

Influence of Radio Messages on Malaria Prevention Behaviour among Pregnant Women and Nursing Mothers in Ebonyi State, Nigeria

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ABSTRACT : *This study investigated influence of radio messages on malaria prevention behaviour among pregnant women and nursing mothers in Ebonyi State, Nigeria. Descriptive survey research design was adopted. Agenda Setting was the theoretical framework. Questionnaire served as instrument for data collection. Data generated were analyzed using descriptive statistics. The issues of exposure, acceptance and adoption/behavioral change which formed the basis of the hypothesis were tested using chi-square. Result shows radio as an effective medium of disseminating maternal health messages. The study calls on the ministry of health to partner with both local and international health agencies in anti-malaria policy formulation and implementations towards ameliorating malaria fatalities among pregnant women and nursing mothers, particularly, among rural pregnant mothers. Again, distribution of free mosquito-treated nets to pregnant women and nursing mothers should be regular, particularly among the poor rural dwellers as this would go a long way in curtailing the menace of malaria among this vulnerable age-group. The study further calls for a reinvigorated effort at promoting maternal health messages, particularly on malaria prevention using a multi-media approach for wider reach and access.*

KEYWORDS: influence, malaria prevention behavior, radio messages, pregnant women, nursing mothers

INTRODUCTION

Malaria has plagued humanity since ancient times and continues to haunt nearly 50% of the world's population. According to World Malaria Report 2020, there was an estimated 229 million cases of malaria globally in 2019 from 87 malaria endemic countries with Sub-Saharan Africa contributing 215 million representing 945 of global malaria cases. Sub-Saharan Africa accounts for 51% of malaria cases globally with 27% of prevalence cases in Nigeria. The prevalence rate in other countries is as follows: Democratic Republic of Congo (12%), Uganda (5%), Mozambique (4%) and Niger (3%).

In 2019, there was an estimated 409,000 deaths from Malaria globally. 95% of these deaths occurred in 31 countries with disturbing statistics of 51% global fatalities distributed across Sub-Saharan African countries as follows: Nigeria (23%), Democratic Republic of Congo (11%), United Republic of Tanzania (5%), Mozambique (4%), Niger (4%) and Burkina Faso (4%). Interestingly this report has continued to attract local and global attention. Over the years, the media has played a significant role in ensuring successes to health programs through communication and sensitization of the citizenry. One of those programmes is on Malaria prevention behavior. The media has within the dictates of its social responsibilities, continued to air its campaign messages on radio stations in English, Pidgin English and three main local languages in Nigeria. Despite this efforts, the number of malaria-related infant and maternal mortalities have continued to be on the rise. This calls for scholarly academic enquiries to find out why human efforts as well as introduction technologies in the fight against malaria have not yielded the expected results. As important as this may be, a literature survey shows geographical gap in this area as many of the available studies did not focus in Ebonyi state. It was therefore an attempt at filling this knowledge lacuna that necessitated this study.

Objectives of the study

1. To find out how often nursing mothers and pregnant women listen to radio messages on malaria prevention.
2. To determine the level of effectiveness of radio messages on Malaria Prevention Behaviour among pregnant women and nursing mothers in Ebonyi state, Nigeria.

Research Questions

1. How often do nursing mothers and pregnant women listen to radio messages on malaria prevention?
2. What is the level of effectiveness of radio messages on Malaria Prevention Behaviour among pregnant women and nursing mothers in Ebonyi state, Nigeria?

Research Hypothesis

H₀₁: Radio messages on Malaria Prevention Behaviour has not been effective in improving people's knowledge and awareness about malaria and has not encouraged adoption of preventive behavior.

Malaria Prevention Behaviour in Nigeria

Over the years, malaria has remained a major health concern particularly among the Third World Countries of Africa, Asia and Latin America. Available statistics shows that malaria accounts for the death of more than one million people annually, 90% of whom live in Sub-Saharan Africa (SSA), and it causes 300 to 500million people to fall ill.(Bioland et al. 2000; Nuwaha 2001; Agyepong and Kankeya-Kayonda 2004;Barat et al; Breman et al. 2004; Moree and Ewart 2004; World Health organization (WHO) 2005; United Nations Children’s Fund (UNICEF)(2007).

