

Awareness And Practice Of Malaria Prevention Among Pregnant Mothers Attending Ante-Natal Clinic At Primary Health Care Centre In Okada, A Ruel Community In Edo-State Nigeria.

^{1.} IRODI C. CANIS.

[All correspondences to Mr Irodi C C,]
Department of Nursing sc, Igbinedion University Okada, Edo- State, Nigeria.

^{2.} Dr Linda Njoku

Department of nursing sc, Nnamdi Azikwe University, Akwa, Anambra State, Nigeria.

^{3.} Dr Mrs Osunde Ngozi

Department of Nursing sc, Igbinedion University, Okada, Edo- State, Nigeria.

^{4.} Mrs Nonye Celestina Irodi

Department of Nursing sc, Igbinedion University, Okada, Edo- State, Nigeria.

^{5.} Mrs Enodiana Amena Angela

School of Post Basic Nursing Studies, University of Benin Teaching Hospital Benin City.

Abstract

This research work was aimed at assessing the Awareness and practice of malaria prevention among pregnant mothers attending ante-natal clinic at Okada primary Health Centre, a rural community in Edo- state. Malaria is a major impediment to health in sub- Saharan Africa, and its most common among children under five years old and pregnant women especially Nigeria. It remains the single biggest cause of death among young children in Africa. This study adopted a descriptive survey design. The population for this study were pregnant women registered in and attending the ante natal clinic at Okada Primary Health Centre, a rural community in Edo – state Nigeria. Data was obtained from sample of 60 participants who consented through a validated 36-item interviewer-administered questionnaire with a reliability coefficient of 0.74. Analysis of variance was used to test differences in measures across age and education, with a cut-off set at $p \leq 0.05$ level of significance. The researcher used questionnaires to collect data. Data was analyzed using tables, percentages and charts. Findings revealed that most women have moderate awareness on the various measures of malaria prevention, control and practice in Okada Community. Recommendation was made on how to improve women's awareness and practice towards malaria prevention in pregnancy.

Key words; Malaria Prevention, awareness, practice, Pregnant.

Date of Submission: 20-07-2021

Date of acceptance: 04-08-2021

I. Introduction

1.1 Background to the Study

Malaria is a tropical disease transmitted by an infected *plasmodium* species of mosquito and constitutes an important cause for global burden of morbidity and mortality among pregnant women and under five year old children. The 2013 World Malaria Report has it that in 2012, an estimated 627,000 deaths occurred as a result of malaria and of this, 90% occurred in Sub-Saharan Africa with 77% recorded among under-Five years. The report also revealed that about half the world population of 3.4 billion people remains at risk of malaria exposure living in endemic regions. In Africa, malaria constitute the primary cause of infectious disease burden and bears considerable proportion of the global burden of about 2.7 million deaths attributable to the disease with an estimated 300 million people who live with it yearly (WHO, 2010). The populations at highest risk of morbidity are young children and pregnant women, because of their low immunity against the disease (Roca-Feltre, Carneiro, Armstrong-Schellenberg, 2008; Rogerson, 2010). Malaria accounts for serious pregnancy-related complications during childbirth and a major cause of anemia in both children and pregnant women (Ekejindu, Udigwe & Chijioke, 2006; Matangila, Lufuluabu, Ibalanky, da Luz, Lutumba, & Van Geertruyden, 2014). As a result of the deteriorating health conditions of populations in the developing world, and the impact of malaria to the health of pregnant women and under five year old, the Millennium Development Goals (MDG)

initiative was launched in 1990 with the aim of encouraging governments of nation states to initiate policies and mobilize resources that would significantly impact on factors responsible for health disparities, poverty in diverse communities, environmental degradation and social inequality.

There is a seasonal variation in the intensity of malaria in Nigeria, being higher in the rainy season (Ashikeni, 2013). In highly endemic areas, children and pregnant women are most vulnerable to the attack as other adults acquire a degree of immunity through continued exposure. Malaria infection during pregnancy is a major public health problem in tropical and sub-tropical regions throughout the world. It poses substantial risks to the mother, her fetus and the neonate. In Nigeria, malaria during pregnancy is responsible for 11% of maternal mortality.

The World Health Organisation (WHO), (2015) strategic framework for malaria prevention and control during pregnancy in areas of stable malaria transmission recommends three interventions for pregnant women: intermittent preventive treatment (IPT), use of insecticide-treated nets (ITNs), and case management of malaria illness and anaemia (Akaba, 2013). The malaria preventive health behaviours among pregnant women as well as the awareness about malaria and the treatment-seeking behaviours in the rural communities have been found to be generally poor across the six geo-political zones due to its low awareness and practice. Furthermore, the symptoms of uncomplicated malaria are easily missed in pregnancy at the home and community level, and this leads to poor outcomes of pregnancy.

The incidence of malaria and associated deaths in Nigeria is reportedly far more than those of any country in the world this as a result of poor awareness about the prevention modalities among pregnant women. There have been a considerable number of reports about awareness and practices relating to malaria and its control from different parts of Africa. These reports concluded that misconceptions concerning malaria still exist and that practices for the control of malaria have been unsatisfactory (Deressa, 2008). However, epidemiological patterns of malaria are widely different from one place to another (Himeiden, 2015). Specific data of a place collected can help in the making of a design of improved programme for strategic malaria control for a particular location. There are available effective low-cost strategies for the treatment of malaria, but any attempt to control a disease such as malaria in an area or locality should first of all be preceded by an extensive evaluation of the magnitude of the prevailing situation; a complete description of the health problems of the community's view of its own problems and its use of existing health services.

Literature reviewed, showed that Nigeria Sustainable Development Goals (2015) noted that the proportion of children under-5 sleeping under insecticide-treated mosquito nets rose from 2.2% in 2003 to 5.5% in 2008. Malaria infection rates have dropped, but malaria still accounts for an average of 300,000 deaths each year. According to World Health Organization (2015), around the world, 3.2 billion people are at risk of contracting malaria. In 2015, an estimated 198 million cases occurred, and the disease killed approximately 584 000 people, most of them children under five in Africa. On average, malaria kills a child every minute.

Nigeria has adopted the policy recommended by WHO protecting the women during pregnancy using intermittent preventive treatment (IPTp) with one curative regimen of sulphadoxine-pyrimethamine (SP) (1,500 mg sulphadoxine and 75 mg pyrimethamine), at least twice during pregnancy, once during the 2nd trimester, and then at least one month apart since the year 2005.

But despite these observations pregnancy-related malaria remains a major cause of adverse pregnancy outcomes and effective access to malaria prevention in pregnancy remains limited in the country. The aim of this study therefore is to assess the awareness, and practice use of malaria preventive measures by pregnant women in Okada, a rural community in Edo-State, Nigeria. Although there have been many previous studies on malaria morbidity and mortality in pregnant women and their babies, reports are scanty on the level of awareness and practice of malaria preventive measures among pregnant women. Hence, the study intends to examine the level of Awareness and practice of malaria preventive measures among pregnant women in Okada Community, Edo –State Nigeria.

