

CENTRAL UNIVERSITY
SCHOOL OF MEDICINE AND HEALTH SCIENCE
DEPARTMENT OF NURSING



**KNOWLEDGE, ATTITUDE AND PRACTICE OF INSECTICIDE TREATED
MOSQUITO NETS AMONG THE PEOPLE OF ZENU IN KPONG KATAMASU
DISTRICT**

BY

SANDRA ARTHUR-BINEY 201802728

AND

YVONNE AKPENE BLUWEY 201803058

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DECLARATION

Student's Declaration

We hereby declare that expect for other people's research work which have been duly acknowledged, this dissertation is the result of our own original research and that it has neither in whole or in part been presented elsewhere concurrently or being submitted for any other degree.

STUDENT'S NAME	SIGNATURE	DATE
ARTHUR- BINEY SANDRA
AKPENE BLUWEY YVONNE
SUPERVISOR S NAME	SIGNATURE	DATE
MRS MAY OSAE -ADDAE

DEDICATION

We dedicate this work first to the almighty God for giving us good health, knowledge and wisdom that enable us to complete this work successfully.

We dedicate the work also to our parents, siblings and tutors especially our supervisor through whose inspiration and support we have been able to come this far

ACKNOWLEDGEMENT

Our heartfelt gratitude to the Almighty God for His unmerited favor upon our lives throughout the course of this study.

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ABSTRACT

The study was conducted to investigate the knowledge, attitude and practice of the use of insecticide treated nets of the people of Zenu. A cross-sectional survey was employed as a framework and a total of 150 participants, comprising of 50 participants from each town of Zenu (Obaatan, School Junction and Zenu lorry station) with an average age of 16 to 61 and above years were randomly sampled for the study. The data was collected and analyzed using stratified random sampling technique. The study sought to assess; knowledge level of the people on the use of insecticide treated net of Zenu township stated that 139(92.7%) of them have heard of ITNs while 11(7.3%) have not heard of ITNs.

The attitude and practice of the people towards the use of insecticide treated nets brought to light that 49(43%) of the people of Zenu township sleep in ITNs everyday throughout the night, 10(9%) said only part of the night and 54(48%) of them said sometimes.

Findings of the study indicated that the people have an appreciable knowledge about malaria and also the Insecticide Treated Nets. It can also be said that, there is a good perception about the ITNs.

Even though they have a good perception about ITNs, they do not have good attitude towards the use of ITNs therefore, they are not practicing the use of ITNs with the needed seriousness.

In conclusion, the study identified correlation between knowledge, attitude and practice among people of Zenu township therefore it may be appropriate for the Zenu District and Health Directorate to put measures in place to organize more health education on the need to use Insecticide treated nets to prevent malaria.

CHAPTER ONE

BACKGROUND AND LITERATURE REVIEW

1.1 Introduction

This chapter (study) focuses on the background of the study, problem statements, purpose of the study, research objectives, significance of the study and literature review

1.2 Background to the Study

Malaria is one of the major causes of morbidity and mortality among people living in tropical and sub-tropical regions. Humans are infected through a bite of an infected female Anopheles mosquito that inoculates spindle shaped sporozoites into the bloodstream. There are five malaria species that infect and cause disease in humans; Plasmodium falciparum, P. vivax, P. malariae P.Ovale and P. knowlesi.[Wikipedia].

Malaria remains a major global health problem, with over 40% of the world population, an estimated total of 2,400 million people being exposed to a varying degree of malaria risk in some 101 countries and territories (WHO, 1998). It is estimated that 500 million people are infected by malaria, representing nearly 10% of the world's population with 1 to 2 million deaths each year (Global Malaria Initiatives, 1998). According to the World Health Organization, it is estimated that 23 million malaria cases occur in the Southeast Asia region. Furthermore, malaria is thought to cause 34,000 deaths each year in the region (Olov, 1995).

The World Health Organization [W.H.O] Africa Region continues to bear brunt of the global burden of malaria. In 2013, an estimated 163 million cases of malaria occurred in African Region. This caused approximately 528000 deaths from malaria and about 78% of these were in children under 5 years of age. Between 2000 and 2013, the estimated number of malaria cases in at risk population declined by 34% while malaria death rates declined by

54% in the African Region. This reduction is due to improved availability and use of Insecticide Treated Mosquito Nets, diagnosis- based treatment with Artemisin-based therapy, engagement of communities in malaria control and strengthening capacity in vector control for malaria.[W.H.O/ Regional Office For Africa,2013.]

Some 80% of malaria deaths recorded annually worldwide occur in Africa. The West African Sub-Region represent 45% of African's population and malaria is endemic in 15 of the 17 countries covered by W.H.O. World Health Organization recommended the use of insecticide treated net for the control of malaria vectors. Also W.H.O. evaluation of West African countries' progress in controlling malaria has recommended that donors allocates more funds to industries and helping countries purchase latest antimalarial drugs.[W.H.O.,2007]

For maximum effectiveness, Insecticide Treated Mosquito Nets should be impregnated with insecticide every six months. A mosquito net hanging over whiles sleeping prevents mosquitoes from biting the individual sleeping under it [Claudia et al,2009].They have also been shown to be highly cost-effective and are actually one of the most affordable control tools [Awlad, et al 2009]. Insecticide Treated Mosquito Nets, are considered one of the most important interventions of the global "Roll Back Malaria" partnership (Claudia, et al 2006).

Insecticide Treated Mosquito Nets (ITNs) are nets (usually a bed net) designed to prevent mosquitoes physically that have been treated with safe, residual insecticide for the purpose of killing and repelling mosquitoes which carry malaria. These nets are dip-treated using a synthetic pyrethroid insecticide such as Deltamethrin or Permethrin which will double the protection over a non-treated net by killing and repelling mosquitoes [Pablo, et al 2014]. When that net is treated with insecticides, it provides greater protection by repelling mosquitoes and killing those that hung on it [Pablo, et al 2014].

High ownership and use of Insecticide Treated Mosquito Nets reduce the incidence of uncomplicated malaria of about 50% and all -caused mortality in children under 5 years by 20% when a community has a high level of Insecticide Treated Mosquito Nets, use which is associated with greatly reduce populations of mosquitoes that transmit malaria [Claudia, et al 2006]. Insecticide Treated Mosquito Nets use has been an established prevention measure against Malaria. Their distribution has been included as part of complementary control in endemic areas across the country and Africa as a whole [Guillet, et al 2001].

The main barrier to achieving this goal is the lack of sustainable way of expanding the availability and making both nets and insecticides for treatment affordable. Promoting the culture of appropriate net use based on effective reduction, promotion and marketing is essential to the success of the use of insecticide treated nets (ITNs) as far as public health is concerned (Guillet, et al 2001). The use of Insecticide Treated Mosquito Nets among pregnant women have been associated with lower prevalence of malaria infection, fewer premature births and significant reductions in all causes of maternal anaemia (D'Alessandro, et al 1996, TerKuile, et al 2003).

However, the total population of Ghanaians who sleep in insecticide bed nets is only 4.1%. Again, only 12.2% of households in Ghana, 9.1% of children below 5 years of age and 7.8% of pregnant women sleep under insecticide treated bed nets. It is also clear that ITN re-treatment rate among Ghanaian is very low (WHO/GHS, 2003).

The National Malaria Control Programme [NMCP] since its establishment in 1950s has been making tremendous progress in the control of malaria in the country. As part of effort in controlling in controlling the disease, the NMCP aims at reducing malaria disease burden till it ceases to be a disease of public health significance. It has long been recognized that malaria cannot be controlled by health the health sector alone nor can a single intervention

help achieve results. It is therefore necessary that multiple interventions were adopted to fight against disease.

Among the proven intervention being purchase is the promotion of ownership and the use of Insecticide Treated Net .As a mitigating measure, the Ghana Health Service [GHS] / NMCP took a bold decision to modified the distributing strategy and adopted a campaign style dubbed “ Door- to - Distribution and Hang Up”.[Ghanaweb: NMCP/GHS 2011]

1.3 Problem Statement

Malaria is the leading cause of death in Ghana especially children under five years and is able to cause impairment, low birth weight, epilepsy and difficulty in learning(RBM 2002). Currently there are preventive measures and interventions for the control of malaria. For example the introduction and distribution of Insecticide Treated Nets by Ghana National Malaria Control Programme since 1998. The attitude and practice of the people in Zenu towards the use of insecticide treated nets brought to light that 49(43%) of the people of Zenu township sleep in ITNs everyday throughout the night, 10(9%) said only part of the night and 54(48%) of them said sometimes.

Findings of the study indicated that the people have an appreciable knowledge about malaria and also the Insecticide Treated Nets. It can also be said that, there is a good perception about the ITNs.

Even though they have a good perception about ITNs, they do not have good attitude towards the use of ITNs therefore, they are not practicing the use of ITNs with the needed seriousness. The study sought to assess the knowledge, attitude and practice of the people on the use of insecticide treated net.