Malaria is no doubt one of the leading causes of morbidity and mortality among the Nigerian population especially in under-five children. The World Bank (WB; 2009) reported that up to one third (300,000) of all world malaria deaths occur in Nigeria. Malaria also exacts a heavy socio-economic burden on Nigerian households and health systems (WHO 2008; WB 2009). Due to the burden of diseases over many decades, Nigeria had been a signatory at the Africa Roll Back Malaria(RBM) summit held in Abuja in 2000(often called Abuja summit), which arrived at the declaration to achieve universal coverage of insecticide- treated mosquito nets(ITNs) and ensure prompt treatment of vulnerable populations (especially under-five children and pregnant women). Unfortunately, the history of Malaria control in Nigeria since the summit is one of insufficient effort and funding to achieve the targets. This is why the progress has been too slow (See: Snow, and Omumbo,(n.d.).

Meanwhile, Amzat, 2011) has argued that it is doubtful whether Nigeria will meet the malaria control target of the millennium Development Goals (MDGs) (to alleviate 80% burden of the malaria by 2015). As at 2005, one third of children with fever received no anti-malaria drugs, less than 20% of household had at least one mosquito net and only 6% of children under-five slept under an ITN (National Malaria Control Programme (NMCP) in Nigeria 2005). In most resource-constrained countries like Nigeria, up to 50% of the population has no access to modern health care facilities, and this is the reason for the global trend to scale up home management of Malaria (Gyapong and Garshong 2008). Nigeria has also adopted home management of malaria and ITN to protect the vulnerable population from malaria. Apart from the declaration of the MDGs in 2000, the Abuja summit witnessed the launch of ITNs as the major effective preventive device, with the promise to cover all vulnerable groups (especially under-five children and pregnant women) by 2010. All these promises make it imperative to evaluate malaria control performance a decade after the Abuja summit and the declaration of the MDGs (see: Amzat, 2011).

Amzat, (2011) goes on to observe that Nigeria has specific malaria control goal. The malaria impediment to achieving them has always been frail or insubstantial action-oriented exertions. It is evident that the Abuja target (to halve the burden of Malaria by 2010) has not been realized. In Nigeria, over a million children die each year from preventable diseases including malaria (Ngowu et al. 2008). Although funding for malaria increased from \$17million (US) in 2005 to \$80 million in 2008 (WHO 2009), the amount is unlikely to be sufficient to reach national target for prevention

and cure. Evidently, in Nigeria there is no evidence of a systematic decline in malaria burden (WHO 2008, 2009).

Poverty exerts an influence on the prevalence of malaria (Yusuf et al. 2010), and malaria is in part a cause of household poverty in SSA, as a poor household may spend up to 25% of its income in the prevention and the treatment of malaria (WHO 2000).

Effect of Malaria on Nursing Mothers and Pregnant Women

The nursing mother plays a double role of caring for themselves as well as the baby. By so doing, she is usually the first to notice when a baby has malaria. The baby will have increase in body temperature (febrile); when breast-feeding; the mother will feel the increase in temperature from the child's mouth. The child may have chills and rigors. He/she may be weak, irritable and not able to eat. Sometimes, the child may even convulse, if the temperature is too high.

Similarly, the protection of pregnant women living in malaria-endemic countries has been of particular interest to many because of their reduced immunity. Most cases of malaria in pregnancy in areas of stable malaria transmission are asymptomatic. This is attributed to anti-disease immunity acquired during previous exposures which protect against clinical malaria. Unfortunately this subclinical infection still poses a great danger to both the mother and the fetus. The principal impact of Malaria infection is due to the presence of parasites in the placenta causing maternal anemia (potentially responsible for maternal death when severe) and Low Birth Weight. (WHO, 2018). The major adverse effect of malaria in pregnancy on the mother is anemia. Anemia during pregnancy is a global problem, and in malaria-endemic areas, it is usually most severe in the second trimester of gestation, following a period of acute malaria infection in the first trimester (Brabin, 2016). Severe anemia in pregnancy is an important contributor to maternal and prenatal morbidity and mortality (Dicko et al., 2018).