Recent studies have shown that malaria in pregnant among women is still rampant and the effects are alarming, most women do not pay enough attention to malaria preventive measures. Malaria infection in pregnancy is a major risk factor for maternal and child death, and substantially increases the risk of miscarriage, stillbirth and low birth weight. Malaria in pregnancy have shown a significantly high in sub-Saharan African country alone as there are about 25 to 30 million pregnant women at risk of malaria infection due to Plasmodium falciparum that causes multiple adverse consequences for the pregnant women, the foetus and the newborn (WHO 2014). Hence, the effects of malaria in pregnancy on maternal, newborn, infant and child health cannot over emphasized especially in underserved communities where there is no access to basic health care.

1.2 Statement of Problem

In Nigeria, perinatal mortality due to malaria is about 1500 per day. In areas where malaria is endemic, 20-40% of all babies born may have a low birth weight (UNICEF 2012). Pregnant women compared to non-pregnant women are at an increased risk for malaria, as these variety of the clinical presentations in the woman and her foetus depend on the level of pre-pregnancy immunity.

Nevertheless, there is still poor awareness and practice level about the prevention of malaria among pregnant women in Nigeria. The ministry of health has not done so well on the level of awareness publicity on the causes, prevention and treatment practices of malaria in pregnancy. The antenatal care services have not been able to address issues relating to awareness and practice on prevention of malaria in pregnancy through production of information education communication for pregnant women receiving antenatal care.

The local communities of Edo State also have a high proportion of its population at high risk of becoming infected with malaria because they are situated in the tropical rain forest region of Midwestern Nigeria which gives the researcher the interest to carry out this study on awareness and practice of malaria prevention measures among pregnant women in Okada a rural Community Ovia north East, Edo State.

1.3 Objectives of Study

1. To examine the level of awareness of malaria preventive measures among pregnant women Attending Antenatal clinic in Okada PHC a rural Community in Edo -State.
2. To identify their practice towards malaria preventive measures among pregnant women Attending Antenatal clinic in Okada PHC, a rural Community in Edo- state.

1.4 Research Questions

1. What is the awareness level of malaria preventive measures among pregnant women Attending Antenatal clinic in Okada PHC, a rural Community in Edo State. ?
2. What is their practice level towards malaria preventive measures among pregnant women Attending Antenatal clinic in Okada PHC, a rural Community in Edo State?

1.5 Research Hypotheses

There is no significant relationship between the level of awareness and practice towards malaria preventive measures among pregnant women in Okada community Edo State.

1.6 Significance of Study

The level of awareness and practice of malaria prevention measures among pregnant women has a significant effect on their health and that of their unborn child. The findings of this study will provide information on awareness, and practice of malaria prevention and control measures amongst pregnant women in Okada community Edo State.

It will inform midwives and nurses at the ante-natal clinic on measures to be carried out to increase the awareness of pregnant women to malaria preventive measures. Findings of this study will also help the Government health sector to address gaps in the ante natal clinic care education on malaria elimination in pregnancy.

1.7. Scope of the Study

This study will mainly focus on the level of awareness and practice of malaria prevention measures among pregnant women attending ante natal clinic in Okada community Edo State.

II. Methodology.

Research Design This study adopted a descriptive survey design, the survey method was used because the study focused on describing the level of **awareness and practice** of malaria prevention, and control measures among pregnant women attending Antenatal clinic in Okada community Edo State.

Research Setting This study was carried out at PHC Okada community, situated at Ovia North-East local Government Area of Edo State, and South-western zone of Nigeria. This study was specifically conducted among pregnant women attending the ante-natal clinic at Okada PHC in Community, Edo State.

Target Population The population for this study was 60 pregnant women attending the ante- natal clinic at Okada PHC Edo State.

Inclusion Criteria Women attending ante -natal clinic at Okada PHC, Edo State, irrespective of their age, tribe, marital status, educational level, income level and occupation.. Women attending ante-natal clinic at Okada PHC, Edo State who gave consent to participate in the study.

Exclusion Criteria. Women who attend ante-natal clinic at Okada PHC, Edo State, but do not give their consent to participate in the study. Non-academic workers who did not give consent to participate in the study.

Sample Size/ Sampling Technique. The researcher adopted simple random sampling technique to select participants (sample) from the total population of pregnant women in ante natal clinic at PHC Okada Community, Edo State. In this study, a sample of 60 participants was selected for the study using Taro Yamane's formula.

Instrumentation for Data Collection The instrument for data collection for this study is a questionnaire. The questionnaire was divided into the following sections; Section A: Demographic data

Section B; Awareness of preventive measures of malaria. Section D: practice of of malaria preventive measures

Validity of Research Instrument The questionnaire was reviewed by the researcher, and selected research experts to critique and ascertain the content validity of questionnaire and to see if the items in the questionnaire cover the research questions and hypotheses, before it was distributed to respondents.

Method of Data Collection Consent was obtained from the participants and the protocol for collection of data was explained to them. The distribution of the questionnaire was done by the researcher with the aid of trained research assistants who was well informed about the instrument used for data collection. The questionnaire was retrieved after few hours, after they have been filled properly and accurately by the participants. Collection of data was done over a period of two weeks with movement form place to place.

Method of Data Analysis. The data generated from the questionnaire was coded and analyzed with the use of statistical package for social sciences (SPSS) version 21. Descriptive analysis using frequencies, standard deviation, percentages and means to analyze demographic data and to provide solutions to the research questions of this study.

Ethical ConsiderationsAll ethical procedures were observed from the primary health care coordinator to the head of the PHC unit and confidentiality and patient's anonymity was maintained.

III. Result.

Table 4.1: Descriptive statistics of demographic characteristics of the respondents N=60

| Variables | Categories | Frequency N=60 | Percentage % |
|---|----------------------|-------------------|-----------------|
| Age | >19years | 7 | 11.7 |
| | 20-25years | 12 | 20.0 |
| | 26-30years | 14 | 23.3 |
| | 31-35years | 8 | 13.3 |
| | 36years and above | 19 | 31.7 |
| Total | | 60 | 100 |
| Ethnicity | Edo | 48 | 80.0 |
| | Igbo | 12 | 20.0 |
| Total | | 60 | 100 |
| Religion | Christianity | 20 | 33.3 |
| | Islam | 40 | 66.7 |
| Total | | 60 | 100 |
| History of Malaria in previous pregnancy | Yes | 53 | 88.3 |
| | No | 7 | 11.7 |
| Total | | 60 | 100 |
| Occupation | Civil Servant | 4 | 6.7 |
| | Business woman | 16 | 26.7 |
| | Housewife | 26 | 43.3 |
| | Others | 14 | 23.3 |
| Total | | 60 | 100 |
| Educational Background | Primary school level | 19 | 31.7 |
| | Tertiary level | 28 | 46.7 |
| | No formal education | 13 | 21.7 |
| Total | | 60 | 100 |
| How old is your pregnancy | 3months | 21 | 35.0 |
| | 6months | 16 | 26.7 |
| | 9months | 19 | 31.7 |
| | Others | 4 | 6.7 |
| Total | | 60 | 100 |

