

## **Influence of Media Messages on Knowledge of Malaria in Children Among Mothers in Lafia Local Government Area, Nasarawa State, Nigeria.**

<sup>1</sup>Marcus, P.T. and <sup>2</sup>Longmam Geoffrey Pienswang

<sup>1</sup>Department of Mass Communication, Plateau State University, Bokokos, Plateau State, Nigeria

<sup>2</sup>Department of History and International studies, Plateau State University Bokokos, Plateau State, Nigeria.

Email: [priscamarcus@gmail.com](mailto:priscamarcus@gmail.com) & [poesnaan2007@gmail.com](mailto:poesnaan2007@gmail.com)

### **Abstract**

An assessment of the influence of media messages to identify knowledge of causes, symptoms and preventive measures for malaria in children under-five was carried out among mothers in Lafia Local Government Area, Nasarawa State, north-central Nigeria. A cross sectional sample survey design was adopted. A multi-stage systematic random sampling technique was adopted and a pre-tested structured questionnaire was administered to 385 mothers. Descriptive statistics was used to analyze the data. Analysis of the knowledge of causes, symptoms and prevention of malaria was scored by creating dummy variables in which those who responded in the preferred direction were coded as 1 and 0 otherwise while each of the items had three categorical variables scored, 1, 2 and 3; measured cumulatively using item analysis. The study findings showed that all participants in this study have heard of malaria and exposed through radio messages. More than half (73.2%) said the media exposed them to malaria information regularly. The study participants perceived malaria to be caused by various factors. Most (94.8%) of the respondents believed that the disease is caused by the bite of mosquitoes. A total of 94% of the respondents identified the clinical symptoms of malaria and believed that malaria could be prevented (85.4%) using bed-nets as a strategy for preventing mosquitoes for their under-5 (83.1%). Majority of the respondents reported that in several ways, their Knowledge on Signs and Symptoms (80.7%), prevention (85.1%), as well as treatment practices (77.4%) and timely treatment (74.3%) of the disease has improved tremendously, as a result of the radio messages. Among other recommendations, the media should disseminate information on malaria in children to mothers in the study area that will enable them to correctly recognize and link symptoms to the disease for effective treatment and avoid misconceptions.

**Keywords:** Lafia, influence, malaria, media messages and mothers

### **Introduction**

Malaria is an acute febrile illness caused by Plasmodium parasites, which are spread to people through the bites of infected female Anopheles mosquitoes. It is a life-threatening disease primarily found in tropical countries that is both preventable and curable. However, without prompt diagnosis and effective treatment, a case of uncomplicated malaria can progress to a severe form of the disease, which is often fatal without treatment. World Health Organization (WHO, 2013) reported that this risk of infection is higher in some areas than others depending on multiple factors, including the type of local mosquitoes. It may also vary according to the season, the risk being highest during the rainy season in tropical countries. Nearly half of the world's population is at risk of malaria. In 2020, an estimated 241 million people contracted malaria in 85 countries.

Malaria cases continued to rise between 2020 and 2021, but at a slower rate than in the period 2019 to 2020. The global tally of malaria cases reached 247 million in 2021 compared to 245 million in 2020 and 232 million in 2019. The 2022 World malaria Report shows that, there were an estimated 619 000 malaria deaths globally in 2021 compared to 625 000 in 2020. In 2019, the number of deaths stood at 568,000 (World Malaria Report, 2022).

Some people are more susceptible to developing severe malaria than others. Infants and children under 5 years of age, pregnant women and patients with HIV/AIDS are at particular risk. Other vulnerable groups include people entering areas with intense malaria transmission who have not acquired partial immunity from long exposure to the disease, or who are not taking chemopreventive therapies, such as migrants, mobile populations and travellers. Some people in areas where malaria is common will develop partial immunity. While it never provides complete protection, partial immunity reduces the risk that malaria infection will cause severe disease. For this reason, most malaria deaths in Africa occur in young children, whereas in areas with less transmission and low immunity, all age groups are at risk (WHO, 2013).

