THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

A STUDY TO DETERMINE KNOWLEDGE,ATTITUDE AND PRACTICES OF MOTHERS TOWARDS INSECTICIDES TREATED MOSQUITO NETS AS A MEANS OF MALARIA PREVENTION IN MWAMI-CHIPATA.

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LIST OF TABLES AND GRAPHS

LIST OF ABBREVIATIONS

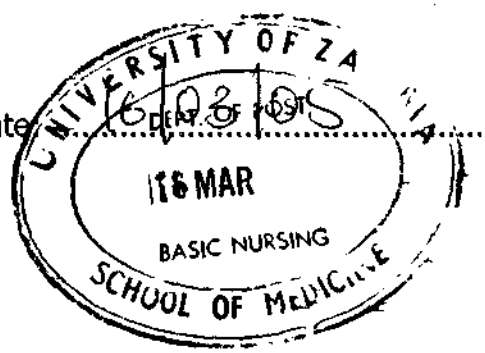
AIDS	:	Acquired Immunodeficiency Syndrome
CBOH	:	Central Board of Health
CDC	:	Centre for Disease Control
CHW	:	Community Health Worker
CSO	:	Central Statistical Office
DALYS	:	Disability Adjusted Life Years
DDT	:	Dichlorophenyltrichloethane
DHMT	:	District Health Management Team
HIV	:	Human Immune Virus
ITM	:	Insecticide Treated Material
ITNs	:	Insecticide Treated Nets
NGO	:	Non-governmental Organisation
NHC	:	Neighbourhood Health Committee
NMCC	:	National Malaria Control Centre
NMCP	:	National Malaria Control Programme
RCT	:	Random Control Trials
RBM	:	Roll Back Malaria
SFH	:	Society for Family Health
UNICEF	:	United International Children Emergency Fund
US	:	United States
WHO	:	World Health Organisation
ZDHS	:	Zambia Demographic and Health Survey
ZNHSP	:	Zambia National Health Strategic Plan

DECLARATION

I KALIYANGILE BENIUS, hereby declare that the work presented in this study for the Bachelor of Science Degree in Nursing is entirely the result of my effort. The assistance rendered to me and various sources of information have been acknowledged in text and references. I also declare that this study is wholly presented for the Bachelor of Science Degree in Nursing and no other Degree.

Signed: ..... Date: .....
Candidate

Signed: ..... Date: .....
Supervising Lecturer



DEDICATION

This research work is dedicated to my wife Mrs. A.M. Kaliyangile for her support and understanding at the time I was away from her when she needed me.

To my daughter Precious for her love and being my source of inspiration.

To the almighty God for the blessing of good health throughout my studies.

STATEMENT

I hereby certify that this research work is the result of my own labour and independent investigations. I have clearly indicated the various sources of information to which I am indebted throughout the text and in my references.

Signature of Candidate: .....

Date: 16/03/05 .....

ABSTRACT

The study sought to determine knowledge, attitude and practices of mothers towards the use of insecticide treated mosquito Net as a means of Malaria prevention.

Literature review carried out cover global, regional, and national perspectives, it has shown that Malaria is a major health problem worldwide. In Zambia it is the highest course of morbidity and mortality despite government's efforts to control the disease.

A descriptive, cross sectional study was carried out in September 2004 in Chipata District in Mwami Health Centre catchments area. A simple random, lottery technique was used to select 3 villages to be sampled. Respondants were selected from the 3 villages using non probability techniques. The sample for the study was fifty (50).

Data was collected using structured interview schedule. It was then analysed using quantitative method. This helped the researcher to answer the objectives and test the hypotheses. The findings were that 40 (80%) of the respondants had high level of knowledge while 10 (20%) had moderate level of knowledge on Malaria and its prevention. The finding rejected the hypothesises which states that inadequate knowledge on effectiveness of ITNs in Malaria prevention has lead to utilization of the nets and an increase in cases of Malaria among mothers and children under the age of five. Other findings were that 48 (96%) of the respondents had positive attitude towards Malaria and its prevention and 2 (4%) had negative attitude. The results rejected the hypothesis, which states that Mothers' negative attitude towards use of ITNs has led to high incidence of Malaria. However, the study findings failed to reject the third hypotheses which states that unavailability of ITNs in the community has led to poor practices among mothers in prevention of Malaria. 15 (30%) of the respondants suggested that ITNs should be made available at the health facility to improve practices, the findings require concerted efforts to ensure that ITNs are made available and affordable to the community. Appropriate recommendations have been made to the government and other stakeholders on how to improve the situation. Another study on large scale should be under taken for easy generalization of the study.