Based on the table 4.1 above, 23.3% of the respondents are between 26-30years, 20% are between 20-25years, while 13.3% of the respondents are between 31-35years and more than 31% are above 36years of age. Majority of the pregnant women (48%) are from Edo 20% are from the Igbo ethnic group about 66% of the respondents practice the Islamic religion while 33.3% practice the Christian religion. 43.3% of the pregnant

women reported they are full housewife, 26.7% are business women, 23.3% reported other profession while 6.7% reported they are civil servant. More than 46% of the respondents have tertiary level of education, 31.7% hold the primary level of education and more than 21% had no formal education.

4.2: Descriptive statistics of Awareness of Malaria Preventive measures among respondents

| Variables | Categories | Frequency | Percentage |
|---|---|-----------|------------|
| Are you aware of malaria in pregnancy | Yes | 53 | 88.3 |
| | No | 7 | 11.7 |
| Total | | 60 | 100 |
| Have you ever had malaria in any previous pregnancy | Yes | 29 | 48.3 |
| | No | 31 | 51.7 |
| Total | | 60 | 100 |
| Are you aware that malaria could affect you and your baby negatively | Yes | 45 | 75.0 |
| | No | 15 | 25.0 |
| Total | | 60 | 100 |
| If yes, how do you think malaria can be prevented or controlled | Use of insecticide treated net | 20 | 33.3 |
| | Intermittent preventive treatment in pregnancy with appropriate anti-malarial | 19 | 31.7 |
| | Prompt diagnosis and malaria case management in pregnancy | 7 | 11.7 |
| | Maintenance of clean environment free of stagnant water and overgrown bushes | 14 | 23.3 |
| Total | | 60 | 100 |
| Malaria preventive and control measure is important to prevent malaria in pregnancy | Yes | 29 | 48.3 |
| | No | 31 | 51.7 |
| Total | | 60 | 100 |
| Do you know that malaria is caused by mosquito bite | Yes | 45 | 75.0 |
| | No | 15 | 25.0 |
| Total | | 60 | 100 |
| Are you aware of methods used to prevent malaria in pregnancy | Yes | 24 | 40.0 |
| | No | 36 | 60.0 |
| Total | | 60 | 100 |
| Eating balanced diet is important in the prevention and control of malaria | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| Total | | 60 | 100 |
| Promptly seeking medical attention after observing signs and symptoms of malaria (fever, weakness, headache) is advisable | Yes | 32 | 53.3 |
| | No | 28 | 46.7 |
| Total | | 60 | 100 |
| Do you know that a single mosquito bite can cause malaria | Yes | 33 | 55.0 |
| | No | 27 | 45.0 |
| Total | | 60 | 100 |
| How did you acquire the knowledge of malaria preventive and control measure | Health education | 8 | 13.3 |
| | Seminars | 15 | 25.0 |
| | Media | 23 | 38.3 |

| | | | |
|---|-----------------|----------|-------------|
| Total | Church | 14 60 | 23.3 100 |
| The following are signs and symptoms of malaria | Severe headache | 26 | 43.3 |
| | Vomiting | 13 | 21.7 |
| | Chills | 7 | 11.7 |
| Total | Body weakness | 14 60 | 23.3 100 |

From the table 4.2, results of the analysis over 88% of the respondents are aware of malaria in pregnancy while others are not aware. 75% of the respondent are aware that malaria could affect the woman and baby negatively while others are not. Over 33% of the respondents are aware of the use of insecticide treated net as method of preventing and controlling malaria, 31.7% are aware of the use of intermitted preventive treatment in pregnancy with appropriate anti-malaria. 51.7% of the respondent do not believe that malaria preventive and control measures are important to prevent malaria in pregnancy while over 48% are aware of efficacy of these measures. Over 38% reported the media as the major source of knowledge about malaria preventives and control measure, 25% are reported seminars, 23.3% reported church while 13.3% reported health education as the main source of knowledge of malaria preventives and control measure.

Table 4.3: Descriptive statistics of practice of Malaria Preventive Measures among respondents

| Statement | Yes | No | Unsure | X | S.D |
|---|-----------|-----------|-----------|------|------|
| I do not use these methods because of any culture | 35(58.3%) | 7(11.7%) | 18(30%) | 1.72 | 0.90 |
| I believe these methods are expensive | 24(40%) | 21(35%) | 15(25%) | 1.85 | 0.79 |
| I do not have time to partake in all these methods | 23(36.3%) | 23(38.3%) | 14(23.3%) | 1.85 | 0.78 |
| I think there is limited knowledge on the procedure and steps involved in these methods | 18(30%) | 26(43.3%) | 16(26.7%) | 1.97 | 0.76 |
| I believe there are not enough facilities to treat malaria promptly | 36(63.3%) | 13(21.7%) | 9(15%) | 1.52 | 0.75 |
| I don't practice the preventive and control measures of malaria because i don't have an adequate knowledge on the various measure | 38(63.3%) | 14(23.3%) | 8(13.3%) | 1.50 | 0.72 |

Based on the results of analysis presented in the table 4.4 above which revealed the level of factors of influencing the use of malaria preventive and control measure among pregnant women which was described using descriptive statistics of Mean and Standard Deviation. I did not use these methods because of any culture (Mean=1.72, S.D=0.90) and I believe these methods are expensive (Mean=1.85, S.D=0.79) I also do not have time to partake in all these methods (Mean=1.85, S.D=0.78), also I think there is limited knowledge on the procedure and steps involved in prevention and control of malaria in pregnancy (Mean=1.97, S.D=0.76), then I believe there are no enough facilities to treat malaria promptly (Mean=1.52, S.D=0.75) followed by I don't practice the preventive and control measures of malaria because I don't have an adequate knowledge on the various measure (Mean=1.50, S.D=0.72)

. Testing of Research Hypotheses

Hypothesis One: There is no significant relationship between the awareness of malaria preventive and practice of malaria preventive measures among pregnant women

Table 4.5: Pearson Product Moment correlation showing the relationship between awareness of malaria preventive measure and practice among pregnant women .

| Variables | Mean | Standard Deviation | N | R | P | Decision |
|--|--------|--------------------|----|-------|------|----------|
| awareness of malaria preventive measures | 15.800 | 1.9380 | 60 | 0.747 | 0.05 | Sig |
| practice of Malaria preventive measures | 20.667 | 3.2031 | | | | |

$r=0.747$ $N= 60$ $df=59$ $p< 0.05$

From the result presented in the table 4.5 above which revealed that, there is a significant relationship between level of knowledge and attitude of malaria preventive and control measures among pregnant women ($r=0.747$, $df=59$, $p<0.05$). The result rejected the null hypothesis and accepted the alternate hypothesis, which states that, there was a significant relationship between level of knowledge and attitude of malaria preventive and control measures among pregnant women.

