AN ASSESSMENT OF PERCEPTION OF THE PEOPLE ON MALARIA PREVENTION AND CONTROL IN DONGA LOCAL GOVERNMENT AREA OF TARABA STATE

DR. SILAS JOSHUA[1]
SUNDAY EMMANUEL BAMISE[2]
[1,2]*DEPARTMENT OF GEOGRAPHY, FEDERAL UNIVERSITY LOKOJA, KOGI STATE | josilas2000@gmail.com, 08025749636*

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Malaria, Attitude, Knowledge, Practice, Prevention, Control and Perception

ABSTRACT
The study examined household's knowledge, attitude and practice on Malaria prevention and control in Donga L.G.A of Taraba State. A total of 120 respondents representing 120 households were used for the study. Primary data were generated through administration of structured questionnaire. The types of data used are demographic data, socio-economic, cultural beliefs, political affiliations and prevalent records of malaria in the area. Data analysis was done using tables, percentages, and charts. Chi Square was used for the analysis via micro excels. Findings show that respondents have good knowledge about malaria in the study area. (60%) are men (40%) are female representing households during the research. Households' knowledge, attitudes and practice on malaria prevention and control were found to vary from household to household based on the socio-demographic characteristics of the respondent. However, (33.33%) were age 15-24 years, (35.83%) were age 25-34 years, (17.5%) were age 35-44 years, (12.5%) were 45-54 years and (0.83%) were 55 above. Generally, (78.33%) believed that mosquitoes can transmit malaria to human while (67.5%) of the respondents' household have mosquitoe nets, also (56.67%) opined that mosquitoes net are often used by the respondents. The study identified other protective practices against mosquito's bites and further assessed whether such practices do affect insecticide treated net (ITN) usage. The study recommends that in a bit to improve malaria control measures, community members need to be educated on the relationship between mosquitoes and malaria, and the benefits of accepting cost effective preventive measures including early seeking of treatment from the health facilities or health personnel. There is a need for health education programs that will measure the

success of the health education message passed to the community and evaluation of the health education provided to assess the impact of the message among the community members.

Introduction:

Malaria is an infectious disease cause by the parasite plasmodium species and is usually transferred from one person to another through the bite of infected female Anopheles mosquitoes while taking a blood meal. Malaria infection is largely distributed throughout the warmer regions of the world were vector breeds. In Nigeria, malaria is found in all the geographic regions. It is worst hit in the poorest countries and those under difficult and impoverished conditions (World Health Organisation 1989; Uko, Useh, Ekere, 1994). Malaria is a potentially deadly disease characterized by cyclical bouts of fever with muscle stiffness, shaking and sweating (WHO, 2000). The name "Malaria" is derived from the Italian words Mal ("*bad*") aria ("*air*").

Malaria is rated as a killer disease in Nigeria. Annually, about one million Nigerians die from malaria or malaria associated problem. According to (Aregawi, Cibulskis, Oten, Williams, and Dye, 2008), "malaria is responsible for nearly one million deaths. These are mostly children under five years". In addition to high mortality associated with malaria infection, the morbidity has a far reaching economic consequences on the households in particular and Nigeria as a whole. Man-hour, productivity, and income of infected household members dwindle during the period of sickness. Federal ministry of health, in 2008, while commenting on the economic consequences of malaria attack estimated that Nigeria lost about 132 billion naira annually due to loss of man hour arising from malaria attack, according to the world malaria report 2017. There were an estimated 5 million malaria cases in 2016 than in 2015. Malaria deaths stood at around 445 000, a similar number to the previous year.

Families are the primary context within which most health problems and illnesses occur and have

a powerful influence on health. Most health beliefs and behaviour are developed and maintained within the family. Community perceptions beliefs and attitudes about malaria causation, symptom identification, treatment of malaria, and prevention influence efforts to address malaria and are often overlooked in control efforts and it vary from community to community and among individual households. Considering these issues, it can be an important step towards developing strategies aimed at controlling the malaria. Understanding who already knows about malaria and malaria prevention, who has adopted malaria prevention and mosquitoes avoidance practices, and who is at risk of malaria infection is necessary precursor to identifying and targeting vulnerable population and ensuring successful implementation and sustainability of malaria control efforts.

There is scarcity of data on knowledge, attitude and practice studies on malaria in North West Nigeria. Studies on knowledge, attitude and practice have demonstrated that, direction interaction with community plays an important role in circumventing malaria spread. Healthcare provider like family physician can focus both on traditional physician-patient model and complement it with population based medicine for primary prevention of malaria as domiciliary care and primary prevention are defining characteristics of family medicine. So, in order to create a co-operation between primary care physician and community efforts and governmental/nongovernmental organized malaria control interventions in Nigeria in particular, there is urgent need to determine the people's knowledge, attitude and practice of malaria prevention and its control in Donga Taraba State.

This study therefore, investigates a local community's knowledge, attitude and practices on malaria. The knowledge, attitude and practice will investigate the Donga community understanding of malaria, their recognition of signs and symptoms, their treatment seeking behaviours, community preventive measures and practices such as bed net use and clearing of bushes around households, as well as the cultural context within which all of these occurs. The study will intend to provide baseline information that would inform the design of malaria prevention and control interventions in Donga town of Taraba State. Sound knowledge

of community beliefs and practices about malaria will be of help in surveillance and control (Hlongwana, Mabaso, Kunene, Govender, and Maharaj, 2009). It's important to note that improving the health of poor people depends on understanding their socio-culture and economic aspects and using these to design effective public health interventions. This information can be gathered through various types of surveys, (Mazigo, Obas, Mauka, Manyiri, Zinga, Kweka, 2010).

2.1 Theoretical Framework

2.1.1 Integration Theory

This has to do with the ways in which many stimuli are combined to produce attitudes. This was propounded by Norman H. Anderson. The theory applies to attitude change and social judgment. The theory uses a model of judgment in which information is represented by two parameters namely: the scale value and the weight. The two parameters represent both the location of the informational stimuli along the dimension of judgment as well as the psychological importance of the information. The main proposition of this theory is that the same piece of information can have different values and importance for different people either on the same or different dimensions. According to Anderson (1971), 'the total effect of any one informational stimulus is the product of its weight and scale value on the recipient''. It further propounded that continuous informational stimuli on a person leads to the person integrating same with the person's prior opinions and attitudes on specific issues. The information stimuli may come from factual and hearsay evidence, communication development programs, rumours, gesture, and observations. Applying this theory to Attitudes, Practice, to and use of insecticide treated nets amongst households, the implication is that the recipients' attitudes and practice to malaria and use of Insecticide Treated Net (ITN) can either be favourable or unfavourable based on:

i. The individual level of importance attached to development communication messages on the protective measure against vector borne diseases.

ii. The frequency of the development communication messages and information communicated to the individual or community as a whole.

3.1 Study Area

3.2 Location

The study area is Donga. Geographically, Donga lies within latitude 8'0'0'' and 7'30'0''N of the equator and longitude 10'0'0'' and 10'30'0''E of the meridian with the land area of approximately 58 square kilometres. It is located in the southern Taraba, bounded on the Northeast by kurmi Local Government Area, on the Northwest by Bali Local Government, to the Southwest Wukari Local Government Area, while to the Southeast by Takum Local Government Area. Donga Local Government Area has diverse ethnic groups which include Chamba, Ichen, Kpanzun, Hausa, Tiv, Fulani and others languages. According to 2006 Census Figure released by National Population Commission (NPC), Donga Local Government Area amounted to **population** of about 134,111 people. Three wards are considered during my research project in Donga Local Government Area of Taraba State.

