

The Role of Mass Media in the Use of Insecticide treated bednets and Integration of Intermittent Preventive Therapy for Malaria Prevention among Pregnant women in Nigeria

By

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ABSTRACT

Malaria during pregnancy is a major public health problem in Nigeria and other sub-Saharan African countries especially in malaria endemic areas. It increases the risk of low birth weight, child/maternal morbidity and mortality. This paper addresses impact of radio campaigns on the benefits of insecticide treated bednet (ITN) among pregnant women in Nigeria. The study respondents were selected through a multistage sampling technique. Multivariate logistic regression analysis was employed to determine influence of factors that are associated with use of ITN among pregnant women in Nigeria. Respondents who knew that sleeping under ITN prevents malaria were 3.1 times more likely to sleep under net ($p < 0.0001$). Those who listened to radio are about 1.56 times more likely to use ITN ($p = 0.020$) while respondents who had heard of Society for Family Health's campaigns on ITN are 1.53 times more likely to use bednet ($p = 0.019$).

Keyword: antenatal care, intermittent preventive therapy, safe motherhood package, odds ratio, Roll Back Malaria (RBM).

Introduction

Malaria during pregnancy is a major public health problem; it increases the risk of low birth weight (LBW) (< 2500 g), child morbidity and mortality during the first year of life by inducing intra-uterine growth retardation, prematurity, infant anaemia and maternal anaemia. Malaria in pregnancy is responsible for 11% of maternal deaths in Nigeria (Coulibaly, Gies & D'Alessandro, 2007).

Pregnant women constitute the main adult risk group from malaria and 80% of maternal and child mortalities are due to malaria in Africa. Perinatal mortality due to malaria is put at about 1500/day in Africa. In areas where malaria is endemic, 20-40% of all babies born may have low birth weights (Abdunoor *et al.*, 2008). Malaria in pregnancy is a priority area in Roll Back Malaria (RBM) strategy.

Since 2000, the World Health Organization has recommended a package of interventions to prevent malaria during pregnancy (Abdunoor *et al.*, 2008). This package includes the promotion of insecticide-treated bed nets (ITNs), intermittent preventive treatment in pregnancy (IPT), and effective case management of malarial illness. This also promotes integration into safe motherhood package. One of the strategies of the Nigerian RBM policy supported by Global Fund is to create awareness on prevention of malaria in pregnancy through the use of insecticide treated net and intermittent preventive therapy. Pregnant women are given IPT through the public and private facilities alongside ITN. Findings from researches have shown positive association between knowledge and use of products or uptake of services. In its own efforts to promote the use of ITN, the Society for Family Health (SFH) carried out some radio campaigns

on the benefit of use of ITN in preventing malaria in December 2007. The main aim of this paper is to assess impact of exposure to this campaign while adjusting for other determinants of use of ITNs. .

Data and Methodology

A population-based household survey among pregnant women was carried out in 21 states of Nigeria in February 2008. A multi-stage probability sampling technique was employed in selecting the eligible respondents. The first stage was the selection of localities/sites to form 20 clusters. All the localities in a state were arranged in their geographic order with their sizes attached (the projected population of the localities being the measure of size). A cumulative measure of the size was obtained and using systematic sampling procedure the 20 clusters were allocated to the localities. Women of reproductive age within the selected households were identified and listed by the research personnel and listers. Later on, members of the households were screened to identify the eligible respondents (i.e. pregnant woman).

Structured questionnaires based on thematic areas were administered. Possible determinants of use of ITN and antenatal visits were explored in addition to other background characteristics of the respondents. We employed a logistic regression technique to explore influence of factors such as knowledge about ITN, causes of malaria and correct ways of preventing malaria and gestational age of the current pregnancy as at the time of the survey. Specifically, we explore exposure to SFH mass media on ITN with the aim of being able to attribute use of ITN to exposure. All categorical variables were dummy coded. Two separate models were fitted. Firstly, we explored influence of these determinants on use of ITNs while the second model was based on IPT. A binary dependent variable was created for use or non-use of ITN and similarly for receiving or not receiving IPT. Statistical significance was based on a p-value of 0.05.

At an exploratory data analysis stage, several models were explored. Test of goodness-of-fit was based on Hosmer and Lemeshow test (HL); with models with $p > 0.05$ assumed to be good and fit well to the data.

Discussion of Results

A total of 2,348 pregnant women were interviewed during the survey across the 21 states. Table 1 presents findings of the descriptive summary. Overall about a fifth of the respondents had never attended school. There is a substantial geographic variation with North East having the highest proportion of respondents with no formal education. Respondents in age group 25 to 35 constituted the largest proportion while less than 2% of the respondents belonged to traditional religion and others. The religious background of the majority of the women interviewed in the northern zones was Islam while Christian religious denomination (protestant and catholic) was predominant in the southern zones.

Table 2 presents findings from the model on use of ITN with HL showing that the model fits well ($p=0.944$). Exposure to mass media is positively associated with sleeping under ITN as those who listened to radio (OR=1.56, $p=0.02$) and heard of SFH campaign (OR=1.53, $p=0.019$) were more likely to sleep under bednet the previous night before the survey compared with their counterparts who did not listen to radio and hear of SFH campaign. Knowledge that sleeping under ITN prevents malaria was significantly associated with sleeping under net. Respondents with correct knowledge on use of ITNs were approximately three times more likely to sleep under ITNs compared with their counterparts who did not know that ITN prevents against malaria. Findings from this model also revealed a positive association between receiving IPT and use of ITN with those who received IPT about 1.48 times more likely to sleep under

ITNs. This further supports the effectiveness of the WHO recommended package of interventions for malaria. Nigeria adopted an intermittent preventive therapy (IPT) with sulfadoxine-pyrimethamine (SP) for malaria in pregnancy as a national policy in 2005..