IV. Discussion

The results on the awareness level of pregnant women on malaria prevention measures revealed that over three quarter of the respondents have heard of malaria, more than half of the respondents know the methods to prevent and practice of malaria control measures, while few of the respondents use these methods. The result is consistent with the findings of Federal Ministry of Health (FMOH),(2014) which stated that the households had good knowledge of the symptoms of malaria if they mentioned at least fever, headache, chill and joint pain but poor knowledge if they mentioned fever plus general weaknesses or dizziness. The awareness level was facilitated by Educational level of the respondents. Those pregnant mothers with higher education understand the various methods of malaria prevention than those without education. It is very necessary for the health care providers to find a more better method of educating the non literate mothers on Malaria prevention and practice measures especially at the rural communities where majority of women are illiterates. This is supported by the findings of Ebako et al (2009) who found that pregnant women with such level of education use more chemoprophylaxis than those with lower level of education (OR = 3.14; p=0.02). This could be because with such level of education, women can better understand the necessity for Malaria prevention and its implications in pregnancy. Possibly, they know that it is better to prevent than to cure [meaning that prevention is much cheaper than to cure a disease].

The results on the practice of malaria prevention and practice measures among pregnant women revealed that some of the respondents do not practice malaria prevention and control measures because of their culture, some don't accept it because they believe it is expensive. Most cultures in Edo believed on taking Native herbs [known as Agboo] when the malaria infection had set in. Many verbalized that it works for them more than orthodox drugs. For this reason, they do not believe in malaria prevent and its practice. This cultural practices is purely associated with illiteracy and ignorance among pregnant mothers in Okada Community. This is in concordance with the study by Ziba et al (1994) who found that among Malawian households, mosquito coils were the most used insecticides and that 47% used insecticides in combination with bed nets. We discovered that in this study that even the Government distributed preventive materials free, many women don't use them rather the prefer burning native leaves to WHO recommended mosquito treated Nets and prophylactic drugs for malaria prevention. We also noticed that not all pregnant women received sulphadoxine-pyrimethamine [SP] which is supposed to be distributed free of charge to pregnant women during prenatal consultations, an indication that the drug is not readily available in some health institutions. Among the women 30% used insecticides with mosquito coils being the most used (21.5%); 30% used insecticide + bed nets. Most women even gotton the drugs either will not use them or they throw them away. These undue health behaviors, necessitated the high level of mother child mortality in sub- Saharan Africa especially Nigeria. The non adherence to Malaria preventive and practice measures have actually put many Okada pregnant mothers at risk continued malaria transmission.

The test of hypothesis revealed a significant relationship between the number of still births and the use of malaria preventive measures.

IMPLICATION TO NURSING PRACTICE.

The quest to eradicate malaria in pregnancy is of crucial important, hence every health personnel has a responsibility especially health care providers mainly Nurses. The role of nurses is very important because nurses and midwives have direct contact with the pregnant women. Health education should be done regularly and in simple terms, everything on malaria should be taught in ways that can be understood easily, this should be done consistently and questions should be encouraged. They should emphasize on the importance of clean environment, proper disposal of waste, use of insecticide and they should be encouraged to report early if any sign of malaria is noticed. It is important for the pregnant women to also know the negative effects of malaria on mother and child; this will serve as a drive to use malaria preventive and control measures. Home visiting with planned health education is also an effective way to monitor preventive and practices of malaria control measures, their environment should be inspected and they should be given tips on environmental hygiene to maintain a malaria free pregnancy.

LIMITATION OF THE STUDY

The major limitation that the researcher would face in carrying out this research is time. Due to pressing school activities, the time frame allowed for the completion of the research work is too short. However, notwithstanding this limitation, rational and logical steps and strategies would be taken to ensure that the result of this study is reliable and the work is completed and submitted on time.

V. Conclusion

This study on level of awareness and practice of malaria preventive measures among pregnant women attending antenatal clinic at Okada had revealed causes of poor awareness and practice of preventive measures of malaria in pregnancy among women of attending Ante-natal clinic at Okada a rural Community in Edo State Nigeria. Recommendations were made on how best to bring zero malaria transmission in African Sub Sahara especially Nigeria. This could be achieved through adequately planned health education and Home visits

VI. Recommendations

Based on the outcomes of this study, it was hereby recommended that:

1. There is need for behavior communication change on prevention of malaria in pregnancy among pregnancy women in Nigeria.
2. Religious organizations should use their position to encourage pregnant women to go for antenatal clinic
3. Advocacy to increase awareness towards prevention of malaria in pregnancy
4. There is need for support group meetings for pregnant mothers to reduce the prevalence of malaria in pregnancy.
5. Adequate planned health education and Home visits should be emphasized by health care providers.. to pregnant mothers in Nigeria.

LIMITATION OF THE STUDY ;The major limitation that the researcher would faced in carrying out this research was time constraint. Due to pressing nature activities, the time- frame allowed for the completion of the research work was short. However, not withstanding this limitation, rational logical steps and strategies were taken to ensure that the result of this study is reliable and the work was completed within time limit.

SUGGESTION FOR FURTHER STUDIES

The following suggestions for future research were made ;

1. There is the need for experimental studies (clinical trials) to be done on certain herbs especially native herbs used by most pregnant women in controlling malaria: to ascertain their efficacy.
2. There is the need to apply quantitative research method, increase sample size and extend the study to cover many Ante-natal Clinics in many remote primary health Centers in southern Nigeria. This will help rectify some if not all the sampling bias(es) in the study.