Donga has ten (10) political wards namely: Fada, Gyata Aure, Gndindutse, Mararaba, Kadarko, Akate, Suntai, Asibity, Gayama and Nyita Ward. See **Figure 1** and **Figure 2** for location of the study area.

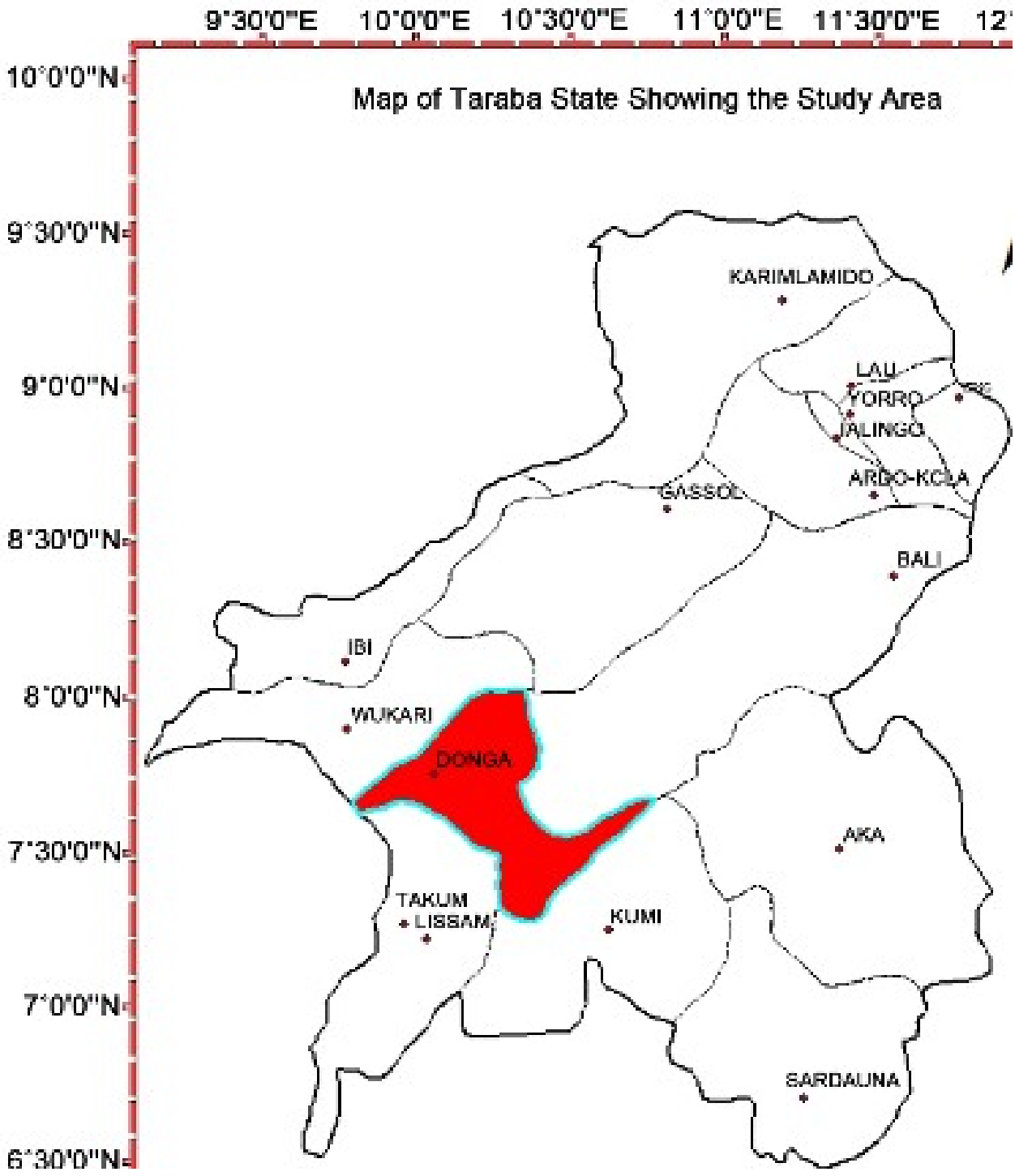


***Figure 1**: Map of Taraba State showing Donga local government area.*

***Source:** Ministry of Lands and Survey, Jalingo, Tarba State.*

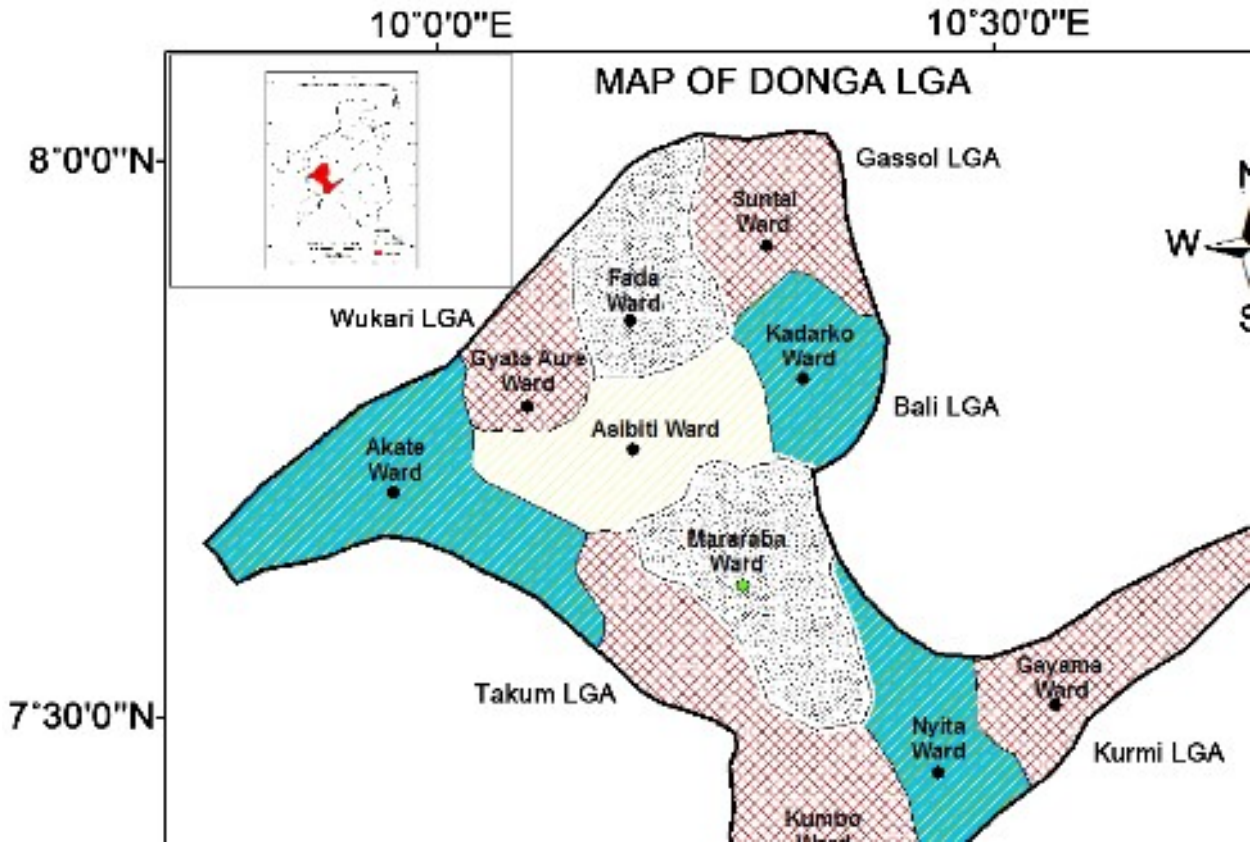


***Figure 2**: Map of donga local government area showing study area.*

***Source:** Ministry of Lands and Survey, Jalingo, Taraba State.*

3.3 Methodology

3.3.1 Types of Data

The types of data will include the socio-demographic and economic data, knowledge on causes of malaria, means of transmission, mosquitoes breeding sites, biting time, sign and symptoms of malaria and attitude towards malaria prevention and their treatment seeking behavior and the complications of malaria when it is suspected. Those who could not read will be guided by the researcher to respond to the questionnaire. Both primary and secondary sources of data will be diploid.

