, Paracetamol	30 (15)	170 (85.5)
· Others	2 (1)	198 (99)
· Don't know	27 (13.5)	173 (86.5)
What drugs are used to treat Children with Malaria?		
· Sp	11 (5.5)	189 (94.5)
· Chloroquine	39 (19.5)	161 (80.5)
· Quinine	17 (8.5)	183 (91.5)
· ACT	60 (30)	140 (70)
· Aspirin, Paracetamol	30 (15)	170 (85)
· Others	1 (0.5)	199 (99.5)
· Don't know	50 (25)	150 (75)
How many times you had Malaria parasite		
· None	42 (21)	158 (79)
· Don't know	28 (14)	172 (86)
How was it diagnosed?		
· Lab test	109 (54.5)	91 (45.5)
· No lab test	4 (2)	196 (98)

had a good practice, 18.5% involve in fair practice and 15.5% were involved in poor practice (Tables 5-7).





**Figure 1.** Symptoms and signs of malaria in pregnancy mentioned by respondents.

**Table 5.** Distribution of malaria prevention practice by pregnant women.

Malaria practice	Frequency	Percent
Good practice	132	66
Fair practice	37	18.5
Poor practice	31	15.5
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 6.** Distribution of malaria knowledge by pregnant women.

Malaria knowledge	Frequency	Percent
High	104	52
Medium	54	27
Low	42	21
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 7.** Distribution of malaria prevention attitude by pregnant women.

Malaria attitude	Frequency	Percent
Positive	94	47
Neutral	52	26
Negative	54	27
<b>Total</b>	<b>200</b>	<b>100</b>

Also, 52% of the pregnant women considered in this study had a high-level knowledge of malaria prevention and Treatment, 27% had a medium knowledge and 21% had a low-level knowledge of malaria.

Furthermore, 47% of the respondent had a positive attitude towards malaria, 26% had a neutral attitude and 27% had a neutral attitude towards malaria prevention and Treatment.

Several questions were administered to the respondent to ascertain specified practice towards malaria prevention in pregnant women. About 34% of the pregnant women often sleep under a mosquito net and 29% never sleep under

mosquito net, those who always sleep under the net revealed that other members of the family do not always also sleep under the net and about 27.5% never check for holes/repair while 48% sometimes check for holes and repairs. Furthermore, the result from the analysis presented in **Table 8** reveals that 65% of the pregnant women sometimes spray anti-mosquito in their homes while about 25% sprays always also 57.5% of the respondents' clean/cut bushes around them and a large group of about 63.5% always eradicate stagnant water which are among the second cause of the malaria.

A chi square test of association was performed and result demonstrates a statistical significant between age, occupation and malaria prevention practices  $p = 0.014$ ,  $0.008$  (**Table 9**) respectively. Result also indicated that the knowledge about malaria is associated with age since  $p = 0.029$  whereas no significant association was observed between occupation and Knowledge about malaria  $p = 0.15$  (**Table 10**). The attitude of respondent on malaria is associated with age and occupation since  $p = 0.022$  and  $0.0301$  respectively (**Table 10**).

**Table 11** shows the association between age, occupation and malaria prevention knowledge, result shows that there was significant ( $p = 0.022$ ) increase in the knowledge of proper preventive pattern among participants between the ages of 21 - 30 years as against their counterparts. **Table 12** shows the comparison for association of malaria prevention practice to malaria prevention knowledge. The Chi-Square test indicated that there was statistically significant association between respondent's knowledge about malaria and their practices towards malaria prevention.  $p < 0.05$  (0.000). Also Comparing malaria prevention practice and attitude towards malaria, the chi-square test indicated also that there was a statistically significant association between respondent's practice and respondent attitude since  $p = 0.0034$  as revealed in **Table 13**. Result further suggested that there was no significant ( $p = 0.06$ ,  $0.230$ ) association between occupation, parity, Age, and Malaria Positivity considering RDT & Microscopy (**Table 14**).