References

- [1]. Adedotun AA, Morenikeji OA, Odaibo AB, (2010) Knowledge, attitude and practice about malaria in an urban community in South western Nigeria. *J Vector Borne Dis* 2010;47:155-9.
- [2]. Adefioye, O. A., Adeyeba, O. A., Hassan, W. O., and Oyeniran, O. A. (2007). Prevalence of malaria parasite infection among pregnant women in Osogbo, Southwest, Nigeria. *American-Eurasian Journal of Scientific Research*, 2(1):43-45.
- [3]. Aduloju, OP, Ade-Ojo, IP, Olaogun, OD, Olofinbiyi, BA & Akintayo, AA. (2013) Effect of intermittent preventive treatment of malaria on the outcome of pregnancy among women attending antenatal clinic of a Nigerian Teaching Hospital. *Tropical Journal of Obstetric Gynaecology*30(1):7-15.
- [4]. Agan TU, Ekabua JE, Udoh AE, Ekanem EI, Efiok EE, Mgbekem MA, (2010). Prevalence of Anemia in women with asymptomatic malaria parasitaemia at first antenatal care visit at the University of Calabar Teaching Hospital, Calabar, Nigeria. *Int J WomensHealth* ;2:229-33.
- [5]. Agbor-Enoh, S. T., Achur, R. N., Leke, R., and Gowda, D. C. (2013). Chondroitin sulfate proteoglycan expression and binding of *Plasmodium falciparum*-infected erythrocytes in the human placenta during pregnancy. *Infectious Immunology*, 71:2455-2461.
- [6]. Agomo, CO. & Oyibo, WA. (2013) Factors associated with risk of malaria infection among pregnant women in Lagos, Nigeria. *Infectious Diseases of Poverty*. 2:19 doi: 10.1186/2049-9957-2-19References
- [7]. Agu, A. P., and Nwojiji, J. O. (2015). Childhood malaria: mothers' perception and treatment seeking behaviour in a community in Ebonyi State, SouthEast Nigeria. *Journal of Community Medicine and Primary Health Care*, 17(1): 45-50.
- [8]. Aina, S. (2015). Mothers' perceptions, recognition and treatment of childhood malaria at community level, in Rakai District–Uganda. *Trans. R. Soc. Trop. Med. Hyg.*, 56:758–762.
- [9]. Akaba, GO, (2013) Knowledge and utilization of malaria preventive measures among pregnant women at a tertiary hospital in Nigeria's Federal Capital Territory. *Nigeria Journal of Clinical Practice* 16(2):201-206.
- [10]. Akinboro, R. A., Ojurongbe, O., Adefioye, O. A., and Bolaji, O. S. (2010). *Plasmodium falciparum* parasitaemia in pregnancy in relation to maternal anaemia. *Afr. J. Clin. Exper. Microbiol.*,11(3):164-169.
- [11]. Akinleye, SO, (2009) Knowledge and utilization of intermittent preventive treatment formalaria among pregnant women attending antenatal clinics in primary health care centers in rural southwest, Nigeria: a cross-sectional study. *BMC Pregnancy and Childbirth* 9(28):1-8.
- [12]. Alaba, O. A., and Alaba, O. B. (2008): "Scourge of Malaria in Nigeria. *Proceeding of Annual Conference of the Nigerian Economic Society (NES)*, pp 395-413.
- [13]. Alba, S., Dillip, A., Hetzel, M., and Mayumana, I. (2013). Improvements in access to malaria treatment in Tanzania following community, retail sector and health facility interventions - a user perspective. *Malaria Journal*, 9:163.
- [14]. Alemu, A, Abebe, G, Tsegaye, W & Golassa, L. (2011) Climatic variables and malaria transmission dynamics in Jimma town, South West Ethiopia. *Parasites and Vectors* 4(30):1-11.
- [15]. Anorlu, I.O (2011) Randomised placebo-controlled trial of iron supplementation and malaria chemoprophylaxis for prevention of severe anaemia and malaria in Tanzanian infants. *Lancet*. Sep 20;350(9081):844-50. PubMed PMID: 9310602.