Radio Jingles and messages on malaria

These are 60 second radio commercials developed in line with the national malaria elimination programme's slogan –“for a malaria free Nigeria” for example, the malaria jingles on Salt Fm Ebonyi Broadcasting Corporation (EBBC). It covers the following thematic areas - Use of Insecticide Treated Net, Care of the net when not in use, malaria risk perception (can affect both young and adult or even old usually aired in the morning hours between 8:09am-10:40am and 4:32pm – 8:31am) encouraging test before treatment, net hanging and use. The jingle emphasized that sleeping under an insecticide – treated net (ITN) can reduce contact between mosquitoes and humans by providing both a physical barrier and an insecticidal effect. The second jingle laid emphasis on anti-malaria medicines which can be used to prevent malaria and the essence of taking a complete dose of it in order not to encounter more risk of the disease.

There was also regular airing of radio jingles on malaria in Federal Radio Corporation of Nigeria (FRCN) on daily basis. Mosquito nets are considered a useful prediction of epidemiological impact. The radio was discovered to be effective in contributing to an increase in net culture hanging and use. Studies have shown a community level protective effect in areas with high ITN coverage, even if not all individuals use an ITN, wherein there is a community effect resulting

reduction in overall malaria transmission. Findings or evidence has shown that despite increasing coverage and ownership and use has been attributed to an inability or unwillingness to hang and or use ITNs. This gap between ITN ownership and use has been attributed to an inability or unwillingness to hang and / or use ITNs or a failure of the media to convince people to use available nets.

Empirical Review

Sanni Yaya, Olalekan A. Uthman & Ghose Bishwajit (2018) conducted a study on a Mass Media exposure and its impact on Malaria Prevention Behavior among adult women in Sub-Saharan Africa. The objective of the study was to measure the prevalence of malaria prevention behavior among adult women in eight malaria-endemic countries in Sub-Saharan Africa (SSA) and assess the influence of mass media exposure in the adoption of those behaviors. The study collected cross-sectional data on 46, 822 women aged between 15 and 49 years from the Malaria indicator Surveys (MIS) conducted in Burkina Faso, Ghana, Mali, Malawi, Kenya, Nigeria, Sierra Leone and Uganda. As The outcome variable, malaria prevention behavior was proxy by the use of insecticide treated nets (ITNs) and uptake of anti-malaria drugs in last pregnancy. However, there were disparities in the prevalence of using ITN and anti-malaria drug use across the study countries. In the multivariable regression analysis, not receiving malaria related information from radio, poster/billboards, community events, and health workers were found to be significantly associated with reduction in the odds of using ITN the previous night. For the use of anti-malaria drugs during last pregnancy, the odds were lower for those who did not receive malaria information on radio compared with those who received

Ankomah A. et al conducted a study on the effect of mass media campaign on the use of Insecticide Treated Nets among Pregnant Women in Nigeria. The study was a cross-sectional and population based survey. The authors used a systematic multistage sampling technique to select pregnant women resident in the eighteen Global Fund states and three other adjoining states. The study found that exposure to mass media was observed to be positively associated with sleeping under ITN as those who listened to radio and had heard of the mass media campaign were about two times more likely to sleep under a bed net the night preceding the survey compared with their counterparts who did not. The knowledge that sleeping under ITN prevents Malaria was significantly associated with sleeping under a bed net.

Aligwe, Nwafor, Ekwueme & Nweke,(2019) conducted a study on Roll Back Malaria Media Campaigns and the use of Malaria Safety Measures in Abakaliki, Suburbs of Ebonyi State, Nigeria. The authors adopted descriptive survey research design while pregnant women, nursing mothers and malaria patients formed the nucleus of their study population. They used purposive sampling technique to distribute a total of 180 copies of questionnaire to the respondents. After analyzing the data using descriptive analysis and chi-square test of independence, the study found that 97% of the respondents were exposed to Roll Back Malaria Media Campaigns, and the exposure has influenced their attitude towards the use of Malaria safety measures in that area.

