

## RADIO AS A TOOL FOR PROMOTION OF INSECTICIDE TREATED NETS (ITNS) IN MAKURDI METROPOLIS

**Rosemary Uyin Agabi**  
**Rev. Fr Moses Orshio Adasu University, Makurdi**  
**08162055092, Email: agabirosemary@gmail.com**

### **Abstract**

The study assessed the use of radio in promoting the use of Insecticide Treated Nets (ITNs) in Makurdi Metropolis. Among other things, the paper sought to identify specific radio programme(s) that promote the use of Insecticide Treated Nets in Makurdi Metropolis, as well as find out the ways by which those radio programmes promote the use of ITNs. The paper was anchored on the Agenda Setting Theory. The research design adopted for the study was survey research method using questionnaire as the research instruments for data collection. Findings from the study revealed that the use of radio as a tool in promoting the use of ITNs in Makurdi metropolis taught listeners how to accept modern malaria prevention methods. Programmes such as Mama Bon Boy on Harvest FM, Health Watch on Brothers FM and You and Your Health on Radio Benue have promoted the use of ITNs. The study concluded that even though, there are challenges associated with the promotion of the use of radio as a tool in promoting ITNs such as language barrier, the study recommended that these programmes should be produced in local dialect so that they can be understood by all especially those who cannot understand English language.

**Keywords:** Radio, Insecticide Treated Nets (ITNs), Programmes, Promotion

### **Introduction**

The effectiveness of Insecticide Treated Nets (ITNs) in preventing adverse malaria cannot be overemphasized. TNs are distributed free of charge to all age groups within the African region and a majority of the countries have mechanisms to sell ITNs at subsidized price. Within the mass media landscape, free ITNs distribution campaigns and subsidized voucher programmes for ITNs targeting pregnant women and children of five (5) years have been successful at increasing the proportion of households that own and use an ITN thereby reducing the spread of material disease which its major cause is mosquito bites (Hanson, Marchant, Nathan, Mponda & Jones, 2009).

Isah & Nwobodo (2009), said in Nigeria, promotion of the use of Insecticide Treated Nets (ITNs) are launched with a coordinated mass media (radio, television, newspaper etc strategy to deliver nets to every household across the country through a series of stand-alone campaigns to achieve universal coverage. In 2010, the world-bank booster-supported states (Kano, Jigawa, Bauchi, Gombe, Anambra, Akwa Ibom, and Rivers) conducted net campaigns, and health workers distributed free nets to households. The aim was to promote net-use in households, especially among pregnant women and children below 5 years of age.

For Familusi and Owoeye (2014), the advent of radio has tremendously transformed the way information is disseminated. Prior to its invention, people most especially in primitive Africa society had their peculiar ways of disseminating information such as the use of town criers and assembling people in strategic locations in the village such as market square to disseminate information to them. Radio remains a medium in development communication usually employed by the development officers or experts for the dissemination of relevant development messages, especially for rural audience.

The influence of radio as medium of communication has on its audience cannot be overemphasized. The medium is so influential that its audience cannot do without it as a source of information. Radio is popular with the rural population and enjoys an intimacy with its audience. It can be used effectively for mass education, formal education and in cultural innovation and diffusion. Radio is the most effective for mass mobilization and has a great capacity to disseminate information fastest as well as entertain its

audiences. Radio is an especially strong medium among both the general population and specialized audiences. The overall radio listening audience is larger than the television audience for a sizeable portion of the day.

According to Ogbeide, Aruoture and Wagbatsoma (2014), attempts to prevent malaria through anti-malaria drugs and insecticides are threatened due to the emergence and spread of drug-resistant malaria parasites and insecticides resistant vector mosquitoes. This together with the increasing incidence of the disease heightened the need for the use of ITNs as one control method. The proper use of ITNs can reduce mortality mostly among children.