3.2 Sampling Design and Sample Size

This study adopted a survey design. The researcher designed a specific study questionnaire which contains 52 questions in order to survey household's knowledge, attitude and practice on malaria prevention and control. A structured questionnaire was design to obtained information from the respondent representing the households. The questionnaire was administered to 120 randomly selected households in Donga town. Only one adult was interview per household. The interviewees will be the heads of households. In their absence, a responsible adult above 15 years was chosen by the family for interview.

The study was on the fact finding of the socio-demographic characteristics, knowledge about malaria, attitude toward malaria, practices of malaria prevention and control, bet net ownership and use and household environmental factors were examined in Donga. Fact finding is amongst the characteristics of survey design. Eboh (2009) characterised survey research as a fact finding in nature which has to

do with reporting finding as they are without control over the variables. The questionnaire was prepared in English language but translated and communicated in local languages where necessary. The sample size is 5873 and 2% of the total sample size were used to determine the total numbers of questionnaire to be administered which is approximately 120.

3.3 Instrument of Data Collection

The following instruments were used for data collection during the research work:

a. Reconnaissance survey: this exercise involved the visit to various areas within Donga town.

b. Direct field observation: this exercise included field observation on the study areas

c. Questionnaire: the questionnaire is the main instrument used for data collection. This provides information directly from the field on an assessment of community knowledge, attitude and practice on malaria prevention and control in Donga town. It consisted of 52 items comprising of three section namely; section A, B, C, D, E, F and G.

3.4 Method of Data Analysis

Data that was collected during the research on peoples' Knowledge, Attitude and Practice on malaria prevention and control was analysed using descriptive (table, frequency percentage graph and chart) and inferential statistical method (chi-square test) at 0.5 significant level by using Microsoft excel to analysed it.

Kothari (2004) opined that Chi-square as a non-parametric test of significance can be used to determine if categorical data shows dependency or that the two classifications are independent. Kothari (2004:233) while further expresses his views on when to use the Chi-square test of hypotheses stated that the Chi square test could be used to test the significance of association of two attributes amongst other conditions.

The tests of hypotheses using Chi square were calculated using Microsoft excel.

Formula;

$$\text{Chi-square} = \sum \frac{(O - E)^2}{E}$$

Where

O = Observed value

E = Expected value

4.1 Results

4.2 Socio-economic and Demographic Characteristics

The households were grouped on the basis of demographic and socio-economic variables such as sex, age, religion, tribe, educational level, marital status, occupation, monthly income, household size and types of residential accommodation of the respondents.

The demographic characteristics of the sample are summarized in Table 1. One hundred and twenty (120) respondents participated in the survey, representing all of the households in Donga town. The majority of the respondents were male (60%) and (40%) were female. In term of age (33.33%) of the respondents were between 15-24 years, (35.83%) were 25-34 years, (17.5%) were 35-44 years, (12.5%) were 45-54 years, while (0.83%) were 55-64 years old. The religion of the respondent show that (65%) are Christian, (30.83%) are Muslim and (3.33%) are Traditionalist. The tribes of the respondent show that (33.33%) are Chamba, (21.67%) are Ichen, (22.5%) are Kpanzun, (8.33%) are Tiv and (14.17%) represent other languages. In terms of educational level (7.5%) are non-formal education, (5%) are primary, (50.83%) are secondary and (36.67%) tertiary. The marital status of the respondent show that (50.83%) are single, (40%) are married, (1.67%) are widowed, (1.67%) are divorced and (5.83%) are co-habitation.

Table 1: Distribution of respondent by their demographic characteristics

Variables		**Number**	**Percentage**
Sex	Male	72	60%
	Female	48	40%
	Total	**120**	**100%**
Age	15-24	40	33.33%
	25-34	43	35.83%
	35-44	21	17.5%
	45-54	15	12.5%
	55-64	1	0.83%
	Total	**120**	**100%**
Religion	Christian	79	65.83%
	Muslim	37	30.83%
	Traditional	4	3.33
	Total	**120**	**100%**
Tribe	Chamba	40	33.33%
	Ichen	26	21.67%
	Kpanzun	27	22.5%
	Tiv	10	8.33%
	Other	17	14.17%
	Total	**120**	**100%**
Level of education	Non formal education	9	7.5%
	Primary	6	5%
	Secondary	61	50.83%
	Tertiary	44	36.67%
	Total	**120**	**100%**
Variables		**Number**	**Percentage**
Marital status	Single	61	50.83%

	Married	48	40%
	Widowed	2	1.67
	Divorced	2	1.67%
	Co-habitation	7	5.83%
	Total	**120**	**100%**
Occupation	Civil servant	36	30%
	Self employed	55	45.83%
	Farming	17	14.17%
	Full house wife	7	5.83%
	Other	5	4.17%
	Total	**120**	**100%**
Household size	1-3	32	26.67%
	4-6	54	45%
	7-9	24	20%
	10 above	10	8.33%
	Total	**120**	**100%**
Type of residential	Duplet	38	31.67%
	Storey building	12	10%
	Bungalow	60	50%
	Other	10	8.33%
	Total	**120**	**100%**

Source: Researcher's fieldwork, 2018

In addition to table 1, in terms of Family sizes 1-3 represent (26.67%) 4-6 (45%) 7-9 (20%) 10 above (8.33%). Finally, in terms of accommodation (31.67%) live in duplex, (10%) live in storey building, (50%) live in bungalow and (8.33%) live in others.

4.3 Knowledge about Malaria

Respondents answered a number of questions to measure their knowledge about malaria. They ranged from basic information about malaria to sources of information, signs and symptoms as well as transmission and

prevention of malaria. The responses on knowledge (and their percentage of total respondents) are summarized in Table 4.2

During the survey out of 120 respondents, (75%) of them said they have heard about malaria and (2.5%) claim that they never heard anything about malaria. In terms of which vector transmit malaria to human (2.5%) believe that fly transmit malaria and (97.5%) believe mosquito is the vector that transmit malaria to human. (75%) of the agree that malaria can kill if it's untreated while 23.33% believe that malaria can't kill if it's not treated. (7.5%) of the respondents said mosquito bite in the daytime, 62.5% said mosquito bite at night time while (30%) believe mosquito bite in both daytime and night. (87.5%) of the respondent said the know mosquito breeding site while (12.5%) said they do not mosquito breeding site and finally, (1.67%) of the respondent said water pit is the mosquito breeding site, (4.17%) said trees is the mosquito breeding site, (19.17%) said broken pipes is mosquito breeding site and (62.5%) said stagnant water is the mosquito breeding site.

Table 2: Performance of respondents on malaria knowledge

Statement		**Number**	**Percentage**
Which vector can transmit malaria to human?	Fly	3	2.5%
	Mosquito	117	97.5%
	Total	**120**	**100%**
Do you think malaria can kill if it's untreated?	Yes	90	75%
	No	28	23.33%
	Other	2	1.67%
	Total	**120**	**100%**
When do malaria mosquitoes feed or bite?	Daytime	9	7.5%
	Night time	75	62.5%
	Both	36	30%
	Total	**120**	**100%**
Do you know mosquito breeding sites?	Yes	105	87.5%
	No	15	12.5%
	Total	**120**	**100%**

***Source**: Researcher's field work, 2018*

In addition, other questions that tested the knowledge of respondents, to identify common signs and symptoms (Figure 1). The question permitted respondents to select an answer from a range of answers. (52.5%) associated malaria with fever, (28.33%) of them believe headache is a sign and symptom of malaria, (5.83%) also associated malaria with chill and (13.33%) said that malaria is associated with vomiting as summarized below.