CHAPTER ONE

1.0 INTRODUCTION

1.1 COUNTRY PROFILE

Zambia is a landlocked country covering about 750 000 square kilometers, 2.5% of the total area of the African continent. It is in the sub-Sahara Region, in the Southern part of Africa. Zambia shares its border with eight countries. On the Northern side it shares borders with Democratic Republic of Congo and Tanzania. On the Eastern side it shares its border with Malawi. On the Western part it shares with Angola. On the Southern part, shares its border with Namibia, Zimbabwe, Botswana and the Republic of South Africa.

Zambia is divided into nine provinces. The nine provinces each is further subdivided into districts. By the year 2001, Zambia had 72 districts. According to 2000 national census, Zambia's population was approximately 10.3 million (National Malaria Centre, central Board of Health Strategic plan 2001/5).

Zambia is one of the countries with some of the poorest health indicators (morbidity, mortality and Nutritional status) and the highest disease burden in the sub-Sahara Africa. In early 1990s the Government embarked on Health reforms that brought positive changes in the delivery of health services. The health vision, basic principles and overall health goal of the National Health strategic plan is based on the health sector reform, aiming at sustained,

purposeful change to improve the efficiency, equity and effectiveness of the health sector. The vision is "to provide Zambians with equity of access to cost effective, quality health care as close to the family as possible".

The public health priorities focus on malaria, HIV/AIDS, Tuberculosis, sexually transmitted infections, integrated reproductive health, child health and oral health, improved public health surveillance and epidemics control and promotion of safe water, hygiene and sanitation. To tackle these priority areas, the key and first intervention level is the district, including both public and private health providers. The key unit within the district is the health centre and health post, which provide health services close to the family. Other than the health centre and health post, specialised services are provided at the first, second and third level referral hospitals respectively. Among the major health problems, malaria is the highest cause of morbidity and mortality in the country (National Health Strategic Plan, 2001/5).

1.2 **CHIPATA DISTRICT PROFILE**

The study will be conducted in Chipata district. Chipata district is located in the eastern province of Zambia. The district borders with Lundazi district in the north, Katete district in the west, and Chadiza district in the southern part. On the eastern part it shares an international boundary with the Republic of Malawi. The district covers a wide area, with a total surface of about 6112 square

kilometers. The largest area of the district is a plateau while a range of hills surrounds the rest of the area. The district has good farming soils and a Savannah type of climate with minimum temperature of 18^0C and mean rainfall of 169 mm. The area also has several streams and dambos. These features enable agriculture and trade to emerge as the major economic activities.

The district has 34 health centres and 2 health posts. All complicated health problems (cases) are referred to Mwami Mission, St. Francis Mission and Chipata General Hospitals – where the District Health Office has purchased 217 hospital beds.

The population of Chipata district for the year 2004 is projected at 409.307 based on the year 2000 census, Central Statistical Office (CSO, 2000) the major tribes of Chipata district are Ngoni and Chewa. The two tribes have different cultural beliefs that impede development and delivery of health services. The majority of the population live in rural areas while 30% live in the urban areas. Subsistence farming and trading are the main forms of employment. The main population movements include the rural population who go to urban areas to sell their garden produce, as well as the urban population who commute to and from Lusaka in search of goods for sale. The two major health problems in the district are malaria and pneumonia, Chipata District Health Management Team (DHMT, 2004) annual-action plan.

