

# Attitudes and Self-Practices of Pregnant Women towards Malaria Prevention and Control in Nigeria

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## ABSTRACT

**Background:** Malaria has become a serious health problem to developing countries leading to death of pregnant women. Regular evaluation of attitudes towards malaria disease and understanding of malaria-related practices are essential for prevention and control of the disease in endemic areas such as Nigeria.

**Objective:** This study was aimed at investigating the attitudes and self-practices of pregnant women towards malaria prevention and control.

**Methods:** We conducted a cross-sectional study using 404 pregnant women receiving antenatal care from 10 hospitals in Nsukka, Nigeria. We used a 14-item scale to assess their attitude and 10 point scale for self-practices towards malaria prevention and control.

**Results:** Our results showed that 81.4 % of the pregnant women had either secondary or tertiary education and 97 % of them were married. About 51% and 49% of pregnant women had negative and positive attitude towards malaria prevention and control respectively. Pregnant women with low self-practice account for 59% while 41% of them had high self-practice in malaria prevention and control.

**Conclusion:** Pregnant women in Nsukka had negative attitude and a corresponding low self-practice towards malaria prevention and control. Training on good malaria prevention practices is necessary for the pregnant women.

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## INTRODUCTION

Malaria has remained the world's most wide spread parasitic infectious disease. More than 40 % of the world population lives in malarious areas (WHO, 2010). During pregnancy the Malaria infection is a major health problem in tropical and subtropical regions throughout the world. Malaria accounts for 11% of maternal deaths among pregnant and non-pregnant women in Nigeria (Peter, 2013). Research has shown that non-pregnant female adults have a significant level of immunity against malaria, while during pregnancy; these women develop decreased levels of immunity to malaria (Nwonwu *et al.*, 2009). Another study reported that the first and second

pregnancies are associated with a higher prevalence of malaria in women living in endemic malarious areas (Okwu, 2003). The burden of malaria infection during pregnancy is caused mainly by *Plasmodium falciparum*, the most common malaria species in Africa. Pregnant women are particularly vulnerable to malaria, which is a major cause of prenatal mortality, low birth weight, and maternal anaemia (Greenwood *et al.*, 2007).

The cultural practices of people not only affect their social relationships but also affect health and disease condition (Ojua *et al.*, 2013). In Kische settlement area, South West Ethiopia, it was observed that some cultural doctrines affect malaria beliefs and practices which can influence the effectiveness of control strategies (Adera, 2003). One of the vital strategies employed as part of community-level interventions for strengthening home management of malaria includes improvements in access to prompt treatments; which is currently being promoted in the rural areas of Nigeria.

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To this effect, mothers, being the primary caregivers at home, are key players in control malaria (Vijayakumar *et al.*, 2009). The Previous studies have shown that mothers' understanding of malaria and related issues is a key factor in achieving effective malaria control in endemic communities<sup>9,10</sup>. Given the prime roles play by mothers, there is the need to integrate them properly into malaria control and treatment activities (Chirdan *et al.*, 2008; Kidane and Morrow, 2000). Since malaria causes variety of adverse consequences in pregnant women due to invasion of the placenta by *Plasmodium* thereby increasing the risk of adverse pregnancy outcome for the mother fetus and the new-born. Considering the involvement of women in malaria home management is paramount for malaria control and prevention. Failure to consider the knowledge, attitude, and practice about malaria in this vulnerable group may contribute to the inability of a malaria prevention program to achieve its goal (Rodríguez *et al.*, 2003). In other words, knowledge of the attitudes and self-practices of pregnant women can be an important step in developing strategies aimed at preventing and controlling malaria. Therefore, this research work was designed to investigate the attitude and self-practices of women towards prevention and control of malaria in a sub-urban part of Nigeria.