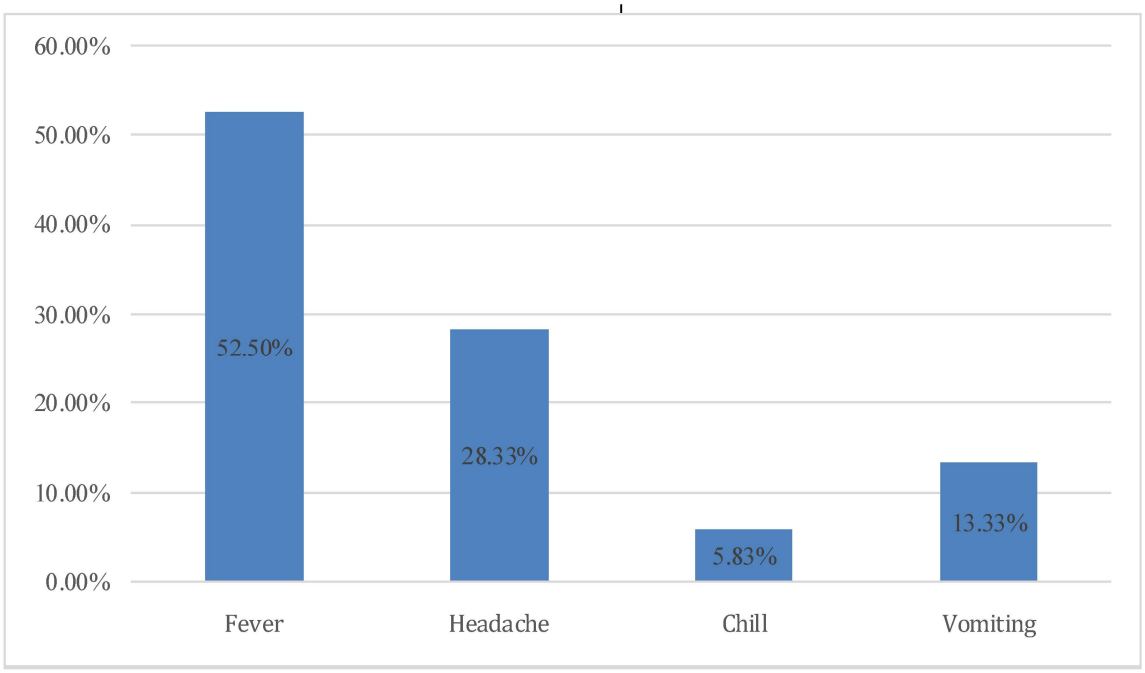


Figure 1: Common signs and symptoms of malaria
Source: Research's fieldwork, 2018
4:4 Bed net ownership and use

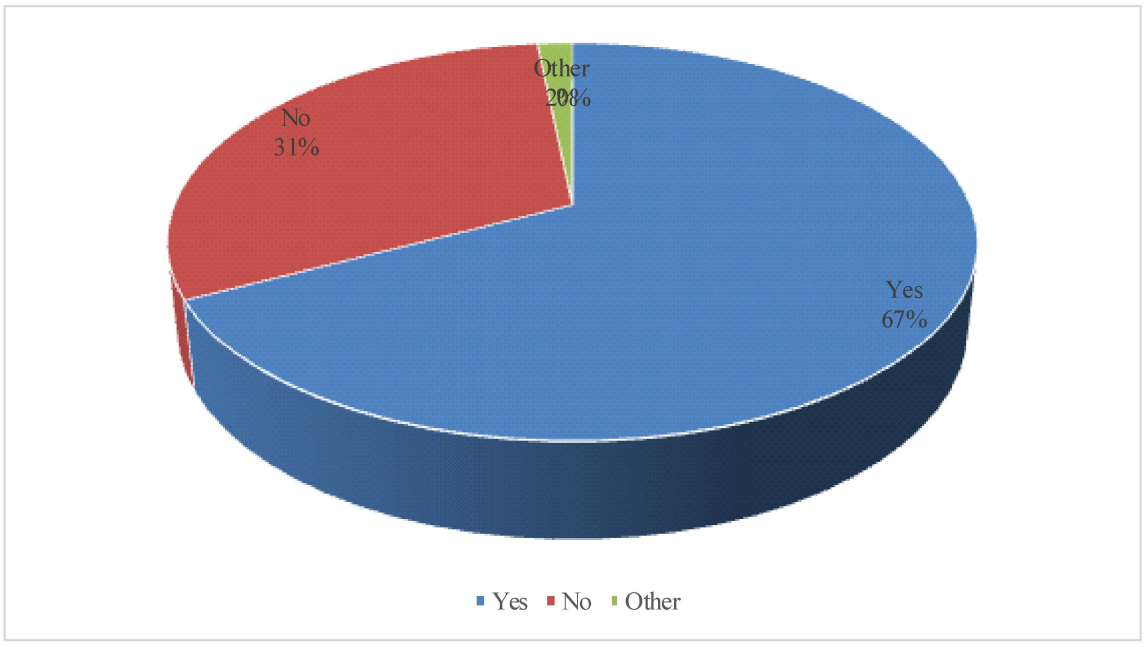


Figure 2: Number of respondents that used different protection measures against malaria

Source: Research's fieldwork, 2018

This shows that about (67.5%) reported owning a mosquito bed net, (31%) said they don't have, and (2%) they don't know as highlighted. It shown in figure 2.

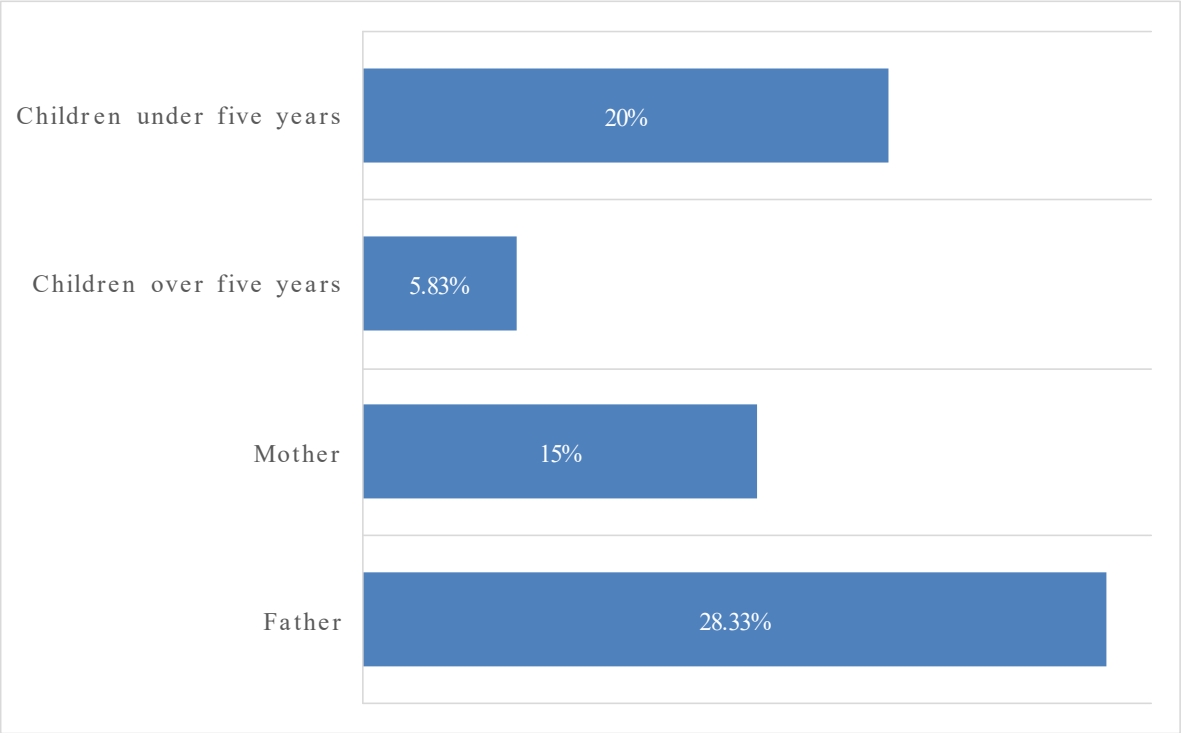


Figure 3: Number of respondents that owned mosquito bed nets.