1.3 AN OVERVIEW OF MALARIA AND INSECTICIDE TREATED MOSQUITO NETS (ITNs)

Malaria is one of human's worst diseases. Each year it kills more than a million people worldwide of which many of them need not have died. The majority of victims are women and children under the age of five years. These die because they are not fully protected and are not treated quickly to prevent the disease. Malaria suffering is a global crisis. One fifth of the world's population is at risk and there are more than 300 million cases of malaria illness each year. Nine (9) out of ten (10) cases occur in Africa south of the Sahara. Malaria in pregnancy is wide spread and endangers the health of women and prospects for the newborn, Roll Back Malaria(RBM) report 2000.

In Zambia malaria is endemic in all its nine provinces. About 95% of malaria cases are caused by Plasmodium Falciparum with plasmodium malaria comprising 3% and plasmodium ovale 2%. Plasmodium Vivax is very rare in Zambia. In 1999 the National Malaria Control Centre (NMCC) also documented that plasmodium falciparum is the most associated species with severe malaria.

Malaria is defined as "an infectious febrile disease produced by several species of the protozoan genus plasmodium, transmitted from host to host by the bite of infected anopheline mosquitoes". (Armstrong, M.E., et al, 1979).

Symptoms of malaria include fever and flu-like illness, including shaking chills, headache, muscle aches and tiredness. Nausea, vomiting and diarrhoea may also occur. Malaria may cause anaemia and jaundice due to break down of red blood cells. Infection with one type of malaria, plasmodium faciparum, if not promptly treated, may cause kidney failure, seizures, mental confusion, coma and death. Treatment of uncomplicated malaria. According to the new government policy, the first line treatment of malaria is Artemether-Lumefantrin (coartem). During the transition period, sulfadoxine-pyrimethamine (Fansidar) is used as the 1st line drug for malaria treatment replacing chloroquine. Quinine is used as the second line treatment (CBOH, 2002).

Malaria accounts for the greatest number of Disability Adjusted Life Years (DALYS) lost, 6.8 million followed by Acute Respiratory Infection, 5.4 million and HIV/AIDS, 3.2 million (NMCC, 2001). The disease continues to spread due to a combination of factors. Some of the factors are weak health systems, large population movements, deteriorating sanitation and spreading drug resistance. In many countries the work force's productivity is reduced due to increased malaria morbidity and mortality while the cost of disease control cripples the economies of poor nations (RBM Report, 2000).

The Zambian government tried to control malaria through various ways. Pieces of legislation were passed for malaria prevention and control. The most notable

one was the Mosquito Extermination Act of 1944. The local government health department enforced the law through monthly village and compound inspections. Emphasis was on making sure that containers that might hold water were not left lying in the village or compound. Another Act was passed in 1964. This required mining, quarrying, irrigation, water supply and other works to take specific measures to prevent mosquito breeding (Mosquito Extermination Act, CAP 537-1964). Apart from preventing mosquitoes from breeding, indoor residual household spraying with Dichlorophenyltrichloethane (DDT) was adopted in the 1950s. The other preventive measure, which was adopted, was use of chloroquine for prophylaxis in 1975. Chemoprophylaxis was for rural population. All these measures were effective up to early 1970s when the economy of the nation started going down. Chemoprophylaxis became ineffective in 1990s due to resistance of malaria parasites to chloroquine, National Malaria Control Center report (NMCC, 2001).

In 1999, the government of Zambia endorsed to take part in global partnership for roll back malaria. Through this partnership, the country came up with national malaria control programme. The focus of control, which was adopted by the Ministry of Health, includes, case management, focal indoor residual house spraying and use of Insecticide Treated Mosquito Nets (ITNs). The 2001 NMCC report states that vector control programmes promoting ITNs household use only covered same parts of the country and out of 72 districts only 33 implemented

ITN programmes on wide scale. Constraints to increase ITNs programme support included lack of nets and insecticides.

Furthermore, Zambia has taken positive steps to strengthen the malaria control programme. The effort to make nets, netting materials and insecticide available has been supported by several donor partners. The relatively small scale ITN project developed in Zambia has demonstrated not only that ITNs use is associated with a reduction in malaria incidence and mortality, but also the potential sustainability of the use of community volunteers, Neighbourhood Health Committees (NHCs) and the revolving fund approach. The ITN programme in Zambia, so far has demonstrated that communities are interested, willing and able to purchase ITNs once demand creation has been undertaken and that it is possible to achieve high household coverage even in poor rural communities (NMCC, 2001).