Malaria is still a major public health challenge in Nigeria despite substantial efforts to reduce the prevalence and impact of the disease (WHO, 2014). According to the 2021 World Malaria Report from the World Health Organization, Nigeria contributes 27 per cent to the global malaria burden (one out of every four persons having malaria) and 32 per cent to malaria deaths globally (about one out of every three deaths). The 2021 Nigeria Malaria Indicator Survey Report showed that malaria prevalence is highest among children aged 48 to 59 months and the prevalence is high in the North Central Geo-Political Zone-which Nasarawa State is part. Children under five years of age remain the most vulnerable group affected by malaria accounting for 67 per cent of all malaria deaths. Nasarawa State Ministry of Health documented that a total of 775, 905 children under the ages of 5 years across the 13 local government areas of Nasarawa had Malaria in 2021. According to the report, pregnant women and under-five children remain the most vulnerable population when it comes to malaria transmission. This is suggestive of the need to focus on the state to ascertain residents' knowledge about the seriousness of the disease and the adoption of preventive and control measures.

Sustained media campaigns are recommended by studies, combined with other communication interventions strategies, as effective strategy to increase knowledge and decrease the likelihood of negative health outcomes (Ugwu, 2013). This may explain why Health communication programmes often use multiple and mutually reinforcing media in intervention efforts because, in various instances communication interventions have brought about positive health behavioural outcomes including those that threaten child health like malaria (Nwodu & Ezeoke, 2013). That is also, why Edgar and Volkman (2012) asserted that as part of policy action, government, through her agencies and other private partnerships, embark on health communication programmes which create awareness on risk or predictive behaviours with the hope of reducing the incidences or negative health outcomes. These communication programmes are intended to bring about change in individual behaviours and social norms using combination of; mass media, community level interventions (for example, community mobilization) and interpersonal communication and other communication outlets.

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 knowledge of causes, symptoms and prevention of malaria. The media, is said to be strategic in the development process, including health development. The media have been employed to create

awareness about malaria and as a major step towards preventing and controlling the disease. The extent to which these awareness campaigns have influenced mothers to know about the causes, symptoms and preventive measures in children under five years of age is the focus of this study. This is important since mothers and other caretakers are of foremost importance in recognizing mild or severe malaria disease and seeking treatment for their wards (Jane, Vincent & Catherine, 2010). Previous studies have shown that mothers' understanding of malaria and related issues is a key factor in achieving effective malaria control in endemic communities (Idowu, Mafiana, Luwoye & Adehanloye, 2007; Ashikeni, Envuladu & Zoakah, 2013). Given the prime roles play by mothers, there is the need to integrate them properly into malaria control and treatment activities.

### **Statement of the Problem**

The increasing advocacy to eradicate malaria and improve maternal health, has identified the need to involve mothers in intervention efforts, especially in the goal of creating awareness through communication campaigns. Part of the focus of intervention is to provide information that will facilitate knowledge of causes, symptoms, prevention and risk factors as well as influence behaviour towards malaria eradication. As a result, several communication strategies have been implemented to provide the needed information necessary to influence desired behaviour change among stakeholders and the at-risk population. The notion that exposure to communication may influence behaviour has foundations in the behaviour change communication model. While there are several studies that have examined knowledge of malaria, the influence of media messages on mothers' knowledge of childhood malaria has remained unexamined empirically. As a result, mothers' exposure to malaria communication messages are largely undocumented and unknown. Ignoring to have empirical evidence on mothers' exposure to childhood malaria communication interventions may result in the disease intervention campaign failures and inability to improve mothers' involvement in the battle against malaria. And given the current gap for malaria knowledge and between medical recommendations and the population's actual health behaviours (Emmanuel & Kemisola, 2015), the study of childhood malaria within mother's context constitutes a major issue in the improvement of public health and an important step towards developing strategies aimed at controlling the disease (Nweze, Kenneth, Nwafor, Asogwa, Nnamani & Inah, 2020). This is more so that there is growing evidence to suggest that behaviour related to health is influenced by gender. It is thus, pertinent to investigate how mothers recognize the symptoms that are suggestive of malaria in their children and to understand their knowledge of the causes and prevention of the disease in the under-fives, to identify areas of misconception that would be the focus of enlightenment about the disease. As important as this may be, a literature survey shows geographical gap in this area as many of the available studies did not focus on Lafia Local Government Area. It is therefore, an attempt at filling this knowledge lacuna that necessitated this study.