Source: Research's fieldwork, 2018

Among respondent who owned mosquito net (20%) represent mother and children under five represent (15%) seen they are vulnerable to malaria, (5.83%) are children over five who also owned mosquito net and (28.33%) represent father which some of them seen to sleep at the farm in other to carter for the family.

4:5 Sources of Information about Malaria

Amongst the respondents, (95%) said that having received some information about malaria, while (5%) reported not receiving any information as summarized in Figure 4.

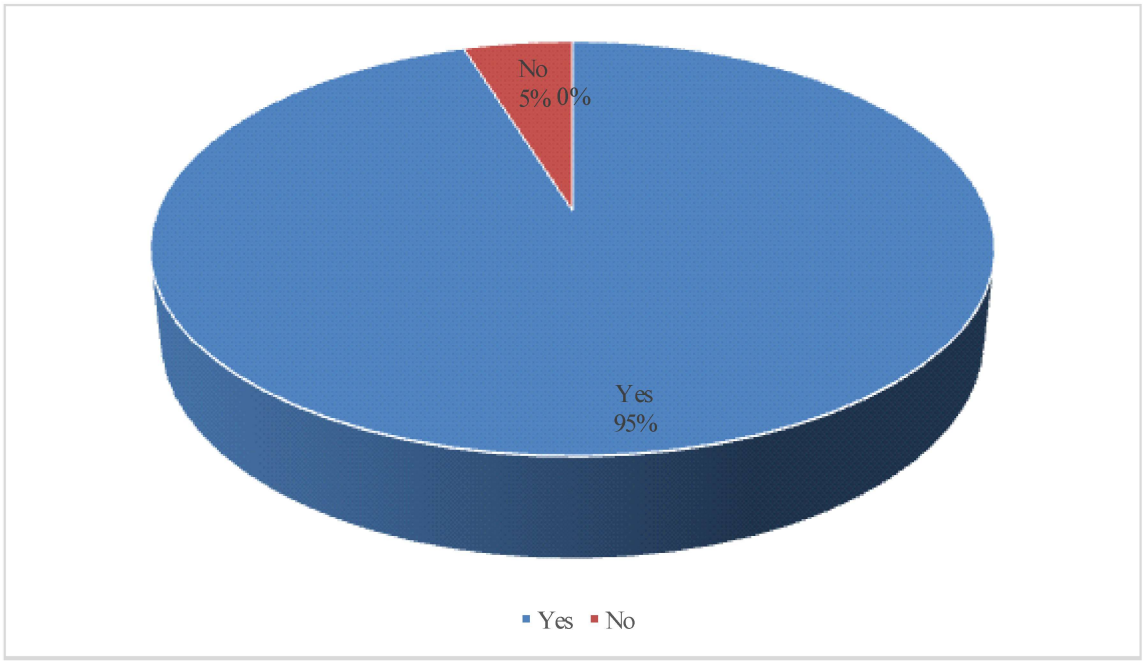
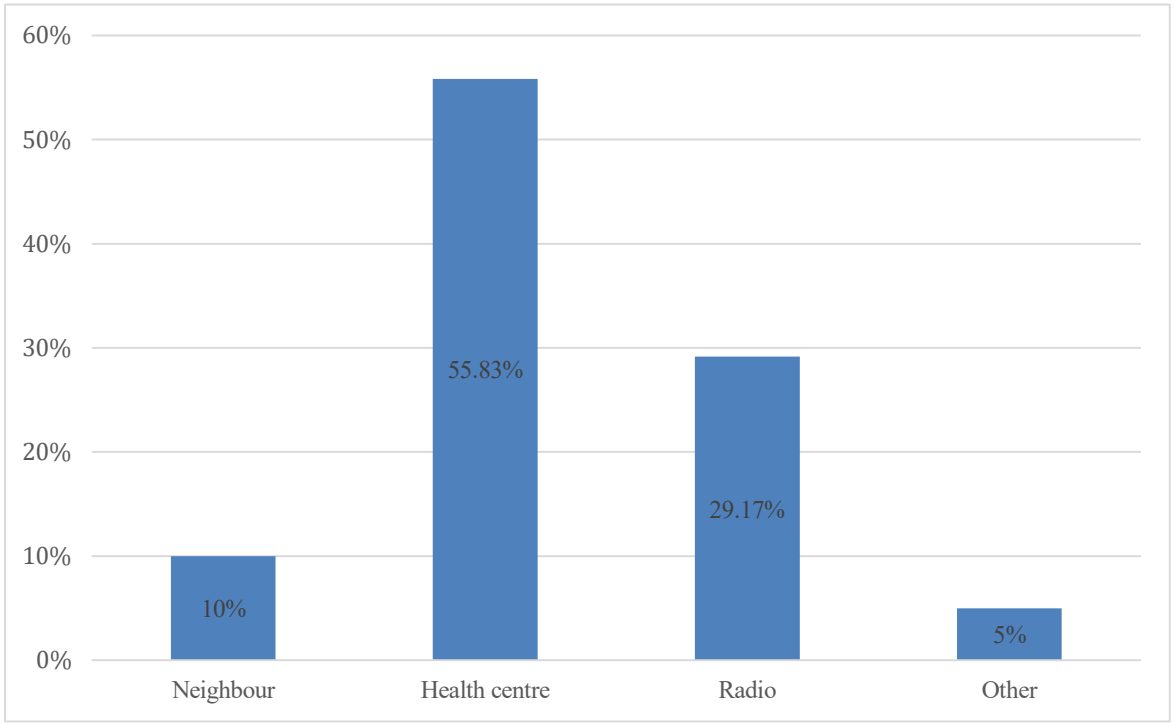


Figure 4: Respondents who have received information about malaria



Source: Research's fieldwork, 2018

Figure 5: Respondents who received information about malaria from different sources

Source: Research's fieldwork, 2018

Sources of information varied amongst respondents. Health Centre is the main source (55.83%), followed by the radio (29.17%), member/neighbor (10%) and the others (5%) were the most common sources of information amongst those that had received information about malaria as indicated in Figure 5.

4.6 Treatment Seeking Behaviour

Table 3: Respondents Treatment Seeking Behaviour

Statement		Number	Percentage
Have you or any member of the household suffered from Malaria in the last six months	Yes	100	83.33%
	No	18	15%
	Other	2	1.67%
If you were to present with signs and symptoms of Malaria, where would you seek treatment?	Health centre	113	94.16%
	Drug shop	5	4.17%
	local herbs		1.67%
How soon after suspecting Malaria would you seek treatment?	One day	71	59.17%
	2-3 days	21	17.5%
	4-6 days	18	15%
	7 or more	10	8.33%

Source: Research field work 2018

Most respondents (70%) reported that they have enough information about malaria, while (21.67%) sensed that they did not have enough information related to malaria, and other (8.33%) indicated that they don't know as summarized in Figure 6.