- [16]. Aribodor, D. N., Njoku, O. O., Eneanya, C. I., and Onyali, I. O. (2013). Studies on the prevalence of malaria and management practices of Azia community, in Ihiala L.G.A., Anambra State, SE Nigeria. *Nig. J. Parasitol.*, 24: 33-38.
- [17]. Armstrong-Schellenberg, J. R. (2014). What is clinical malaria? Finding case definitions for field research in highly endemic areas. *Parasitology Today*, 10: 439–442.
- [18]. Arulogun, S & Okereke, C. (2012) Knowledge and practices of intermittent preventivetreatment of malaria in pregnancy among health workers in a southwest local government area of Nigeria. *Journal of Medicine and Medical Sciences* 3(6):415-422
- [19]. Ashikeni, A.(2013) Effects of intrauterine growth retardation on mortality and morbidity in infants and young children. *Eur. J. Clin. Nutr.*,52(suppl 1):34–42.
- [20]. Atulomah, B, C &Atulomah, N. O (2012) Health Literacy, Perceived-Information Needs and Preventive-Health Practices Among Individuals in a Rural Community of Ikenne Local Government Area, Nigeria. *Ozean Journal of Social Sciences*. 5(3): 95 – 104
- [21]. Ayanda, O. (2009). Relative abundance of adult female anophelines mosquitoes in Ugah, Nasarawa State, Nigeria. *Journal of Parasitology and Vector Biology*, Vol. 1 (1) pp. 005-008.
- [22]. Ayanlade, A., Adeoye, N. O., and Babatimehin. (2010). Climate Change/variability and malaria transmission in Sub-Saharan Africa: A case of Nigeria An international conference on the occasion of the 250th anniversary of the Royal Norwegian Society of Sciences and Letters, Trondheim, Norway, 21-24.
- [23]. Bakika, M. (2014). Management of malaria within households in Mpigi district, women behaviour, attitudes and practice in initial management of malaria. *Trans. R. Soc. Trop. Med. Hyg.*, 87:648–654.
- [24]. Balogun, O. R. (2009). Patients' perception of antenatal careservices in four selected private health facilities in Ilorin, Kwara state of Nigeria. *Niger. Medi. pract.*,51(4): 80-84.
- [25]. Bauch, J.A.,Gu, J.J. &Baltzell, K.A. (2013) Perception of malaria risk in a setting of reduced malaria transmission: a qualitative study in Zanzibar. *Malaria Journal*. 12:75 <http://www.malariajournal.com/content/12/1/75>
- [26]. Beeson, J. G., Mhango, C., Dzinjalama, F., and Molyneux, M. E. (2010). Plasmodium falciparum rosette formation is uncommon in isolates from pregnant women. *Infect. Immune.*, 63:391-393.
- [27]. Bell, D., Rouel, G., Miguel, C., Walker, J., and Allan, S. (2011). Diagnosis of malaria in a remote area of the Philippines: comparison of techniques and their adherence by health workers and the community. *Bulletin of the World Health Organization*, 79: 933–941.
- [28]. Bernard, J., Brabin, B. Marian, W., and Jenny, H. (2008). Monitoring and evaluation of malaria in pregnancy, and developing a rational basis for control. *Malaria journal*, 10: 2875-2877.
- [29]. Bojang, K. A. (2009). The diagnosis of Plasmodium falciparum infection in Gambian children, by field staff using the rapid, manual, ParaSight-F test. *Annals of Tropical Medicine and Parasitology*, 93: 685–687.
- [30]. Brabin B (2017). Malaria in pregnancy: current issues. *Afr Health* 19: 19-20.
- [31]. Breman , 2004 IPTP in high transmission areas. <http://www.malariajournal.com/content/6/1/160>.
- [32]. Bryce J, Boschi-Pinto C, Shibuya K, Black RE (2009). The WHO Child Health Epidemiology Reference Group. WHO estimates of the causes of death in children. Geneva
- [33]. Center for Disease Control (CDC) (2012). Database and statistics software for public health professionals. Atlanta Georgia. USA.
- [34]. Cheesbrough, M. (2008). *District Laboratory Practice in Tropical Countries (Part 1)*. Cambridge University Press, UK. pp 454.
- [35]. Chiodini, P. L. (2008). Non-microscopic methods for diagnosis of malaria. *Lancet*, 351: 80–81.
- [36]. Chukwurah NJ, Idowu ET, Okoro HM, Otubanjo OA.(2013) The prevalence of malaria parasite infection among pregnant women in Nigeria. *Journal of ANW AD: JOA*, 1:78- 92.
- [37]. Chuma, J., Okungu, V., and Molyneux, C. (2010). Barriers to prompt and effective malaria treatment among the poorest population in Kenya. *Malaria Journal*, 9:144-148.
- [38]. Coetzee, M. (2004). Distribution of the African malaria vectors of the Anopheles gambiaecomplex and Anopheles arabiensis. *Am. J. Trop. Med. Hyg.*, 70 (2): 103-104.
- [39]. Cohen, C., Karstaedt, A., Frean, J., and Thomas, J. (2015). Increased prevalence of severe malaria in HIV infected pregnant women in South Africa. *Clin Infect Dis.*, 41(11): 1631–7.
- [40]. Collins, W. E., and Jeffery, G. M. (2009). A retrospective examination of sporozoite- and trophozoite-induced infections with Plasmodium falciparum : development of parasitologic and clinical immunity during primary infection. *American Journal of Tropical Medicine and Hygiene*, 61: 4–19.
- [41]. Deressa, W., Ali, A., and Hailemariam, D. (2008). Malaria-related health-seeking behaviour and challenges for care providers in rural Ethiopia: implications for control. *J. Biosoc. Sci.* 40: 115–35.
- [42]. Desai, E.M (2017) A systematic review of the impact of malaria prevention in pregnancy on low birth weight and maternal anemia. *International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics*. May;121(2):103-9. PubMed PMID: 23490427
- [43]. Diadier, R., Barro, A., and Ringwald, P. (2007). Malaria and anaemia in children living in endemic areas. *Lancet*, 362(564): 1426-1456.
- [44]. Dicko, A., Mantel, C., Thera, M., Doumbia, S., and Diallo, M. (2013). Risk factors for malaria infection and anaemia for pregnant women in the Sahel area of Bandiagara, Mali. *Acta. Trop.*, 89: 17–23.
- [45]. Dolan, G., Terkuile, F. O., and Jacoutot, V. (2013). Association of malaria in pregnancy with low birth weight. *Trans. R. Soc. Trop. Med. Hyg.*, 87:620–6.
- [46]. Duffy, A., Mantel, M. A., Doubia, S., and Doumbo, O. K. (2016). Transcribed variant genes, associate with placental malaria in Malawian women. *Infect. Immune.*, 74:4875-4883.
- [47]. Elliot, S. R., Brennan, A.K., and Beeson, J. G. (2015). Placental malaria induces variant –specific antibodies of the cytophilic subtypes immunoglobulin G1 (IgG1) and IgG3 that correlate
- [48]. Emmanuela, E., Humphrey, D., Jorg, H., and Oscar, G. (2011). Knowledge, attitudes and practices regarding malaria and mosquito net use among women seeking antenatal care in Iringa, south-western Tanzania. *Tanzania Journal of Health Research*, Vol. 13, No. 3, 45-50.
- [49]. Enato, E., Okhamafe, A., and Okpere, E. (2007). A survey of knowledge, attitude and practice of malaria management among pregnant women from two health care facilities in Nigeria. *ActaObstetriciaetGynecologica*, 86: 33-36.
- [50]. Erhun, W. O., Agbani, E. O., and Adesanya, S. O. (2015). Malaria prevention: knowledge, attitude and practice in a southwestern Nigerian community. *Afr. J. Biomed. Res.*, 8: 25 –29.
- [51]. Espinoza, E., Hildago, L. and Chedraui, P. (2015). The effect of malaria infection on maternal-foetal outcome in Ecuador. *J. Mater. Fetal Neonatal Med.*, 18:101-105.
- [52]. Falade CO, (2007). Intermittent preventive treatment with sulphadoxinepyrimethamine is effective in preventing maternal and placental malaria in Ibadan, south-western Nigeria. *Malar. J.*, 6: 88.