During distribution campaigns, ITNs are provided free to household members such that every household has at least two nets. In addition, nets are provided at highly subsidized rates through social marketing in health facilities and drug stores for ease of access to pregnant women and women with children less than five years. The cost-effectiveness of ITNs relative to other forms of malaria prevention and treatment also makes it a better option for malaria prevention especially among residents of rural communities, people with poor access to health facilities, and people with low socioeconomic status (Aina & Ayeni, 2011).

While examining the communication techniques and the type of media used to transmit malaria messages, Stanislau (2019), observed that it is necessary to research newer strategies for communicating malaria prevention, control, and management since the mainstream media seems ineffective in influencing the changing behaviour. Stanislau's (2019), study aimed to evaluate the communication techniques used to create awareness about malaria prevention in Nigeria. Similarly, radio messages have been able to create awareness of malaria prevention by providing information on the mode of transmission, symptoms, health implications, treatment, and prevention.

The foregoing discussion is particularly relevant to Benue State, and Makurdi Metropolis in particular, where malaria remains a major public health challenge and radio continues to be one of the most accessible and trusted sources of health information. As the state capital, Makurdi hosts several radio stations with wide listenership across urban and peri-urban communities, making radio a strategic medium for promoting malaria prevention messages such as the use of Insecticide Treated Nets (ITNs). In line with national and regional experiences highlighted in previous studies, radio programmes in Benue State serve as effective platforms for disseminating information on ITN distribution, proper usage, and the dangers of mosquito bites, especially among vulnerable groups such as pregnant women and children under five years. Given the cost-effectiveness of ITNs and the limitations of drug-based malaria control, the use of radio in Makurdi Metropolis underscores its continued relevance as a development communication tool for enhancing awareness, encouraging behavioural change, and supporting malaria control efforts in Benue State.

### **Statement of the problem**

Over the years, radio has been broadcasting health related programmes which the use of ITNs inclusive. Programmes have been aimed towards educating the people on the use of ITNs for the purpose of achieving a malaria free state and minimizing the risk of transmission in families in order to create better living conditions. Especially these days that the economic situation is very hard, having malaria infected children prove to be very tough. Even at the larger level, the practice of the use of ITNs helps in the control of malaria for a better manageable family programme which are well packaged by the radio medium and comprehended by the people especially those living in the rural areas.

According to Isah & Nwobodo (2009), there is continuous need for critical analyses of how effective preventive interventions against malaria, such as consistent use of bed nets can be improved so as to protect the vulnerable populations in the country.

In recent years, the distribution of ITNs has been inadequate, with only a few local government areas targeted in various states. This has made it impossible to attain saturation in any one area. Studies in Nigeria and other third world countries have shown that the use of ITNs in pregnant women as well as nursing mothers and children under age five (5) have remained poor in spite of the increased health education and awareness

campaign mounted by government agencies through mass media and other non-conventional media. Consequently, the prevalence of malaria in pregnancy has been reported to be high over the years with its attendant complications (Okon, 2021).

It is against this backdrop that the study seeks to assess the impact of Radio as a tool for the promotion of Insecticide Treated Nets (ITNs) use in Makurdi Metropolis.

### **Objectives of the study**

The broad objective of the study is to assess the impact of Radio as a tool for the promotion of Insecticide Treated Nets (ITNs) use in Makurdi Metropolis. While the study specifically seeks to achieve the following:

- i) To identify the specific radio programme(s) that promote the use of Insecticide Treated Nets in Makurdi Metropolis.
- ii) To examine the benefits of Radio as a tool for the promotion of Insecticide Treated Nets in Makurdi Metropolis.
- iii) To find out the challenges that hinder the promotion of the use of Radio as a tool for promotion of the Insecticide Treated Nets in Makurdi Metropolis.