1.4 **STATEMENT OF THE PROBLEM**

Malaria is a major health problem worldwide including Zambia. It is considered to be the highest cause of morbidity and mortality in Zambia, despite all government efforts to control the disease. The incidence rate has been on the increase for the past 23 years, from 1976 to 1999. In 1976 the incidence rate was reported to be 121.5 cases per 1000 people, a rate equal to one case of malaria for every eight persons. By 1999 the incidence rate had risen to 308.4

cases per 1000 population, a rate equal to one case of malaria for every three persons (NMCC, 2001). In 1999 the National Malaria Control Centre reported that 35.1% of total health centre admissions were due to malaria.

Malaria has a great impact on the health of Zambian population. Women and children are the most affected. Malaria in pregnancy cause maternal illness, anaemia, abortion, still birth, prematurity, intra-uterine growth retardation, low birth weight of the new born and maternal death, Central Board of Health (CBOH, 2002). Frequent attacks of malaria in children lead to anaemia, retarded growth and malnutrition. It also accounts for high losses in productivity and assumes greater proportion of health sector costs (NMCC, 2000).

In eastern province the situation is critical. The incidence of malaria is very high. This is depicted in table 1.1 below which shows the incidence of malaria from the year 2000 to 2004 first quarter.

Table 1.1: Malaria Situation, Eastern Province; 2000 to 2004

		(A) Total diagnoses			Out patient first Attendances			Inpatient Deaths		
		(B) Incidence (Cases/1000)			Inpatient Discharges			CFR (/1000 admission)		
YEARS		Under 5	Over 5	Total	Under 5	Over 5	Total	Under 5	Over 5	Total
TOTAL	A	1778167	891,723	2669890	1651350	838558	2489908	3501	1438	4939
	B	1257.1	155.7	373.9	123316	51727	175043	27.6	27.0	27.4
2000	A	351422	152562	503984	328030	143146	471176	804	282	1086
	B	1,458.8	156.4	414.4	22588	9134	31722	34.4	29.9	33.1
2001	A	413112	189085	602197	388449	177070	560519	816	302	1118
	B	1476.3	167.3	427.0	28.847	11713	40560	27.5	25.1	26.8
2002	A	410020	227804	637824	378639	213761	592400	802	360	1162
	B	1426.1	196.1	440.2	30579	13683	44262	25.6	25.6	25.6
2003	A	466909	251437	718346	435321	237085	672406	835	413	1248
	B	1572.9	209.7	480.1	307753	13939	44692	26.4	28.8	27.2
2004 1st Quarter	A	136704	70835	207539	125911	67496	193407	24	81	325
	B	441.8	56.3	132.3	10549	3258	13807	22.6	24.3	23.0

Source: Statistical Office, Provincial Health Office, and Eastern province.

Furthermore, in Chipata district within eastern province malaria was reported as the highest cause of mortality and morbidity in all age groups. Statistics in tables 1.2 and 1.3 below explain how serious the problem is in the district and the province as a whole.

Table 1.2: Top ten causes of morbidity (all ages) year 2001 to 2003

NO	DISEASE	TOTAL CASES			INCIDENCE RATE/1000		
		2001	2002	2003	2001	2002	2003
1.	Malaria	157674	181616	183898	420	469	462
2.	RI Non Pneumonia	39806	48884	51522	106	126	129
3.	Diarrhoea non blood	19596	27930	26765	52	72	67
4.	RI Pneumonia	22908	22130	22398	61	57	56
5.	Eye Infection	14494	14676	18783	39	38	47
6.	Skin Infection	12538	15022	16838	33	39	42
7.	Trauma	10068	14396	15286	27	37	39
8.	ENT Infection	8886	10008	9661	24	26	42
9.	Anaemia	13350	10424	8371	36	27	21
10.	STD	3884	4554	5128	10	12	13
	TOTAL	303166	349630	358650			

Source: Chipata DHMT 2004 Action Plan.