1.4 Research Questions

1. What is the knowledge level of the people on insecticide treated net?
2. What is the attitude and practice of the people towards insecticide treated net?

1.5 Purpose of Study

The purpose of the study is to assess the knowledge, attitude and practice of insecticide treated mosquito nets.

1.6 Research Objectives

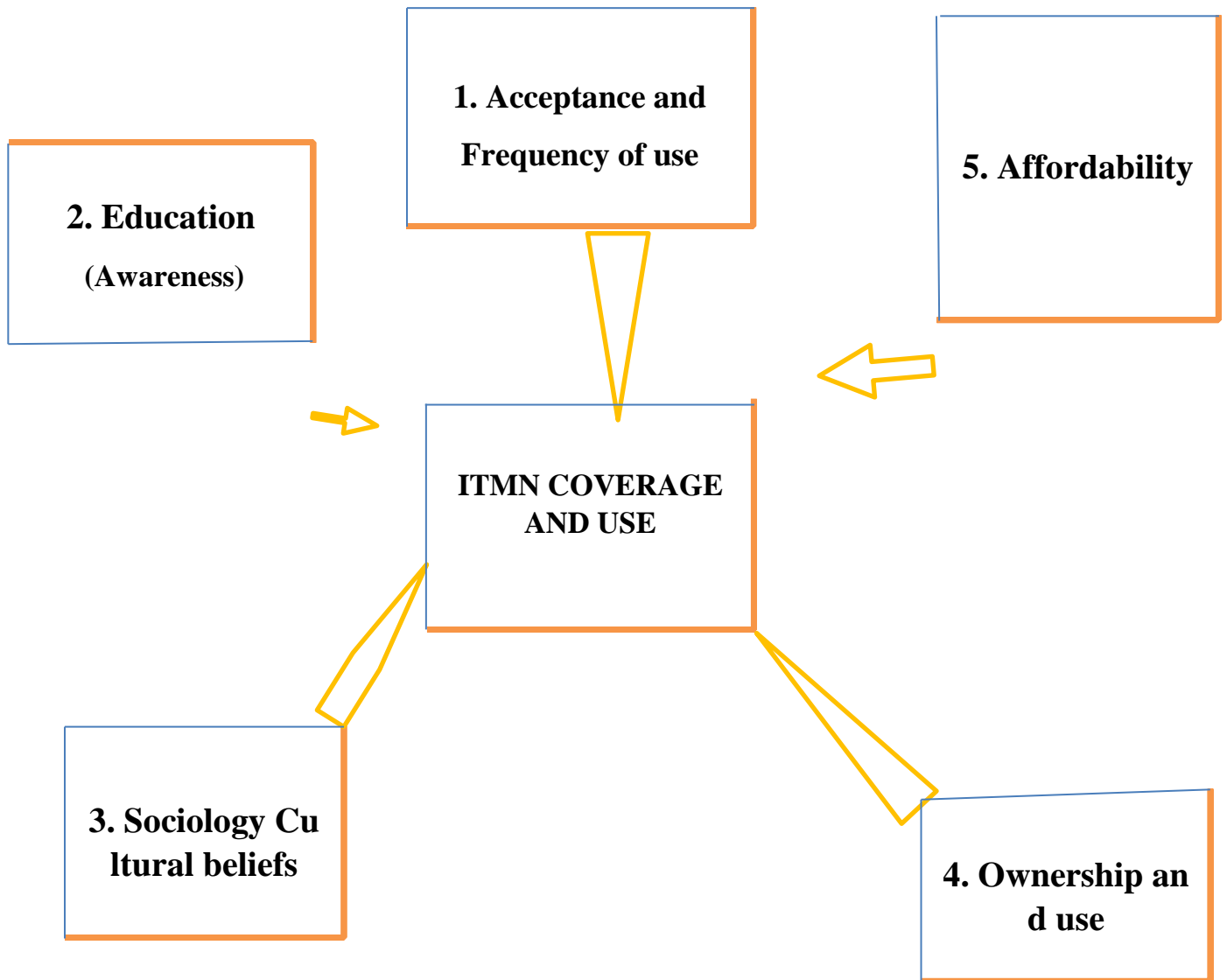
General

To ascertain the knowledge, attitude and practice of insecticide treated nets among the people of Zenu.

Specific

1. To assess the knowledge level of the people on the use of insecticide treated mosquito net.
2. To explore the attitude and practice of the people on Insecticide treated mosquito net.

CONCEPTUAL FRAMEWORK



The conceptual framework explains further questions that lead to assessing the knowledge, attitude and practice of Insecticide treated mosquito net as follows;

1. Whether the people have accepted and frequently use the net.
2. Whether the people have had enough education or enough awareness has been created on the use of the net.
3. Whether there is any socio-cultural beliefs preventing the use of net.

4. Whether ownership and use of the net is high.
5. Whether people are able to afford the net.

Variables

1. The people of Zenu
2. Insecticide treated mosquito net use
3. Knowledge

1.7 Significance of the Study

The findings of the study will help policy makers to plan and implement insecticide treated nets programmes to help increase insecticide treated nets coverage and its consistent use.

1.8 Operational Definition of Terms

Affordability of insecticide treated net: The people's ability to buy the insecticide treated net.

Awareness: The people's ability to describe insecticide treated net.

Availability: The presence of insecticide treated net in the various houses.

Confidentiality: Protection of information from persons who are not expected to have access to it.

Questionnaire: A list of items related to the topic, research questions and the objective of the study.

Effectiveness: The ability of a process to produce the anticipated desirable effect.

1.9 Literature Review

The literature will be reviewed based on the previous research studies conducted, depending on the specific objectives set earlier. There have been a considerable number of studies about the knowledge, attitudes and practices relating to malaria in different parts of the world. Several knowledge, attitudes and practices surveys indicate that misconceptions concerning malaria still exist and practices for the control of malaria have been unsatisfactory (Ongore et al, 1989; Ejov et al, 1996; Vundule and Mharakurwa, 1996; Hla-Shein et al, 1998; Miguel et al, 1999).

Health education has often been indicated as a potential response so that communities are made aware of the transmission of the disease, the consequences and preventive measures as well as the importance of the disease, especially in endemic areas. (Ongore et al, 1989; Ejov et al, 1996;Hla-Shein et al, 1998).

Studies on knowledge, attitudes and practices are applicable to design or improve malaria control programs, to set epidemiological and behavioral baselines and to identify indicators for monitoring a program's effectiveness (Macheso et al, 1994). Analyses, using the outcomes from knowledge, attitudes and practices studies of communities have become important in terms of making health education effective. Health education materials, programs and Insecticide Threated Mosquito Nets can be tailored to fit the local needs of the community, based on the information collected from such analyses (Ongore et al, 1989; Hla-Shein et al, 1998).

For example, a community's awareness of malaria transmission and treatment can be applied to develop health education material and to strengthen control efforts (Miguel et al, 1999). The results of these types of studies can be incorporated into the decision making processes, the design of interventions with active community participation, and the implementation of educational schemes (Nieto, et al 1999).This study explored the

knowledge, attitudes and practices concerning malaria and its control in a selected Myanmar township. Health services were provided in the study area which consisted of 2 rural health centers and their sub-centers (Nieto, et al 1990).

These services were based within the township participated in the education program with the community to reinforce their current knowledge, attitudes and practices about preventing malarial infection (Nieto, et al 1990). This approach was developed to improve both the community and rural health workers levels of awareness concerning malaria and use of insecticide treated nets (Nieto, et al 1990).

The morbidity and mortality from malaria are still unacceptably high in the developing countries, especially among the vulnerable groups like pregnant women and under-five children, despite all control efforts. The knowledge about the preventive measures of malaria is an important preceding factor for the acceptance and use of malaria preventive measures like Insecticide Treated Nets (ITNs) by community members (Lora, et al 2010). Several studies conducted in malaria-endemic areas of Africa regarding attitudes and practices toward malaria control measures among pregnant women indicate that malaria is perceived as a serious illness, knowledge of malaria risks during pregnancy is relatively high, and contact with traditional healers and self-medication with local remedies is common (Louis, et al 2012) .

In addition, pregnant women have limited confidence in the effectiveness of ITNs and intermittent preventive therapy for protection from malaria (Lora et al, 2010). A number of studies have demonstrated that the use of insecticide-treated nets (ITNs) is effective in reducing malaria-related morbidity and mortality (Safari, et al 2010). A 25% reduction in all-cause mortality for children one to nine years of age was detected during the first year of the Gambian National Bed net Program (Leonard, et al 2011). In Kilifi District,

Kenya, a 33% reduction in mortality and a 44% reduction in hospital admissions for severe malaria were also found (Safari, et al 2010).

Knowledge about the cause of malaria and about the existence of ITNs was low in many malaria-endemic communities (Safari et al, 2010). Since 1993, one of the Malian National Malaria Control Program's (NMCP) main objectives was to have 90% of net users in Mopti region treating their bed nets with insecticide, but it has only achieved 10-30% usage rates to date (NMCP, unpublished data). In 2000, a household survey was conducted in four villages of Mopti region in order to identify the barriers to ITN use. Although a government media campaign about ITNs reached all villages, knowledge about malaria and about the benefits of ITN use was highly variable among the four villages. Households using their insecticide nets had significantly higher levels of knowledge about malaria and its prevention (Leonard, et al 2011).