### **Research Questions**

The following research questions will be relevant for the study;

- i) What is the specific radio programme(s) that promote the use of Insecticide Treated Nets in Makurdi Metropolis?
- ii) What are benefits of Radio as a tool for the promotion of Insecticide Treated Nets in Makurdi Metropolis?
- iii) What are the challenges that may hinder the promotion of the use of Radio as a tool for promotion of the Insecticide Treated Nets in Makurdi Metropolis?

### **Review of Concepts**

#### **Radio**

Radio is the technology that allows for the transmission of sound or other signals by modulation of electromagnetic waves. According to Onabajo (2006), radio is a means of transmitting messages to a large number of people at the same time, because it transcends the boundaries of space and time, and leaps across illiteracy barriers. Several studies have found out that radio as a medium of mass communication has many advantages compared to the other mass communication media, especially to the rural population; this is why the radio medium is so popular among them. Asemah and Edegoh (2013), stated that radio communication educates citizens on new issues inherent in the society. For example, issues on politics, business, current affairs, etc. are aired to create awareness. Radio serves as an agent of social mobilization, people are moved to delivering a certain goal, based on their awareness of their rights and responsibility to the society. Over the years radio has witness tremendous technological advancements with the advent of computer, we now have digital broadcasting, with the increased use of computers and communication between computers, there is an increasing demand for space on the electromagnetic spectrum in which to transmit data.

Familusi and Owoeye (2014), say the advent of radio have tremendously transformed the way information is disseminated, prior to its invention, people most especially in primitive Africa society had their peculiar way of disseminating information such as the use of town criers and assembling people in strategic locations in the village such as market square to disseminate information to them. Radio remains a medium in development communication usually employed by the development officers or experts for the dissemination of relevant development messages, especially for rural audience. Radio can be multi-faceted as among other things, it can serve to pass messages, improve the capability of calling upon and organizing groups and organizations, enlarge the forum for social dialogue, provide effective capability building of the community to raise awareness and knowledge of community issues, bring the people's voice to the higher level of their political structure and mobilize community to tackle issues.

## Radio Programmes

Radio programmes serve as a source of cultural, political, health and other educational and enlightenment programmes for the masses, leading them towards self-actualization and national development. It is in this light that Okam (1981) cited in Asemah and Anum (2013), submits that much of the failure that attends government mass-oriented programmes are traceable to the fact that policy makers at the national level fail to utilize this powerful and credible medium.

Pate and Abubakar (2013) say the general radio broadcast landscape in Nigeria is predominantly public owned operated by both federal and state governments, though there is also a handful of privately owned stations. At the federal level, there are the Federal Radio Corporation of Nigeria (FRCN) and the Voice of Nigeria (VON). At the state level, there are radio stations like Bauchi Radio, Eko FM Lagos, Confluence Radio Lokoja, Living Spring FM Osun, Radio Kano, Radio Ogun, Rima Radio Sokoto, Capital Sound Kaduna, and so on. There are also numerous commercial radio stations like the Brilla FM (Sport), Independent Radio, Minaj Systems Radio, Freedom Radio, Ray Power Radio, Radio Gotel, Cool FM, among others.

Advancement in information and communication technology has brought other means of information dissemination such as television, internet, mobile phones, fax, telex, telegram among other. The question is, with this mirage of means of disseminating information; how relevant is radio and what are most preferred means of information dissemination (Familusi and Owoeye, 2014).

## Insecticide Treated Nets (ITN)

Insecticide Treated Nets (ITNs) are nets that are treated and made available for purchase or donation to all age groups within the African region and a majority of the countries have mechanisms to sell ITNs at subsidized price. Within the mass media landscape, free ITNs distribution campaigns and subsidized voucher programs for ITNs targeting pregnant women and children of 5 years have been successful at increasing the proportion of households that own and use an ITN thereby reducing the spread of material disease which its major cause is mosquito bites (Hanson, Marchant, Nathan, Mponda & Jones, 2009).