### **Objectives of the Study**

The overall objective of this study is to examine the influence of media messages on knowledge of malaria in children less than five years of age among mothers in Lafia Local Government Area, Nasarawa State, Nigeria. The specific objectives are to:

- i. Ascertain the medium/media of exposure to malaria messages among mothers in Lafia Local Government Area
- ii. Assess mothers knowledge of the causes, symptoms and prevention of malaria in children less than five years; and

- iii. Examine views of mothers on what they felt was the influence of media messages on malaria disease.

### **Conceptual Clarifications**

**Media messages:** This refers to communications that reach an audience, these messages may employ a variety of influencing social and political techniques such as that their true nature and purpose isn't always immediately apparent. Media messages typically have commercial value, political or social intentions behind them. For the purpose of this research, the media messages here are two pronged because it has commercial value for the purpose selling bed nets and other mosquito repelling substances to minimize malaria. It also has social value in the sense that radio messages are carefully crafted to sensitize the people in Nasarawa state on the dangers associated with malaria and how people can keep their homes free of mosquitoes in order to prevent malaria.

Media messages can range from overt statements to vague expressions of cultural values. These messages most times are used to persuade people or the audience to shun harmful practices and embrace useful and beneficial practices. The media messages must therefore, be designed in a way that will communicate effectively to help the audience change a harmful behaviour or attitude.

**Malaria:** It is a disease caused by a plasmodium parasite that is transmitted by the bite of infected mosquitoes, the severity of malaria depends on the species of plasmodium and is mostly found in tropical areas or countries which Nigeria is one of such. WHO (2021), records show that more than 247 million cases of malaria are recorded each year, the symptoms of malaria can be mild or life threatening, mild symptoms include fever, chills and headache. Severe symptoms include fatigue, confusion, seizures, and difficulty breathing.

Infants under 5 years, pregnant women, travellers and people with compromised immune systems are at higher risk of severe infection. Malaria can however, be prevented by avoiding mosquito bites, keeping the surrounding bushes and areas clean, use bed nets or mosquito nets for sleeping, take medicines.

### **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 suggests that the more a news item is covered frequently and prominently, the more the news audience will regard the issue as important. (Olalekan, Uthman & Ghose, 2018).

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 (for example, 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 because it has a direct relationship with creation of awareness about health and the consequences of malaria disease. When mothers are made to understand the effects of malaria on children, the mass media create an atmosphere of understanding that could correct bring and about behavioral change. This is more so that the findings in this study is an indication that some people still have some misconceptions concerning malaria which can have negative impact on efforts aimed at controlling the disease in the study area, if it is not addressed appropriately. Thus, the assumption is that if the media frequently report messages on the knowledge of malaria and its misconceptions, it will be viewed 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.

## **Methodology**

### **The Study Setting**

Lafia town is the Headquarter of Lafia Local Government (LGA) and Nasarawa State. It is situated in the North-Central geo-political Zone of Nigeria that is generally very warm and humid with dry and rainy seasons. The climatic and ecological conditions of the LGA also favour high malaria transmission with mosquitoes all year round. Lafia town consists of three (3) structural units distinguished in terms of age of building as well as density of physical development and population. These sectors are the old town, Sabon Pegi area, and Millionaires/Bukan sisi/ Tudun Gwandara Area. The Local Government Area is predominantly agrarian with land area of 2,797.5 square kilometers with population of 348,000 in 2021 according to UN World Urbanization Prospects estimates. There are two radio stations in the LGA namely; Nasarawa State broadcasting service and Precious FM (Lafia, FRCN) and two television stations; Nasarawa State broadcasting service TV and Nigerian Television Authority Lafia. The availability of these radio and television stations implies that the population of the study area has access to a broad variety of health care information.

