



# Effect of Malaria in Pregnancy in Some Selected Primary Health Cares in Kano Municipal Local Government Area, Kano State

Kamilu Ishaq<sup>1\*</sup>, Sani T Tukur<sup>2</sup> and Nura U Yakasai<sup>3</sup>

<sup>1</sup>Department of Sociology, Kano State College of Education and Preliminary Studies, Nigeria

<sup>2</sup>Department of Animal Health Technology, Audu Bako College of Agriculture, Nigeria

<sup>3</sup>Department of Environmental and Public Health, Kano State Primary Healthcare Management Board, Nigeria

\*Corresponding author: Kamilu Ishaq, Department of Sociology, Kano State College of Education and Preliminary Studies, Nigeria

Received: 📅 October 13, 2021

Published: 📅 November 10, 2021

## Abstract

Malaria is a mosquito born infectious disease of humans and other animals caused by parasitic protozoan of genus Plasmodium. It is one of the most devastating infectious diseases, killing more than 1 million people annually where pregnant women, children, and immuno-compromised individuals have the highest morbidity and mortality, and Africa bears the heaviest burden. The main purpose of the study was to find out the Effect of Malaria on Pregnant Mothers at Kano Municipal Local government Kano State. This was a cross-sectional study in which 200 pregnant women was chosen from selected Primary Health Care Centres within Kano Municipal Local Government, Kano. And used a validated and pre-tested questionnaires to collect data. Collected data were analyzed using Statistical Software for Social Sciences (SPSS) and the results presented in tables and figures. The study showed effect of malaria in pregnancy at 57.5%, and the incidence of malaria in pregnant women at 53.5% that it causes complications. And 55.5% of the pregnant women know that malaria causes low birth weight, also 59.0% of the respondents knows that there are ways of preventing malaria in pregnancy and 50.5% of the pregnant women have knowledge of the preventive measures of malaria in pregnancy. Slightly above 50% of pregnant women have basic knowledge on the effect of malaria on Pregnancy and it causes complication. Also have basic knowledge on modes of malaria transmission. They also have knowledge of the preventive measures of malaria in pregnancy.

**Keywords:** Malaria; Protozoan; Morbidity; Mortality; Pregnancy

## Background of the Study

Malaria is a mosquito born infectious disease of humans and other animals caused by parasitic protozoan of genus Plasmodium (WHO, 2015) [1]. It is one of the most devastating infectious diseases, killing more than 1 million people annually where pregnant women, children, and immune-compromised individuals have the highest morbidity and mortality, and Africa bears the heaviest burden. Pregnant women infected with malaria usually have more severe symptoms and outcomes, with higher rates of miscarriage, intrauterine demise, premature delivery, low-birth-weight neonates, neonatal death, higher risk for severe anemia and maternal death [2]. The disease is widespread in tropical and subtropical regions around the equator, Asia, America and Sub-Saharan Africa having 10000 maternal deaths and 200,000 neonatal deaths per year [2]. In 2010 there were 219 million documented

cases of malaria. That year, the disease killed between 660,000 and 1.2 million people, many of whom were children in Africa. Malaria is commonly associated with poverty and caused by poverty (WHO, 2010). Malaria is common in tropical and subtropical regions because of rainfall, warm temperature, and stagnant water that provide an ideal environment for mosquito larvae. Commonly, the disease is transmitted by the bite of an infected female Anopheles mosquito into person's circulatory system where the parasites travel to the liver to mature and reproduce (WHO, 2015). Five species of Plasmodium can infect and be transmitted, and the vast majority of deaths are caused by P Falciparum and P Vivax, while P Ovale and P Malariae cause generally milder form of malaria. The zoonotic species P Knowlesi, prevalent in Southeast Asia, causes malaria (WHO, 2015).

## Aim of the Study

The main aim of this research is to determine the effects of malaria in pregnancy and the aim could be achieved with the following objectives:

### Objectives of the study

- a) To determine the effect of malaria in pregnancy in the study area
- b) To identify the preventive measures of malaria among pregnant mothers.