**Table 8.** Practices towards Malaria prevention by pregnant women.

Questions	Response		
	Frequency (%)		
	Always	Never	Sometimes
1. How often do you sleep in a mosquito net?	68 (34)	58 (29)	74 (37)
2. How often do other members of the household sleep in mosquito nets?	51 (25.5)	51 (25.5)	98 (49)
3. How often do you check for holes/repair mosquito nets	49 (24.5)	55 (27.5)	96 (48)
4. How often do you use anti-mosquito spray in your house?	50 (25)	25 (12.5)	125 (62.5)
5. How often do you clean/cut bushes around your house?	115 (57.5)	23 (11.5)	62 (31)
6. How often do you clean stagnant water around your house?	127 (63.5)	32 (16)	41 (20.5)
7. How often do you visit the health centre when you fall sick?	83 (41.5)	18 (9)	99 (49.5)

**Table 9.** Association between age, occupation and malaria prevention practices.

Factor	Category	Good practice (%)	Fair practice (%)	Poor practice (%)	Total (%)	p-value
Age	21 - 30	72 (54.55)	22 (59.46)	18 (58.06)	112 (56)	<b>0.014</b>
	31 - 40	60 (45.45)	15 (40.54)	13 (41.94)	88 (44)	
	<b>Total</b>	<b>132 (66.0)</b>	<b>37 (18.5)</b>	<b>31 (15.5)</b>	<b>200 (100)</b>	
Occupation	Trader	41 (31.06)	6 (16.22)	14 (45.16)	61 (30.5)	<b>0.008</b>
	Farmer	30 (22.73)	12 (32.43)	5 (16.13)	47 (23.5)	
	civil servant	48 (36.36)	15 (40.54)	7 (22.58)	70 (35.0)	
	unskilled labourer	13 (9.85)	4 (10.81)	5 (16.13)	22 (11.0)	
	<b>Total</b>	<b>132 (66.0)</b>	<b>37 (18.5)</b>	<b>31 (15.5)</b>	<b>200 (100)</b>	

**Table 10.** Association between age, occupation and malaria prevention knowledge.

Factor	Category	High	Medium	Low	Total	p-value
Age	21 - 30	54 (51.92)	31 (57.41)	27 (64.29)	112 (56.0)	<b>0.029</b>
	31 - 40	50 (48.08)	23 (42.59)	15 (35.71)	88 (44.0)	
	<b>Total</b>	<b>104 (52.0)</b>	<b>54 (27.0)</b>	<b>42 (21.0)</b>	<b>200 (100)</b>	
Occupation	Trader	33 (31.73)	11 (20.37)	17 (40.48)	61 (30.5)	<b>0.15</b>
	Farmer	27 (25.96)	15 (27.78)	5 (11.90)	47 (23.5)	
	civil servant	33 (31.73)	23 (42.59)	14 (33.33)	70 (35.0)	
	unskilled labourer	11 (10.57)	5 (9.26)	6 (14.29)	22 (11.0)	
	<b>Total</b>	<b>104 (52.0)</b>	<b>54 (27.0)</b>	<b>42 (21.0)</b>	<b>200 (100)</b>	

**Table 11.** Association between age, occupation and respondent's Attitude.

Factor	Category	positive	Neutral	Negative	Total	p-value
Age	21 - 30	51	32	29	112	<b>0.022</b>
	31 - 40	43	20	25	88	
	<b>Total</b>	<b>94</b>	<b>52</b>	<b>54</b>	<b>200</b>	
Occupation	Trader	35	14	12	61	<b>0.0301</b>
	Farmer	19	10	18	47	
	civil servant	32	21	17	70	
	unskilled labourer	8	7	7	22	
	<b>Total</b>	<b>94</b>	<b>52</b>	<b>54</b>	<b>200</b>	

**Table 12.** Association between malaria prevention practice and knowledge about malaria.

Prevention practice	Knowledge			Total
	High	medium	Low	
Good practice	99	19	14	132
Fair practice	3	31	3	37
Poor practice	2	4	25	31
<b>Total</b>	<b>104</b>	<b>54</b>	<b>42</b>	<b>200</b>

$$\chi^2_{(4)} = 155.976; p = 0.000.$$

**Table 13.** Association malaria prevention practice and respondent's attitude towards malaria.

prevention practice	Attitude			Total
	Positive	Neutral	Negative	
Good practice	66	35	31	132
Fair practice	14	7	16	37
Poor practice	14	10	7	31
<b>Total</b>	<b>94</b>	<b>52</b>	<b>54</b>	<b>200</b>

$\chi^2_{(4)} = 126.075; p = 0.0034$ .

