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Perception of Malaria In Pregnancy and Prevention Practice Among Rural Women of Child Bearing Age (15-49) In Zungur, Bauchi, Nigeria

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ABSTRACT

This study was conducted at Zungur District, Bauchi Local Government Area (LGA) to assess the perception of malaria in pregnancy and prevention practice among rural women of child bearing age (15-49). A cross section survey research design, through the use of questionnaire was used in this study. Three hundred respondents were randomly selected for the study. The data collected was analyzed using descriptive and inferential statistics such as frequency distribution and chi square analysis to test the hypothesis. Major findings of the study are the existence of misperception of malaria been caused by mosquito, where 18% of the respondents were undecided and 16% disagreed. 39% of the respondents were undecided, 12% strongly disagreed, while 10% disagreed that malaria in pregnancy is a multidimensional public health problem. Also, two-third of the pregnant women in this study was observed to commenced ANC visits late, mostly after 20 weeks of gestation. Health education, intensification of efforts by government on malaria in pregnancy preventive strategies, and conducting of periodic monitoring and sensitization programmes on malaria in pregnancy preventive strategies by civil society organizations should be employed. The data collected was analyzed using descriptive and inferential statistics such as frequency distribution and chi square analysis to test the hypothesis.

Keyword: Malaria, Perception, Pregnancy, Prevention, Rural-Women

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INTRODUCTION

Malaria is caused by protozoan parasites of the genus Plasmodium as a result of mosquito bite. It is one of the leading causes of illness and death in the world. [1] Regardless of decades of sustained control efforts malaria still remains one of the major causes of socioeconomic problems 2 in sub-Saharan Africa, because malaria control is a big challenge due to many factors.[3] The complexity of the malaria control process, expensiveness of the control program, resistance of the parasite to anti-malarial drugs and vectors to insecticides are some of the challenges. [4] Malaria infection is more dangerous during pregnancy; its adverse effects are more serious for the pregnant woman as well as the fetus and newborn. During pregnancy, mothers' immunity is altered and they become more vulnerable to complicated and severe malaria. [5]

In sub-Saharan Africa, over 15% of maternal deaths are associated with malaria infection during pregnancy. [6] The infection puts pregnant women and their babies at high risk for complications, especially maternal anemia and infection of the placenta. Low birth weight and preterm birth are other consequences of malaria infection during pregnancy. [6] Despite progress in the deployment of existing control strategies, such as the use of mosquito nets impregnated with long-lasting insecticides, intermittent preventive treatment (IPT) during pregnancy with sulfadoxine-pyrimethamine (SP), and prompt and effective treatment of malaria cases, malaria in pregnancy is still responsible for 400,000 cases of severe maternal anaemia, 10,000 maternal deaths, and the death of 200,000 newborn babies every year. [6] Most recent World Malaria Report also notes that 15 million of the 35 million pregnant women at risk did not receive even one dose of intermittent preventive treatment in 2013. [7] According to World Health Organization (WHO), coverage of malaria prevention, screening and treatment among pregnant women remains low in many locations in sub-Saharan Africa, despite clear evidence of effective interventions and significant investment in this area. [7]

Numerous studies conducted in different parts of the world indicated that generally, knowledge of the causes, symptoms and treatment of malaria is very poor in many rural communities. [8,9] Lawal[10] suggests that individuals' belief, knowledge of causes or transmission as well as treatment of malaria is important for effective health seeking behaviors among individuals. Therefore, the belief that individuals have towards malaria fever could determine the extent to which they might want to seek help in preventing and treating malaria.

Generally poor health-seeking behaviour in rural areas of Nigeria more especially by pregnant women towards effective prevention practice and treatment of malaria is a serious issue of

concern. One begins to question the levels of knowledge of the causes, transmission and treatment and prevention of malaria among rural dwellers in Nigerian rural settings. This apparent health seeking behaviour raised the need to assess the perception of rural women of child bearing age on their perceptions of malaria in relation to neonatal health. Base on the aforementioned, this study aims to compliment the urgent need to intensify national malaria program efforts of implementing WHO recommendations[6] of identifying cultural and operational barriers that are currently hindering malaria prevention in pregnancy in areas of high malaria transmission, so as to improve uptake of interventions delivery through other channels to compliment the ones offered through traditional health facilities.