### **Study Design, Population and Sampling Technique**

The design was a descriptive cross-sectional study. An open-ended questionnaire was used to purposively source data from 385 mothers aged 15 - 49 years, with children less than five years using Taro Yemane formula for sample size determination. The study population was contacted through a multistage systematic sampling procedure. In the first stage, was the stratification of the LGA into urban and rural settings. In the second stage, the urban area (Lafia town) was further stratified into the three (3) existing structural units distinguished in terms of age of building as well as density of physical development and population. These sectors are the old town, Sabon pegi area, and Millionaires/Bukan sisi/ Tudun Gwandara Area. The third stage was the selection of settlements and 385 respondents in the urban and rural settlements of the study area.

### **Data analysis**

The data generated from the questionnaire were subjected to descriptive analysis. The individual correct views based on the medically known knowledge of the diseases were scored to assess the respondent's knowledge. Analysis of the knowledge of causes, symptoms and prevention of malaria was scored by creating dummy variables in which those who responded in the preferred direction were coded as 1 and 0 otherwise. The items for knowledge of causes, symptoms and prevention of malaria were validated and their correlation (Spearman) stood at 0.75 which was considered high enough for the study. Each of the items had three categorical variables and were scored, 1, 2 and 3; measured cumulatively using item analysis.

Knowledge of causes of malaria in children was scored on a 3-scale of Low (0-3 points; mention high fever and other causes), Medium (4-6 points; mention mosquitoes, high fever and other causes) and High (7-8 points; mention high fever and mosquitoes). The eight (8) item knowledge of causes of malaria variables measured are malaria is natural, God given, greeting malaria patient, witchcraft, fever/high fever, hot sun, drinking/wading through dirty water and mosquitoes.

Knowledge of malaria symptoms was also scored on a 3-scale of Low (0-3 points), Medium (4-6 points) and High (7-10 points). The items considered are: High knowledge score on malaria symptoms: to correctly mention seven or more symptoms of malaria. Medium knowledge score on malaria symptoms: to correctly mention four to six symptoms of malaria. Low knowledge score on malaria symptoms: to correctly mention at least three symptoms of malaria or not at all.

The ten knowledge of malaria symptom variables measured are: high body temperature/shivering or hot body; vomiting; diarrhea; convulsions; child looks whitish; one lung is swollen; headache; weakness; loss of appetite and abdominal pain.

The knowledge of prevention was also scored on a 3-scale of Low (0-2 points), Medium (3-4 points) and High (5-6 points). High knowledge score of malaria prevention: to correctly mention five to six malaria preventive strategies. Medium knowledge score of malaria prevention: to correctly mention three to four malaria preventive strategies. Low knowledge score of malaria prevention: to correctly mention at least two malaria preventive strategies. The six knowledge of malaria prevention variables measured was to affirm that: Malaria is preventable; cleaning the environment reduces mosquitoes; clearing grasses reduces mosquitoes; putting nets on doors and windows reduces mosquitoes; filling up pots and pools of water that do not flow reduces mosquitoes and use of bed-nets prevents mosquitoes.

## **Results and Discussion**

### **Socio-economic and Demographic Characteristics of Respondents.**

Most of the participants were urban residents (66%) and were more than 30 years old (70%). This age group of mothers in the context of treatment-seeking behaviours has experiences about treating illness in children. Slightly more than half (53.8%) had tertiary education. This implies that the study captured a significant number of mothers who could be reached with health education about malaria. It also, implies that the inhabitants can comprehend media sensitization and awareness campaigns on malaria. The respondents' main occupation was business/trading (70.1%). Only 26% of the respondents earned N90, 000.00 and above monthly. The marital status of the study population was very high. Roughly 87.6% were married and had five children and above (Table 1). The high numbers who are married means that the sample captured significant proportion of mothers who by their role in the family were in charge of diseases management particularly, for their children and other members of their family and thus, their level of knowledge about the disease is critical for this role.