Reasons why people were not using their bed nets included: not knowing anything about ITNs, cost and not having ITNs readily available in the village. In the village of Piron, ten of 73 households stated that they had previously used bed nets and had seen the benefits of ITNs (Michelle, et al 2005).

Based on these findings, insecticide treated nets use was installed within Piron run by the community itself. An antecedent household-level educational program that promoted ITNs by relating use with malaria prevention was also implemented for half the village households during the study period. The objectives of this study were to measure the impact of education plus service availability on the level of knowledge about malaria and on ITN use. (Michelle, et al 2005)

In recent years, these two techniques have been combined into the powerful tool of insecticide-impregnated bed nets and curtains (ITNs). ITNs have consistently been shown to be very effective and sustainable in reducing malaria morbidity and all-cause

mortality in children of different malaria endemic areas (Robbert, et al 2010, Michelle, et al 2010). They have also been shown to be highly cost-effective and are actually one of the most affordable control tools (Robbert, et al 2010).

ITNs are considered one of the most important intervention of the global "Roll Back Malaria" partnership. The impact of ITN interventions under real life conditions is known to be influenced by a number of important socio-economic, cultural and ecological determinants (Awlad, et al 2009). Most published reports are based on KAP (knowledge, attitudes, practice) surveys. Thus, research which is conducted prior to the intervention rarely addresses crucial questions such as compliance during the programme's course (Syed, et al 2009). This research presents findings from two cross-sectional surveys (dry and rainy season) on the compliance of young children with ITN protection, conducted during a major ITN effectiveness trial in rural Burkina Faso. (Claudia, et al 2006).

Ethiopia has adopted the use of ITNs as one of its vector control strategies primarily in selected malaria areas with the view to a gradual scaling-up of the intervention. The use of mosquito nets is however limited and there are a number of possible explanations for this low coverage. These may be due to lack of cultural exposure to the use of mosquito nets, lack of awareness, absence of a sustainable mechanism for the distribution of ITNs, low acceptance by the community and concerns regarding its high cost. Since this strategy, as one of the vector control options in the country, is a new initiative, understanding the perceptions and willingness of the community towards using ITNs as well as the factors influencing its usage is a prerequisite for designing strategies aimed at scaling-up mosquito net implementation programmes in Ethiopia.

The aim of the research is therefore to provide information about the knowledge, attitude and experience of the community about malaria as a disease and its preventive methods, particularly acceptability, affordability and compliance to the use of mosquito

nets, and factors influencing its possession and use in the study areas. This information is helpful for the further implementation and scaling-up of ITNs in the country. [Ethiop. J. Health Dev. 2005;19(1)].

Understanding the community knowledge about malaria and ITNs would help in designing sustainable malaria control programmes that will lead to behavioural changes and adoption of new ideas (Rashidul, et al 2010). The participation of the community is one of the major tools of malaria elimination programmes and improved community knowledge of malaria and its transmission can promote preventive and personal protective practices amongst the target populations (Rashidul, et al 2010). Parallel to implementation of malaria elimination in Iran, this study was conducted to determine the community knowledge and practice regarding malaria and its preventive measures, with an emphasis on the use of ITNs in Rudan Country, southeast of Iran. (Soleimani-Ahmadi et al. Malaria Journal 2014, 13:511).

Knowledge, beliefs and practices of the population must be taken into account in the design of interventions against malaria transmission. Development of appropriate health education promotion message depends on analysis of knowledge, attitudes and behaviors of the affected community (Hans, et al 2008).

CHAPTER TWO

TOOLS AND METHODS

2.1 Introduction to the Chapter

Research methodology is the systematic process of carrying out research. It describes the types of research, that is research design, research population, research sample, sample size as well as sample procedures. It also describes the tools, methods of data collection and data analysis methods.

2.2 Study Design

The research design is a blueprint for conducting a research. It is the overall plan used in gathering data to answer research question or test research hypotheses. The study design is basically a descriptive cross sectional design used to collect data from a section of the population in Zenu Township.

2.3 Study Area

Zenu is a town within the Kpone Kantamanso district in the Greater Accra Region of Ghana. It is located on longitude $06^{\circ}41'1''N$ and $6.68361^{\circ}N$ and Latitude $00^{\circ}20'1''E$ and $0.33361^{\circ}E$. It shares boundaries to the east with Ashaiman Township, Ashaiman Dam and Madina to the south, Michelle Camp Under the Tema district to the north and to the west with Appolonia township. The district covers a total land area of 800.8sqhm. It is characterized with low lands. The township has three main entering point which is through the Appolonia kantamanso road when coming from Oyibi, Madina and Afiencya- Dodowa road when coming from the Volta and Eastern part of Ghana. Another entrance into the township is the Afariwa and community twenty-two road which meets the main Ashaiman Lebanon road at Newton

junction. The third entrance which is through the main Tema-Ashaiman road. Some areas under the township include Obaatan, School junction, Aginkwa, Masalachi, School Junction, among others.

The indigens of the town are Gas but due to migration there are other tribes in town contributing to different languages in the town such as Ewe, Ada, Hausa and Akan. The Chiefs palace is located opposite zenu lorry station. The town has good developmental amenities which makes living in that township conducive.

The town has access to portable drinking water from water Ghana Water company which are connected to most homes, good electric power supply and enough street light to enlighten the town. Most houses in the town are either compound or self contain apartment for individuals with good toilet facilities and water supply. There are few public toilets around for houses which doesn't have toilets. The town has a main water supply which is a bore hole connected to electricity to provide water to the community when taps will be closed for a long time. It is also closer to the main Ashaiman-Lebanon Dam which is at times used by those closer to the area.

In terms of healthcare, the town has a health center and other private hospitals which the people patronize during emergencies and ill health. There is also a mortuary in the which is accessed when there is death.

The town has one government school which is from primary to crèche to JHS as well as other private schools which provides good education to the children of the town though there are no secondary schools either private nor government. The town has a market for business, about four petrol and diesel filling stations and three gas filling stations. There are about two main hotels and other smaller drinking spots as well as soccer bet centers which provides source entertainment.

The town is flooded with so many churches and few mosque which also satisfies the spirituality of the people. There are no banks but a few savings and loan institutions as well as mobile money agent for easy transfer and receiving money.

The town has no gutters making it difficult for them to discard dirty water and apart of the main Street which is tarred, waste water are poured on the untarred streets. Due to the high population of the town and other towns such as Ashaiman, Lebanon, Atadeka and Kantamanso which also ply the main Street which runs from Tema to Appolonia, there is always heavy traffic on the main road in the mornings and evenings. Means of transport there is either commercial cars which are taxi or trotting and Moto bikes.

2.4 Study Population

The study was conducted on the people of Zenu. Three areas would be selected in the Township for the study: Obaatan, School Junction and Zenu sorry station.

2.5 Study Unit and Size

The research was conducted in Zenu Township with a population of 150 people.

2.6 Sampling

Sampling is the process of selecting units (e.g., people, organizations) from population of interest so that by studying the sample we may fairly generalized our results back to the population from which they were chosen.

2.7 Sampling Method

Stratified random sampling method is a method of sampling in which the population is divided into homogeneous subset (strata), from which elements are selected at random. This is done to enhance the proportionate representation of the group. A total number of hundred and fifty (150) subjects with the population of 33.3% from each of the three towns will be selected at random. Thus, 50 subjects from each town. It is more advantageous because:

1. It gives smaller error estimation.
2. It is more manageable or cheaper when population is grouped into strata.
3. It is often desirable to have estimates of population parameters for groups within the population.

2.7.1 Inclusion/ Exclusion Criteria

The research included all people from age 15 - 70 years in the community. The study excluded people below age 15 and above 70 years of age.

2.8 Data Collection Tool

The instrument for data collection was questionnaire, which was developed to collect data from the respondents on the various variables.

2.9 Data Collection Procedure

A prepared questionnaire containing close ended questions was administered to the subjects to respond with aid of the researchers. We administered the questions to the respondents at the time. We read out the questions and interpreted them in the local language [Ga, Ada, Twi, Hausa and Ewe] to those who cannot read after which the response was recorded accordingly.

2.10 Plan for Data Processing and Analysis

The data was entered in SPSS and then exported to STATA for analysis. The data was also cleaned by running frequencies of all variables to check for incorrect coding. This helped to avoid errors. In the analysis, Frequency and proportions were used to describe the demographic information.

2.10.1 Pre-Testing

Pre-testing of the questionnaires was done in Lebanon in the Ashaiman Municipality with fifteen questionnaires. This was because the community has the same characteristics as the study area. The primary objective of this study was to test as many elements of the research proposal as possible in order to correct any part that does not work well. This was to test the validity and reliability of the instrument.