The overall objective of this study is to assess the perception and preventive practice of malaria in pregnancy among rural Women of child bearing age, in Zungur district, Bauchi Local Government Area, Nigeria. While the specific objectives of the study are to assess the type of malaria knowledge exists during pregnancy, to examine local understanding of malaria in pregnancy and investigate the preventive attitudes of malaria during pregnancy. This could be achieved by providing answers to the following questions; how does rural women perceived malaria in pregnancy? How do the rural women understand malaria in pregnancy? What is the malaria in pregnancy preventive attitudes of these women?

HYPOTHESIS

H_1: There will be significant perception scores among rural women on malaria in pregnancy prevention**.**

H_0: There will be no significant perception scores among rural women on malaria in pregnancy prevention**.**

MATERIALS AND METHOD

A cross sectional survey research was conducted through the use of structured questionnaire in this study to assess the Perception of Malaria in Pregnancy and Prevention Practice among Rural Women of Child Bearing Age (15-49) in Zungur District, Bauchi Local Government Area (LGA), Nigeria. The questionnaires were administered, after a pre-test was conducted in similar setup, by the researchers and two health staff of the clinic. The study was conducted in Primary HealthCare Centre (PHC), of Zungur Town, in Bauchi LGA; that provides Antenatal Care (ANC) and Children Welfare Clinic (CWC) services, to the people of Zungur Ward, Zungur Dutse Ward, Mun Ward and Burum Ward. All pregnant women and Nursing mothers attending ANC and CWC of the PHC formed the population of the study. Three hundred respondents were

randomly selected from the record of the pregnant women and nursing mothers attending ANC and CWC of the PHC, using table of random numbers, after due consent were obtained from the respondents and ethical approval from research ethics committee of Bauchi state Ministry of health. The ANC services were provided on Tuesdays and Thursdays, while the CWC services are delivered on Mondays and Thursdays as well. After care full considerations, seventy five respondents were randomly selected from each of the four clinic days twice over two consecutive weeks, from 8th to 19th June 2015, given a total of 300 respondents for the study. Questions on women's perception, socio-demographic including socio-economic questions were asked. Cronbach's alpha reliability test of 0.89 was determined with the help of SPSS 22. The data collected was analyzed using descriptive and inferential statistics such as frequency distribution and chi square analysis to test the hypothesis.

RESULTS AND DISCUSSION

Result and discussion section focuses on the interpretation and discussion of the findings of the research. The research questions, objectives and hypothesis formed the framework for the study.

Table 1 reveals the respondents age distribution range, from which it could be seen that the respondents between the ages of 15-20 constituted 71%, 35 to 49 years 19%. This was preceded by 10% for the ages of 20 and 34. This meant that the study covered all the women of child bearing age (15-49 years). Most women in the study area start children bearing and family processes between age 15–20, which explain the reason why they were the majority of the respondents. This finding is not similar to the findings of the Public Health Assessment conducted in Mundri East County on 20th March to 12 April by Oxfam Great Britain (GB) in 2010, which indicated that majority of the respondents fell within the age range of 25-28 and those who were 50 years or above were the least. [11]

Table 1: Age Distribution

Age	Frequency	Percentage
15-20	214	71
20-34	28	10
35-49	57	19
Total	300	100

Source:- Field Survey, 2015

Table 2: Education Distribution

Level of Education	Frequency	Percentage
No Formal Education	57	22
Primary School	158	53
Secondary School	64	21

Tertiary	11	04
Total	**300**	**100**

Source: - Field Survey, 2015

Table 2 above reveals the education distribution of the respondents and shows that 53% of the respondents had primary school education, 21% of the respondents with no formal education, only 4% of the respondents had tertiary education. Educational status is linked to health seeking behaviour, awareness and knowledge. A study conducted in Kenya by Bloland [12] revealed that majority of respondents in the study had high school education, which was predictive factor of malaria knowledge. Bloland findings concurred with the analysis of the respondent's educational status of this study, though majority of the respondents in this study had primary education, but still educational status was significantly associated with increased risk of pregnant women getting malaria or not. Therefore, educational attainment, information and communication about malaria prevention and control play a pivotal role in increasing and improving use of malaria risk reduction measures. [13] Most of the mothers had some form of education, possibly due to the presence of a number of schools which are accessible within the communities.