**Table 1: Socio-economic and Demographic Characteristics of Respondents**

Variable	Characteristics	Frequency	Percentage
Locality Status	Urban	254	66.0
	Rural	131	34.0
Age group	385	385	100
	Below 20	11	2.9
	20-29	89	23.1
	30-39	180	46.8
	40-45	91	23.6
	Above 45	14	3.6
Educational status	No formal education	25	6.5
	Primary	40	10.4
	Post primary	108	28.0
	Tertiary	207	53.8
	Others	05	1.3
Occupation	Farming	04	1.1
	Business/Trading	270	70.1
	Civil Servants	106	27.5
	Housewife	05	1.3
Income per month (in Naira)	Below 20,000.00	02	1.9
	20,100.00-30,000.00	14	3.6
	30,100.00-50,000.00	30	7.8
	50,100.00-70,000.00	52	13.5
	70,100.00-90,000.00	187	48.6
	90,100.00-110,000.00	55	14.3
Marital Status	Above 110,000.00	45	11.7
	Married	337	87.6
	Single	36	9.3
Number of Children	Others	12	3.1
	2-4	21	5.4
	5-7	334	86.7
	8-10	28	7.3
	Above 10	02	1.9

### **Exposure to Media Messages on Malaria**

The extent of exposure to media messages on malaria by the respondents is indicted in Table 2. All participants in this study reported ever heard of malaria and from the radio. This is an indication that majority of the respondents got information on malaria from communication campaigns on radio. This agrees with the findings of Moemeka (2012) who found that radio was the most popular medium for the dissemination of health and development information. A plausible reason for this could be found in the characteristic of the radio as a medium of communication. Studies show that the radio is affordable, mobile, less complicated to operate, transcends language and literacy barriers, ubiquitous and does not rely on the availability of electricity or power supply. This also, speaks to the pervasiveness of radio as a medium of communication (Nweze et al, 2020). This is further a proof that the radio is a major source of disseminating information to the public in the study area, including the participants in this study about the disease. The high level of awareness about malaria may be explained by the fact that the study area is the state capital and residents have better access to multiple sources of information about the disease such as magazines, radio, and television and from their school education. The higher knowledge of residents could also be

due to the fact that large proportions of literate participants in the study were from the urban settings. In addition, invariable accessibility of health materials and infrastructure might explain the high level of awareness.

Other media of exposure to malaria were television (22.5%), newspapers (12.5%), internet (9.8%) and from other sources (7.5%) such as billboards, magazines and poster/handbills. More than half (73.2%) said the media exposed them to malaria information regularly. The results in this study support Nweze et.al (2020), in their study of Influence of Radio Messages on Malaria Prevention Behaviour among Pregnant Women and Nursing Mothers in Ebonyi State, that greater percentage of the respondents are exposed to malaria prevention messages through the radio. Only 16.1% and 8.6% were exposed occasionally and rarely respectively, while 2.1% could not remember at all.

**Table 2: Exposure to Media Messages on Malaria**

Variable	Characteristics	Frequency	Percentage
Ever heard of malaria	Yes	385	100
	No	00	00
Medium/Media of exposure on malaria	Radio	385	100
	Television	87	22.5
	Newspaper	48	12.5
	Internet	36	9.8
	Others	29	7.5
Frequency of Exposure to Malaria messages	Regularly	282	73.2
	Occasionally	62	16.1
	Rarely	33	8.6
	Cannot remember	08	2.1

### **Knowledge about the Causes, Symptoms and Prevention of Malaria in Children**

To ascertain whether the media messages impacted on respondents about the disease, their knowledge on the causes, symptoms and prevention of malaria in children under five was sought as indicated in Table 3.

### **Beliefs about the Causes of Malaria in Children**

The study participants perceived malaria to be caused by various factors (Table 3). Most (94.8%) of the respondents believed that the disease is caused by the bite of mosquitoes. This contrasts with Emmanuel and Kemisola (2015) in their study of mothers' understanding of childhood malaria and practices in rural communities of Ise-Orun where only 14.2% mentioned mosquito bite as the sole source of malaria in children. It also contrasts with Nweze et.al (2020) where only 8.3% opined that mosquito bite is the only means of contracting malaria.