**Table 14.** (a) Association between occupation, parity, Age, and Malaria Positivity considering RDT & Microscopy; (b) Association between occupation, parity, Age, and Malaria Positivity considering RDT & Microscopy; (c) Association between occupation, parity, Age, and Malaria Positivity considering RDT & Microscopy.

(a)

Factor	Response	RDT		SLIDE	
		NEG	POS	NEG	POS
Occupation	Trader	47 (77%)	14 (23%)	47 (77%)	14 (23%)
	Farmer	43 (91.5%)	4 (8.5%)	43 (91.5%)	4 (8.5%)
	civil servant	63 (90%)	7 (10%)	63 (90.0%)	7 (9.1%)
	unskilled labourer	18 (90.3%)	4 (18.2%)	20 (90.9%)	2 (9.1%)
	Total	171	29	173	27
<i>p</i> -value		<b>0.100</b>		<b>0.080</b>	

(b)

Response	RDT		SLIDE		
	NEG	POS	NEG	POS	
1-pregnancy	65 (81.2%)	15 (18.8%)	66 (82.5%)	14 (17.5%)	
2-pregnancy	63 (86.3%)	10 (13.7%)	63 (86.3%)	10 (13.7%)	
3-pregnancy and above	43 (91.5%)	4 (8.5%)	44 (93.6%)	3 (6.4%)	
Total	171	29	173	27	
<i>p</i> -value		<b>0.278</b>		<b>0.208</b>	

(c)

Response	RDT		SLIDE		
	NEG	POS	NEG	POS	
Age	21 - 30	89 (79.5%)	23 (20.5%)	94 (83.9%)	18 (16.1%)
	31 - 40	82 (93.2%)	6 (6.8%)	79 (Department of Haematology, Federal Medical Center Owerri, Nigeria 89.8%)	9 (10.2%)
<b>Total</b>		171	29	173	27
<i>p</i> -value		<b>0.06</b>		<b>0.230</b>	

## 4. Discussion

Out of the assessed 288 respondents, 200 (69%) gave total data while 88 (31%) respondents had fragmented information. The peripheral malaria blood prevalence in the respondents was 14.5% and 13.5% utilizing Malaria RDT and Light Microscopy separately. There was no huge distinction contrasting the symptomatic strategies utilized. This study shows that age, occupation nor equality had positive commitment to malaria prevalence utilizing both of the techniques conveyed in this examination work.

Our information show that in certain pieces of south Eastern Nigeria, pregnant women have shown a superior comprehension of malaria causes, manifestations and preventive measures as seen in different reports from various pieces of the world [15].

Lion's share of the pregnant women realized that mosquito chomp was the method of malaria transmission. This showed elevated level of information on malaria transmission and this concurs with different reports [15]. The reaction by 31% of the women, crediting Dirty Surroundings as the reason for malaria can be ascribed to level of schooling and mindfulness.

What's more there was helpless showing on utilization of IPTP during pregnancy. 52% of the respondents had great information about malaria anticipation though 42 (21%) had extensively low information. Just 11.5% of the respondents ascribed dozing under LLIN as a malaria preventive measure as contrasted and 24% recorded for dozing under the mosquito nets. We saw that a large portion of the respondents were not in acceptable information on the contrast between Long Lasting bug sprays treated Nets and normal mosquito nets. Information on the utilization of bed net as a preventive measure against mosquito chomp was low among the respondents (24%) and just 34% detailed day by day utilization of any bed nets (ITNs or non ITNs) while 29% never dozed under mosquito net. A decent level of the respondents who knew about the adequacy of bed nets in counteraction of malaria couldn't lay down with them in light of different misguided judgments and reasons, for example, dread of suffocation, the bug sprays impregnated nets not healthy for their health, heat because of low force flexibly, mosquito can too chomp them outside. Since the expense of enduring bug spray treated bed net (LLINs) has been enormously sponsored by Nigerian government through the assistance of giver organizations there is hence need to scale up a mission on use of LLINs by pregnant women.