In another study conducted by Devender Bhalla (2019) on Malaria prevention measures among pregnant women: A population-based survey in Nnewi, Nigeria. The author adopted both qualitative and quantitative approach whereby he made use of focused group discussions, indepth interviews with a wide variety of stakeholders (e.g health workers, males whose wives are pregnant, drug and net sellers) and doctors and nurses who are key informants. The study found out that the primigravidae (odds 1.8-2.3) and illiterates (odds 4.1-13.5) were less likely to sleep under the net. Primigravidae were 2.0x less likely to uptake adequate SP. The uptake was also associated with having adequate knowledge on SP (2.4x) completing usual antenatal visits and being in the best antenatal visit scenario. Other barriers identified were thermal discomfort, lack of availability, cost and unsupervised uptake of Sulphadoxine pyrimethamine (SP).

Theoretical Framework

This study was anchored on Agenda setting theory of the press. Agenda setting theory propounded by Maxwell McCombs and Donald Shaw describes how the media's news coverage determines which issues becomes the focus of Public attention. This means that the more a news item is covered frequently and prominently, the more the news audience will regard the issue as important. (Gaikwad, 2010 p12; Chike, 2019)

Based on the above, we assume that if the media frequently carry messages on the prevention of malaria and its negative consequences, it will be seen as important and may subsequently influence public discourse on the necessity for its eradication.

The eradication of Malaria will only be seen as a welcome development and a very important health matter to the extent that media raise the issue through health communication messages that seek to influence behavior change.

According to McCombs and Shaw (1972), agenda setting theory refers to the idea that there is a strong correlation between the emphases that mass media place on certain issues (e.g based on relative placement or amount of coverage.) and the importance attributed to these issues by mass audiences.

This theory is considered relevant to this study for obvious reasons. It has a direct relationship with creation of awareness about health and the consequences of malaria disease. When people are made to understand the effects of malaria on the pregnant women and nursing mothers, the mass media create an atmosphere of understanding that could bring about behavioral change.

Research Design

The study adopted survey research method. Population of the study comprised the residents of Ebonyi State Nigeria. The area has 13 Local Government Areas (LGAs) and 142 communities. The 2021 projected population of Ebonyi was 3 313 289 .This study was conducted among a cross-section of women of reproductive age from selected hospitals. They included pregnant women, nursing mothers and women in selected communities who had given birth in the past years prior to the study. Two health facilities, one at Ndubia, Ikwo and another at Azuiyokwo, Abakaliki were

studied. The two facilities offer maternal and child health related services, and a good number of women go there for their ante-natal and post-natal visits.

Purposive sampling was used to gather data needed for the study. Taro Yemane sample size determination approach as used to arrive at a sample size of 400. Questionnaire served as instrument for data collection. The data were analysed using simple frequency tables and percentages.

Data and Results

Table 1: Age distribution of the respondents

Age group	Frequency	Percentage
18 – 30	94	24
31 – 45	104	27
46 – 60	108	28
61 and above	83	21
Total	389	100%

Table 1 shows the age distribution of the respondents which fall within the ages of 31-60 years.

Table 2: Marital Status distribution of the respondents

Age group	Frequency	Percentage
married	264	68
Not Married	125	32
Total	389	100%

From the data generated, it is obvious that most of the respondents were married. Though the issue of malaria prevention concerns everyone, the mature adults are most significant as the critical segment of the population who should be at the forefront in the fight against malaria.

Table 3: Educational Qualification

level of Education	frequency	Percentage
No formal education	13	3
Primary education	145	37
Secondary Education	182	47
Tertiary	49	13
Total	389	100%

From the information on table 3 most of the respondents had basic education with majority indicating they had either primary or secondary education.

Table 4: Husband Education

level of Education	frequency	Percentage
No formal education	15	4
Primary education	143	37
Secondary Education	180	47
Tertiary	51	13
Total	389	100%

In Table 4, most of the spouses of the respondents had attained secondary level education.

Table 5: Occupation of respondents

Occupation	frequency	Percentage
Civil Servant	99	25
Business	103	27
farming	120	31
others	67	17
Total	389	100%

From the information on table 5, the sample is made up of majority civil servants, those in business and farmers.