Ogbeide, Aruoture and Wagbatsoma (2014), said attempts to prevent malaria through anti-malaria drugs and insecticides are threatened due to the emergence and spread of drug-resistant malaria parasites and insecticides resistant vector mosquitoes. This together with the increasing incidence of the disease heightened the need for the use of ITNs as one control method. The proper use of ITNs can reduce mortality mostly among children.

There is widespread support to increase ITN coverage among vulnerable populations in Africa. An understanding of the factors influencing use of ITNs is important for the success of this strategy. As a consequence, the proportions of children under five sleeping under ITNs the previous night increased from 10% in 2006 to 47% in 2009 and 60% in 2011 to 90% in 2014 (Animut, Grebe-Michael, Medhin, Balkew, Bashaye & Seyoum, 2021).

Aina and Ayeni (2011), avers that during distribution campaigns, ITNs are provided free to household members such that every household has at least two nets. In addition, nets are provided at highly subsidized rates through social marketing in health facilities and drug stores for ease of access to pregnant women and women with children less than five years. The cost-effectiveness of ITNs relative to other forms of malaria prevention and treatment also makes it a better option for malaria prevention especially among residents of rural communities, people with poor access to health facilities, and people with low socioeconomic status.

## Radio and the use of Insecticide Treated Nets

The radio as a mass communication medium has done quite a lot in the promotion of the use of Insecticide Treated Nets (ITNs) in various ways, Kabiru (2020), while examining malaria preventive measures among rural dwellers in Oyo State, found that most of the population needed knowledge of malaria preventive measures. Apart from a lack of knowledge, Kabiru (2019), also found that some rural dwellers identified discomfort associated with mosquito bed nets, while others identified the cost of preventive measures like treated mosquito nets and anti-malaria drugs to be the reason for having frequent malaria.

Meanwhile, Omonijo and Omonijo (2019), argued that because the radio stations focus more on promoting brands of insecticides and malaria drugs, other measures like the clearing of bushes and avoiding stagnant water are ignored. Omonijo and Omonijo (2019), claimed these measures are effective if there is a willingness on the part of the masses to adopt them.

Stanislau (2021), argues that there are basically three ways by using radio for communicating malaria messages which for the sake of prevention, control, and management since the mainstream media seems effective in influencing the changing behaviour. The Stanislau (2019), study aimed to evaluate the communication techniques used to create awareness about malaria prevention in Nigeria.

The radio is a popular communication medium in Nigeria, and 65% of citizens, pre dominantly rural dwellers, rely on it for health information (Ibidapo, 2021). Radio messages have been used to promote malaria prevention, such as using insecticide treated bed nets, malaria drugs, and insecticides to prevent mosquito bites or to treat malaria infection. The radio has been a popular channel for transmitting malaria prevention messages and raising public awareness of important health behaviours.

For people to effectively carry out the use of Insecticide Treated Nets (ITNs) there must be enough knowledge on the part of the mass media, especially radio to the users of the nets themselves, this is where the power of the radio medium which has the power to reach the rural areas has a great role to play.

According to Ankomah and Adebayo (2018), pregnant women who listened to radio campaigns are more likely to adopt strategies to protect themselves from malaria. To promote use and uptake of these malaria prevention strategies, radio campaigns have been initiated to sensitize the general public, particularly pregnant women, on the effectiveness and long-term benefits of correct and consistent use of the ITNs during pregnancy.

### **Factors that influence the use of Insecticide Treated Nets**

Age, education, religion, ethnicity, occupation, marital status and number of children were the independent variables (Social factors) used to predict the outcomes of use of ITNs. The findings revealed that all seven had influences on the use of ITNs. Dhiman (2012), agreed to the above assertion when he “said education, employment, family type and residential areas and other social economic factors significantly influenced Insecticide Treated Nets (ITNs) usage”. The results of this study also show that respondents’ educational status had an impact on how they used ITNs.