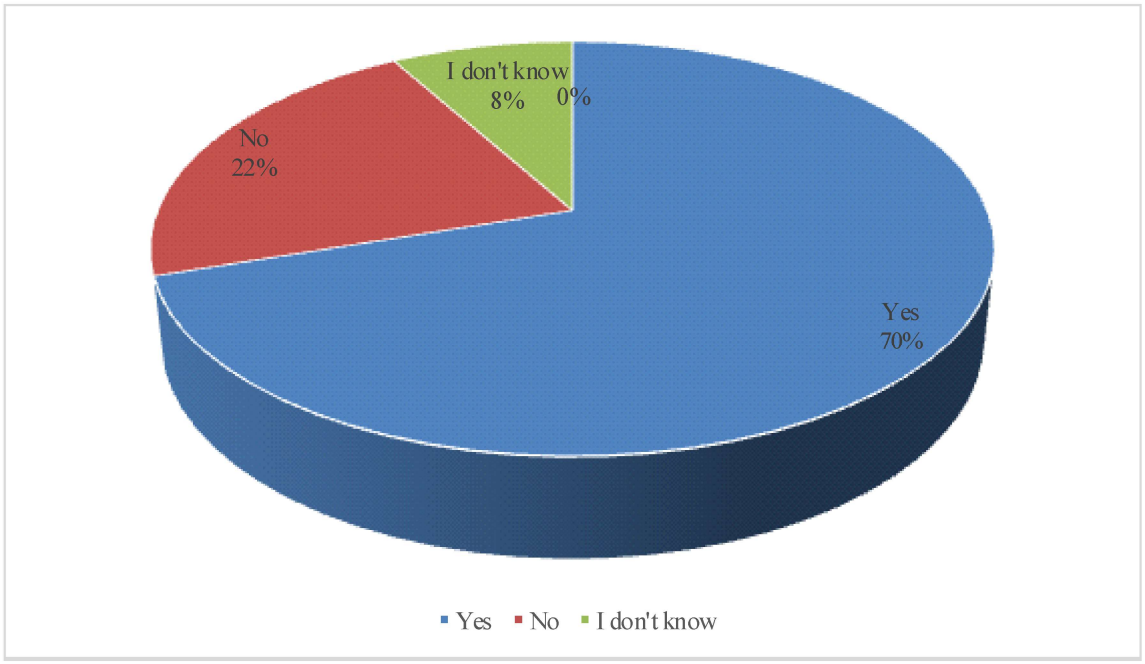
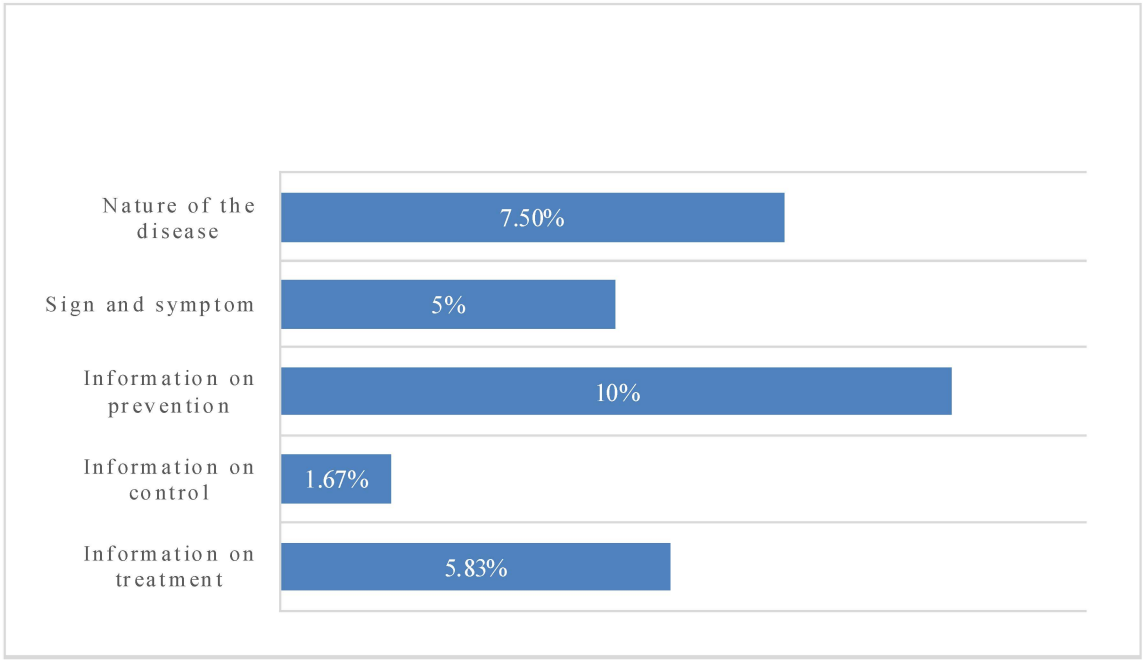


Figure 6: Respondents who reported having enough or no information about malaria



Source: Research's fieldwork, 2018

Figure 7: Respondents who reported having insufficient information about malaria

Source: Research's fieldwork, 2018

Respondents who indicated not having enough information about malaria were asked about particular question where they would like more information. The results are summarized in Figure 7. (5.83%) of respondents selected information on treatment, (1.67%) selected control, (10%) selected prevention, (5%) selected sign and symptom and (7.5%) selected nature of the disease as the topics where they would like to receive more information.

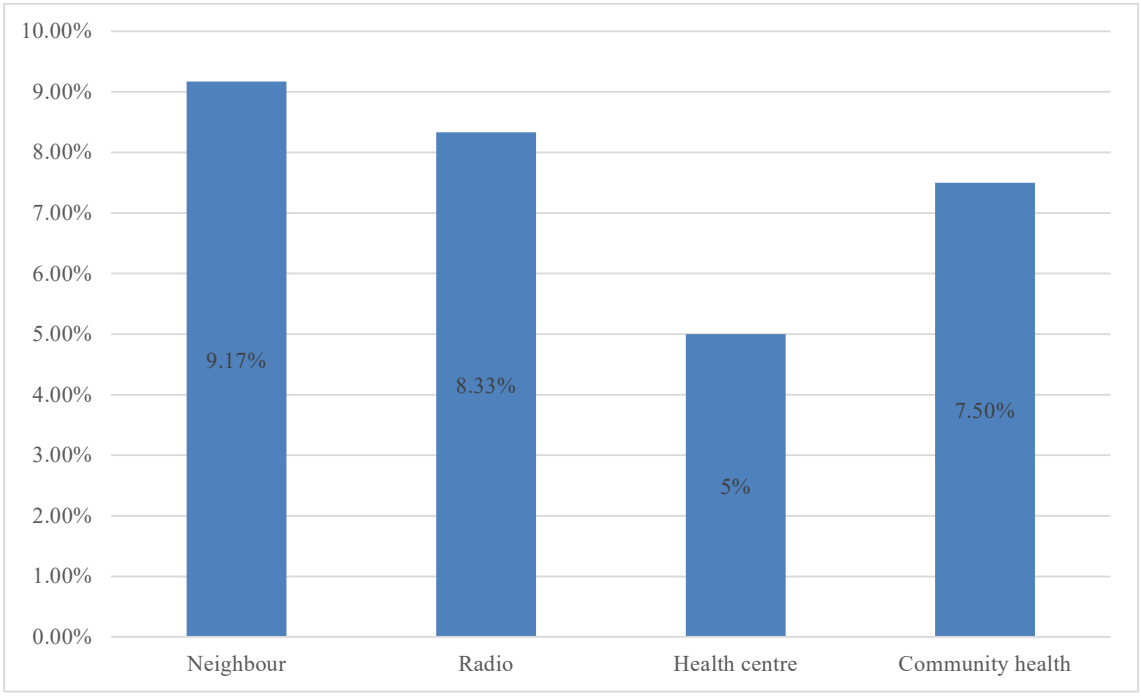


Figure 8: Number of malaria respondents who receives more information
Source: Research's fieldwork, 2018

When asked for potential channels that should be used to communicate more information about malaria to them, (5%) said through health Centre, (7.5%) said community health, (9.17%) said family member, while (8.33%) radio are the most preferred channel as indicated in Figure 8.