2.11 Ethical Consideration

An introductory letter from the head of the nursing department of Central University was sent to the community. An approval was sought from the Chiefs, community leaders and assembly men of the selected communities. The participants were informed of the study, its relevance and what they were expected to do. They were assured of privacy, anonymity and confidentiality.

2.12 Limitations

1. Some people were illiterates making it difficult for them to read the questions.
2. Some people were not willing to take part in the study.

CHAPTER THREE

DATA ANALYSIS, PRESENTATION AND DISCUSSION

3.1 Introduction

This part of the study deals with the results of the responses from the participants. The dependent variable in the study is ITNs use. A total of 150 respondents were used in the analysis. The response rate was hundred percent (100%). The data was collected from three towns in Zenu namely Obaatan, School Junction and Zenu lorry station with 50 respondents from each town.

3.2 Data Analysis and Presentation

Table 1: Age of Respondents

Age	Frequency	Percentage (%)
16-30	67	45.0
31-45	52	34.9
46-60	16	10.7
61 and above	14	9.4
Total	149	100.0

Source: Field Survey, 2019

Table 1 shows the age distribution of the respondents. From the table, 67 (45%) of them were between the ages of (16-30), 52 (34.9%) were between the ages of (31-45), 16(10.7%) were between the ages of (46-60) and 14 (9.4%) were between the ages of 61 and above.

Table 2: Gender of Respondents

Gender	Frequency	Percentage (%)
Male	55	37.4
Female	92	62.6
Total	147	100.0

Source: Field Survey, 2019

Table 2 presents the gender of the respondents. 55(37.4%) of them were males and 92(62.6%) of them were females.

Table 3: Marital Status of Respondents

Marital status	Frequency	Percentage (%)
Married	86	57.7
Single	41	27.5
Divorced/Widowed	22	14.8
Total	149	100.0

Source: Field Survey, 2019

Table 3 presents the marital status of the respondents. 86(57.7%) of them were married, 41(27.5%) of them were single and 22(14.8%) of them were either divorced or widowed.

Table 4: Parity of respondents

Parity	Frequency	Percentage (%)
1-5	83	56.8
6-10	55	37.7
11-15	8	5.5
Total	146	100.0

Source: Field Survey, 2019

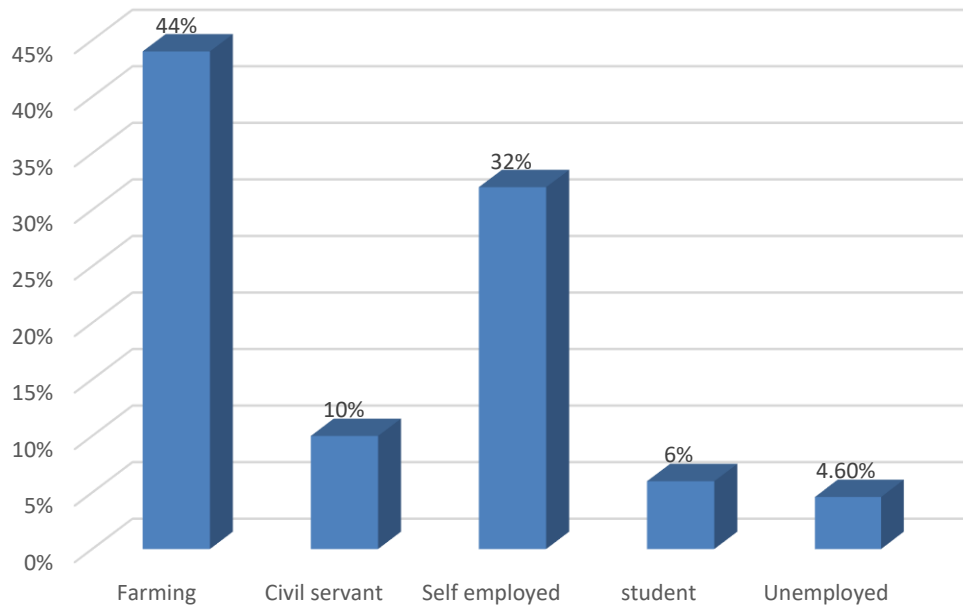
Table 4 shows the parity (number of children) of the respondents. 83(56.8%) of them were between para 1-5, 55(37.7%) of them were between para 6-10 and 8(5.5%) of them were between para 11-15.

Table 5: Educational Background

Educational background	Frequency	Percentage (%)
Primary	58	39.7
SHS	42	28.8
Tertiary	20	13.7
None	26	17.8
Total	146	100.0

Source: Field Survey, 2019

Table 5 shows the educational level of the respondents. 58(39.7%) of them finished their primary education, 42(28.8%) completed (SHS), 20(13.7%) completed (TERTIARY) and 26(17.8%) of them did not attend school.



Field Survey, 2019

Figure 1: Occupation of the Respondents Source

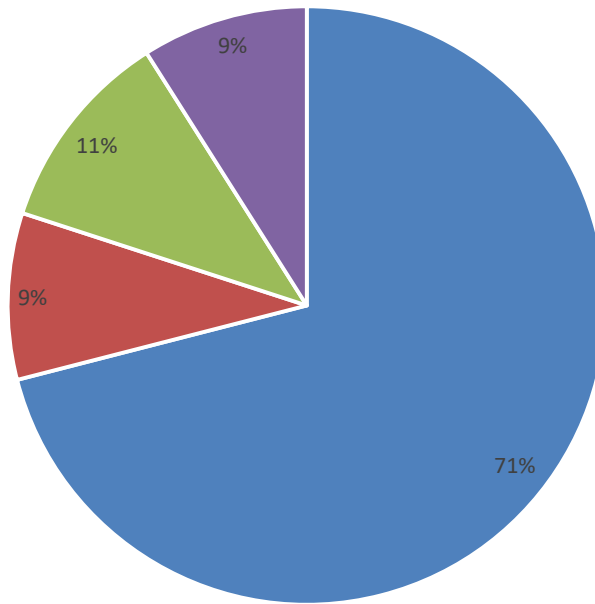
Figure 1 shows the occupation of the respondents. 66 (44%) of them were farming, 15 (10%) of them were civil servants, 48 (32%) of them were self-employed, 9 (6%) of them were students and 7 (4.6%) were unemployed.

Table 6: Heard of Malaria?

Response	Frequency	Percent
Yes	150	100
No	0	0
Total	150	100.0

Source: Field Survey, 2019

Table 6 shows whether or not they have heard of malaria. 150 (100%) of them said they have heard of malaria while 0% said they have not heard of that.



■ Self experience ■ friends/family members ■ Television/Radio ■ Health worker

Source: Field Survey, 2019

Figure 2: Source of information

Figure 2 shows the source of their information about malaria. 101(71%) of them have experienced malaria, 12(9%) of them heard it from health workers, 16(11%) of them heard it from television and 13(9%) heard it from friends and family.

Table 7: Causes of malaria

Cause	Frequency	Percentage (%)
Mosquito bite	133	93.5
Drinking/Bathing dirty water	5	3.5
Eating unwashed/contaminated fruits/food	3	2.1
Fatigue (tiredness)	2	1.4
Total	143	100.0

Source: Field Survey, 2019

Table 7 shows the response to what causes of malaria.133 (93%) of them said it was from mosquito bite, 5(3.5%) said drinking/bathing dirty water, 3(2.1%) said eating unwashed/contaminated fruits/food and 2(1.4%) said it was from fatigue.

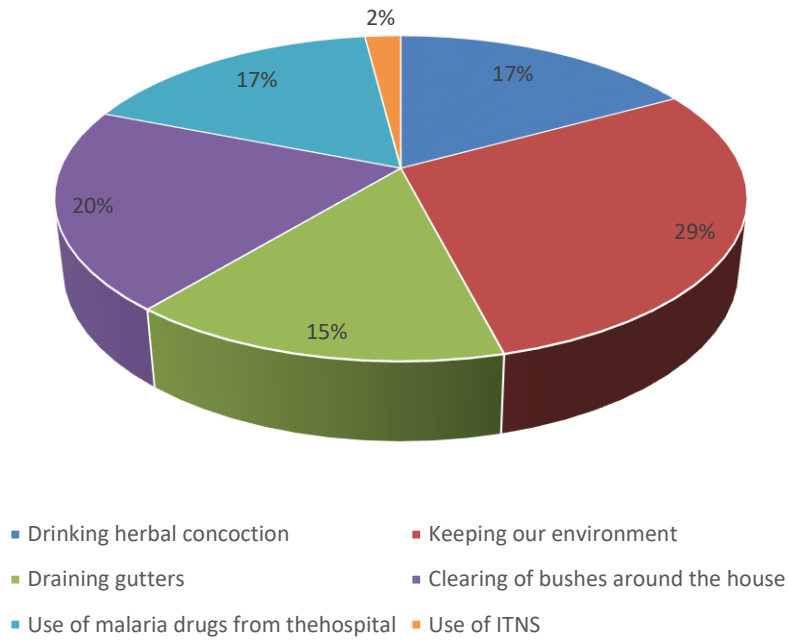


Figure 3: Prevention of malaria

Source: Field Survey, 2019

Figure 3 shows the response to how malaria can be prevented. 45(17%) of them said it can be prevented through drinking herbal concoction, 76(29%) said by keeping the environment tidy, 39(15%) said through draining gutters, 53(20%) by clearing of bushes around the house, 46(17%) said by the use of malaria drug from the hospital and 5(2%) said by the use of ITNs.