About 5.2% believed that malaria is natural while 6.2% attribute it to God. Other beliefs about the cause of malaria are hot sun (18.2%), drinking or wading through dirty water (15.6%), fever or high fever (10.2%), witchcraft (7.2%) and by greeting a person with malaria (4.7%). A look at the table shows that, there exist diverse beliefs among the study population about the causes and transmission of malaria. While some of these beliefs are similar to the common knowledge on malaria epidemiology, others are entirely different.

Although a very high proportion of respondents knew that the mosquito was a vector for malaria, some mentioned unlikely mechanisms of the cause of malaria, such as hot sun, drinking or wading



through dirty water, witchcraft and by greeting a person with malaria. This is an indication of the existence of diverse beliefs among respondents about the causes and transmission of malaria. While the biomedical model has a prominent influence on malaria treatment practices in the study area, traditional models still play an important role in how people understand the disease. For example, the finding that 94.8% of the respondents believed that the disease is caused by the bite of mosquitoes does not mean it is considered as an etiological factor. This is because some of those that reported that mosquitoes were the cause of malaria also, reported mosquitoes with other causal factors. The findings are also an indication that some people still have some misconceptions concerning malaria which can have negative impact on efforts aimed at controlling the disease in the study area if it is not addressed appropriately. Similar misconceptions were reported by Emmanuel and Kemisola (2015) in Ise-Orun who had poor perception and misconceptions about malaria in children and practiced self-medications. Also, if mosquitoes are not associated with malaria transmission, the need to prevent mosquito bites using appropriate strategies cannot be properly appreciated (WHO, 2010). However, it is surprising that despite the several years of contact with and exposure to modern health education on the mosquito as the vector that transmit malaria parasite to human beings, such information is still not convincingly accepted by some mothers who have heard it.

**Table 3: Knowledge of Causes, Symptoms and Prevention of Malaria**

Variable	Characteristics	Frequency	Percentage
Knowledge of Causes	Natural	20	5.2
	God given	24	6.2
	Greeting malaria patient	18	4.7
	Witchcraft	28	7.2
	Fever/High fever	40	10.2
	Hot sun	70	18.2
	Drinking/wading through dirty water	60	15.6
	Mosquitoes	365	94.8
Knowledge of Symptoms	Abdominal pain	289	75.1
	Loss of appetite	316	82.1
	Weakness of body	330	85.7
	Headache	320	83.1
	One lung swollen	92	23.8
	Whitish look/anemia	118	30.6
	Convulsion	284	73.7
	Diarrhea	245	63.6
	Vomiting	342	88.8
	High body temperature/hot body	362	94.0
Knowledge of Prevention	Use of bed-nets	320	83.1
	Filling pools of water that does not flow	102	26.5
	Putting nets on doors and windows	214	55.9
	Clearing grasses	224	58.2
	Cleaning environment	148	38.4
	Malaria is preventable	329	85.4

### **Knowledge of Signs and Symptoms of Malaria**

The knowledge of the respondents about malaria signs and symptoms are presented in Table 3. Most of the respondent's (94%) identified the correct clinical symptoms of malaria. This finding was very high in comparison to the finding of Daboer et al (2010) study in an Urban Slum in Jos,

Nigeria where they reported only 49.6% of respondents being able to recognize the symptoms of the disease. This was followed by vomiting (88.8%) and weakness of the body (85.7%). Other commonly cited symptoms of malaria in children are headache (83.1%), loss of appetite (82.1%), abdominal pain (75.1%), convulsion (73.7%) and diarrhoea (63.0%). The least well-known symptoms are anaemia (35.7%) and one swollen lung (25.1%). The table also shows that most of the mothers identified the clinical symptoms of malaria in children and were also able to identify some features of severe malaria cases linking it with symptoms such as convulsions, high body temperature, fatigue, loss of appetite and anaemia. This is an indication that the study respondents had a good knowledge of signs and symptoms of malaria in children and could accurately diagnose malaria in children. One main implication of the high level of knowledge of malaria symptoms and severity is that mothers' have ability to recognize some adverse effects of malaria may prompt early consultation for appropriated healthcare and correct treatment and these can lead to increase in malaria survival in children (Emmanuel & Kemisola, 2015).