### Research questions

- a) What are the effects of malaria in pregnancy in the study area?
- b) What are the preventive measures of malaria among pregnant mothers?

### Significance of the study

This research is very important to the entire women of Kano Municipal local government area of Kano state, government and non-governmental organization as well as community of action and students like to conduct research of this kind. The result of this study will present a true picture of the affect malaria on pregnant women malaria with view of finding a better preventive measures and also suggest ways of improving access and utilization of these preventive measures. And symptoms and differing in nature from physical injury. A diseased organism commonly exhibits signs or symptoms indicative of its abnormal state.

## Methodology

### Description of the study area

Kano state is located in the eastern margin of the North-west Geo-political zone of Nigeria consisting of 44 local government areas. The state lies approximately between longitudes 7°42'12" to 9°22'22" and between latitudes 10°32'34" to 12°37'7". It is bounded on the west by the Katsina state and Kaduna state by the South-west. It shares a boundary with Jigawa state from the North and East. It is bordered in the South by Kaduna and Bauchi states. It covers a total land area of about 21,000km<sup>2</sup>. Kano state is the most populous state in Nigeria. The 2006 housing and Population Census put the population of the state at 9,383,682 (FGN, 2007) with an average density of about 447persons/km<sup>2</sup>. Hausa-Fulani predominantly peopled the area.

### Research design

This was a cross-sectional study involving all pregnant women who came for antenatal services and attended Outpatient Department of some selected PHCs within Kano Municipal Local Government Area of Kano State.

### Sample size and sampling techniques

The sample size for this study involve all pregnant women who come for antenatal services and attended Outpatient Department

of some selected PHCs within Kano Municipal Local Government Area of Kano State. The technique used for this sampling is simple random one. Every pregnant mother who came for antenatal services was eligible, with or without symptoms of Malaria. Laboratory number assigned to the subjects by the Hospital clinical laboratory department was maintained, put on questionnaires and blood smears of each individuals.

### Instrument for data collection

The instrument used for data collection in this research is self-designed questionnaires containing relevant questions.

### Method for data collection

A self-designed questionnaire was distributed by the researcher in the study area. A maximum of seven days were given to the respondents and after which he went back to collect the filled questionnaires.

### Method for data analysis

Data obtained was recorded, checked for completeness then compiled and analyzed using statistical package for social sciences (SPSS) software and presented in form of frequencies and tables.

## Result And Discussion

### Result

This was a cross sectional study of 200 pregnant women who attended antenatal clinic at some selected PHCs within Kano Municipal Local Government. The result of the study shows that gender of the participants are all females 200 (100%). As designed from the sample size of the study to be all pregnant women. The result shows majority of the pregnant women 92 (45.5%) were in their middle age of reproduction 26-31 years, 32 and above years 66 (33.7%) while 42 (21.0%) fell between 17-25 years respectively. The study also revealed greater percentage 160 (80%) of the women were married, single 10 (5%), divorced 20 (10.0%), and others 10 (5.0%). The study also revealed majority of the pregnant women had basic education at secondary level 85 (42.5%) though many of them were lower secondary level two, followed by primary 60 (30.0%) and tertiary level 42 (21.0%) and others were 13 (6.5%) respectively. The result of this study had established occupation of participants as follows, housewife 134 (67.0%), Business 44 (22.0%), Civil servants 16 (8.0%) and others 6 (3.0%) respectively. The result of this study showed that majority 114 (57.0%) of the pregnant women knows the effect of malaria on pregnant women compared to 86 (43.0%). The result in the Tables 1&2 shows that majority 123 (61.5%) of the pregnant women had believe that malaria on pregnant women will lead to anaemia while 77 (38.5%) does not. The result also shows 119 (59.5%) of the pregnant women are aware of the mode of transmission of malaria infection while 81 (40.5%) are not. The study also shows that majority of the women 115 (57.5%) know that the incidence of malaria in pregnancy can be reduced while 85 (42.5%) does not. The also shows that 118 (59.0%) of the respondents knows that there are ways of preventing malaria in pregnancy while 82 (41.0%) does not.

