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Determinants Of Pregnant Women's Awareness of Intermittent Malaria Prevention Treatment in Kano, Nigeria

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Abstract

Introduction: In Sub-Saharan Africa, malaria continues to pose a major risk to pregnancy. Numerous issues are linked to it, including low birth weight, abortion, preterm delivery, stillbirth, mother and newborn mortality, and maternal anaemia. This study investigated pregnant women's awareness of and factors influencing their usage of intermittent preventive therapy for malaria in Karkasara Tarauni L.G.A., Kano State. The specific goal is to determine how much pregnant women know about intermittent preventive medication for malaria.

Method: This study employed a descriptive cross-sectional approach. Tarauni LGA, Kano State, pregnant women made up the study population. A pretested, structured, self-administered questionnaire was used to collect data. After being handed to the responders in the ward, the surveys were promptly picked up. IBM Statistical Package for Social Sciences Software (SPSS) version 20 was used to analyze the data at the univariate, bivariate, and multivariate levels. **Results:** 347 of the 370 respondents who were contacted consented to be interviewed, yielding a 93.8% response rate. According to the survey, 60.81% of respondents were unaware that there is a medication to prevent malaria infection during pregnancy, whereas 39.19% of respondents were. Additionally, 3.7% of respondents had never heard of FANSIDER, compared to 96.3% who had. Furthermore, 61.7% of the respondents did not get a lesson on mIPTp during ANC visits, whereas 38.3% did.

Conclusion:

The study's conclusions showed that 72.0%, 39.2%, 96.3%, and 99.7% of pregnant women were aware that using an ANC, using medication to prevent malaria infection during pregnancy, and using FANSIDAR and LLITNs do prevent malaria during pregnancy, respectively.

The study also found that the expenses of Fansider and its adverse effects were not the main obstacles preventing pregnant women in the study area from using IPT-Sp.

Keywords: Malaria, Intermittent preventive treatment of malaria (IPTp), Antenatal clinic (ANC) and FANSIDER.

Introduction

Globally, 125 million pregnant women are at risk of malaria infection each year, and 30 million of them are from sub-Saharan Africa (SSA).[1] Malaria remains a serious threat to pregnancies in sub-Saharan Africa. It is associated with several complications, which include maternal anaemia, low birth weight, abortion, pre-term delivery, stillbirth, infant mortality and maternal mortality.[2] Annually, approximately 125 million pregnancies occur globally in areas with Plasmodium falciparum and/or Plasmodium vivax transmission.[3] The Plasmodium falciparum impairs the capacity of the placenta to transport amino acids from maternal blood to the foetus, and therefore contributes to low birth weights (LBW). Other consequences of malaria infection in pregnancy are increased risk of severe anaemia, cerebral malaria, pre-term delivery, intrauterine growth retardation, maternal death and increased risk to the unborn baby from miscarriage.[1] The susceptibility of pregnant women to Plasmodium Falciparum malaria increases the risk of disease and a high incidence of death for both the mother and her foetus.[4]

Malaria is an infectious disease caused by protozoan parasites from the genus Plasmodium that can be transmitted by the bite of an infected female Anopheles mosquito or by a contaminated needle or transfusion.[5] The rapid spread of P. falciparum parasites that are resistant to SP in areas of malaria endemicity poses a major threat to the prevention of malaria in pregnancy. SP resistance is mediated through mutations at the genes encoding P. falciparum dihydrofolate reductase (Pfdhfr) and dihydropteroate synthase (Pfdhps).[6] Pregnant women compared to non–pregnant women are at increased risk of malaria infection and the severity of clinical manifestation experienced by these women and their foetus depend on the level of pre–pregnancy immunity.[5]Intermittent preventive treatment of malaria in pregnancy (MiP) using sulphadoxine–pyrimethamine (IPT-SP) is one of the three prongs of intervention designed by the World Health Organization to control MiP, especially in malaria-endemic regions where pregnant women are required to receive at least two doses of IPT-SP as early as possible in the second trimester and at every scheduled antenatal care (ANC)

contact thereafter with a month's interval till birth.[7] In Nigeria, 97% of the population is at risk, with pregnant women having 4 times higher risk due to changes in their hormone levels, a reduction in immunity to malaria and the physiological changes of increased blood flow to the skin, which promote attractiveness to mosquitoes.[8]