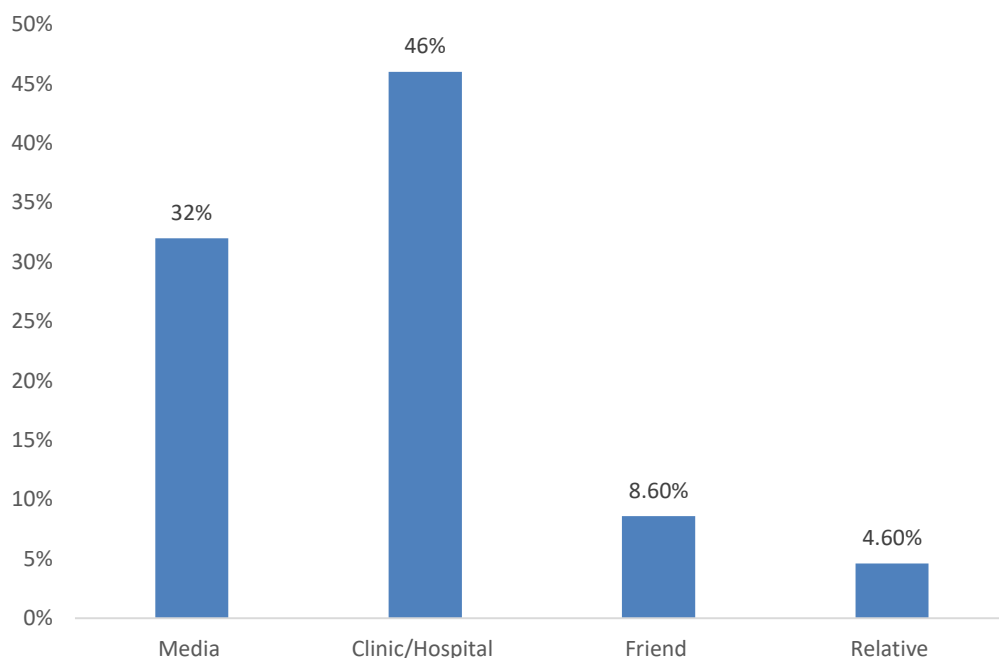
Table 8: Heard of Insecticide treated net

Response	Frequency	Percent
Yes	139	92.7
No	11	7.3
Total	150	100.0

Source: Field Survey, 2019

Table 8 shows the response to whether or not they have ever heard of insecticide treated net.

139(92.7%) of them said yes and 11(7.3%) of them said no.



Source: Field Survey, 2019

Figure 4: Source of information

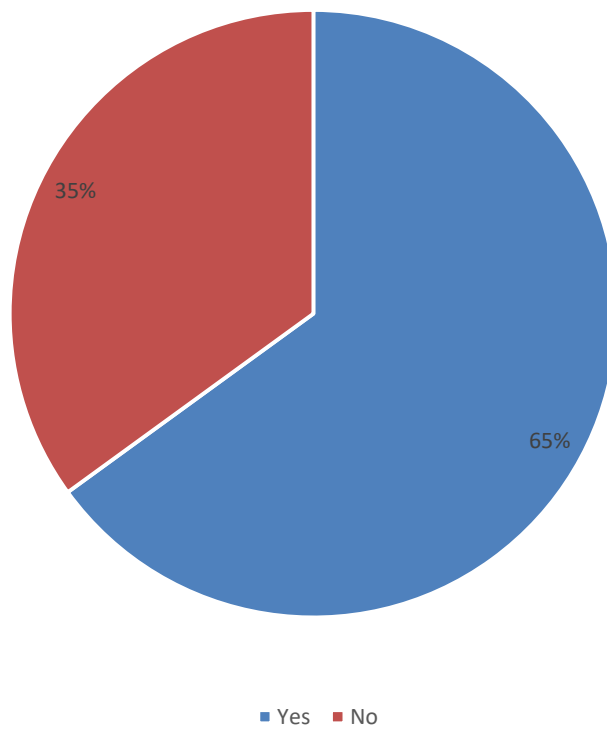
Figure 4 shows the response to their source of information about ITNs. 48(32%) of them heard it from the media, 69(46%) of them heard it from a clinic/hospital, 13(8.6%) of them heard it from friends and 7(4.6%) heard it from relatives.

Table 9: Use of Insecticide Treated Net

Use	Frequency	Percentage (%)
Keep away flies	9	6
Keep rats away	6	4
Prevents mosquito bite	66	44
Fishing	14	9.3
Useful in malaria prevention	35	23.3
Kill mosquitoes	20	13.3
Total	150	100

Source: Field Survey, 2019

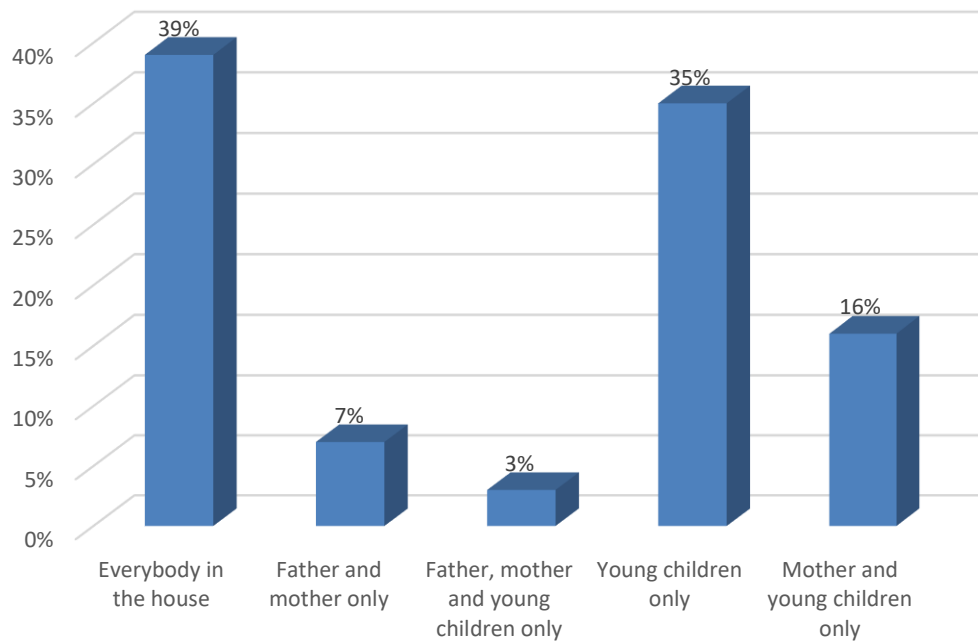
Table 9 shows the response to what they think ITNs are. 9(6%) said they keep flies away, 6(4%) keep rats away, 66(44%) said it prevents mosquito bite, 14(9.3%) said it is used for fishing, 35(23.3%) said it is useful in malaria prevention and 20(13.3%) said it is used to kill mosquitoes.



Source: Field Survey, 2019

Figure 5: Have Insecticide Treated Net

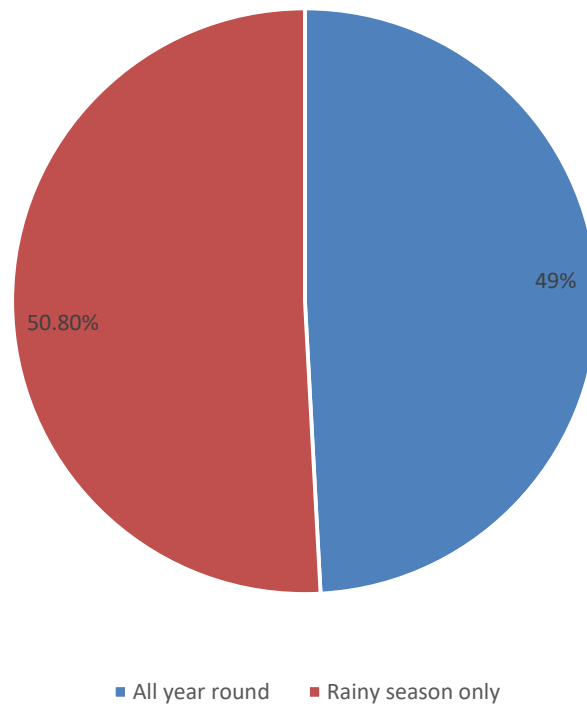
Figure 5 shows the response to whether or not they have insecticide treated nets. 94(65%) of them said yes they have and 50(35%) of them said no they do not have.