Table 3: Occupation Distribution

Type of Occupation	Frequency	Percentage
Civil Servant	9	3
Trading	81	27
Farming	163	54
Unemployed	34	11
Craft work	16	05
Total	**120**	**100**

Source:- Field Survey, 2015

Table 3 reveals the distribution of the respondents by occupation, which reveals majority of the women (56%) who participated in this study were Farmers, 11% unemployed (full time house wives), while 27% engaged in trading as sources of their income. This is followed by 5% craft work and civil service with surprisingly the least at 3% respectively. Full time house wives spouses' occupational status reflects on their socio-economic status, which in turn determines their diseases coping ability. Employment status of the respondents was observed to be one among the possible factors associated with the prevalence of malaria among the under fives at the clinic during the survey. This concurred with Makundi's [14] findings who reported the burden of malaria to be highest among poor people, imposing significant direct and indirect costs on individuals and households and pushing households into a vicious circle of disease and poverty. Similar finding was also observed in a study conducted by Wandiga [15] who stated that,

vulnerable households with little coping and adaptive capacities are particularly affected by malaria hence they can be forced to sell their food crops in order to cover the cost of treatment.

Table 4: Marital Status Distribution

Marital Status	Frequency	Percentage
Single	58	20
Married	177	59
Widowed	38	12
Divorced	26	8
Total	**300**	**100**

Source:- Field Survey, 2015

Table 4 present marital status of the respondents, and could be was observed that 59% of the respondents were married, 20% single and 12% widowed, while 8% had been in a marriage relationship but divorced. This variable enabled the study to indicate the number of married respondents and their situation socially. Single mothers find it difficult to cope with family, medical and social burdens, because by nature, she is supposed to be supported by man. A similar study conducted in Uganda in 2010 indicated marital status to be a contributory factor of late ANC visit initiation and its irregular attendance, which mostly disrupt antenatal schedules, where preventive techniques are passed to the pregnant mothers by health workers. [16]

Table 5: Perception of Malaria (N = 300)

S/No	Questions	Options (%)				
		1	2	3	4	5
01	Mosquitoes are the malaria spreading vector.	20	46	18	16	0
02	Malaria is caused by mosquito bite.	49	24	10	10	7
03	Stagnant water, unclear gutters and bushy areas are mosquito breeding areas.	50	50	0	0	0

Source:- Field Survey, 2015

Key:-

1- Strongly agree
2- Agree
3- Undecided
4- Disagree
5- Strongly Disagree

Table 5 shows 20% of the respondents strongly agreed, 46% agreed, and 18% undecided, while 16% disagreed that malaria is spread by mosquito. This finding is in agreement with a report that malaria is caused by protozoan parasites of the genus Plasmodium, through female anopheles mosquito. [1] Majority of the respondents in this study findings knew malaria is transmitted by

mosquitoes, is in agreement with the findings of Batega [17]that 80-90% of the respondents in his study have the knowledge of the cause of malaria, though Udonwa [18] reported a contrary report, but in conformity of this study findings where 18% undecided and 16% disagreed that malaria is spread by mosquito.

It could also be seen in table 5, 49% of the respondents strongly agreed, 24% agreed while 10% undecided, 10% strongly disagree and 7% in disagreement respectively, with the statement that malaria is caused by mosquito bite. This finding is line with Onwujekwe [19], findings of 64% of the respondents correctly agreed bitten by mosquitoes is the cause of malaria. It is evident the level of awareness of the respondents in this study regarding the cause, of malaria was high, yet, misperception about the cause of malaria were not uncommon. There is a need to improve knowledge about malaria in general and in MiP, and also improve uptake of interventions delivered through channels other than the health facility. [20]

It could be observe in table 5, 50% of the respondents strongly agreed and 50% agreed that stagnant water, unclear gutters and bushy areas are mosquito breeding areas. Housing and environmental factors such as proximity of living quarters to mosquitoes breeding sites, like stagnant water, unclear gutters and farming lands were found to be associated with the prevalence of malaria. Lindsay [21] reported a relationship between malaria vector density and the distance of settlement from a water body like river is an important indicator of malaria transmission. It was also being supported by Shell [22], who reported that certain types of housing may influence malaria transmission.