## MATERIALS AND METHODS

### Area of study

The study was carried out in Nsukka local government area, in Enugu state. Nsukka has a total population of about 309,649 people with temperature ranges between 22.4 and 30.8 °C and an annual rainfall of 1520–2030 mm. The vegetation is tropical rain forest and there are two major seasons, namely dry (November–April) and wet (May–October). Malaria transmission in the area is stable and holoendemic (Oguonu *et al.*, 2005). It is in the malaria endemic zone and can be characterized by a stable, transmission of malaria infection throughout the year (WHO, 2010). Our study covered ten health care facilities ranging from primary to secondary health centers where antenatal services are provided.

### Study design and data collection

A cross-sectional study was employed using a structured questionnaire to capture the responses. The questionnaires were administered to 404 pregnant women attending antenatal care in ten hospitals from July to August 2016. Prior to this, a pilot study was carried out using 10 questionnaires, each being administered to four different hospitals. The pregnant women were allowed to fill the questionnaires by themselves and the time taken to fill each one, difficulties encountered with respect to clarity of question were all observed and documented. The questionnaires were adjusted following the observation made. The questionnaire was prepared in simple English language but interpreted and communicated in local languages when necessary. With the use of this interviewer administered pre-tested and structured questionnaire, relevant information (data) were obtained. The

questionnaire comprised of 30 questions categorized into three sections: six for demographic characteristics, 14 for self-practices among pregnant mothers and 10 for their attitude towards prevention and control of malaria. The study approval was obtained from the Department of Clinical Pharmacy Review Board and also obtained permissions from the respective hospitals' administrations. A verbal consent was also obtained from the respondents before administration of the questionnaire.

### Data Analysis

Simple descriptive statistics such as frequency and percentages were used to assess the levels of both attitude and different self- practices on prevention and control of malaria in pregnancy. The level of association between high or low attitude and the different self-practices was also accessed. The statistical analysis was carried out using SPSS version 14.0 software.

## RESULTS

Out of 600 questionnaires administered 404 were returned with a response rate of 67.3%. The demographic characteristics showed that 71 % of the women were above 35 years, 95 % were married and the remaining was teenage pregnancy. The number of individuals in the household also showed that 63.4 % of the women had 1-4 children while about 34.6 % of them had 5-9 children and the remaining above 10. The socio-demographic characteristics of the study population are presented in Table 1

**Table 1:** Demographic characteristics of pregnant women in Nsukka.

Demographic characteristics	Frequency	Percentage (%)
<b>Age group</b>		
N = 404		
Less than 18 years	5	1.2
18-35 years	110	27.2
Above 35	289	71.5
<b>Marital Status</b>		
Single	12	3
Married	384	95
Widow	8	2
<b>No of Persons in the Household</b>		
1 to 4	256	63.4
5 to 9	140	34.6
10 and more	8	2
<b>Level of Education</b>		
No formal Education	6	1.5
Primary	69	17.1
Secondary	250	61.9
Tertiary qualification	79	19.5
<b>Socio-Economic status in Naira</b>		
Less than 10, 000 Naira	295	73
10,000 to 50,000	87	21.5
51 to 100,000	9	2.2
Above 100,000 Naira	13	3.2
<b>Occupation</b>		
Pensioners	15	3.7
Students	10	2.5
Housewife	186	46
Unemployed	6	1.2
Farmer	42	10.4
Self-Employed	52	12.9
Civil Servant	95	23.4

**Attitude towards prevention and control**

When posed with the statement that someone who has malaria should be avoided by people, only 3.4 % disagreed while 96.5 % agreed with it. The entire respondents (100 %) stated that that one can recover spontaneously from malaria without treatment and that they can treat themselves of malaria disease. About 99.3 % of the respondent agreed to the fact that malaria can be transmitted from one person to another, and at the same time 100 % responded that the best way to avoid malaria is to avoid mosquito bite and also by sleeping under mosquito net. Overall attitude of the women showed 51% and 49% for negative and positive attitude respectively. The questions and their response for assessing attitude of pregnant women towards malaria prevention and control are shown in Table 2.