The cost-effectiveness of ITNs relative to other forms of malaria prevention and treatment also makes it a better option for malaria prevention especially among residents of rural communities, people with poor access to health facilities, and people with low socioeconomic status. To promote use and uptake of these malaria prevention strategies, mass media campaigns have been initiated to sensitize the general public, particularly pregnant women, on the effectiveness and long-term benefits of correct and consistent use of the ITNs during pregnancy. The mass media campaign messages are aired on national radio and television stations (Biley and Deressa, 2008).

### **Challenges in the use of Insecticide Treated Nets**

There are several challenges that are encountered in the use of Insecticide Treated Nets (ITNs), some reasons adduced for the non-use of ITNs include lack of interest in use of ITN, cost of acquiring ITN and lack of information on where to buy ITNs. In an assessment of the pattern of use of ITNs in the prevention and control of malaria, attitude of mothers towards the use of ITNs was poor, so creating only the awareness was not enough. People should be motivated to create a culture and enhance their understanding towards practicing preventive measures against malaria (Akindele, 2021).

On the challenges encountered in the use of ITNs, Talabi and Eko-Epelle (2014), noted that mosquito nets make the user sweaty due to the tiny holes, which are also designed to prevent mosquitoes from biting the user. Mosquito bed nets are sometimes ineffective at preventing malaria since people can become infected even after using the mosquito nets. The awareness and adoption of radio messages on malaria preventive measures among rural dwellers in can sometimes also be a problem in Nigeria.

Odoko and Nwose (2017), noted that insecticide treated bed nets cost money, so it is important to find ways of ensuring that people who need them own them. Even when people own bed nets kept may not always use them properly. They must also hang properly and be treated with enough insecticide.

### Theoretical Framework

**Agenda Setting Theory:** Agenda setting theory can be traced to Walter Lippmann's book published in 1922 titled *Public Opinion*. In the book Lippmann argued that the mass media are the principal connection between events in the World and the images in the minds of the public (Asemah, Nwammuo and Nkwam-Uwaoma, 2017). The theory was proposed by Maxwell McCombs and Donald Shaw in 1972. The major assumption or crux of the theory is that the media set agenda to be followed by the public. The theory believes that once the media gives attention to a particular story or issue the issue or story is going to get public notice and attention. This is to say that the media have influence on thinking of public in the society. Asemah et al. (2017), says "agenda setting theory implies that the mass media pre-determine what issues are regarded as important at any given time in a given society".

The theory is relevant to the present study because as the radio mass medium given priority to the promotion of usage of Treated Insecticide Nets (ITNs) so shall the public take it serious as a major prevent measure for the prevention of malaria.

### Methodology

The study employed survey research method, using questionnaire as research instruments of collect data. The research study's population is made up of the population of people in Makurdi local government, which is the metropolitan local government. The Makurdi local government population figure is based on the figure projected by the National Bureau of Statistics (NBS) in 2024 which stands at Four Hundred and Seventy-Two Thousand (472, 000). A sample size of 400 people was chosen for this research study. The sample size is determined statistically using the formula put forward by Araoye, (2004). According to this author, the formula can be used provided the population size is greater than 10,000.

### Data Presentation and Analysis

**Table 1: Radio programme(s) that promote the use of Insecticide Treated Nets in Makurdi Metropolis.**

Option	Frequency	Percentage (%)
Mama Bon Boy (Harvest FM)	166	46.1
Health Watch (Brothers FM)	101	26.7
You and your health (Radio Benue)	95	17.8
All of the above	38	9.4
<b>Total</b>	<b>400</b>	<b>100</b>

*Source: Field Survey, 2024*

The table presents data on the specific radio programme(s) that promote the use of Insecticide Treated Nets in Makurdi Metropolis. Data from the table show that 166 (46.1%) of respondents said *Health Watch* on *Brothers FM*, 95 (17.8%) respondents said *You and your health* of *Radio Benue*, while 38 (9.4%) of respondents said all of the above programmes. Data from the above table imply though a majority of respondents said *Mama Bon Boy* on *Harvest FM*.