Source: Field Survey, 2019

Figure 6: People who use Insecticide Treated Net

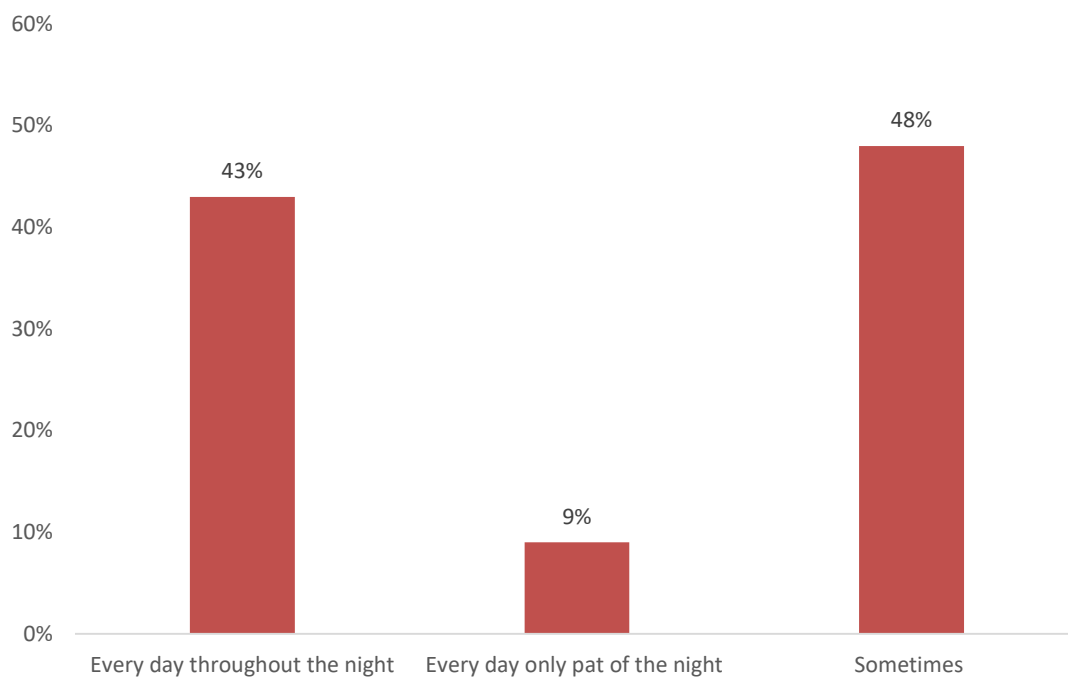
Figure 6 shows the response to the category of people who use the ITNs. 45(39%) of them said everybody in the house, 8(7%) said father and mother only, 4(3%) said father, mother and young children only, 40(35%) said young children only and 18(16%) said mother and young children only.



Source: Field Survey, 2019

Figure 7: Season of use of ITNs

Figure 7 shows the response to the season in which ITNs are used. 55(49.1%) of them said all year long while 57(50.8%) of them said rainy season only.



Source: Field Survey, 2019

Figure 8: Time of use of ITNs

Figure 8 shows the response to the hours used out of the 24 hours sleeping under ITNs. 49(43%) of them said everyday throughout the night, 10(9%) said everyday only part of the night and 54(48%) of them said sometimes.

Table 10: Re-treat of ITNs

Response	Frequency	Valid percent
Yes	28	19.3
No	44	30.3
I Don't know	73	50.3
Total	145	100.0

Source: Field Survey, 2019

Table shows the response to whether or not it is good to retreat ITNs. 28(19.3%) of them said yes it is good, 44(30.3%) of them said it is not and 73(50.3%) of them said they do not know whether or not it is important to re-treat ITNs.

Table 11: Often wash of ITNs

Response	Frequency	Valid Percent
2 times in a year	6	24.0
Once a year	4	16.0
Once a month	5	20.0
Once 3 year	3	12.0
Don't know	7	28.0
Total	25	100.0

Source: Field Survey, 2019

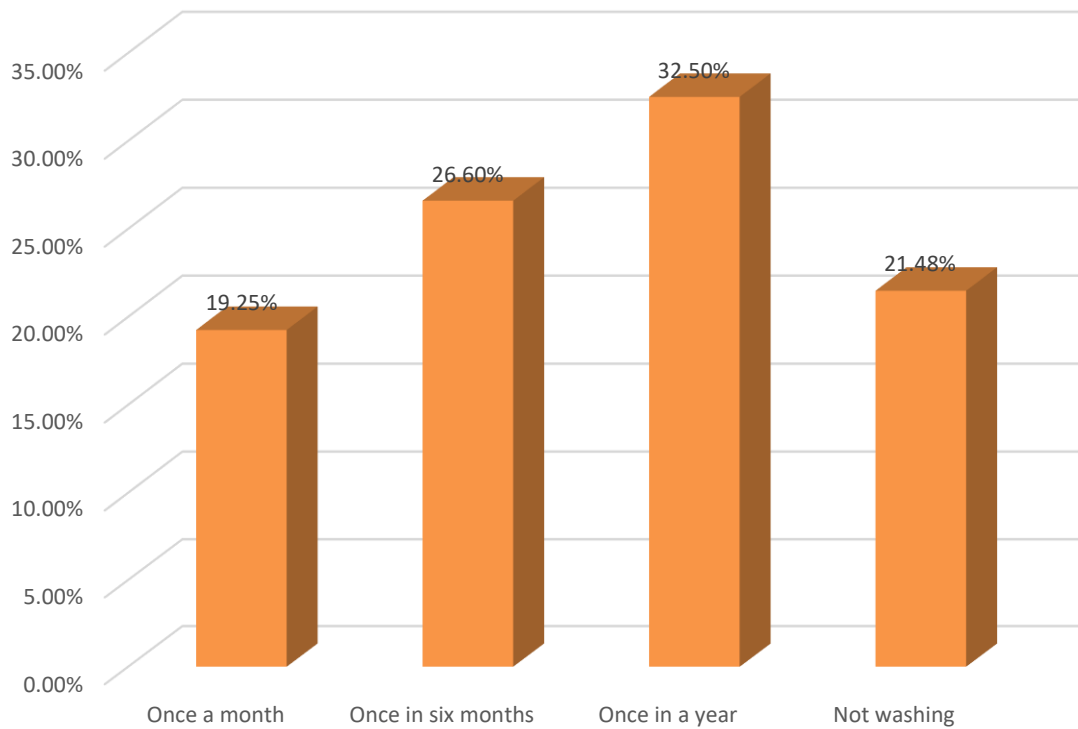
Table 11 shows how often they washed their ITNs. 6(24%) of them said 2 times in a year, 4(16%) said once a year, 5(20%) said once a month, 3(12%) said once in 3 years and 7(28%) of them said they don't know how often they washed their ITNs.

Table 12: Chemical use for treating ITNs

Response	Frequency	Valid percent
Yes	11	8.4
No	120	91.6
Total	131	100.0

Source: Field Survey, 2019

Table 12 shows the response to whether or not they have chemicals used to re-treat ITNs in their house. 11(8.4%) of them said yes while 120(91.6%) of them said no they don't have it.



Source: Field Survey, 2019

Figure 9: Wash of ITNs

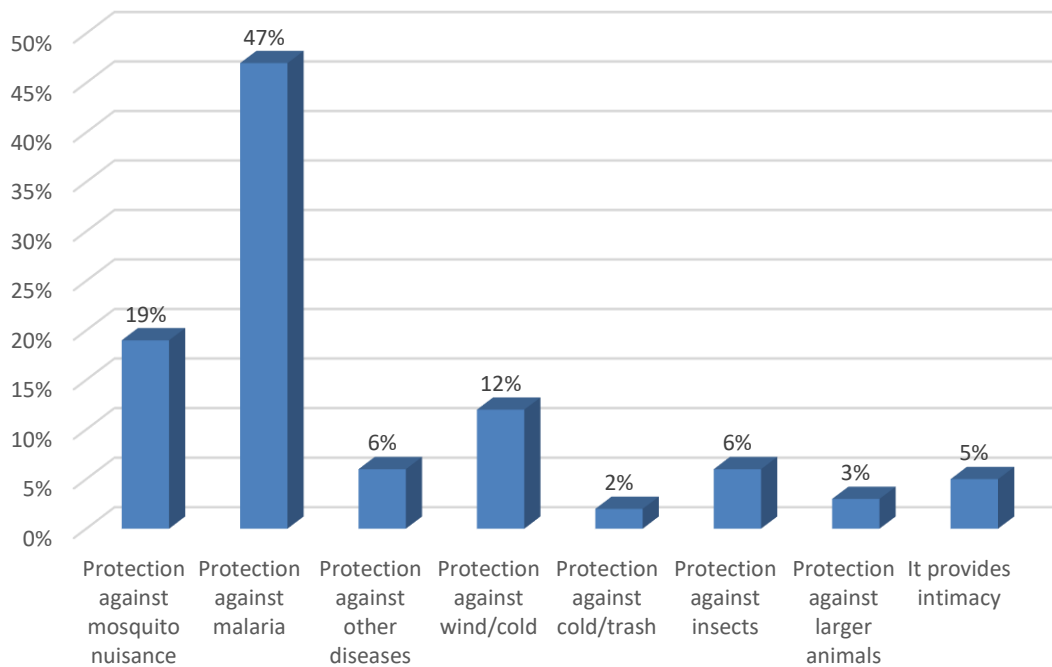
Figure 9 shows the response how long the respondents think the ITNs should be washed. 26(19.25%) of the respondents said once a month, 36(26.6%) said once in six months, 44(32.5%) said once a year and 29(21.48%) said it shouldn't to be washed.