**Table 2:** Attitudes of pregnant women towards malaria prevention and control.

Questions	Positive Frequency (%)	Negative Frequency (%)
If someone has malaria, people should avoid having close contact with him or her.	200 (49.5)	204 (50.5)
I think that one can recover spontaneously from malaria without any treatment	369 (91.3)	35 (8.7)
I am sure that I can treat myself if I get malaria	372 (92.0)	32 (8.0)
Malaria can be transmitted from one person to another like the common cold	13 (3.2)	391 (96.8)
I can buy anti-malaria drugs from the drug shop/pharmacy to treat myself when I get malaria	20 (4.9)	384 (95.1)
I think the best way to prevent myself getting malaria is to avoid getting mosquito bites	115 (28.4)	289 (71.6)
I will seek for advice or treatment when I get malaria	145 (35.8)	257 (64.2)
I believe sleeping under a mosquito net during the night is one way to prevent myself getting malaria	177 (43.8)	227 (56.2)
In my opinion, mostly children and pregnant women are at risk of malaria	201 (49.7)	203 (50.3)
I might be at a greater risk of getting malaria if I work and sleep overnight in the garden or forest	200 (49.5)	204 (50.5)
I am sure that anyone can get malaria	241 (59.6)	163 (40.4)
I think that it is dangerous when malaria medicine is not taken completely	241 (59.6)	163 (40.4)
I think that I should go to the health centre/clinic to have my blood tested as soon as I suspect that I have suffered from malaria	241 (59.6)	163 (40.4)
In my opinion, it is very important to check for an expiry date of the drug	244 (60.3)	160 (39.7)
Overall (%)	49	51

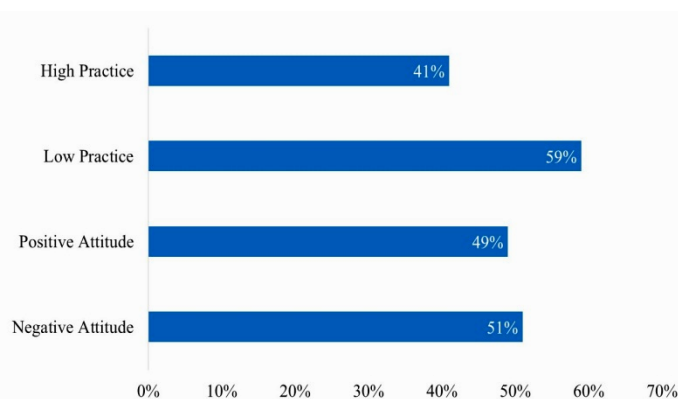
**Self-practices of Pregnant women towards prevention and control of malaria**

When asked “how often do you sleep under a mosquito net”, 48.8% and 51.2 % of the respondents showed high and low

self-practice respectively. For making sure members of the family sleep under the net and also for using mosquito repellents at home, 44.0% and 41.8 % showed high self-practice while 56.0 and 58.2 % showed poor self-practice respectively. About 42.3% and 57.7 % showed high and poor self-practice respectively when they were asked how often they visit the clinic when sick. Overall self-practice showed 59% and 41% for low and high self-practice respectively. The other questions with their respective responses are shown in Table 3.

**Table 3:** Self Practice levels of mothers towards malaria prevention and control.

Questions	High Freq (%)	Low Freq (%)
How often do you sleep in a mosquito net?	197 (48.8)	207 (51.2)
How often do other members of the household sleep in mosquito nets?	178 (44.0)	326 (56.0)
How often do you check for holes/repair mosquito nets?	248 (61.3)	156 (39.7)
How often do you use mosquito repellent coils in your house?	169 (41.8)	235 (58.2)
How often do you use anti-mosquito spray in your house?	166 (41.0)	238 (59.0)
How often do you clean/cut bushes around your house?	166 (41.0)	238 (59.0)
How often do you clear stagnant water near your house	171 (42.3)	233 (57.7)
How often do you visit the health center when you fall sick?	171 (42.3)	233 (57.7)
How often do you receive visits from the village Health Team?	177 (43.8)	227 (56.2)
How often do you forget to take your malaria drug?	9 (2.2)	395 (97.8)
Overall (%)	41	59