Similar results have been reported in Nigeria where mothers were also able to identify some features of severe malaria cases linking it with symptoms such as convulsions, fatigue, altered consciousness, loss of appetite and anaemia. One main implication of the high level of knowledge of malaria symptoms and severity is that mothers' have ability to recognize some adverse effects of malaria may prompt early consultation for appropriated healthcare and correct treatment and these can lead to increase in malaria survival in children in rural communities of Abeokuta (Idowu, Mafiana, Luwoye & Adehanloye, 2007) and Kuje area of Abuja, Nigeria (Ashikeni, Envuladu & Zoakah, 2013).

### **Knowledge of Prevention of Malaria**

Interestingly, as indicated in Table 3, majority (85.4%) of the mothers in the study area believed that malaria could be prevented and used bed-nets as a strategy for preventing mosquitoes for their under-5 (83.1%). This show that correct malaria prevention practices were generally acceptable among the study population. This may be due to increased health promotion by the media and health workers. Knowledge about cleaning environment to prevent mosquitoes was 38.4% while 55.9% and 58.2% knew that putting nets on doors and windows and clearing grasses respectively will prevent mosquitoes. Unlike the symptoms of malaria which is more or less a recollection of individual experiences about the disease with relatively higher correct responses, the same cannot be said of the respondents about prevention of the disease. A critical look at Table 3 shows that even though the major form of malaria prevention was the use of bed-nets, the result also indicates the level of ignorance of how mosquitoes can be prevented. This is further supported by the fact that the six preventive strategies were not affirm by all the respondents.

However, knowledge of preventive practices especially of filling up pools of water that do not flow which serve as breeding sites for mosquitoes as a strategy for preventing mosquito and knowledge of environmental measures were lower and need to be systematically strengthened. This is because mothers' satisfactory knowledge of malaria prevention is very important for malarial control. Thus, for effective treatment of malaria in children, the media should provide mothers and must have access to adequate and correct information about what control and treatment strategies work. Since, the primary source of information about malaria in this study was the radio, this information should not be bias, evasive and loaded with misconceptions. This is because with poor misconceptions, prevention practices would inevitably get negatively influenced.

### **Knowledge Score of Causes, Symptoms and Prevention of Malaria**

Table 4 presents information on the percentage distribution of respondents by low, medium and high knowledge of causes, symptoms and prevention of malaria. Analysis of knowledge of causes of malaria in children using an 8-item assessment question reveals that respondent’s knowledge was average (50.6%). Only 14.3% high knowledge while 35.1% had low knowledge. Knowledge of malaria symptoms using a 10-item assessment question reveals that respondent’s knowledge of symptoms of malaria in children is generally high (74%). This finding is encouraging as it is an indication of acceptance of biomedical knowledge introduced through health education promotion and communication by the media in the study community. Only 27.1% and 3.5% had medium and low knowledge respectively. Respondent’s knowledge of malaria prevention was further measured by scoring the six (6) questions. The knowledge of malaria prevention was skewed towards high (52.9%) among the respondents. The knowledge of causes of malaria and preventive behavior of the respondents was found to be average when compared with knowledge of symptoms of the disease.