Table 13: Drying of bed nets

Response	Frequency	Valid Percent
Dry in the sunlight	50	41.7
Dry in the shade	70	58.3
Total	120	100.0

Source: Field Survey, 2019

Table 13 shows the response to where they dry their bed nets. 50(41.7%) of them said they dry their nets in the sunlight while 70(58.3%) said they dry theirs in the shade.



Source: Field Survey, 2019

Figure 10: Advantage of use of ITNs

Figure 10 shows the response on the advantages of the use of ITNs. 19% said it protects against mosquito nuisance, 47% said it protects against malaria, 6% said it protects against other diseases, 12% said it protects against wind\cold, 2% said it protects against insects, 3% said it protects against larger animals and 5% said it provides intimacy.

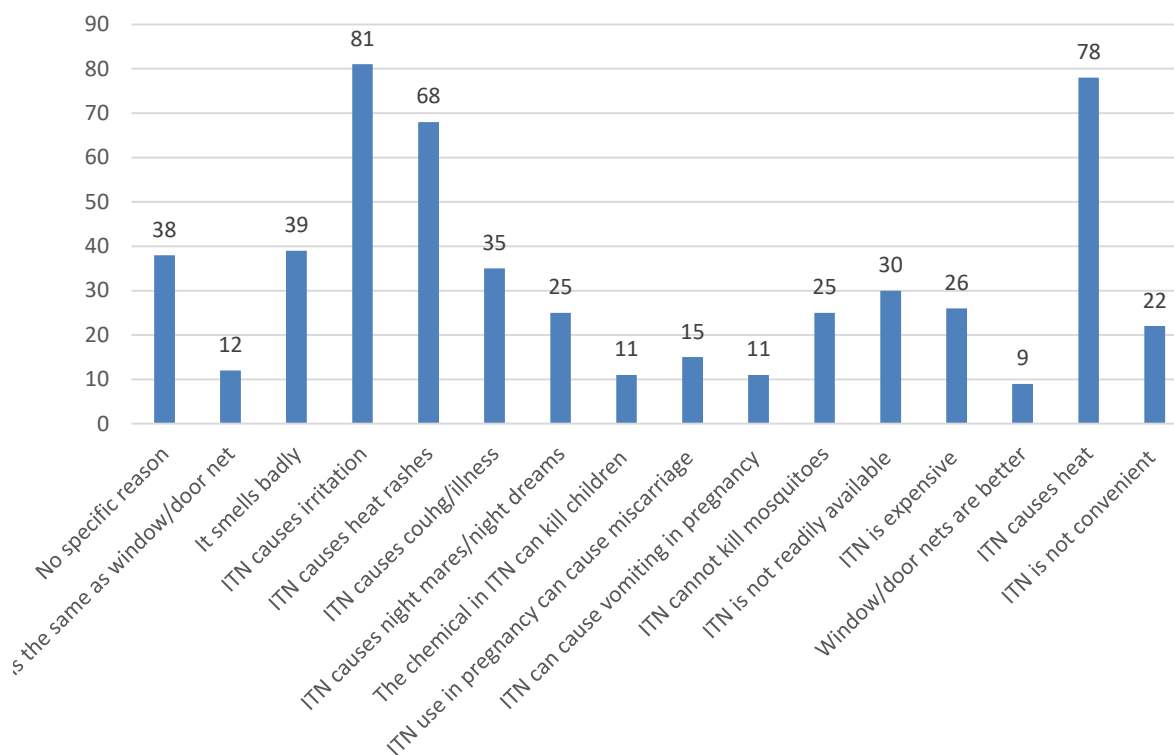


Figure 11: Shows the response to the reasons why people do not use their ITNs

Table 14: Importance of sleeping in ITNs.

Response	Frequency	Percentage (%)
Yes	68	45.3
No	52	34.7
I don't know	30	20
Total	150	100.0

Source: Field Survey, 2019

Table 14 shows the response to whether or not it is important to sleep in ITNs. 68(45.3%) of them said yes it is good, 52(34.7%) said it is not important and 30(20%) of them do not know whether it is good or not.

3.3 Discussion of Results

Discussion deals with the findings obtained from the data analysis and how they are related to the findings. Data was collected from 150 participant in the Zenu towns (Obaatan, School Junction and Zenu lorry station). The objectives of the study were to determine the knowledge, attitude and practice on the use of ITNs among the people of Zenu Township.

Socio- Demographic Characteristic on the Use ITNs

The proportion of respondents aged of 16-30,67(45%), 31-45, 52(34.9%), 46-60,16(10.7%) and 14(9.4%) are 61 and above. Also, their marital status reveals that 86(57.7%) of them are married, 41(27.5%) of them are single and 22(14.8%) of them are either divorced or widowed and parity (number of children) of the respondents. 83(56.8%) of them are between para (1-5), 55(37.7%) of them are between para (6-10) and 8(5.5%) of them are between para (11-15). Talking about their level of education, 58(39.7%) of finished their primary education, 42(28.8%) completed SHS, 20(13.7%) completed TERTIARY and 26(17.8%) of them did not attend school. 66(44%) of them are farmers, 15(10%) of them are civil servants, 48(32%) of them are self-employed, 9(6%) of them are students and 7(4.6%) are unemployed.

The use of ITNs was low among the household in Zenu (Obaatan, School Junction and Zenu lorry station). Although 94 (65%) have the ITNs only 39% of the households sleep under ITNs. This support a support by WHO/GHS (2003) that the total population of Ghanaians who sleep under insecticide bed nets is low. The ITNs use rate of 39% among household found in this study is considerably lower than 80% which is targeted coverage of the Roll Back Malaria. 7% of father and mother only, 3% of father, mother and young children only, 35% young children only and 16% mother and young children only uses the ITNs. This study findings indicates that children use the ITNs more as compared to their parents. The finding however did not support the finding that education and occupation of

household heard could influence the ITNs usage (Graves et al., 2010; Buame & Franka-Koh, 2011).

Knowledge on ITNs and How it Prevents Malaria

Out of the total of 150 respondents 139 (92.7%) of them have heard about ITNs while 11 (7.3%) have not heard of it. The main sources of information on ITNs were clinic/hospital 69(46%) of responses and media 48(32%) of responses. Other sources which recorded less than 10% were friends and relatives.

Although the number of people who had knowledge about ITNs is considerably high, some even perceive that the ITNs can serve other purpose. As 9 (6%), 6 (4%), 14 (9.3%) of the respondents said that ITNs are used to keep away flies, rats and for fishing respectively. The majority of the respondents had good knowledge on the use of the ITNs as 66(44%), 35(23.3%), 20(13.3%) knew it was used to prevent mosquito bite, useful in malaria prevention and kill mosquitoes respectively.

Majority of the respondent have the right knowledge on ITNs but only 39% of the households sleep under ITNs from the total of 94 (65%) who have the ITNs. The response from the majority is in line with WHO (2005) which indicated that sleeping under ITNs remains the important strategy for the prevention of malaria. Since these barriers are existing and are not being addressed hence the non- usage.

Knowledge and Practice on the Appropriate Use Of ITNs

It was realized that knowledge on the appropriate use of ITNs was high as 66% of the respondents said it help in the protection against malaria and mosquito nuisance. The minority which make up the remaining 34% said it used to protect against other diseases, cold/wind, cold/trash, insects, large animals and provides intimacy.

The study findings indicated that 68 (45.3%) of responses understands the important of sleeping under an ITNs while 52 (34.7%) of responses do not see the importance of sleeping

in an ITNs with 30 (20%) of responses do not have any ideal of the importance of sleeping in an ITNs. Although there is appropriate knowledge on the use of ITNs. Care of ITNs and practice among the people is poor, as a substantial number of the respondents dries the ITNs under the sun after washing with 26 (19.25%) of responses washing the ITNs every month, hence reducing the potency of the ITNs. Majority of the respondents 54(48%) of responses do not use the ITNs judiciously although 49(43)% uses the ITNs everyday throughout the night, 71% of the respondents heard of malaria through personal experience.

The studying finding however indicated that majority of the respondents experienced malaria because the majority do not use the ITNs all year round and throughout the night. The study support (Rashidul, et al 2010) that understanding the community knowledge about malaria and ITNs would help in designing sustainable malaria control programmes that will lead to behavioural changes and adoption of new ideas.

Barriers to The Use of ITNs

Socio- cultural belief and behavioral practice go a long way to determine the extent people own and use the ITNs. A number of barriers were identified among the population with regards to the use of the ITNs.