Table 6: Understanding Malaria (N = 300)

S/No	Questions	Options (%)				
		1	2	3	4	5
01	Presence of mosquito within our homes indicates malaria threat.	62	27	10	0	0
02	Malaria in pregnancy is a multidimensional public health problem.	22	17	39	12	10
03	Ante Natal Clinic (ANC) visits during each pregnancy provide mothers with important hints on Malaria.	36	30	9	25	0

Source:- Field Survey, 2015

Key:-

1- Strongly agree

2- Agree

3- Undecided

4- Disagree

5- Strongly Disagree

It could be seen in table 6; 62% of the respondents strongly agreed, 27% agreed, and 10 % undecided, that presence of mosquito within our homes indicates malaria threat. Onwujekwe [19], found 98% of the respondents in his study correctly identified the presence of mosquitoes at home constitute a risk of malaria fever. Based on this study finding, it is prominent that level of the respondents' awareness of the cause of malaria was high.

In table 6, majority of the respondents 39% were undecided, 22% strongly agreed, 17% agreed, 12% strongly disagreed, while 10% disagreed that malaria in pregnancy is a multidimensional public health problem. Diala [5] report that malaria in pregnancy is a major public health concern in Nigeria, they further affirmed that malaria infection is more dangerous during pregnancy, and adverse effects are more serious for the pregnant woman as well as the fetus and newborn. WHO [23]declared malaria in pregnancy a multidimensional public health problem that has severe adverse consequences for the pregnant woman and her unborn baby. Annika [24], University of Tampere, Academic Dissertation) opined that pregnant women are at risk of delivering babies with low birth weight (below 2500g), and malaria increases the risk of maternal anemia that may lead to maternal death. According to Chukwuma [25] "a recent research reveals the mechanisms by which malaria in pregnancy alters the neurocognitive development of millions of children prior to birth. Chukwuma further reveals that the finding shows how the environment in the uterus profoundly impacts the development of a person and lead to neuro cognitive impairment of offspring. [25] Alemu, [1] assertion that over the past years, malaria has been consistently reported as the first leading cause of outpatient visits, hospitalization and death in health facilities across the country. Not understanding of Malaria in pregnancy as multidimensional public health problem, as reveals in this study, constituted a serious hindrance to preventive efforts of stakeholders, and is also indicative of negative perception of the dangers malaria in pregnancy portrait to the mother, fetus and the newborn.

It is shown in table 6 36% of the respondents strongly agree, 30% agree, 9% undecided, while 25% strongly disagreed with the statement that Ante Natal Clinic (ANC) visits during each pregnancy provide mothers with important hints on malaria. It was stated by health care providers that ANC attendance contribute to good implementation of malaria prevention in pregnancy, because important messages on understanding malaria is pass to the mothers. Two-third of pregnant women in this study were observed to commence ANC visits after 20 weeks of gestation, the act indicate poor health seeking behaviour and indicative of negative perceptions

of the dangers Malaria in Pregnancy contain. Khatib [26] reported that due to late and irregular attendance to ANC, a large number of pregnant women did not receive the recommended 2 doses of anti malarial drugs. A similar study conducted in Uganda in 2010 indicated late & irregular attendance of ANC disrupt antenatal schedules of proper delivery of anti malarial care. [16]

Table 7: Preventive Practice (N = 300)

S/No	Questions	Options (%)				
		1	2	3	4	5
01	Regular gutters and bushy areas clearance around our houses prevent mosquito breeding.	69	18	4	5	4
02	Health seeking behavior is a sound preventive attitude.	57	19	10	10	4
03	Ante Natal Clinic (ANC) visits during each pregnancy is an important preventive health seeking behaviour.	48	18	21	13	0