4:7 Attitude toward Malaria

Attitude of respondent toward malaria varied. Hence, (91.67%) believed that malaria is a serious and life Threatening disease while (8.33%) said that malaria is not a life threatening disease.

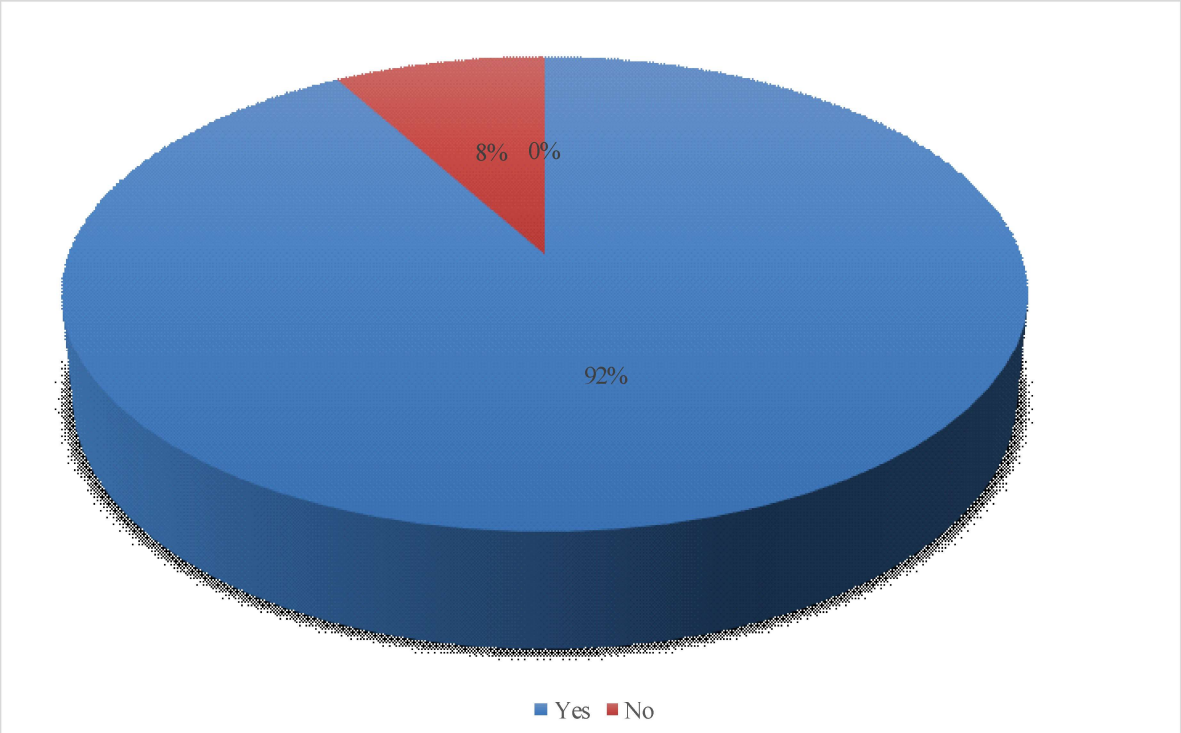
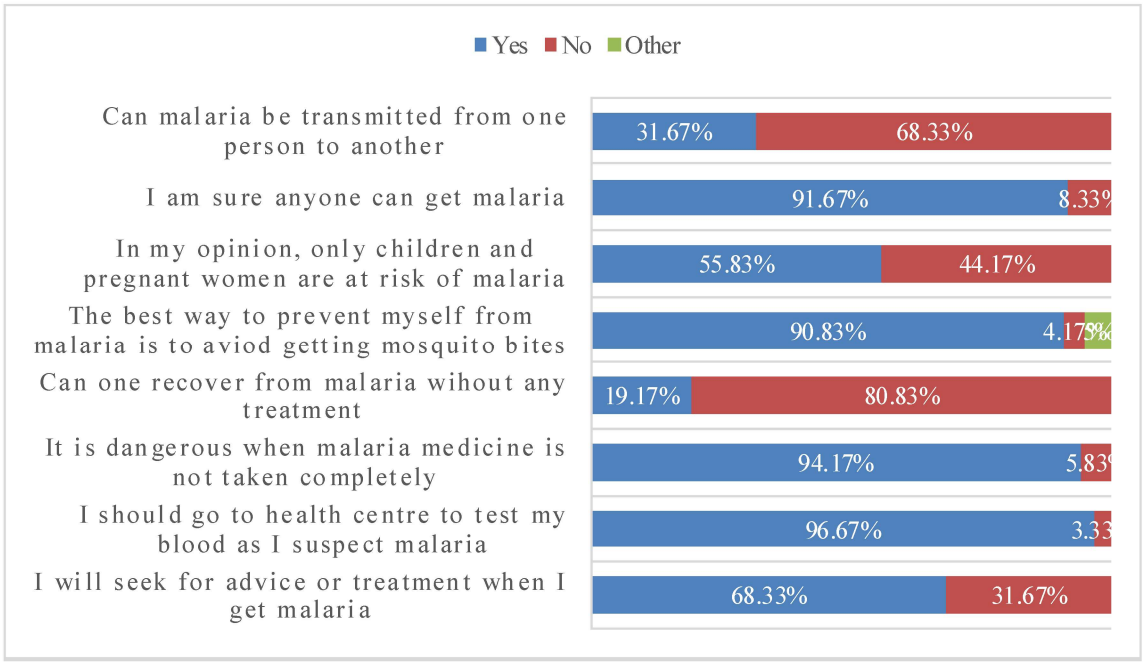


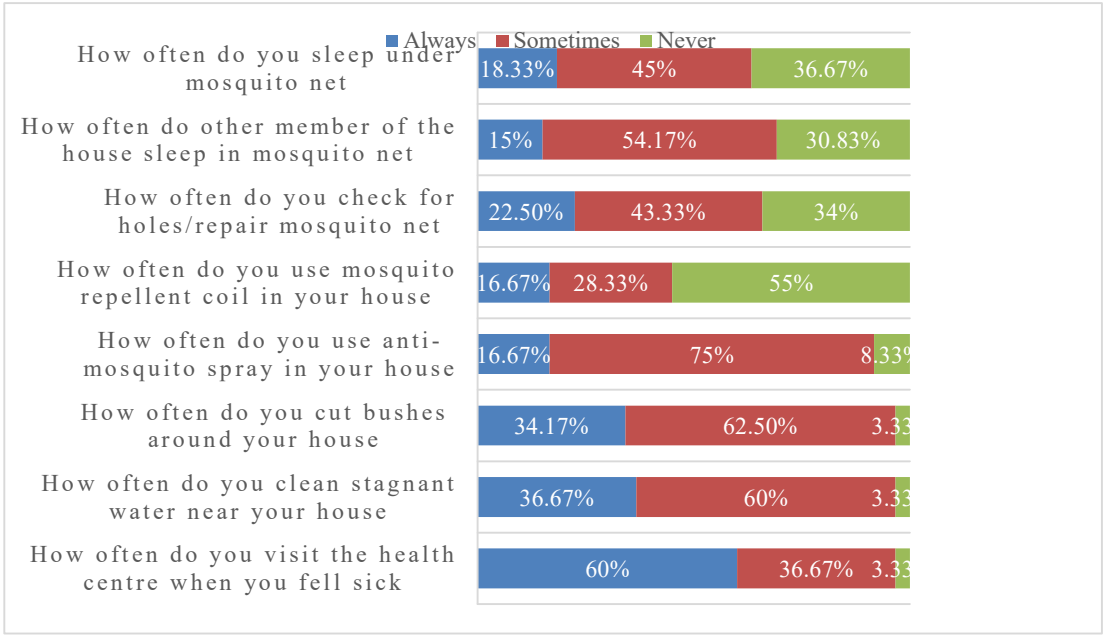
Figure 9: Is malaria a serious and life threatening disease
Source: Research's fieldwork, 2018