It has been noted that every pregnant woman living in a malaria-endemic area, with or without symptoms of malaria, has malaria parasites in her blood or placenta, with an increased susceptibility in the second and third trimesters of pregnancy.[7] Among adult populations in sub-Saharan Africa, pregnant women are disproportionately affected by malaria. The World Health Organization (WHO) recommends a combination of measures to mitigate the adverse impact of malaria during pregnancy. These include: use of insecticide-treated bed nets, early case detection and treatment (with an effective anti-malarial medicine), as well as intermittent preventive treatment during pregnancy (IPTp).[9] Intermittent preventive treatment of malaria in pregnancy is based on the assumption that every pregnant woman living in areas of high malaria transmission has malaria parasites in her blood or placenta, whether or not she has symptoms of malaria. It involves the administration of treatment doses of SP in at least monthly intervals during pregnancy, with the first dose administered as early as possible in the second trimester and the last dose administered up to the time of delivery.[4] The scope of malaria control is changing worldwide with more emphasis on community and individual participation. Health education can improve participation in malaria control when such education is designed to address gaps in the knowledge, attitudes and practices of individuals in the communities.[10]

Methods

Study Area

The study was undertaken at the Karkasara area of Tarauni Local Government Area in Kano State, Nigeria. Its headquarters are in the locality of Unguwa Uku within the city of Kano. It has an area of 28 km² and a population of 221,367 at the 2006 census.[11] The Local Government has ten (10) Wards, among which is the Darmanawa (Karkasara) Ward. Kano state is located in the Northwestern part of Nigeria. The state is bounded to the North by Jigawa and Katsina States, to the south by Kaduna and Bauchi States, to the west by Kaduna and Katsina States and finally to the east by Jigawa and Bauchi States. The state was found to have a population of 9,410,288 based on the 2006 National Population and Housing Census, which makes it one of the most populous states in the country and using a growth rate of 3.1% per annum, Kano state, had a projected total population of 11,215,688 in 2012 and 13,065,294 in 2017. [11] The inhabitants of Kano are mainly from the Hausa and Fulani ethnic groups. Other ethnic groups residing in the locality include Kanuri, Yoruba, Nupe and Igbo, among others. [11]The population is mainly Muslim; however, there are also a large number of Christians in the State. Kano State is made up of 44 local government areas (LGAs).

Study Design

A descriptive cross-sectional design was employed for this study.

Study Population

The study population consisted of pregnant women **in** Tarauni LGA, **Kano State.**

Ethical Clearance

Ethical clearance was obtained from the Health Research Ethics Committee of Kano State Ministry of Health. Written informed consent was sought from the participants before conducting the study. Information about the study was provided to the participants, including the study objectives as well as its benefit to society. Hence, their confidentiality, voluntary participation and right to withdraw at any stage will be assured. Furthermore, all the necessary information will be translated into the Hausa Language and given to participants who can read to sign. Thus, the Helsinki declaration will be respected throughout the research.

Instrument of Data Collection

A semi-structured, self-administered questionnaire was adapted from the WHO perception survey for healthcare workers and used to obtain information on respondents' socio-demographic characteristics, and knowledge, attitude and practice of hand hygiene. The questionnaire was reviewed by senior researchers in the department to ascertain content validity.

Data Collection Technique

Data collection was done using a pretested, structured, self-administered questionnaire. The questionnaires

were delivered to the respondents in the ward and were collected soon after. A questionnaire was developed and used to obtain information on respondents' socio-demographic characteristics and factors hindering the utilization of malaria IPTp services.