- [53]. Fapohunda, B. M., and Beth, A. P. (2014). The home- based management of fever strategy in Uganda: survey report 2004. BASICS II/MoH/WHO/USAID Kampala.
- [54]. Federal Ministry of Health (FMOH) (2005). National Guidelines and strategies for malaria prevention and control during pregnancy. Abuja, Nigeria, Federal Ministry of Health.
- [55]. Feng G, Simpson JA, Chaluluka E, Molyneux ME, Rogerson SJ. (2010) Decreasing burden of malaria in pregnancy in Malawian women and its relationship to use of intermittent preventative therapy or bed nets. PLoS One. 2010;5(8):1–9.
- [56]. Fievet, N., Cot, M., Ringwald, P., Bickii, J., Dubois, B., and Le Hesran, J. (2017). Immune response to Plasmodium falciparum antigens in Cameroonian primigravidae: evolution after delivery and during second pregnancy. Clin. Exp. Immunol., 107(3): 462–7.
- [57]. Gallup, O.O & Sachs, A. (2001) Epidemiology and burden of malaria in pregnancy. Lancet InfectDis 7: 93–104.
- [58]. Gamble, U.I, Ekwara, O.I, TerKuile, J.K(2009)A survey of Knowledge, attitude and practice of malaria management among pregnant women from two health care facilities in Nigeria. ActaObsetetricaetGynecologicaScandinavica86:33-35
- [59]. GovellaNJ ,Okumu FO , Killeen GF , (2010) Insecticide-treated nets can reduce malaria transmission by mosquitoes which feed outdoors Am J Trop Med Hyg 82: 415 – 419 .
- [60]. Himeiden, T.T. (2015). Malaria prevention during pregnancy: Awareness and factors contributing to disease occurrence among pregnant women from Gboko metropolis, Benue State, Nigeria, Journal of Medicineand Biomedical Sciences, 25(2), pp. 144-146.
- [61]. Hlongwana, K., Mabaso, M., Govender, D., and Maharaj, R. (2009). Community knowledge, attitudes and practices (KAP) on malaria in Swaziland: A country earmarked for malaria elimination. Malaria Journal, Vol. 8(1):87-91.
- [62]. Idowu, O. A., and Mafiara, C. F. (2007). Malaria in pregnancy: knowledge, attitude and practices of pregnant women in Abeokuta, Nigeria. Nigeria journal of Parasitology, Vol. 28(2):61-64.
- [63]. Ilika, A. (2007). Prevalence of malaria as co-infection in HIVinfected individuals in a malaria endemic area of southeastern Nigeria. J Vector Borne Dis., 44:250–254
- [64]. Johan, P., Henrik, O., Hailemariam, L., and Asefaw, G. (2009). Knowledge, attitudes and practice about malaria in rural Tigray, Ethiopia. Global Health Action, DOI: 10.3402/gha.v2i0.1839.
- [65]. Kagu, M., Kawuwa, B., and Gadzama, G. (2007). Anaemia in pregnancy: a cross-sectional study of pregnant women in a Sahelian tertiary hospital in Northeastern Nigeria. Journal of Obstetrics and Gynaecology, Vol. 27, no. 7, pp. 676–679.
- [66]. Kayentao, K. (2015). Comparison of intermittent preventive treatment with chemoprophylaxis for the prevention of malaria during pregnancy in Mali. J Infect. Dis., 191: 109-116.
- [67]. Kengeya, O. A. (2014). Recognition, treatment seeking behavior and perception of causes of malaria among rural women in Uganda. Acta–Tropic, Vol. 53, No. 3, pp: 267 – 73.
- [68]. Kyu HH, Georgiades K, Shannon HS, Boyle MH,(2013) Evaluation of the association between long-lasting insecticidal nets mass distribution campaigns and child malaria in Nigeria. Malar J. 12(14).
- [69]. Lukemi OT, Adebola EO, Olusegun OA. (2011) Utilisation of malaria preventive measures during pregnancy and birth outcomes in Ibadan, Nigeria. BMC Pregnancy and Childbirth. 11: 60.
- [70]. Mwenesi, H., Harpham, T., and Snow, R. (2015). Child malaria treatment practices among mothers in Kenya. Soc. Sci. Med., 40(9): 1271-1277.
- [71]. Napoleon RP, Anyangu AS, Omolocan J, Ongus JR,(2011) Preventing malaria during pregnancy: factors determining the use of insecticide treated bed nets and intermittent preventive therapy in Juba. SSMJ;4(2):1–44.
- [72]. National Population Commission (2016). Nigeria Population Commission, Federal Rep. of Nigeria. Special FGN Gazette no. 23 on the 2006 Population Census.
- [73]. Newman, S.O(2013)Knowledge and utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centers in rural southwest, Nigeria: a cross-sectional study. BMC Pregnancy and Childbirth 9(28):1-8.
- [74]. Niganda, G., and Romero, M. (2013). Women’s opinion on antenatal care in developing countries. BMC. Public health. 3:17.
- [75]. Njama, D., and Dorsey, G. (2013)Urban malaria: primary caregivers’ knowledge, attitudes, practices and predictors of malaria incidence in a cohort of Ugandan children. Trop. Med. and Int. Health, Vol 8(8) pp: 685-692.
- [76]. Nosten, F., terKuile, F., and Malankiri, L. (2011). Malaria in pregnancy in an area of unstable endemicity. Trans Royal Soc. Trop. Med. Hyg., 48: 154-160.
- [77]. Nuwaha, F. (2012). Peoples’ perception of malaria in Mbarara, Uganda. Trop. Medicine and Int. Health, Vol. 7, No. 5, pp: 462-470.
- [78]. Nwogu, E. C. (2009). Utilization of maternity care in Nigeria. Global Journal of Pure and Applied Sciences, Vol. 15, No. 3, pp: 439-437.
- [79]. Nwosu, J, Odubango, MO &Osinusi, BO (2009)The Nigerian Academy of Science, reducing maternal and infant mortality in Nigeria (Workshop Summary). Lagos, Nigeria: West Africa.
- [80]. Obiajunwa, P. O., Owa, J. A., and Adeodu, O. O. (2015). Prevalence of congenital malaria in Ile-Ife, Nigeria. Journal of Tropical Pediatrics, Vol. 51, No. 4, pp. 219–222.
- [81]. Obol, J, Lagoro, KD &Garimoi, OC. (2011) Knowledge and misconceptions about malaria among pregnant women in a post-conflict internally displaced persons' camps in Gulu District, Northern Uganda. Malaria Research and Treatment. Available from: <http://www.hindawi.com/journals/mrt/2011/107987> (accessed 09 October 2015).
- [82]. Oduwole, O. A., Ejezie, G. C., and Meremekwu, M. (2011). “Congenital Malaria,” American Journal of Tropical Medicine and Hygiene, Vol. 84, pp. 386–389.
- [83]. Ogbonnaya, L. U., Adeoye, S., Umeorah, O., and Asiegbu, O. (2015). Concurrent use of multiple antenatal care providers by women utilizing free antenatal care at Ebonyi State university teaching hospital, Abakaliki. Afr. J. reprod. Health, 9(2):101-106.
- [84]. Okanurak, K., and Ruebush, T. (2016). Village-based diagnosis and treatment of malaria. ActaTropica., 61: 157–167.
- [85]. Okpere E, Enabudoso E, Osemwenkha A, (2010) Malaria in pregnancy. Niger Med Journal
- [86]. Okpere, EE, Enabudoso, EJ &Osemwenkha, AP. (2010) Malaria in pregnancy. Nigeria Medical Journal. Available from: <http://www.nigeriamedj.com/text.asp?2010/51/3/109/71013> (accessed 05 July 2017).
- [87]. Okwa, O. (2013). The status of malaria among pregnant women: A study in Nigeria. Afr. J. Reprod. Health., 7(3): 77-83.
- [88]. Okwa, O. O., Akinmolayan, F. I., Carter, V., and Hurd, H. (2009). Transmission Dynamics of Malaria in Four Selected Ecological Zones of Nigeria in the Rainy Season. Annals of African Medicine, Vol. 8, No. 1: 1 – 9.
- [89]. Okwa, OO &Ibidapo, AC. (2010)The malaria situation, perception of cause and treatment in a Nigerian University. Journal of Medicine and Medical Sciences 1(6):213-222.
- [90]. O’Meara, W. P., Bejon, P., and Mwangi, T. W. (2009). Trends in malaria-attributable morbidity and mortality in Kenya. Ann. Trop. Med. Parasitol., 98: 315-327.
- [91]. Omoti, U.I, Ojide, O &Lofor, U.I(2013)Malaria and its burden among pregnant women in parts of the Niger Delta area of Nigeria. Asian Pacific Journal of Reproduction 1(2):147-151.