Table 6: Religion of respondents

Religions	frequency	Percentage
Christianity	335	86
Islam	14	4
traditional Religion	40	10
Total	389	100%

From the data generated, over 80% of the respondents practice Christianity religion which is more predominant in the south East of Nigeria where the study was conducted.

The level of awareness through that radio is very high as indicated in table in another sheet by result here. This shows that over 90% of the samples are exposed of radio messages on malaria presentation.

TABLE 7**Which Media Expose You More To Malaria Prevention Behavior Messages?**

ITEMS	frequency	Percentage
Newspaper	25	6.4
Radio	293	75
Television	51	13
Internet	20	5.1
Others	389	100%

The level of awareness through the radio is very high as indicated in table 7. This speaks to the pervasiveness of radio as a medium of communication.

TABLE 8

How often do the media air malaria prevention messages through the radio?

Item	frequency	Percentage
Regularly	252	65
Occasionally	72	19
Rarely	47	12
Not at all	18	4.6
Total	389	100%

Table 8 shows that greater percentage of the respondents are exposed to the radio

TABLE 9

Respondents' knowledge, application and adopted behaviour as a result of malaria prevention behavior messages aired on the radio

Item	frequency	Percentage
Sleeping under Insecticide Treated Net.	120	31
Use of Anti-Malaria Drug	103	27
Use of Insect Repellant	99	25
Sleeping Air conditioned room	67	17
None	389	100%

The information generated shows that there is higher percentage of utilization of Insecticide Treated Nets and Anti-malaria drug among Pregnant women and Nursing mothers as a result of malaria prevention messages aired on the radio.

Hypothesis Testing

Decision Rule

If the calculated chi-square $(X)^2$ is equal or greater than the critical value (chi-square table of value), reject H_0 and accept H_1 . If the calculated chi-square $(X)^2$ is lower than the critical value (chi-square table of value), reject H_1 and accept H_0 .

Hypothesis One

Table 10: Radio messages on Malaria Prevention Behaviour has been effective in improving people's knowledge and awareness about malaria and encourage adoption of preventive behavior.

	Frequency	Percentage
Strongly Agree	184	47
Agree	139	36
Disagree	44	11
Strongly Disagree	21	6

H_0 : The media messages on Malaria Prevention Behaviour has not been effective in improving

people's knowledge and awareness about malaria and has not encouraged adoption of preventive behavior.

$$\text{Expected Frequency EF} = \frac{389}{4} = 97$$

$$\text{Degree of Freedom} = K-1 = 4 \\ = 4 - 1 = 3$$

$$\text{Using the formula } X^2 = \sum \frac{(\text{OF} - \text{EF})^2}{\text{EF}}$$

S/N	O	E	O- E	(O- E) ²	(O- E) ² /E
1	224	97	127	16129	164.58
2	119	97	21	441	4.50
3	17	97	-31	6561	66.75
4	29	97	-69	4761	48.58
					X²=284.61

From the above, the critical value (Chi-square table value) at 5% level of significance and 3 degree of freedom is 9.49. The calculated chi-square (X^2) of 284.61 is greater than the critical value of 9.49, the null hypothesis (H_0): The media messages on malaria prevention behaviour has not been effective in improving people's knowledge and awareness about malaria and has not encouraged adoption of preventive behavior is rejected, and the alternate hypothesis: The media messages on Malaria Prevention Behaviour has been effective in improving people's knowledge and awareness about malaria and has encouraged adoption of preventive behavior is accepted.

CONCLUDING REMARKS

Based on the findings, the study calls on the ministry of health to partner with both local and international health agencies in anti-malaria policy formulation and implementations towards ameliorating malaria fatalities among pregnant women and nursing mothers, particularly, among rural pregnant mothers.

Again, distribution of free mosquito-treated nets to pregnant women and nursing mothers should be regular, particularly among the poor rural dwellers as this would go a long way in curtailing the menace of malaria among this vulnerable age-group.

The study further calls for a reinvigorated efforts at promoting maternal health messages, particularly on malaria prevention using a multi-media approach for wider reach and access.

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