A large portion of the pregnant women gave the correct reaction to lion's share of malaria information questions eg. Signs and indications of quality of malaria in the respondents, who is destined to get a genuine instance of malaria, what causes malaria and so forth. This study is in concurrence with different examinations that showed that respondent had a decent information about malaria signs and side effects. Fever (meticulousness) was distinguished as the most well-known indication of malaria by the respondents [16]-[22]. The most regularly referenced indications in this study were fever, migraine, body shortcoming

and low craving. This elevated level of attention to the clinical highlights of malaria may be because of expanded admittance to broad communications and health instruction by health laborers during antenatal visits.

Other study done in Nigeria demonstrates that information on the outcomes of malaria during pregnancy was poor among pregnant women [22]; however Obol *et al.* [21] in their study showed that pregnant women knew at any rate one of the outcomes of malaria disease during pregnancy. This has indicated that 17.5% of the respondents don't realize that malaria in pregnancy may affect them.

As to respondent's information on antimalaria drugs during pregnancy and in youngsters, 13% and 25% showed having no information on antimalaria utilized during pregnancy and kids separately. While greater part (48%) of the respondents actually considered Chloroquine as suggested antimalaria drug despite that the nation through an approach has removed chloroquine as a decision antimalaria drug since 2005. There was holes in information by 13.4% of the respondents expressing that they didn't have the foggiest idea about the antimalarial medications to be utilized during pregnancy and the greater part (88.0%) of the study members didn't know about sulphadoxine primethamine (SP).

This study concurs with Easman *et al.* [23], that there was a critical relationship between age, occupation and malaria avoidance information, disposition and practice. The huge relationship between respondent's information and respondent's demeanor proposes the degree of training is straightforwardly corresponding to that respondent's information on malaria. World Health association (WHO) and Roll back malaria (RBM) advocates for standard and convenient utilization of LLIN and IPTP as malaria preventive procedures during pregnancy. There should be a significant high information on the abbreviation IPTP among pregnant women. Moreso, Placenta malaria should not to be an unusual wonder among them. The study anyway exhibited low information (26%) of what IPTP infers while just 13.5% of the respondents have caught wind of placental malaria. This calls for more refinement during antenatal visits with the goal that mindfulness is expanded among pregnant women about malaria contamination during pregnancy.

## 5. Conclusion

The study demonstrated low peripheral malaria prevalence and good knowledge, attitude and practice (KAP) towards malaria prevention among pregnant women. However, there was poor knowledge about IPTp-SP and/or other anti-malaria drugs recommended during pregnancy. The knowledge of the phenomenon "placenta malaria" was also limited. There is therefore need for further creation of awareness on malaria prevention with IPTp-SP among pregnant women or women of child-bearing age. A conscious scale up on the use of behavioral change communication (BCC) tools is recommended to boost uptake in utilization of long lasting insecticide treated nets.

## Authors' Contributions

Okoro, C.I. and Ihenetu, F.C., designed the work. Okoro, C.I. and Achigbu, K. supervised the study. Dunga, K.E., Obasi, C.C., Okoro, O.I. and Ikechukwu, V., conducted the sampling, interview and survey. Okoro, C.I., Ihenetu, F.C., Ogboi, S.J. and Okoro, C.O., analyzed the data. Okoro, C.I. and Ihenetu, F.C. wrote the paper. All authors read and approved the final manuscript.

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## Availability of Data and Material

Data will not be shared.

## Ethics Approval and Consent to Participate

The study was approved by the Ethical Committee of Federal Medical Center Owerri, Nigeria, while Medical Health participants gave written consent to participate in the refreshed training.

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## Conflicts of Interest

The authors declare that there are no competing interests.

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