**Table 2: The potential benefits of the use of Radio as a tool to promote the use of Insecticide Treated Nets in Makurdi Metropolis**

Option	Frequency	Percentage (%)
Listening to the programmes have taught me the important of using mosquito nets.	117	29.1
Listening to the programmes have taught me how to accept modern malaria prevention methods with the use ITNs is part of.	157	37.1
Listening to the programmes have been so helpful to families, especially those of in the rural areas in been proactive in the fight against malaria.	69	18.5
Listening to the programmes have been helpful in eliminating the primitive fear that usually comes the use of mosquito nets.	45	12.1
Above of the above	12	3.2
<b>Total</b>	<b>400</b>	<b>100</b>

*Source: Field Survey, 2024*

Data from the above shows that 117 (29.1%) of respondents believe listening radio programmes that promote the use of Insecticide Treated Nets in Makurdi Metropolis have taught them the important of using mosquito nets. While a vast majority of 157 (37.1%) of respondents said listening to the programmes have taught them how to accept modern malaria prevention methods with the use ITNs is part of. 69 (18.5%) of respondents said listening to the programmes have been so helpful to families, especially those of in the rural areas in been proactive in the fight against malaria, 45 (12.1%) of respondents said listening to the programmes have been helpful in eliminating the primitive fear that usually comes the use of mosquito nets. While 12 (3.2%) of respondents went for the all of the above option.

**Table 3: The challenges that may hinder the promotion of the use of Radio as a tool to promote the use of Insecticide Treated Nets in Makurdi Metropolis**

Option	Frequency	Percentage
Language barrier(s)	144	46.2
Poor reception of radio signals	99	19.6
Poor and epileptic power supply to power radio sets.	73	14.6
Inability to pay attention to radio programmes on promotion of the use of ITNs and keep their dates	61	12.4
All of the above	23	7.2
<b>Total</b>	<b>400</b>	<b>100</b>

*Source: Field Survey, 2024*

The table depicts the challenges that may hinder the use of radio as a tool for the promotion of the use of Insecticide Treated Nets in Makurdi Metropolis. Data from the table revealed that 144 (46.2%) of respondents believe that Language barrier(s) barrier is the greatest barrier in promoting the use of Insecticide Treated Nets in Makurdi Metropolis, this is because these programmes are done in English language but most of these listeners on understand local dialects better. 99 (19.6%) of respondents believe that poor reception of radio signals is another impediment of the use of radio as a tool for the promotion Insecticide Treated Nets in Makurdi Metropolis. 73 (14.6%) of respondents believe poor and epileptic power supply to power radio sets set

constitutes another challenge of in promotion of the use of Insecticide Treated Nets in Makurdi Metropolis. 61 (12.4%) of respondents said the inability to pay attention to radio programmes on promotion of the use of ITNs and keep their dates was another challenge encountered in promotion of the use of ITNs on radio in Makurdi metropolis. While 23 (7.4%) of respondents went for the all of the above option.

### **Discussion of Findings**

Findings on the first objective revealed that there are radio programmes that promote the use of Insecticide Treated Nets in Makurdi Metropolis, these programmes are *Mama Bon Boy* of Harvest FM, *Health Watch* of Brothers FM and *You and Your Health* of Radio Benue. This finding is consistent with the study by Ajaero, Nwakoby and Nwoke (2016), which established that sustained exposure to radio health programmes significantly improved awareness and usage of Insecticide Treated Nets among residents in malaria-endemic communities in Nigeria. The authors noted that radio's accessibility and use of local language enhanced audience understanding and behavioural change. Similarly, the presence of programmes such as *Mama Bon Boy*, *Health Watch*, and *You and Your Health* in Makurdi Metropolis underscores the continued relevance of radio as an effective channel for promoting malaria prevention practices, particularly the use of Insecticide Treated Nets.