In addition, figure 10 below

Figure 10 Attitude toward malaria

Source: Research's fieldwork, 2018



4.8 Practices toward Malaria Prevention

Figure 11: practice toward malaria prevention

Source: Research's fieldwork, 2018

4.9 Comparison of Practice across Independent Variables

In order to test our conceptual framework summarized in Figure 1, we compared malaria practice scores to demographic characteristics, knowledge about malaria and attitudes towards malaria across all our respondents. The results are summarized in the next three sections.

4.9.1 Demographic Characteristics

Comparing malaria practice scores to different demographic characteristics (sex, poverty level and the age) using the Chi-Square test indicated that there is no significant relationship between malaria practices and the respondent's Sex (Chi-square = 0.425651. Table 4) as well as between malaria practices and the respondent's poverty level (Chi-square = 0.748033. Table 4). This means that poorer respondents were more likely to have poor malaria practices compared to the non-poor. There is no significant association between malaria practices and the respondent's age (Chi-square

= 3.97089. Table 4)

Table 4: Association between Sex, Poverty, Age and Malaria Practice

Malaria practice	Sex (n=120)		
	Male	Female	Total
	No (%)	No (%)	No (%)
Good practice	13	11	24
Fair practice	32	20	52
Poor practice	27	17	44
Total	72	48	120
	Chi-square = 0.425651 C.V= 5.991		
	Poverty level (n=120)		
	Poor	Non poor	Total
Good practice	33	40	73
Fair practice	23	20	43
Poor practice	2	2	4
Total	58	62	120
	Chi-square = 0.748033 C.V= 5.991		
	Age (120)		
	Youth	Adult	Total
Good practice	17	2	19
Fair practice	60	30	90
Poor practice	8	3	11
Total	85	35	120
	Chi-square = 3.97089 C.V= 5.991		

Source: Research field work 2018

4.9.2 Comparing Practices and Knowledge about Malaria

Comparing malaria practice to malaria knowledge using the Chi-Square test shows that there is no significant relationship between respondent's knowledge about malaria and their practices towards malaria (Chi-square = 2.075396, Table 6).

Table 5: Association between Malaria Practices and Malaria Knowledge (chi square test)

	Knowledge (n=120)		
	High	Low	Total
	No (%)		
Good practice	56	17	73
Fair practice	30	13	43
Poor practice	4	0	4
Total	90	30	120
	Chi-square = 2.075396 C.V= 5.991		

Source: Research field work 2018

4.9.3 Comparing Malaria Practices to Attitudes

Comparing malaria practice to attitude using the Chi-Square test shows that there is no significant association between respondent's attitude towards malaria and their practices towards malaria (Chi-square = 2.229491, Table 6).

Table 6: Association between Malaria Practices and Malaria Attitudes (chi square test)

	Attitude (n=120)		
	Positive	Negative	Total
	No (%)		
Good practice	24	3	27
Fair practice	49	3	52
Poor practice	40	1	41
Total	113	7	120
	Chi-square = 2.229491 C.V= 5.991		

Source: Research field work 2018

5.1 Conclusion

The study aimed at assessing the perception of the people based on their community knowledge, attitudes and practices in relation to malaria prevention and control to inform the design of more effective strategic or behavior change communication (BCC) interventions. The findings of this study indicated that the rural communities of Donga is one of the LGA in Southern Taraba State experiencing high burden of malaria due to lack of unemployment, low government support in the area of malaria control, and a high occurrence rate of malaria enhanced by the nature of the environment that promoted the breeding of the mosquitoes.

Findings from this study showed that majority of the respondents have good knowledge about malaria and many of the respondent make use of bed nets. However, the majority of the respondents recognized malaria as a threat to their lives in the community, other beliefs and attitudes related to malaria causation, preventive measures and treatment. The community's ability to adopt and comply with health interventions (prevention and treatment) is affected by their acceptance of the intervention, their understanding of the nature of the event or problem concerned and

the relationship between the vector and the infection and socio-economic and cultural factors (De La Cruz, 2006).

Other Malaria preventive measures such as, anti-mosquitoes spraying, use of mosquito's repellants coils is fairly in practice by the respondents. Thus there is need to encourage the use of preventive measure in the community.

Community members need to be educated on the health issues and encouraged to control malaria disease by controlling mosquitoes from breeding in and around their homes by practicing environmental control methods such as draining stagnant water or by covering such water with a thin layer of oil to arrest the mosquitoes' breeding cycles.

Therefore, health education should be conducted by the health personnel using cultural sensitive but evidence-based intervention and easily understandable channels to the community members. Proper training or health education to the community members such as mothers has been recommended as one of the effective measures in malaria control programme (Okrah et al 2002;

Nuwaha 2002; Tyagi, 2005).

5.2 Policy Recommendation

Based on the finding the following recommendation were hereby made:

i. To improve malaria control measures in Donga, community members need to be educated on the relationship between mosquitoes and malaria, and the benefit of accepting cost effective preventive measures including early seeking of treatment from the health facilities or health personnel.

ii. There is a need for health education programmes that will measure the success of the health education message passed to the community. Since there exist control practices among the community that involves herbs and leaves, the ministry of health should conduct the research to find out how effective these measures are. If these measures are found effective, they need to be incorporated to the modern scientific malaria control measures.

iii. Evaluation of the health education provided to assess the impact of the message among the community members.

iv. Neutral beliefs could be used to promote positive or beneficial beliefs and practices among the community of Donga. For example, the concept that malaria can be transmitted by eating contaminated food and drinking dirty water can be classified as neutral beliefs. The health education message that combines other community beliefs and cultural-based ideas about malaria causation and transmission such as eating contaminated food and so on with clear scientifically proved explanations of malaria transmission will improve the community's acceptance of health education messages and promote the adoption of appropriate preventive behaviours. In this case, the relationship of drinking dirty water and eating contaminated food to health hazards such as diarrhea could be used to discourage these practices though they are not directly associated with transmission of malaria. Dirty water as mentioned by the respondents may refer to unprotected or open stagnant water that can provide good breeding places for mosquitoes hence promoting the transmission of malaria through the biting of the adult female Anopheles. Explanation of such relationship to the community members will help them to understand the disease and encourage them to accept the preventive measures being undertaken in the area.

v. Environmental sanitation should be improved

ii. Malaria prevention and control efforts should aim at creating local examples of excellence to promote good practices towards malaria prevention and control.

i. Communication about malaria prevention and control should employ a combination of channels from the radio, posters at health centres and other community locations, as well as

community forums that bring together residents for different purposes.

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