**Fig. 1:** Attitude and level of self-practice of the pregnant mothers.

**DISCUSSION**

Pregnant women in our study area showed negative attitude and a corresponding low self-practice towards malaria control and prevention. It is paramount to state that attitudinal behaviors of these pregnant women were marginal, while their self-practice was low, Fig 1. This finding might affect the utilization of anti-malarial preventive interventions and implementation of policies by pregnant women. This study is in

total agreement with a work carried out in Anambra (Ukibe *et al.*, 2014) and Edo (Akinleye and Ajayi, 2011), Nigeria which also recorded negative attitude and poor self-practice. The negative attitude observed differed from a study carried out in Lagos, Nigeria which recorded positive attitude towards malaria prevention and control (Iriemenam *et al.*, 2011). The low self-practice is in congruent with work done by Enato *et al.*, who also recorded low self-practice among pregnant mothers.

In this era when World Health Organization, (WHO) and other Non-Governmental Organizations like Society for Family Health (SFH) Nigeria and National Malaria Control Programme (NMCP) (NMCP, 2016) and DFID Nigeria (DFID, 2012) have put in both resources and interventions to achieve drastic reduction in malaria infection, through antenatal talk show programmes, public health campaign, free distribution of long lasting insecticide treated nets and antimalarial drugs and health promotion programmes displayed over the air; it is expected that majority of pregnant women should develop positive attitude and high self-practice towards malaria prevention and control. However, findings from this study suggest that there are other factors that could undermine the expected outcomes of these interventions. The negative attitude observed in this study may be attributed to the inadequate education seen among the respondents, as majority of them stopped at secondary education with very few having tertiary education. Another factor could be very low level of income earning, demographic data showed that a greater percentage of them earn less than 10,000 naira (about \$30) per month. This poor economic status may deny such individual of opportunity to access some of these health programmes even though they were free of charges. Some of them always shy away from most health outreach thinking they may be requested to pay for such services later. Hence, most of them may not get to receive most of the necessary health information that will help them. On the other hand, another factor that could lead to negative attitude and low self-practice could arise from lack of commitment on the side of the health care providers', especially those who come in direct contact with these pregnant women. It has been observed that malaria was inadequately addressed by medical personnel during antenatal care visit (Tobin-West and Kanu, 2016). This will have a negative impact on the pregnant women's attitude towards malaria since little attention was given to it. This suggests that improving communication about malaria prevention and control between health care workers and pregnant women is critical and could play a meaningful role in reinforcing correct attitude and self-practice

Half of the respondents stated that people should avoid close contact with a malaria patient. This implies that they see malaria disease as a contagious disease, which is a wrong notion that needs to be corrected through proper means. It is of great concern to note that almost all respondents held the view that malaria patient can recover spontaneously from malaria disease without treatment. This suggests that the respondent were not well informed on the health implications of malaria, its morbidity and mortality rate especially among children less than five years and

pregnant women. This finding is in contrast with what was recorded by Enato *et al.*, where 75 % of the participants considered malaria as an important health risk. The consequence of this negative attitude is evident by the low self-practice observed among them. Almost all respondents also claimed they could treat malaria well. When asked for the best way to prevent malaria, only few respondents believes that avoiding mosquito bite and by sleeping under mosquito nets were preventive measures. This wrong notion indicates that respondents were not knowledgeable about the use of ITN for malaria prevention. This finding does not agree with the report of another study done elsewhere (Sabin *et al.*, 2010).

More than half of the respondents showed negative attitude towards the following statements; anyone can get malaria, it is dangerous when malaria medicine is not taken completely, one should go to the health centre/clinic to have blood test as soon as he/she suspects malaria and it is important to check expiring date of a drug before taking it.