Findings from the second objective of the study revealed potential benefits with the use of radio as a tool for the promotion of the use of Insecticide Treated Nets in Makurdi Metropolis. This is based on objective two which sets out to identify potential benefits of radio as a tool in the promotion of the use of Insecticide Treated Nets (ITNs) in Makurdi Metropolis. These include teaching listeners the importance of using mosquito nets, teaching them on how to accept and practice modern malaria prevention methods, helping families be proactive in the fight against malaria as well as helping them in eliminating the primitive fear that is usually associated with the use of mosquito nets. Collaborating these findings, Ogbeide, Aruoture and Wagbatsoma (2014), said that together with the increasing incidence of the disease heightened the need for the use of ITNs as one control method. The proper use of ITNs can reduce mortality mostly among the population.

Findings from the third objective of the study revealed that, there are challenges that hinder the promotion of the use of radio as a tool for the promotion of the use of Insecticide Treated Nets in Makurdi Metropolis, this is based on objective three, these challenges include language barrier, poor reception of radio signals as well as inability to pay attention to radio programmes on promotion of the use of ITNs. Supporting these findings, Talabi and Eko-Epelle (2014) noted that some reasons adduced for the non-use of ITNs include lack of interest in use of ITN, cost of acquiring ITN and lack of information on where to buy ITNs. In an assessment of the pattern of use of ITNs in the prevention and control of malaria, attitude of mothers towards the use of ITNs was poor, so creating only the awareness was not enough. People should be motivated to create a culture and enhance their understanding towards practicing preventive measures against malaria. Mosquito nets make the user sweaty due to the tiny holes, which are also designed to prevent mosquitoes from biting the user. Mosquito bed nets are sometimes ineffective at preventing malaria since people can become infected even after using the mosquito nets. The awareness and adoption of radio messages on malaria preventive measures among rural dwellers can sometimes also be a problem in Nigeria.

### **Conclusion**

The study concludes that use of radio programmes to promote the use of Insecticide Treated Nets (ITNs) has benefits. There are ways by which these benefits come, however there are challenges encountered in the use of radio as a tool for the promotion of the use of ITNs in Makurdi metropolis.

### **Recommendations**

The study made the following recommendations based on findings from the study;

1. Malaria prevention related programmes should be packaged by radio stations in Makurdi metropolis and beyond, by way of encouraging people to use ITNs as this will go a long way in preventing malaria thereby improving the health of the people. As those packaged programmes under study seen to not be enough to help listeners understand the use of Insecticide Treated Nets (ITNs)

2. The use of radio as a tool for the promotion of the use of ITNs should be prioritized by radio stations in Makurdi metropolis and beyond so as to help in the prevention of malaria disease among the people. This is because findings revealed that there are benefits that are attached to the use of Insecticide Treated Nets (ITNs) in Makurdi metropolis.
3. Radio programmes for promoting of the use of ITNs should be produced in local dialect in order to help those who don't understand English language.

## References

Abdul, K. (1994) *Research methodology and African studies*. California: University Press of America.

Aina, B. A. & Ayeni, F. A. (2011). Knowledge and use of insecticide treated nets as malaria preventive tool among pregnant women in a local government area of Lagos state, Nigeria," *Journal of Applied Pharmaceutical Science*, vol. 1, no. 7, pp. 162–166, 2011.

Animut A, Grebe-Michael T, Medhin G, Balkew M, Bashaye S, Seyoum A. (2021) Assessment of distribution, knowledge and utilization of insecticide treated nets in selected malaria prone areas of Ethiopia. *Ethiop J Health Dev*. 216–305.

Asemah, E., Nwammuo, A. N. & Nkwam-Uwaoma (2017). *Theories and models of communication*. Jos: Jos University Press.

Asemah, E.; Anum, V. & Hdegoh, L. O. (2013). Radio as a tool for rural development in Nigeria: Prospects and challenges. *An International Journal of Arts and Humanities Bahir Dar, Ethiopia Vol. 2 (I), S/No 5, February, 2013:17-35 ISSN: 2225-8590 (Print) ISSN 2227-5452 (Online)*.