Statistical Analysis of Results

Data collected was reviewed and entered into Microsoft Excel to avoid errors. Data cleaning was done before analysis to exclude incomplete, inconsistent, or inaccurate data. The analysis of the data was carried out using IBM Statistical Package for Social Sciences Software (SPSS) version 20 at univariate, bivariate and multivariate levels.

a) Univariate

At the univariate level, frequency distribution and the percentage will be used to describe categorical (qualitative) variables. While quantitative/numerical variables were described using appropriate measures of central tendency and variability, such as mean, median, standard deviation and range, depending on the distribution of variables.

b) Bivariate

Chi-square test and/or Fisher's exact test were used to test for a significant association between categorical variables. However, the probability of ≤0.05 was considered statistically significant for all tests of significance.

c) Multivariate

Binary logistic regression was used to adjust for confounders. The criteria for inclusion of a variable into the logistic regression model were "a priori variable", variables significant at bivariate analysis, and a set P<0.10 for variables that will not be significant in bivariate analysis. Adjusted Odds Ratio (OR) with 95% confidence interval (CI) for predictors of knowledge, attitude and hand hygiene practices among boarding secondary school students will be used to determine the strength of association.

Results

347 of the 370 respondents who were contacted consented to be interviewed, yielding a 93.8% response rate.

Respondent's Level of Awareness on Malarial Intermittent Preventive Treatment

Table. 1 shows that 39.19% of the respondents are aware that there is drug to prevent malarial during pregnancy, while 60.81% are not aware.

Table 2: Show that 96.3% of the respondents have heard of FANSIDER, while 3.7% have not.

Table 3: shows that 38.3% of the respondents received a lecture on mIPTp during ANC Visits while 61.7% have not.

Level of mIPTp use among Pregnant Women

The figure indicated that most 124 (33.5%) of pregnant women received Fansider. It also showed that those who received Fansider are at their 2nd trimester, whereas very few received it at the 3rd trimester of pregnancy

Discussion

In November 2019, 370 pregnant women were the subjects of this study in Karkasara, Tarauni local government, Kano state. 23.1% of the respondents fall into the 27–31 age range, according to the distribution of respondents. The distribution pattern of these individuals aligns with the population pyramid of the most developed nations, where youth make up the majority. Every single respondent was pregnant.

The majority of the respondents were from Hausa (84.7%) and Fulani (12.7%) tribes, and others made up the remaining percentage. Almost all of the respondents were Muslims (99.40%), while the remaining were Christians. More than half of the respondents were married (98%), while the rest were either divorced or separated. This high likelihood of being married, indicated by the result, is not surprising since this is located in a community where marriage is considered important both religiously and culturally. Similarly, more than two-thirds of the respondents had secondary school education (71.2%), some had tertiary education (17.3%), while the remaining had either Primary school education, Qur'anic or no formal education at all.

Findings from this study revealed that nearly all the respondents are familiar with the term "malaria"; it is not surprising that most of the respondents mentioned mosquitoes in the transmission of the disease. The findings of this study are similar to those of the studies conducted in Uganda.1[2] Similarly, the outcome contrasted that of the studies done in Tanzania, Ghana

and Nigeria. [4, 13, 14] Two third of the respondents (72%) had awareness on ANC booking, those that had awareness on taking the drugs to prevent the malarial infection in pregnancy made up the nearly one fourth of the respondents (39.2%) while those that had low level or no awareness on taking the drugs to prevent Malaria in pregnancy made up (60.80%) of the respondents. The findings from this study is higher that of the previous study conducted in Southwest Nigeria which indicated that a considerable proportion of both the pregnant women (n = 494, 60.4%) and the non-pregnant mothers of children aged under 5 years (n = 254, 45.8%) did not have correct knowledge on malaria prevention measures based on our assessment threshold ($p < 0.001$).[10]

Moreover, nearly (41.2%) of the respondents who received Lecture on mIPTp during ANC visit believe that the use of mIPTp prevents malaria in pregnancy, while (58.8%) were not. This is almost similar to the study, which revealed that (84.4%) were aware of the use of IPT against malaria, while (15.6%) were not.[12] The outcomes from this study are higher than those of the previous study conducted in Southwest Nigeria, which demonstrated that one hundred and nine of 209 (52.2%) respondents have heard about IPTp, but only 26 (23.9%) were able to define it. Fifty-seven (27.3%) reported having received at least one dose of IPTp during the index pregnancy, and all were among those who had heard of IPTp (52.3%). Twenty-one of the 57 (36.8%) took the SP in the clinic. Only three of the twenty-one (14.3%) were supervised by a health worker. Twenty-two of the 36 women (61.1%) who did not take their drugs in the clinic would have liked to do so if allowed to bring their own drinking cups. Almost half (43.9%) of those who had used IPTp during the index pregnancy expressed concern about possible adverse effects of SP on their pregnancies. Periodic shortages of SP in the clinics were also reported.[13]