Source: - Field Survey, 2015

Key:-

1- Strongly agree
2- Agree
3- Undecided
4- Disagree
5- Strongly Disagree

Table 8: Testing of Hypotheses

Respondents View	Oi	Ei	Oi -Ei	$(Oi-Ei)^2$	$\frac{(Oi-Ei)^2}{Ei}$
Strongly Agree	118	60	58	3364	56.06
Agree	127	60	67	4489	74.81
Undecided	41	60	-19	361	6.01
Strongly Disagree	10	60	-50	2500	41.66
Disagree	0	60	-60	3600	60
Total	**300**	**300**	**254**	**14314**	**238.54**

Sources: Computed from Data, 2015

It can be observed in table 7, majority of the respondents 69% strongly agreed, 18% agreed, 4% undecided, 5% disagreed while 4% strongly disagreed that; Regular gutters and bushy areas clearance around our houses prevent mosquito breeding. The fact that the respondents in this study were aware that gutter and bush clearing as a prevention measure agreed with the findings of Erhun[27] that their respondents were aware that removing containers that can hold water, where mosquitoes can breed, gutter clearance, and bush clearing is an important control measure of mosquitoes breading. Moreover, sseveral studies reviewed by Centre of Disease Control indicate

that most pregnant women strongly felt that malaria can be prevented. [2] Despite efforts to reduce deaths due to malaria, the disease is still the leading cause of morbidity and mortality.

In Table 7 majority of the respondent 57% strongly agreed, 19% agreed, 10% undecided, 10% disagreed, while 4% strongly disagreed with the statement health seeking behavior is a sound preventive attitude. This finding was affirmed by Lawal[10] that improper health seeking behaviour for effective treatment is still a great concern for health practitioners especially in rural areas, therefore, individuals understanding of malaria fever, determine the extent to which individuals practice malaria prevention techniques. [10].

Table 7 reveals 51% of the respondent strongly agreed, 29% agreed, 10% were undecided, and 10% disagreed that; Ante Natal Clinic (ANC) visits during each pregnancy is an important preventive health seeking behaviour. Important health preventive strategies are passed on to pregnant women, through antenatal care (ANC) services. ANC is the leading vehicles of Insecticides Treated Net (ITN) distribution outlets in the communities that maximized overall ITN coverage. [20] There is a need to improve knowledge about neonatal health and malaria to improve uptake of interventions delivered through channels other than the health facility. [20]

Table 8: Testing of Hypotheses

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Disagree	0	60	-60	3600	60
Total	300	300	254	14314	238.54

Sources: Computed from Data, 2015

Therefore, Z^2 (Chi-Square) value calculated is 52

The degree of freedom K – 1, 5 – 1 = 4

Using the statistical table to find the value of Z^2_4; 0.05, the result is =14.860

Decision rule: since X^2 calculated is greater than X^2 tabulated, (238.54>14.860) at 5% confidence level and 4 degree of freedom, the null hypothesis is rejected and the alternative hypothesis which stated that "There will be significant perceptions scores among rural women on malaria prevention**.**" is accepted.

CONCLUSION

Based on the findings of this study, it can be concluded that the respondents were familiar with causes of malaria and the necessary preventive strategies. It was equally found that educational

status of participants influenced the practices of malaria preventive strategies. Most of the respondents in this study were able to correctly identify mosquitoes as vector that transmits malaria, which can be prevented by sleeping under mosquito nets, netting of windows and doors, residual sprays, gutters and bush clearing. The study also identified some misperception about the transmission of malaria, not understanding of Malaria in pregnancy as multidimensional public health problem, and late commencement of ANC visit, which indicate relative negative perception of the dangers malaria in pregnancy portrait to the mother, fetus and the newborn.

To correct the misperception on the malaria transmission, augment understanding of malaria in pregnancy as a multidimensional public health problem, and encouragement of early commencement of ANC visit among rural women, health education should be conducted by the health personnel using cultural sensitive but evidence-based approach. Government should intensify efforts that will improve the knowledge of rural women on malaria preventive strategies. Periodic monitoring and sensitization programmes on malaria in pregnancy preventive strategies using civil society organizations should be employed by government and stake holders as well.

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