**Table 1:** Results for Demographic and Socio-Economic Characteristics of the Participants.

	Frequency	Percentage (%)
<b>Gender</b>		
Female	200	100
Male	0	0
Total	200	100
<b>Age group (years)</b>		
17-25	42	21
26-31	92	46
32 and above	66	33
Total	200	100
<b>Marital Status</b>		
Married	160	80
Single	10	5
Divorced	20	10
Others	10	5
Total	200	100
<b>Educational Qualification</b>		
Primary	60	30
Secondary	85	42.5
Tertiary	42	21
Others	13	6.5
Total	200	100
<b>Occupational Status</b>		
Civil Servant	16	8
Housewife	134	67
Business	44	22
Others	6	3
Total	200	100

**Table 2:** Knowledge of pregnant women toward effect of malaria in pregnancy.

S/No	Statement	Yes	No	Total
1	Respondents view on the effect of malaria on pregnant women	114 (57%)	86 (43%)	200 (100%)
2	Respondents view on believe that malaria in pregnant women will lead to anemia	123(61.5%)	77(38.5%)	200 (100%)
3	Respondents knowledge on the mode of transmission of malaria	119(59.5%)	81(40.5%)	200 (100%)
4	Respondents view on whether the incidence of malaria in pregnancy can be reduced	115(57.5%)	85(42.5%)	200 (100%)
5	Respondents' knowledge on the ways of preventing malaria in pregnancy	59.00%	82(41%)	200 (100%)

**Table 3:** Knowledge of pregnant women toward prevention of malaria in Pregnancy.

S/No	Statement	Yes	No	Total
1	Respondents view on the knowledge in the prevention measure of Malaria in pregnancy	101 (50.5%)	99 (49.5%)	200 (100%)
2	Respondents view on whether the incidence of malaria in pregnant mothers causes complication	107 (53.5%)	93 (46.5%)	200 (100%)
3	Respondents view on whether they believe that malaria in pregnant women are able to kill them if treatment is not regularly taken.	120 (60%)	80 (40%)	200 (100%)
4	Respondents view on whether they know any medicine that can be used in the treatment of malaria in pregnant mothers without negative side effect.	65 (32.5%)	135 (67.5%)	200 (100%)
5	Respondents view on whether they are ready to accept to promote health education on the effect of malaria in pregnancy women.	103 (51.5%)	97 (48.5%)	200 (100%)

The result of study showed that only 101 (50.5%) of the participants have knowledge of the preventive measures of malaria in pregnancy while 99 (49.5%) of the participants does not have the knowledge of preventive measures of malaria in pregnancy. This showed that there is little or no difference between the pregnant women that have knowledge of preventive measures of malaria in pregnancy. The result in the Table 3 showed that 107 (53.5%) of the participants know that incidence of malaria in pregnant mother's cause complications compared to 93 (46.5%) that does not know that incidence of malaria in pregnant mother's cause complications. The study also revealed 120 (60.0%) of the women believe that malaria in pregnant women is able to kill them if treatment is not regularly taken while 40 (40.0%) does not. The table above showed that only 65 (32.5%) of the participants know any medicine that can be used in the treatment of malaria in pregnant mothers without any negative side effect while majority of the participants 135 (67.5%) does not. This means there is need to educate women not only pregnant to believe that the medicines used in the treatment of malaria in pregnant mothers has no negative side effects. The study also revealed 103 (51.5%) of the pregnant women accept to promote health education on the effect of malaria in pregnancy while 97 (48.55) does not.