Majority of the respondents attributed the non- use of the ITNs to irritation 81 (54% of responses), heat 78 (52% of responses) and heat rashes 68 (45.3% of responses) which they perceived to be associated with use of the ITNs.

The minority of the respondents who made up less than 26% attributed the non-usage to the fact that the window/door net serves the same purpose as the ITNs, sleeping under the ITNs causes nightmares/ bad dreams, the chemical in the ITNs can cause miscarriage and kill children, the ITNs cannot kill mosquitoes. Some also attributed it to availability with some having no specific reasons why they do not sleep under the ITNs.

Knowledge on Malaria

All the respondents have heard of malaria and 39% of the households sleep under ITNs with 65% of them possessing the ITNs. Majority of them heard of malaria through self-experience and television/radio.

From the responses on the cause of malaria, 133(93%) of them said it is from mosquito bite, 5(3.5%) said drinking/bathing dirty water, 3(2.1%) said eating unwashed/contaminated fruits/food and 2(1.4%) said it is from fatigue. This finding indicate that there was a high level of awareness on the cause of malaria.

The respondents have low knowledge on the prevention of malaria as 45(17%) of them said it can be prevented through drinking herbal concoction, 76(29%) said by keeping the environment tidy, 15% said through draining gutters, 53(20%) by clearing of bushes around the house, 46(17%) said by the use of malaria drug from the hospital and 5(2%) said by the use of ITNs. Although ITNs are considered as one of the most effective intervention against malaria (Claudia, et al 2006), it recorded the lowest method of the prevention of malaria.

The study finding of this research do not support (Safari et al, 2010) that knowledge on the cause of malaria and about the existence of ITNs was low in many malaria-endemic communities. Since the communities had good know on the cause of malaria and existence of ITNs but the practice and attitude towards the use ITNs was rather low.

3.4 Summary

This study was done to ascertain the knowledge, attitudes and practices on the use of ITNs among the people of Zenu Township within the Kpone Katamanso District in the Greater Accra Region. Examples of the data collected from the study were the causes of malaria, sources of information malaria and the use of ITNs.

Specifically the study was undertaken to;

- To assess the level of knowledge the people have on the use of ITNs.
- To ascertain the attitude and practice of the people on the use of ITNs.

A total of 150 respondents took part in the study. A stratified random sampling technique was used to collect the data. After the data collection, the information was diagrammatically represented on tables, pie charts and bar graphs. Using SPSS version 20 for easy analysis and the following major finding were made from the study.

The majority of the respondents were within the age groups of 16-64 and above. Concerning the knowledge level of the respondents, the study revealed that 95.1% have heard of malaria and 4.9% have never heard of malaria.

The study showed that majority (92.3%) of the respondents have heard about the use of ITNs to prevent malaria. Concerning the possession of ITNs, 65% of the respondents have ITNs with 39% of the households using the ITNs. The study showed that 45.2% of the respondent said its important to sleep under the ITNs, 34.9% said it is not important and 19.9% of them do not know whether it is important or not.

Majority of the respondents used the ITNs occasionally which represents 48% while 43% used it every day throughout the night and 9% used it every day but part of the night. The study revealed that 50.3% were not aware of the retreatment of the ITNs with less number having knowledge on the retreatment.

3.5 Conclusion

After a close look at the discussion, it can be said that, they have an appreciable knowledge about malaria and also the Insecticide Treated Nets. It can also be said that, there is a good perception about the ITNs. Even though they have a good perception about ITNs, they do not have a good attitude towards the use of ITNs therefore, they are not practicing the use of ITNs with the needed seriousness. It can also be said that, they did not have enough knowledge on how to cater for the ITNs not to lose their medicinal content but what they know is its importance to sleep under ITNs.

3.6 Recommendation

The following recommendations are made based on the conclusion.

To the District Health Directorate

1. The District Health Directorate should make sure that Community Health Nurses should intensify Information, Education and Communication activities at outreach clinic and communities in the district.
2. Public Health Nurses and Disease Control officers should carry out intense Information, Education and Communication activities on local radio stations on the importance of ITNs and also address the misconception about the ITNs.

To the Ministry of Health and National Malaria Control Programme

There is a need to sustain the free ITNs distribution programme in order to increase access and usage.

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APPENDIX A: QUESTIONNAIRES

CENTRAL UNIVERSITY

SCHOOL OF MEDICINE AND HEALTH SCIENCE DEPARTMENT OF NURSING

QUESTIONNAIRES

Dear respondents,

This research is being conducted by the final year students of Central University, department of nursing. The questionnaire aims at finding out the knowledge, attitude and practice on the use of insecticide treated nets (ITNs). We assure you that the responses you give us will be held in strict confidentiality and your identity will not be disclosed.

Read thoroughly the questions asked below making sure you understand them. Tick [] where appropriate and fill the spaces which require statement.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Age

2. Gender:

a. Male []

b. Female []

3. Marital Status:

a. Married []

b. Single []

c. Divorced/widowed []

4. Family size (how many are you in the family?).....

5. Educational background:

a. Basic []

b. SHS []

- c. Tertiary []
- d. None []
- 6. Occupation:
- a. Farming []
- b. Civil servant []
- c. Self-employed []
- d. Others (specify)

SECTION B: KNOWLEDGE ON MALARIA

- 7. Have you heard of malaria before?
- a. Yes []
- b. No []
- 8. If 'Yes', from which source?
- a. I have suffered it myself []
- b. Friends/ family member(s) []
- c. Television/radio []
- d. Health Worker []
- 9. What do you believe is the cause of malaria?
- a. Mosquito bite []
- b. Drinking/Bathing dirty water []
- c. Eating unwashed/contaminated fruits/food []
- d. Fatigue (tiredness) []
- e. Change of weather (hot/cold air) []
- f. Bad smell []
- g. Contact with a malaria patient []
- h. I don't know []

10. In your opinion how do you prevent malaria?

- a. Drinking herbal concoction []
- b. Keeping our environment clean []
- c. Draining gutters []
- d. Clearing of bushes around the house []
- e. Use of malaria drug from the hospital []
- f. Use of ITNs []
- g. Others.....

SECTION C: KNOWLEDGE ON THE USE OF INSECTICIDE TREATED NETS

11. Have you heard of insecticide treated net?

- a. Yes []
- b. No []

12. If 'Yes', where did you hear it from?

- a. Media []
- b. Clinic/hospital []
- c. Friend []
- d. Relative []
- e. Others (specify)

13. What do you think is the insecticide treated net used for?

- a. Keep away flies []
- b. Keep rats away []
- c. Prevents mosquito bite []
- d. Fishing []
- e. Useful in malaria prevention []
- f. Kills mosquitoes []

SECTION D: PERCEPTION ON THE USE/OWNERSHIP OF INSECTICIDE

TREATED NETS

14. Do you have insecticide treated nets in this house?

a. Yes []

b. No []

15. Which of the under-listed categories sleep under ITN in your house?

a. Everybody in the house []

b. Father and mother only []

c. Father, mother and young children only []

d. Young children only []

e. Mother and young children only []

f. Others.....

16. In which season do you use ITNs?

a. All year round []

b. Rainy season only []

c. Other(s).....

17. Which time of the 24 hours do you use ITNs?

a. Every day throughout the night []

b. Every day only part of the night []

c. Sometimes []

d. During day time []

18. Is it necessary to re-treat your nets with chemicals (insecticides) at regular intervals?

a. Yes []

b. No []

c. Don't know []

19. If 'Yes', how often do you/are you supposed to re-treat your nets?

20. Do you have the chemical (insecticide) in your house for the treatment of your nets?

a. Yes []

b. No []

21. How often do you think ITNs are to be washed?

a. Once a month []

b. Once in six months []

c. Once in a year []

d. Not washing []

22. Where do you normally dry your bed nets?

a. Dry in the sunlight []

b. Dry in the shade []

23. What do you think is/are the advantages of ITN use?

a. Protection against mosquito nuisance []

b. Protection against malaria []

c. Protection against other diseases []

d. Protection against wind/cold []

e. Protection against dust/trash []

f. Protection against insects []

g. Protection against larger animals []

h. It provides intimacy []

24. In your opinion, what do you think is/are responsible for non-use of ITNs? (Kindly tick those that apply to you)

a. No specific reason []

b. It is the same as window/door net []

- c. It smells badly []
 - d. ITN causes irritation []
 - e. ITN causes heat rashes []
 - f. ITN causes cough/illness []
 - g. ITN causes nightmares/bad dreams []
 - h. The chemical in ITN can kill children []
 - i. ITN use in pregnancy can cause miscarriage []
 - j. ITN can cause vomiting in pregnant women []
 - k. ITN cannot kill mosquitoes []
 - l. ITN is not readily available []
 - m. ITN is expensive []
 - n. Window nets/door nets are better []
 - o. ITN causes heat []
 - p. ITN is not convenient to spread []
25. In your opinion is it very important to sleep under insecticide treated nets?
- a. Yes []
 - b. No []
 - c. I don't know []

THANK YOU!!!!