- [92]. Onoka, E. (2012). Prevalence of malaria in Nigeria. *J. Trop. Med. Public Health*, 45: 89-95.
- [93]. Onyeneho, N.G. (2016). Response to childhood fevers among Mbaise parents and caregivers in Imo State, Nigeria: does the sex of the child matter? *Tanzania Health Research Bulletin*, Vol. 8 No. 2, pp 9:283-289.
- [94]. Oreagba, A., (2014). Knowledge of malaria amongst caregivers of young children in rural and urban communities in Southwest Nigeria. *Tropical Journal of Pharmaceutical Research*, 3 (1): 299-304.
- [95]. Oyewole, I. O., and Ibidapo, A. C. (2007). Attitudes to malaria, prevention, treatment and management strategies associated with the prevalence of malaria in a Nigerian urban centre. *African Journal of Biotechnology*, Vol. 6 (21), pp. 2424-2427.
- [96]. Pagnoni, F. (2017). A community-based programme to provide prompt and adequate treatment of presumptive malaria in children. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 91: 512-517.
- [97]. Ricci F, (2012) Social implications of malaria and their relationships with poverty. *Mediterr J Hematol Infect Dis*. 2012; 4(1).14.
- [98]. Sarbin, L.L., Brooks, M.I., Singh, M.P. and Touchman, J.W., (2010). Knowledge, attitude and practices regarding malaria prevention and treatment among pregnant women in Eastern India, *The American Journal of Tropical Medicine and Hygiene*, 82(6), pp. 1010-1016.
- [99]. Schantz, E.A&Nour, I 2009The combined effect of determinants on coverage of intermittent preventive treatment of Malaria during pregnancy in the Kilombero valley, Tanzania, *Malaria Journal* 10(140):1-12. Grove,
- [100]. Sicuri E, Vieta A, Lindner L, Constenla D, Sauboin C(2013). The economic costs of malaria in children in three sub-Saharan countries: Ghana, Tanzania and Kenya. *Malar J*. 12(307).
- [101]. Snow, R. W., Torrens, J. K., and Walker, J. (2009). An assessment of the accuracy of clinical diagnosis, local microscopy and a rapid immunochromatographic card test in comparison with expert microscopy in the diagnosis of malaria in rural Kenya. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 93: 519-520.
- [102]. Staalsoe, R.D (2014) efficacy and safety of three antimalarial regimens for intermittent preventive treatment for malaria in infants: a randomised, double-blind, placebo-controlled trial. *Lancet*. Oct 31;374(9700):1521-32. PubMed PMID: 19765815.
- [103]. Steketee, R. W, (2011). The burden of malaria in pregnancy in malaria-endemic areas. *Am. J. Trop. Med. Hyg.*, 64: 28-35.
- [104]. Steketee, R. W., Nahlen, B. L., Parise, M. E., and Menendez, C. (2011). The burden of malaria in pregnancy in malaria-endemic areas. *Am J. Trop. Med. Hyg.*, 64: 28-35.
- [105]. Sule-Odu, A. O. (2010). Maternal deaths in Sagamu Nigeria. *Int.J. GynaecolObset.*, 69(1): 47-49.
- [106]. Sullivan, A. D., Nyirenda, T., and Cullinan, T. (2009). Malaria infection during pregnancy: intrauterine growth retardation and preterm delivery in Malawi. *J. Infect. Dis.*, 179:1580-1583.
- [107]. Tanya, 2014 Gallup J.L. & Sachs J. D: The Economic Burden of malaria, working paper .Center for international Development at Harvard University 1998-(available at website ; www.eldis.org/static/Doc6010.htm)
- [108]. Tarimo, D. S., Minjas, J. N., and Bygbjerg, I. C. (2011). Malaria diagnosis and treatment under the strategy of the integrated management of childhood illness (IMCI). *Ann Trop Med Parasitol*. 95: 437-44.
- [109]. Tonga, A Kimbi, I.O, Achang-Kimbi, G.O, Nyabeyu, Y, Bissemou, L & Leman, I.O (2013) The combined effects of determinants on coverage of IPTp in the Kilombero valley, Tanzania, *Malaria Journal*, 10:1186/1475-10-140.
- [110]. Tumwesigire, S., and Watson, S. (2012). Health seeking behaviour by families of children suspected to have malaria in Kabale, Uganda. *African Health Sciences*, 2(3): 94-98.
- [111]. Ukibe SN, Ikeako LC, Mbanugo JI, Obi-Okaro AC, (2014) Knowledge attitude and practices of pregnant women concerning use of insecticide treated bed nets (ITNs) in Anambra State, South East Nigeria. *J. Appl. Med. Sci*. 3:15 -22.
- [112]. Uko, E. K., Emeribe, A. O., and Ejezie, G. C. (2008). Malaria Infection of the Placenta and Neo-Natal Low Birth Weight in Calabar. *J. Med. Lab. Sci.*, 7: 7-10.
- [113]. Uneke, R.D (2008). Intermittent preventive treatment against malaria: an update. *Expert review of anti-infective therapy*. May;8(5):589-606. PubMed PMID: 20455687.
- [114]. United State Embassy in Nigeria, 2011 Global Health Observatory (GHO) [2013-05-25].
- [115]. Warsame, M., Wernsdorfer, D.H., Hultdt, A., and Bjorkman, A. (2015). An epidemic of Plasmodium falciparum malaria in Balcaad, Somalia, and its causation. *T. Roy. Soc. Trop. Med. Hyg.*, 89:142-145.
- [116]. White N.J (2015). Intermittent presumptive treatment for malaria. *PLoS Med.*, 2: e3.
- [117]. Wisselink HW, (2014). Metabolic engineering of mannitol production in Lactococcus lactis: influence of overexpression of mannitol 1-phosphate dehydrogenase in different genetic backgrounds. *Appl. Environ. Microbiol.*, 70: 4286-4292.
- [118]. World Health Organization, (2015) Malaria in pregnancy: Guidelines for measuring key monitoring and evaluation indicators. 2015. Accessed 10 August 2017. Available: <http://www.who.int/malaria/publications/atoz/9789241595636/en/index.html>
- [119]. World Health Organisation. (2014). World Malaria Report 2013. www.cdc/malariaepidemiology.com
- [120]. World Health Organization (2010): World Malaria Report. Geneva: World Health Organization; 2010. http://www.who.int/malaria/world_malaria_report_2010/en/.
- [121]. UNICEF 2012 World Malaria Day, 25 April 2013 [2013-05-25]. Available from: <http://www.unicef.int/campaigns/malaria-day/2013/event/en/index.html>.
- [122]. UNICEF 2012 World Malaria Day, 25 April 2013 [2013-05-25]. Available from: <http://www.unicef.int/campaigns/malaria-day/2013/event/en/index.html>.

IRODI C. CANIS, et. al. "Awareness And Practice Of Malaria Prevention Among Pregnant Mothers Attending Ante-Natal Clinic At Primary Health Care Centre In Okada, A Rural Community In Edo-State Nigeria." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 10(4), 2021, pp. 54-64.