## Discussion

This study was conducted to know the effect of malaria on pregnant mothers. According to the data collected, 57.0% of the pregnant women knows the effect of malaria on pregnant women compared to 43.0% who don't know. This is in line with another study conducted in Benin City in which 77.6% of women have average and high knowledge of the effect of malaria in pregnancy compared to 22.4% who do not. This is in line with a similar study by Helen et al. in Cameroon on pregnant women and care givers knowledge on the effects of malaria in pregnant women. A majority (66.4%) knew at least one or more side effects of malaria in pregnant women. They were able to give effects but not limited to anemia, abortion and fetal and maternal deaths. The study also shows that majority 61.5% of the pregnant women believe that the malaria on pregnant women will lead to anaemia compared to 38.5%. This support the finding of similar study carried out in Bamenda, Cameroon by [3] which stated that (66.4%) of the

pregnant women knew and believe that malaria in pregnant women were able to give effects but not limited to anemia. This study also shows 59.5% of the pregnant women are aware about the mode of transmission of malaria infection. This supports the finding of similar study carried out in Bamenda, Cameroon which stated that 70% of the pregnant women knows exactly the mode of malaria transmission. This sharply contrasts with a new study in Ndu, Northwest region, Cameroon 9 years ago which stated that just 27.9% of the population were aware of the major malaria transmission modes.

This shows that knowledge on malaria was strongly associated with level of formal education as can be explained by the 63.5% of those who have attained at least high school education and have been taught lessons on malaria in schools and are also more liable to read, listen and Comprehend malaria messages. Thus, education remains a powerful tool to empower people to make positive decisions for themselves and their families. The result of this study also shows that 53.5% of the pregnant women know that incidence of malaria in pregnant women causes complications compared to 46.5% who does not know. This supports the finding of another study carried out in Bamenda, Cameroon which stated that (66.4%) knew and believe that malaria in pregnant women causes complications leading to effects such as anemia, low birth weight, fetal and maternal death [4]. The study also shows that 55.5% of the pregnant women know what causes low birth weight compared 44.5% and 59.0% of the pregnant women had believed that malaria in pregnancy will lead to delivery of low-birth-weight children compared to 41.0%. A similar study conducted in Okitipupa, Ondo State, shows that (83.0%) knows and believed that malaria in pregnancy can leads to Low Birth Weight (LBW). The result of the study also shows that majority of the pregnant women 60.0% believe that malaria in pregnant women is able to kill them if treatment is not regularly taken. A study similar to this was conducted in Okitipupa, Ondo State, which state that (85.5%) agreed that it can kill if it is not treated. Another study conducted in Bamenda, Cameroon stated that 66.4% believed malaria in pregnancy causes fetal and maternal death. Another study done in south-western Nigerian community indicates 95.4% of respondents looked at malaria a problem that could kill [5]. The study also

shows that 59.0% of the respondents knows that there are ways of preventing malaria in pregnancy compared to 41.0%. This study is supported by another study conducted on the awareness of and practice of malaria prevention strategies among pregnant women in Uyo, the result showed that the majority of the respondents (71%) have knowledge about malaria prevention in pregnancy and were aware that malaria had adverse effects in pregnancy.

## Summary, Conclusion and Recommendation

### Summary

Malaria is a mosquito born infectious disease of humans and other animals caused by parasitic protozoan of genus *Plasmodium*. It is one of the most devastating infectious diseases, killing more than 1 million people annually where pregnant women, children, and immune-compromised individuals have the highest morbidity and mortality, and Africa bears the heaviest burden [6]. Pregnant women infected with malaria usually have more severe symptoms and outcomes, with higher rates of miscarriage, intrauterine demise, premature delivery, low-birth-weight neonates, neonatal death, higher risk for severe anemia and maternal death. This study is cross sectional study involving pregnant women that come for antenatal services and attended Outpatient Department of some selected PHCs within Kano Municipal Local Government Area of Kano State. The sample size is 200 pregnant women, sampling and technique is a random one. The instrument used for data collection is self-designed questionnaire will be taken directly by the researcher to the study area and distributed to the selected samples. The data was analysed using Statistical software for Social Sciences (SPSS) and result was presented in form of frequencies and tables [7]. The study showed effect of malaria in pregnancy at 57.5%, and the incidence of malaria in pregnant women at 53.5% that it causes complications. And 55.5% of the pregnant women know that malaria causes low birth weight [8], also 60.0% believe that malaria in pregnant women is able to kill them if treatment is not regularly taken. Also 59.0% of the respondents knows that there are ways of preventing malaria in pregnancy and 50.5% of the pregnant women have knowledge of the preventive measures of malaria in pregnancy [9].