When self-practice was assessed, respondent had low self-practice towards the use of both insecticide treated net (ITN), mosquito repellent and anti-mosquito spray. This is in agreement with a study carried out in Port Harcourt (Ukibe *et al.*, 2014; National Population Commission, 2014; Ogundana, 2013). The use of ITN among the respondents was found to be very low. This low self-practice could be attributed to either ignorance of how to use the nets, or that bed nets generate heat and disturbs sleep as was reported by previous studies (National Population Commission, 2014; Ogundana, 2013). Other factors that could lead to failure in the use of ITN as observed in another study include inadequate accommodation to hang nets, some residential house was netted, and some believe that ITNs do not work or that it causes itching, while others claim they heard ITNs killed someone or does not like ITNs (Ukibe *et al.*, 2014). However, a greater percentage of the respondents showed high self-practice when asked how often they checked the ITN of holes and repaired them if any. Even though, some respondent agreed to the fact that avoiding mosquito bite is a major way of preventing malaria, more than half of them did not always clear stagnant water and bushes around their houses. These observations need immediate attention because by implication these women may have been taught but they are not prompted to put into practice what they have been taught.

Furthermore, more than half of the pregnant mothers did not always visit the clinic or hospital when they fall sick buttressing their negative attitude that one can recover from malaria without treatment, suggesting that they could not treat malaria. Almost all respondent showed low self-practice when asked how often they forget to take their malaria drugs, this suggests that most of them may be wrong in their claim of being able to treat malaria and above all shows that they are actually aware that it is dangerous for one not to complete his/her malaria drugs yet most of them never adhere to their drug regimen. This means that these pregnant women are not well informed concerning the consequences of not complying with drug regimen;

such self-practices such as missing medications will lead to drug resistance which has been the major challenge in malaria disease management. There should be more vigorous awareness going on in this area so that these women will know that drug compliance and adherence is not meant for antibiotic alone but also for malarial drugs even though most malarial drug lasts for three days only.

When their socio-demographic data were matched with their responses, it was observed that women with more than four children tend to have negative attitude and a low self-practice towards malaria prevention and control than those with fewer children, while those with positive attitude and high self-practice are more of the working class (civil servants) than those who are self-employed, farmers or house wife. This negative attitude and low self-practice from these groups of respondent could be as a result of low income rate which will increase their level of poverty and decrease access to healthy living. This is supported by the fact that the socio economic statuses of the respondents contributed towards their attitude in malaria prevention and control. Women that earn between N51,000 - 100,000 (about \$150 to \$300) per month mostly had positive attitude and high self-practice toward malaria prevention and control than those earning lower. This observation is understandable because high income earner will be able to afford antenatal care in private hospitals where prompt and adequate care and attention in term of health education and treatment will be given to pregnant women.

These findings however suggest that there is some level of malaria awareness program in this area but without emphasis on actual implementation of these practices. In summary, educational campaigns informing women of reproductive age about the implications of malaria in pregnancy and children less than five years and the potential benefits of putting into practice all actions geared towards malaria control should be taken very seriously. There should be enhanced training of health personnel especially nurses and midwives to improve information on malaria disease which should go beyond conventional approaches to include activities such as communication workshops with role play during antenatal care.

Some limitations are inherent in this study. First, our respondents were recruited primarily among women attending antenatal clinics, thus our data may not have captured the opinions of pregnant women in the marginalized rural areas who cannot afford antenatal care services. Second, the respondents may have perceived that the study was aimed at assessing their knowledge or awareness on malaria; hence some respondents may have exaggerated the importance of malaria as a health issue for pregnant women or their self-practice activities

## CONCLUSION

Pregnant women in Nsukka had negative attitude and a corresponding low self-practice towards malaria prevention and control. This information is of paramount importance as it gives an insight into the impact of malaria programmes done in these areas

on pregnant women and quality of care given to pregnant women, especially, as relevant to control and prevention of malaria in pregnancy. There is therefore need for routine assessments of their practices to discover gaps that can be addressed through increased information during antenatal care.

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