Conclusion

The study's conclusions showed that 72.0%, 39.2%, 96.3%, and 99.7% of pregnant women were aware that using an ANC, using medication to prevent malaria infection during pregnancy, and using FANSIDAR and LLITNs do prevent malaria during pregnancy, respectively. This suggested that pregnant women in the research region knew a fair amount about how to avoid malaria while pregnant.
The study also found that the expenses of Fansider and its adverse effects were not the main obstacles preventing pregnant women in the study area from using IPT-Sp.

Recommendations

Radio, in particular, should be the focus of organized media campaigns by pertinent stakeholders, such as the business sector and/or non-governmental groups, to increase public awareness of the value of prenatal care and the use of the services being provided. Pregnant women will know more about ANC services and, specifically, how to prevent malaria during pregnancy thanks to this.

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Table 1: Respondent's Knowledge on Malarial Intermittent Preventive Treatment

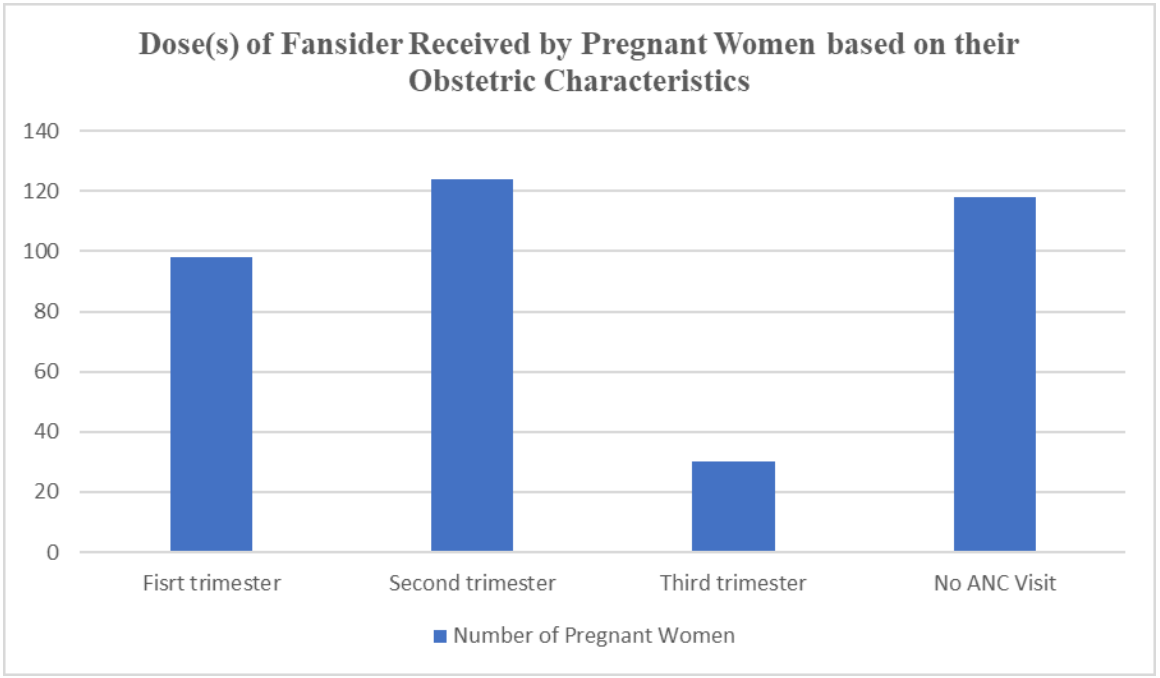
	Good knowledge %	Poor knowledge %
	145 (39.19)	225 (60.81)

Table 2: Respondents' Knowledge on FANSIDAR

	Good knowledge %	Poor knowledge %
	356 (96.3)	14(3.7)

Table 3: Lectures Received by Respondents during ANC Visit

	Good knowledge %	Poor knowledge %
	38.3	61.7



1. **Figure 1:** Doses of FANSIDER Received by Pregnant Women Based on Their Obstetric Characteristics