### Conclusion

This study concluded that malaria in pregnancy is a global burden which its present and future effect is dangerous to the health of the individual (mother and the foetus in the womb), family, society and the nation at large [10]. Hence an efforts must be channeled towards the prevention, diagnosis, treatment and control of malaria in pregnancy so the resultant effects of malaria in pregnancy on the mother, unborn child, family, community, nation and the world will be eliminated [11,12].

### Recommendations

a) Adequate health education on malaria control and preventive strategies should be given to pregnant women when they visited health care facility for ante- natal care services.

- b) Women should be supported by their spouses and Government must continue emphasis on girl child education that shall widen one's understanding of disease control among the people in communities.
- c) Women should be enlightened about safety of drugs used for the treatment of malaria, so that will understand that there is no negative side effects of using the drugs.
- d) Maternal child health centres should be established in various areas in the communities.

There is need for more awareness creation so that malaria signs and symptoms are well understood by pregnant women to promote early treatment for malaria as well as preventive and control efforts in the community.

### References

1. (2019) (WHO) W H, Maternal, Infant and Child Health Consequences of Malaria. World Malaria Report pp. 56-64.
2. Baron S, James M. Crutcher, S L Hoffman (1996) Malaria. In Medical Microbiology (4th edition), Galveston: The University of Texas Medical Branch at Galveston pp. 52-225
3. C N Nkfusai, S N Cumber, Fala Bede, T A Tambe, J M T Gwegweni (2019) Assessment of the knowledge of the modes of transmission and prevention of malaria among pregnant women attending antenatal clinic at the Nkwen Health Center Bamenda, Cameroon. Pan African Medical Journal 33: 137-145.
4. Dantata A, Oyeyi T I, Galadanci H S (2017) Prevalence and Severity of Malaria Infection among Pregnant Women across the Three (3) Tiers of Healthcare Facilities in Kano Metropolis, Kano State, Northern Nigeria. UMYU Journal of Microbiology Research 2(1): 210-216.
5. Dawaki S, Hesham M Al Mekhlafi, Init Ithoi, Jamaiah Ibrahim, Wahib M Atroosh, et al (2016) Is Nigeria winning the battle against Malaria? Prevalence, risk factors and KAP assessment among Hausa Communities in Kano State. Malaria Journal of BioMed Central 15: 351-364.
6. J Djabanor, Elvis Quansah, Du Bois Asante (2017) Effects of Malaria in Pregnancy (MiP) on Pregnancy Development and its Outcome: A Critical Review. Journal of Applied Biology & Biotechnology 5(2): 8-16.
7. James O, Kitara David Lagoro, Orach Christopher Garimoi (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 doi:10.4061/2011/107987.
8. O Erhabor, T C Adias, M L Hart (2010) Effects of falciparum malaria on the indices of anaemia among Pregnant Women in Niger Delta of Nigeria. Clinical Medicine and Research 2(3): 35-41.
9. O A Idowu, C F Mafiana, S Dapo (2006) Malaria among pregnant women in Abeokuta, Nigeria. Tanzania Health Research Bulletin 8(1): 28-31.
10. O O A (2019) Knowledge, Attitudes and Perceptions of Malaria in Pregnancy Among Pregnant Women Attending Antenatal Clinic Hospital in Okitipupa, Ondo State, Nigeria. Emerging Infectious Diseases and Diagnosis Journal EIDDJ-100005.
11. Rijken M, Merel Charlotte, Eduard J H Mulder, Suporn Kiricharoen, Noaeni Karunkonkowitz, et al (2012) Effect of malaria in pregnancy on foetal cortical brain development: a longitudinal observational study. Malaria Journal 11: 222-228.
12. Taura D, Oyeyi T I (2009) Prevalence of Malaria Parasites in Pregnant Women. Bayero Journal of Pure and Applied Sciences 2(1): 186-188.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Article](#)

DOI: [10.32474/JCCM.2021.04.000178](https://doi.org/10.32474/JCCM.2021.04.000178)



### Journal of Clinical & Community Medicine

#### Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles