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INFLUENCE OF DEMOGRAPHIC CHARACTERISTICS OF REGISTERED ANTENATAL CARE PREGNANT WOMEN ON THEIR PRACTICE OF MALARIA PREVENTION STRATEGIES IN NORTH-EAST ZONE, NIGERIA

[1]YUSUF, A, [1]SAIDU A., [1]MOHAMMED A., [2]LAWAN A. & [2]SULEIMAN, M.A.

[1]Department of Physical and Health Education,Aminu Saleh College of Education, Azare, Bauchi State
[2]Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria

Abstract

This study assessed the influence of demographic characteristics of registered antenatal care [ANC] pregnant women on their practice of malaria prevention strategies in north-east zone, Nigeria. Using ex-post facto research design. Multistage sampling technique consisting of simple random, stratified, proportionate and systematic sampling techniques were used to draw a sample from a population of 503,661 antenatal care registered pregnant women from six (6) states in North-east zone, Nigeria. Thus, a total number of 1,200 pregnant women attending ANC formed the respondents. The instrument for data collection was a researcher-developed validated close-ended questionnaire. The instrument was tested using Cronbach Alpha and a reliability index of 0.80 was obtained from the pilot study result. The data collected was analysed using International Business Machine [IBM] Statistical Package of Social Science [SPSS] version 25.0. The descriptive statistics of mean scores and standard deviations were used to answer the research question. Inferential statistics of regression analysis was used to test formulated null hypothesis. The finding of the study revealed that; two demographic characteristics: marital status and occupation with the p-values of 0.009 and 0.000 respectively influenced significantly the practices of the pregnant women of malaria prevention strategies. The conclusion drawn was that the registered ANC pregnant women's marital status and occupation influenced their practices of malaria prevention strategies positively while their age, education and income did not. It was recommended that, public enlightenment campaigns concerning malaria prevention strategies should be intensified to increase the awareness and good practice of malaria prevention among the ANC and non-ANC registered pregnant women across all their demographic characteristics.

Keywords: Demographic characteristics, influence, practice, malaria, prevention, strategies, pregnant women.

Introduction

Malaria remains a leading cause of morbidity and mortality worldwide, especially among pregnant women that are living in Sub-Saharan Africa, where at least 90% 0f the malaria death occurs World Health Organisation (WHO, 2015). The WHO (2015) recommends that pregnant women use long-lasting insecticidal treated nets [LLINs], intermittent preventive treatment in pregnancy [IPTp] with sulfadoxine-pyrimethamine [SP] and receive prompt and effective diagnosis and treatment of malaria with a safe drug in order to prevent advance complications.

Recognising the need to hasten progress in reducing the burden of malaria, WHO developed the Global Technical Strategy for Malaria [GTS] 2016-2030, which sets out a vision for accelerating advocacy plan, action and investment to defeat malaria [AIM] by 2030 (WHO, 2015; Federal Ministry of Health [FMOH], 2014). In Nigeria, majority of pregnant women do not go to any health facility when

they have malaria. This is particularly common in states where culture of the people made women in seclusion and lack decisions about attending ANC facility. In 2008, the number of women who were attended by skilled health care providers during ANC was estimated at 65 per cent in the North-Central Region of Nigeria, 43 per cent in the North-East, and 31 per cent in the North-West, compared to 87 percent, 70 per cent, and 87 percent for the South-East, South-South and South-West regions (NPC, 2009). Behavioural factors is the human element that constitute serious challenge in disease prevention.

These behaviours are socio-cultural practices that promote mosquito breeding and access to people, as well as the failure of the risk population to use proven and effective methods of malaria preventive measures promptly and appropriately (Godwin *et al.,* 2010). According to Oladimeji *et al.* (2018), barriers to effective utilisation of malaria prevention interventions are beliefs, fear of side effects from current malaria preventive measures, corruption by workers and cost of nets, and poor environmental hygiene.

In 2008 Arogundade and Anonyuo conducted a survey to assess the uptake of IPTp-SP and insecticide treated nets (ITNs) by pregnant their study found out that sleeping under an ITN the night before the survey was associated with receiving IPT (OR=1.59, p=0.006), as well as ANC registration by pregnant women. Also, the study revealed that ANC registered pregnant women were 6 times as likely to receive IPTp-SP as those who had not registered (OR=5.6, p<0.0001). Yusuf *et al*. (2016) reported that in North-East zone IPTp-SP use is 30.1% and ITN use is 66.0% which are below RBM target of 80% coverage. This revelation implies much is still needed about knowledge and practices to prevent and manage malaria attacks in Nigeria.

Onyeneho (2014) carried out a study to identify key socio-demographic and knowledge factors associated with compliance for preventing MiP among 720 women. Majority of those with good knowledge of malaria in pregnancy and currently living with a partner used ITN every night during the last pregnancy. Akaba *et al.* (2013) study at a booking clinic of the University of Abuja Teaching Hospital among 403 consenting pregnant women found that, IPTp-SP was used by 15.9% of the respondents, ITNs ownership was 42.8%, however its use declined from 28.5% to 24.6% during pregnancy. Omaka-Amari *et al.* (2015) explored malaria preventive practices among pregnant women in Ebonyi State, Nigeria and found out that pregnant women often (xW=1.70-3.05) adopted most of the malaria preventive practices. Similarly, showed that pregnant women in the study areas had adequate knowledge about ITN for malaria prevention

According to Mutagonda *et al.* (2012); Ossai, (2014) studies which claimed that most women are not aware of the use of SP for IPTp-SP in relationship with pregnancy age. Specifically, majority of pregnant women are not aware why SP was recommended and being given by health workers or the correct timing of IPTp-SP, and the number of SP doses are required for IPTp during pregnancy. Again, most pregnant women had the less knowledge on the usage and values of SP for IPTp and ALu for treatment of MiP

Statement of the Problem

Malaria is a preventable disease, despite various government programmes to reduce its menace, malaria constitutes serious problem, in some parts of Nigeria. Many pregnant women are still not utilising various malaria prevention interventions programmes to reduce maternal and child mortality from malaria infection. Nigeria is currently implementing prevention of 'MiP' intervention as a component of Focused Antenatal Care Services [FANC] which has provision for the most practical place for these malaria interventions delivery. During ANC the key interventions for the prevention of MiP include the administration of SP for IPT under direct supervision of skilled service providers, distribution of LLINs, and appropriate case management through prompt diagnosis and effective treatment with recommended drugs (Adamu, 2016).

Relying on field survey and observation methods, the authors found that pregnant women are frequently reporting to hospitals and clinics with complains of fever, headache, vomiting, abdominal

discomfort and many more. In some instances, they are diagnosed with MiP. Consequently, many usually developed anaemia, LBW, spontaneous abortion and still birth delivery. Against the backdrop of persistent high maternal morbidity, pregnancy-related complications in Nigeria and consequential development attentions by government and international NGOs in North-East zone, it is imperative that a study is carried out to study investigates the influence of demographic characteristics of registered ANC pregnant women on their practice of malaria prevention strategies in north-east zone, Nigeria, This zone has witnessed so many social and political unrests in the last 10 years and it is assumed these might have certain effects on people's knowledge and their practices of malaria prevention, especially among women.

Purpose of the study

The purpose of the study is to investigates whether the demographic characteristics of the respondents (age, marital status, level of education, level of income and occupation) influence practice of malaria prevention strategies.

Research Question

Does the demographic characteristics of the respondents (age, marital status, level of education, level of income and occupation) influence the practice of malaria prevention strategies?

Research Hypothesis

Age, marital status, level of education, level of income and occupation of the respondents will not significantly influence their practice of malaria prevention strategies.

Method and Materials

This study investigates the influence of demographic characteristics of registered ANC pregnant women on their practice of malaria prevention strategies in north-east zone, Nigeria. One thousand and two hundred (1200) copies of questionnaire were administered out of which one thousand and one hundred (1100) copies (110;91.7%), were found valid for the analysis. The instrument for data collection was a researcher-developed questionnaire which contains nine (9) items. The instrument was tested using Cronbach Alpha and a reliability index of 0.80 was obtained. The copies of the questionnaire were administered through systematic sampling approach during ANC clinic sessions. The IBM SPSS Version 25.0 was used to analysed the data obtained from the respondents. Descriptive statistics of mean and standard deviations were used and answered the research question while inferential statistics of regression analysis was used and tested the hypothesis postulated for the study.

Results amd Discussions

Answer to Research Question

Does the demographic characteristics of the respondents (age, marital status, level of education, level of income and occupation) influence the practice of malaria prevention strategies?

Table 1: Mean scores of pregnant women's (ages, marital statuses, levels of education, levels of income and occupation) influence on practices of malaria prevention strategies

Age range	N	Mean	Std. Deviation
Within 18yrs	200	3.15	0.602
19 - 35yrs	523	3.03	0.760
Above 35yrs	377	3.11	0.622
Total	**1100**	**3.08**	**0.689**
Marital Status			
Married	715	3.03	0.682
Widowed	286	3.17	0.744
Divorced	99	3.20	0.515
Total	**1100**	**3.08**	**0.689**
Educational level			
Non-Formal	109	3.10	0.594
Primary	183	3.12	0.564
Secondary	321	2.96	0.928
Tertiary	424	3.14	0.561
Qur'anic	63	3.13	0.409
Total	**1100**	**3.08**	**0.689**
Income level			
Less than N10,000.00	553	3.06	0.752
N11,000 - N50,000.00	342	3.13	0.577
N51,000.00 and above	205	3.07	0.683
Total	**1100**	**3.08**	**0.689**
Occupation			
House-wife	403	2.94	0.778
Unemployed	155	3.19	0.703
Farmer	190	3.06	0.658
Self-employed	253	3.27	0.525
Civil-servant	99	3.04	0.569
Total	**1100**	**3.08**	**0.689**

Decision mean = 2.50

Table 1 showed that age influenced the practices of malaria prevention strategies by the pregnant women. Pregnant women who were within 18years (3.15) had the highest mean practices while those between 19 and 35years (3.03) had the least mean score with women above 35years (3.11) coming between. The mean scores were all above 2.50 used for the decision.

The table further shows that pregnant women who were divorced had the highest mean practices (3.20) and were followed by those who were widowed (3.17). The least mean practices, was by the married pregnant women with a mean score of 3.03 and a standard deviation of 0.682. All the mean scores were higher than the decision mean of 2.50, an indication that the variable had major influence on the practices of malaria prevention strategies by the pregnant women.

Furthermore, the table indicated the least practices (2.96) were among pregnant women with secondary school education. The highest score (3.14) was observed among those with tertiary education. All the groups had mean scores higher than the 2.50 used of decision on the variable. This observation

implies that the variable had a major influence on the practices of malaria prevention strategies by the pregnant women.

Also, the table reveals that the level of income had a major influence on the practices of malaria prevention strategies by the pregnant women as indicated with mean scores in Table 4.9. But the highest influence of the variable was obtained from pregnant women whose income levels were between ₦11,000 and ₦50,000.00 while the least was obtained from those whose income were less than ₦10,000.00.

Similarly, the table shows that the Housewives had the least mean practices of the malaria prevention strategies among the respondents as indicated by their mean score of 2.94 with a standard deviation of 0.778 in the table. The highest mean practices for malaria prevention strategies was obtained among pregnant self-employed women at (3.27) and those who were unemployed at (3.19). But the mean scores were all higher than the decision mean of 2.50. This observation revealed that the variable had a major influence on the practices of malaria prevention strategies by the pregnant women.

Age, marital status, level of education, level of income and occupation of the respondents will not significantly influence their practice of malaria prevention strategies.

Research Hypothesis

Table 2a: Regression Analysis on the influence of demographic characteristics of the respondents (age, marital status, level of education, level of income and occupation) on the practice of malaria prevention strategies among pregnant women

R	R-Square	Adjusted R Square	Std. Error of the Estimate
.155[a]	.024	.019	6.140

Table 2b: ANOVA

Model		Sum of Squares	Df	Mean Square	F	p-value
1	Regression	1012.162	5	202.432	5.370	000 [b]
	Residual	41239.823	1094	37.696		
	Total	42251.985	1099			

Table 2a indicates the influence of the demographic characteristics (age, marital status, level of education, level of income and occupation) of the respondents on the practice of malaria prevention by the pregnant women in the study areas. The table reveals that the predictors influenced significantly the practices of malaria prevention strategies by the pregnant women in the study areas at f (5,1094) = 5.370, R=0.155, R2 = 0.024 and at Adjusted R Square = 0.019 (p = 0.000). Thus, the 2.4% (R Square) of the total variance observed in the pregnant women's practices of prevention strategies could be accounted for by their demographic characteristics, while the 97.6% could be explained by other factors.

Table 3: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	F	p-value
		B	Std. Error	Beta		
1	(Constant)	25.571	.891		28.710	.000
	Age	.012	.296	.001	.040	.968
	Marital Status	.759	.290	.080	2.620	.009
	Education	.011	.181	.002	.059	.953
	Income	-.272	.291	-.034	-.933	.351
	Occupation	.575	.149	.130	3.866	.000

Table 3 shows the contributions of each of the demographic characteristics of the pregnant women which are age, marital status, level of education, level of income and occupation to the

prediction model at 0.05 alpha level. However, two demographic characteristics: marital status and occupation with the p-values of 0.009 and 0.000 respectively influenced significantly to the practice of malaria prevention strategies by the pregnant women.

Discussion of Finding

The finding from this study on the influence of demographic characteristics of registered antenatal care pregnant women on their practice of malaria prevention strategies in north-east zone, Nigeria, reveals that two demographic characteristics: marital status and occupation had the p-values of 0.009 and 0.000 respectively; therefore, these variables influenced the practice of the respondents to the uptake of malaria prevention strategies. This finding is in line with the study of Araya *et al.* (2015), in Ethiopia, married pregnant women utilisation of mosquito nets was more than the unmarried women, marital status had a p-value of 0.31 in the study area. This result might be due to the cultural related position towards marriage, which indirectly influenced the distribution of mosquito nets freely to households rather than individuals. Tobin-West and Kanu (2016) showed an association between the marital status of the respondents and the use of larviciding at ($p=0.049$), mosquito repellants at ($p<0.001$), window and doors screens at a p-value of less than 0.05. However, there was no association between the marital status of the respondents and the use of IRS ($p=0.113$) and EM ($p=0.11$) because both of them had a p-value of more than 0.05. Therefore, they were not statistically significant. It has been reported that married women were 3 times more likely to use ITN than those not married (odds ratio (OR= 2.69), confidence interval (CI= 1.56 – 4.62). Again, women who had ever delivered babies were 2 times more likely to use ITN nulliparous women (OR= 2.42, CI= 1.42 - 4.14) (Ndwiga *et al.,* 2014).

This finding is also in line with the study of WHO (2014) and Yadav *et al.* (2014) which showed a significant association between women occupation and influences of how and where they could be infected by malaria carrying mosquitoes farming and fishing were the primary occupations of the majority of the respondents in the study area. Farming and fishing are occupations that can expose human to vector contact. This result was in line with the findings by Evidence from WHO (2013) report suggested that the occupation in agricultural sector expose people to greater risk of malaria infection and transmission. Similarly, in Zambia, many people in the Milenge district neglected malaria prevention and control measures while engaging in agricultural practices that put them at risk of malaria infection. Although, this study found out that, occupation of the respondents, 403 of the women, were full time house wives, while 253 of them were self-employed. One hundred and ninety, equals to 17.3% were engaged in farming. One hundred and fifty-five (155) were unemployed, while ninety-nine (99) were civil servants.

In a related study by Akaba *et al.* (2013) study at a booking clinic of the University of Abuja Teaching Hospital among 403 consenting pregnant women found that, IPTp-SP was used by 15.9% of the respondents, ITNs ownership was 42.8%, however its use declined from 28.5% to 24.6% during pregnancy. Omaka-Amari *et al.* (2015) explored malaria preventive practices among pregnant women in Ebonyi State, Nigeria and found out that pregnant women often (xW=1.70-3.05) adopted most of the malaria preventive practices. Similarly, showed that pregnant women in the study areas had adequate knowledge about ITN for malaria prevention. The above findings were in contrast with Mutagonda *et al.* (2012); Ossai, (2014) studies which claimed that most women are not aware of the use of SP for IPTp-SP in relationship with pregnancy age. Specifically, majority of pregnant women are not aware why SP was recommended and being given by health workers or the correct timing of IPTp-SP, and the number of SP doses are required for IPTp during pregnancy. Again, most pregnant women had the less knowledge on the usage and values of SP for IPTp and ALu for treatment of MiP.

Udu *et al.* (2017) reported that of the 289 respondents were married while 137 were single. The respondents who were mostly married women had the highest concern for malaria preventives uptake. Married women are more cautious of malaria prevalence than single respondents. Onyeneho (2014)

carried out a study among 720 women the result revealed that majority are having good knowledge of malaria in pregnancy and currently living with their partners used ITN every night during their last pregnancy. In contrast, in Ghana, Richard (2011) found that the coverage of ITN was still low at 32% compared to the Abuja Roll Back Malaria 2010 target of 60% in spite of the subsidies for pregnant women and children under five years of age. Meanwhile, there was relationship between possession and use of ITN (p= 0.12, chi=2.47).

Conclusion

On the findings from this study it was concluded that pregnant women's marital status and occupation influenced how they practiced malaria prevention strategies, while, age, education and income did not.

Recommendation

All categories of pregnant women should be provided with adequate information on malaria prevention strategies and adopt (ITN, use IPT-SP etc).

References

Adamu, I. (2016). *Assessment of knowledge and utilisation of intermittent preventive treatment for malaria among pregnant women attending antenatal clinic in Jigawa State, Nigeria.* A thesis submitted to the Post graduate school of Ahmadu Bello University, Zaria, in partial fulfilment of requirement for the award of Masters of Public Health (Mph) in field epidemiology, department of community medicine, Ahmadu Bello University, Zaria Nigeria. Accessed on 22, July 2018.

Akaba, G. O., Otubu, J. A. M., Agida, E. T. & Onafowokan, O. (2013). Knowledge and utilisation of malaria preventive measures among pregnant women at a tertiary hospital in Nigeria's federal capital territory. *Niger Journal of Clinical Practice,* 16(2), 201-206.

Araya, G. D., Reda, H. L. & Tesema, A. G. (2015). Utilisation of long lasting insecticidal nets among household in malarious areas of Raya Alamata District, Tigray, Ethiopia', *Science Journal of Public Health*, 3(2), 216-224.

Arogundade, Y. & Anonyuo, B. (2008*).* Perceptions of risk of malaria in pregnancy as it influences receiving of intermittent preventive therapy: a household study among pregnant women in Nigeria*. Society for Family Health, Nigeria,* 1(1), 10-16.

Federal Ministry of Health (2014). (2nd ed.) *National guideline and strategies for malaria prevention and control during pregnancy*. Abuja: FMOH. Abuja.

Godwin, T. J., Mbaawuaga, E. M. & Denen, A. P. (2010). Sociocultural factors influencing the control of malaria in an endemic city in north-central Nigeria. *International Journal of Biological and Medical research,* 1(4), 277-282.

Mutagonda, R., Kamuhabwa, A. R., Massawe, S. & Mpembeni, R. (2012). Intermittent preventive therapy and treatment of malaria during pregnancy: a study of knowledge among pregnant women in Rufiji district, southern Tanzania. *Tropical Journal of Pharmaceutical Research,* 11(5), 835-845.

National Population Commission (2009). *Report for antenatal care coverage for 2008 Nigeria.* Nigeria: Abuja.

Ndwiga, T., Kei, R. M. & Dancan, O.W. (2014). Utilisation of insecticide treated bed nets among mothers attending MCH/FP in WebNJODIuye district Hospital, Bungoma County, Kenya. *Open Journal of Preventive Medicine*, 1(4), 470-480.

Omaka-Amari, N. L., Nwimo, O. I. & Alo, C. (2015). Malaria preventive practices among pregnant women in Ebonyi State, Nigeria. *Journal of Health, Medicine and Nursing, An International Peer-reviewed Journal,* 1(14), 20-28.

Onyeneho, N. G. (2014). Compliance with intermittent presumptive treatment and insecticide treated nets use during pregnancy in Enugu state Nigeria. Prevention before and after a randomised controlled trial of permethrin-treated bed nets in Western Kenya. *American Journal of Tropical Medicine and Hygiene,* 6(68), 142-148.

Ossai, P. (2014). *Awareness, accessibility and use of malaria control interventions among at-risk groups in Lagos Metropolis, Nigeria.* A dissertation submitted to Kent State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Richard, O. (2011). *Assessing the coverage and consistent use of insecticide treated bed nets (ITNs) in the prevention of malaria among pregnant women in the Nkoranza South District in the Brong Ahafo Region of Ghana*. A Dissertation Submitted to the School of Graduate Studies, Kwame Nkrumah University of Science and Technology, Kumasi in Partial Fulfilment of Requirements for the Award of Master of Public Health (MPH) Degree in Health Education and Promotion.

Tobin-West, C. I. & Kanu, E, N. (2016). Factors influencing the use of malaria prevention methods among women of reproductive age in peri-urban communities of Port Harcourt city, Nigeria. *Niger Postgraduate Medical Journal,* 2(23), 6-11.

Udu. R., Ochieng, D. & Apat, D. (2017). The level of adoption of malaria prevention strategies on pregnant women in Sauri, Siaya sub county, Kenya. *International Journal of Advanced Scientific Research and Management,* 2(9), 1-7.

Ukibe, S. N., Ikeako, L. C., Mbanugo, J. I. & Obi-Okaro A. C. (2014). Knowledge attitude and practices of pregnant women concerning use of insecticide treated bed nets (ITNs) in Anambra state, south-east Nigeria. *Journal of Applied Medical Sciences,* 3(1), 15-22.

World Health Organisation (2013). Malaria facts sheets. Retrieved from http://www.who.int/medicare/facys/sheets/fs094/en/. Accessed 01 May, 2018.

World Health Organisation (2014). World malaria report. World health organisation. Geneva, Switzerland: Springer. World Health Organisation (2015). Global malaria technical strategy for malaria 2016–2030. https://www.who.int/ malaria/areas/global_technical_strategy/en/. Accessed on 25 April, 2018.

World Health Organisation (2015). World Malaria Report 2015. Geneva. https://www.who.int/malaria/publications/world-malaria-report-2015/report/en/. Accessed on 25 April, 2018.

World Health Organisation (2015). Global malaria technical strategy for malaria 2016–2030. Available from: http://www.who.int/ malaria/areas/global_technical_strategy/en/. Accessed on 25 April, 2018.

Yadav, K., Dhiman, S., Rabha, B., Saikia, P. K. & Veer, V. (2014). Socio-economic determinants for malaria transmission risn endemic primary health center in Assm, India. *Journal of Infectious Diseases,* 3(19), 122-129.

Yusuf, B. O., Akinyemi, O. J., Fagbamigbe, F. A., Ajayi, O. I., Bamgboye, A. E., Ngige, E., Issa, K. & Bashorun, A. (2016). Controlling malaria in pregnancy: How far from the Abuja targets? *Malaria World Journal,* 7(7), 1-8.