Dhiman, S. (2012). Epidemiology and risk analysis of malaria among pregnant women. *Iran Journal of Public Health* 2012; 41(1): 1-8.

Familusi, E.B. & Owoeye, P.O. (2014). An assessment of the use of radio and other means of information dissemination by the residents of Ado-Ekiti, Ekiti-State, Nigeria. *"library philosophy and practice (e-journal)*. Paper1088.<http://digitalcommons.unl.edu/libphilprac/1088>.

Hanson, K., Marchant T., Nathan R., Mponda H., Jones C., (2009). Household ownership and use of insecticide treated nets among target groups after implementation of a national voucher programme in the United Republic of Tanzania: plausibility study using three annual cross sectional household surveys. *BMJ* 339: b2434.

Ibidapo, A. R. (2021) Perception and challenges of accepting malaria preventive messages in a rural community. *Aust Journal Rural Health* 13: 214–18.

Isah AY, & Nwobodo E. I. (2009). Awareness and utilization of insecticide treated mosquito nets among pregnant mothers at a tertiary health institution in northwestern Nigeria. *Niger J Med.* 2009;18(2):175-178. doi:10.4314/njm.v18i2.45059.

Odoko, J. and Nwose, E. (2017). Utilization of insecticide treated nets against malaria among pregnant women in Southern Nigeria. *International Journal of Research in Medical Sciences · October 2017 DOI: 10.18203/2320-6012.ij*.

Omonijo, A, and Omonijo, O (2019). Assessment of the status of awareness, ownership and usage of long-lasting in insecticide-treated nets after mass distribution in Ekiti State, Nigeria. *Journal of Parasitology Research* 3: 23–33.

Ogbeide, A., Aruoture I., Wagbatsoma, V. (2014). Utilization of insecticide treated net among pregnant women attending antenatal care in Etsako east local government area of Edo state. *J Medic Biomedic Res.* 2014;13(2):106-16.

Stanislau, U. (2021). Investigating media and communication techniques for campaigns against malaria infections in Cross-Rivers State. *Nigeria* 12: 12134.

Talabi, F. & Oko-Epelle, L. (2024). Influence of Radio Messages on the Awareness and Adoption of Malaria Preventive Measures among Rural Dwellers in South-West Nigeria. *Journalism and Media* 5: 271–280. <https://doi.org/10.3390/journalmedia5010018>.

Rupashree S., Jamila M., Sanjay S., & Ukatu, V. (2014). Knowledge, Attitude and Practices on Malaria Among the Rural Communities in Aliero, Northern Nigeria. *J Family Med Prim Care* v.3(1); 2014 PMC400519R9.

Ukibe, N. Mbanugo, I. , Ukibe, R. & Ikeakor, C. (2013). Level of Awareness and Use of Insecticide Treated Bed nets among pregnant women attending antenatal clinics in Anambra State, South Eastern Nigeria. *Journal of Public Health and Epidemiology*; 5(9): 391-396.

Ugwu E., Ezechukwu P., Obi S., Ugwu A., Okeke, T. (2013). Utilization of insecticide treated nets among pregnant women in Enugu, South Eastern Nigeria. *Niger J Clin Pract.* 2013;16(3):292-296. doi:10.4103/1119-3077.113449.

Van Eijk A., Hill J., Alegana V., Kirui, V., Gething P. & Kuile F., (2011).Coverage of malaria protection in pregnant women in sub-Saharan Africa: a synthesis and analysis of national survey data. *Lancet Infect Dis* ; 11(3): 190–207.

Willey B., Paintain L., Mangham L., Car J., Schellenberg J. (2012). Strategies for DeliveringITNs at a Scale for Malaria Control: A Systematic Review. *Bull World Health Organ* 2012; 90(9): 672–684E.