**Table 4: Knowledge Score of Causes, Symptoms and Prevention of Malaria**

Knowledge	Score	Frequency	Percentage
Causes	High	55	14.3
	Medium	195	50.6
	Low	135	35.1
Symptoms	High	285	74.0
	Medium	85	22.1
	Low	15	3.9
Prevention	High	204	52.9
	Medium	109	28.4
	Low	72	18.7

### **Influence of the Media Messages on Malaria Disease**

Since all respondents reported that they have ever heard about malaria and through the radio, their views were further sought on what they perceived as the influence of messages aired on the radio on the disease (Table 5). This information is critical in identifying the probable areas of intervention for the control of the disease. According to Table 5, the radio messages on malaria improved knowledge of 52.9% of respondents about the causes of the disease. Majority of the respondents reported that in several ways, their Knowledge on Signs and Symptoms (80.7%), prevention (85.1%), as well as treatment practices (77.4%) and timely treatment (74.3%) of the disease has improved tremendously, as a result of the radio messages. This finding corroborates Nwezeet.et.al (2020) that radio messages on malaria prevention behaviour has been effective in improving people’s knowledge and awareness about malaria and encourage adoption of preventive behaviour. The radio messages broadened the scope of knowledge of those who before then had some misconceptions and doubts about the disease (68.3%). This is an indication that the content of the radio programmes covered information on signs and symptoms, prevention, causes, treatment and erroneous beliefs about the disease and susceptibility.

**Table 5: Respondents Views on the Influence of Media Messages on Knowledge of Malaria**

Views on Influence of Radio Messages on Malaria knowledge	Frequency	Percentage
Increase Knowledge on Causes of Malaria	204	52.9
Increase Knowledge on Signs and Symptoms	311	80.7
Increase Knowledge on Prevention	328	85.1
Increase Knowledge on Treatment	298	77.4
Increase Knowledge on Timely Treatment	286	74.3
Corrected Erroneous Beliefs about the disease	266	68.3
Sleeping under Insecticide Treated Net.	198	51.4
Use of Anti-Malaria Drug	201	52.2
Use of Malaria Repellant	156	40.5
Putting Nets on Doors and Windows	302	78.4
Cleaning of Environment	199	51.6
Empowered due to Radio Messages on Malaria	322	83.6
Gain new information about Malaria	309	80.2

Participants in this study that were exposed to media messages on malaria benefitted and gained new information (80.2%) in several ways about the disease. It is glaring in this study that media and radio in particular, campaigns for malaria contain messages that has empowered (83.6%) mothers to understand and make informed decisions on the disease. Also, the messages on malaria made respondents to have positive attitude towards the disease as 51.4% reported sleeping under insecticide treated net (51.4%), use of anti-malaria drug (40.5%), use of malaria repellant (40.5%), putting nets on doors and windows (78.4%) and keeping the environment clean (51.6%) as strategies of preventing the disease. It is therefore, expected that when mothers get messages on how to prevent malaria, they will stop behaviours that put them at risk of contracting the disease or seek treatment immediately they detect they are malaria ill (Emmanuel & Kemisola ,2015).

### Conclusion

Radio remained the highest medium of exposure among respondents about malaria. The knowledge of causes of malaria and preventive behaviour of the respondents was found to be lower when compared with knowledge of symptoms of the disease and need to be strengthened. The identification of mosquitoes as the cause of malaria is a step in the right direction in changing knowledge and practice, even though, there exists some misconceptions about the disease. The media provided the needed information on childhood malaria and, for those that heard the messages, they used such information to enhance their knowledge of the disease. The content of the messages impacted and expanded the knowledge base of most mothers such that they could identify causes, symptoms, prevention and treatment issues raised in the media campaigns. The implicit expectation is that widespread knowledge of malaria through the media will encourage people to use health services appropriately and promptly.

### Recommendations

Based on the above findings, the following recommendations are made:

- i. For effective control and treatment of childhood malaria, mothers must have access to adequate and correct information about what control and treatment strategies that works.

- ii. The media should disseminate information on malaria to mothers in the study area that will enable them to correctly recognize and link symptoms to the disease for effective treatment. This also calls for reinvigorated efforts at promoting malaria prevention using a multi-media approach for wider reach and access.
- iii. The finding calls for media intervention programmes that should be directed towards correcting misconceptions and for locally adapted health campaigns with the aim of transmitting biomedical information about cause, symptoms and prevention of malaria effectively.
- iv. For effective treatment of malaria in children must have access to adequate and correct information about what control and treatment strategies work
- v. For effective treatment of malaria in children, mothers must have access to adequate and correct information about what control and treatment strategies work

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