Conclusion

Malaria in pregnancy is detrimental to the foetus. High grades of fever, placental insufficiency, hypoglycemia, anemia and other complications can all adversely affect the foetus. *P. falciparum* malaria can pose problems for the foetus, with the latter being more serious. Similarly it can aggravate maternal health problems which could result from maternal morbidity and anaemia.

ITNs, when use en mass is not only effective in preventing malaria; it is also cost effective and generate a residue effect by helping to lessen malaria transmission by reducing vector populations. Therefore, there is need to promote net use as one of the best methods of preventing malaria and also the overall benefit of IPT to the mother and the neonatal health.

The Global Fund intervention in 18 states of Nigeria (included in the 21 states surveyed) is supporting malaria prevention in pregnancy by promoting the use of ITN and IPT through antenatal care. Women are given treated net on registering at ANC or when they receive first IPT. Efforts should be directed at uptake of antenatal services as soon as a woman confirms her pregnancy status. This will avail her opportunity of receiving appropriate care which in turn is for the benefit of both mother and child. Role of mass media cannot be over emphasised in addressing reproductive health issues; particularly in view of its potential for wide audience reach and a cost-effective method for reaching large audiences. The radio especially has the best potential of reach in the rural areas and among transient populations. As evident from a national household survey in Nigeria, 95% of respondents considered radio as an acceptable medium of receiving health information (FMOH, 2006). This paper also provides evidence supporting effectiveness of the integrated approach as a best method for preventing malaria in pregnancy. Combination of ITNs and IPT Sustained health communications to encourage use of ITN as well as attending ANC will enhance an effective combined package of ITNs and IPT. Also there is a need to increase knowledge of malaria prevention to encourage use of the promoted health products.

Figure 1: Pregnant women who slept under treated net the previous night according to exposure to SFH radio campaign.

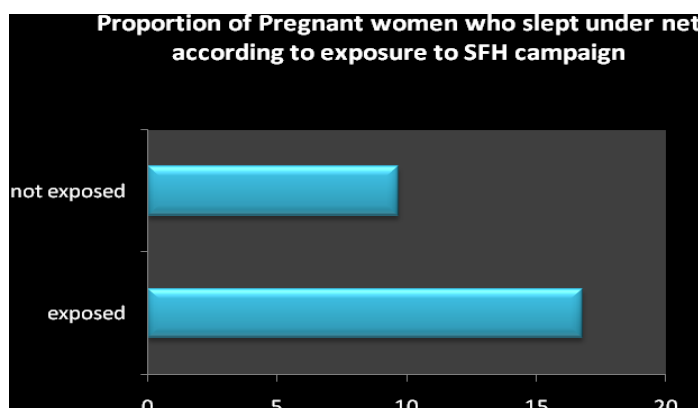


Table 1: Summary of descriptive information about the respondents

Zone	North West	North East	North Central	South West	South East	South South	Total
	<i>457</i>	<i>452</i>	<i>452</i>	<i>348</i>	<i>298</i>	<i>341</i>	<i>2348</i>
Location							
Urban	43.1	40.7	41.8	71.0	36.9	40.2	45.3
Rural	56.9	59.3	58.2	29.0	63.1	59.8	54.7
Age group (yrs)							
15 to 19	16.8	21.2	6.9	3.4	2.3	8.5	10.7
20 and 24	26.7	27.9	24.1	22.7	21.8	24.3	24.9
25 to 34	52.1	41.2	56.6	64.1	62.8	55.7	54.5
35 & above	4.4	9.7	12.4	9.8	13.1	11.4	9.9
Religion							
Islam	93.9	89.4	46.5	30.7	1.0	0.9	49.2
Christian	6.1	10.0	52.0	68.1	93.6	97.7	49.3
Others	0.0	0.6	1.5	1.2	5.4	1.4	1.5
Highest level of education							
None	23.6	38.1	16.6	10.3	11.4	8.2	19.3
Qur'anic only	42.7	20.6	7.3	0.0	0.0	1.0	13.7
Primary	15.3	21.0	25.9	25.0	26.8	25.5	22.8
Secondary	14.9	15.7	38.1	51.4	46.6	60.4	35.6
Higher	3.5	4.6	12.2	13.2	15.1	5.6	8.6
Stage of pregnancy							
First trimester	28.0	23.5	17.3	20.4	15.1	12.9	20.1
Second trimester	35.7	39.6	39.8	43.7	41.6	49.9	41.2
Third Trimester	32.6	35.8	41.4	31.9	43.3	33.1	36.2
Don't know	3.7	1.1	1.5	4.0	0.0	4.1	2.4

Table 2: Results from logistic regression model 1 with respondents who slept under bednet as outcome variable

Variable	Odd ratio	Std. Err	P-value	Confidence level	
				Lower	Upper
Geopolitical zones					
North West	1.534	0.238	0.072	0.963	2.445
North East	0.867	0.275	0.603	0.506	1.485
South West	0.981	0.276	0.946	0.571	1.687
South East	1.191	0.266	0.511	0.707	2.006
South South	1.406	0.258	0.187	0.848	2.329
Secondary and higher educ.	0.735	0.166	0.064	0.531	1.018
Registered for ANC	1.186	0.169	0.313	0.852	1.651
Knew that using ITN prevents against malaria	3.145	0.163	0.000	2.283	4.331
Listened to radio	1.563	0.192	0.020	1.074	2.276
Heard of SFH campaign on ITN	1.526	0.180	0.019	1.073	2.171
Received IPT	1.483	0.173	0.023	1.056	2.082