Table 1.3: Top ten causes of mortality (all ages) 2001 to 2003

NO	DISEASE	TOTAL CASES			CASE FATALITY RATE/1000		
		2001	2002	2003	2001	2002	2003
1.	Malaria	264	218	177	23	21	23
2.	Pneumonia	169	62	72	26	23	27
3.	Diarrhoea non blood	65	26	38	21	23	32
4.	Anaemia	40	32	29	14	38	41
5.	HIV/AIDS	39	30	25	161	109	226
6.	Malnutrition (PEM)	38	38	22	90	31	76
7.	Tuberculosis	20	14	17	118	73	68
8.	Poisoning	1	1	2	15	22	40
9.	Trauma/Accidents	2	1	2	6	2	4
10.	Meningitis	5	2	1	106	166	143
	TOTAL	647	460	385			

Source: Chipata DHMT: 2004 Action Plan.

In early 1990 Zambia joined WHO in the fight against Malaria. Insecticide treated nets were among the recommended preventive measures. By 1995 ITNs were introduced in selected district as a pilot project. According to 2001/2 Zambia Demographic Health Survey (ZDHS), studies has shown that pregnant women who sleep under ITNs have significantly less anaemia and their babies are less likely to be born with low birth weight. Hence increasing the chances of survival. Therefore, ITNs were recognized and recommended as the most

effective prevention method against malaria, provided are used correctly and individuals take precautions to avoid mosquito bites before they go to sleep.

In 1995, Chipata district in eastern province was one of the first districts where ITNs were introduced as a pilot project. Since that time up to the current years efforts are being made to control and prevent malaria by means of using ITNs. However, morbidity and mortality rates are still high comparing with other conditions. Statistics in tables 1.2 and 1.3 prove this fact. Therefore, there is need to conduct a research to determine the knowledge, attitude and practices of mothers towards utilization of insecticide treated mosquito nets in malaria prevention. The researchers' assumption is that, if mothers utilized ITNs, the incidence of malaria would have been reduced. Utilization of ITNs by mothers could be influenced by various factors.

1.4.0 FACTORS INFLUENCING THE KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS ITNS

1.4.1 SOCIO-CULTURAL AND ECONOMIC RELATED FACTORS

1.4.1.1 Poverty

The majority of the people in Chipata district are not employed. They are peasant farmers. Those in urban areas, 35% are self-employed, 40% have no employment and 25% are the only ones employed in formal employment (Chipata DHMT Action Plan, 2004). This situation entails that the majority of the people may not afford to buy ITNs. Whatever little

income they earn is likely to be used to buy food and other essentials for daily living. Women may be the most affected among the people with little or no income.

1.4.1.2 Traditional Practices

According to the Ngoni and Chewa tradition, women do not participate in decision-making. This impedes the participation of women in health committee meetings in Chipata district. This type of attitude and practice may hinder women from making decisions about their health. It could be that most of the women depend on their partners to make decision for purchase of essential materials for malaria prevention like ITNs. The other factor could be use of traditional methods for prevention of malaria such as burning herbal medicine to keep mosquitoes out of the house, hence no need for ITNs.

1.4.1.3 Lack of Community Participation

For any health programme to succeed, community involvement is vital. It is most likely that the community is not involved in the roll back malaria programme through the neighbourhood health committees (NHC). If the community was involved people would use the ITNs and the incidence of malaria would reduce. The NHCs supposed to be involved in planning and

distribution of ITNs in the community so that the product is made available to the people.

1.4.1.4 **Seasons**

Chipata district has three distinct seasons just as it is in all parts of the country. Seasons are, rainy season, when there are a lot of mosquitoes, cold season and dry season when the number or population of mosquitoes reduce. The assumption is that people tend not to use ITNs in seasons when the mosquitoes are few. This could have led to low utilization of ITNs and an increase in the number of malaria cases throughout the year.

1.4.1.5 **Inadequate Knowledge on Prevention of Malaria**

Level of education, illiteracy and ignorance could be factors contributing to lack of knowledge on preventive measures for malaria. It could be that most of the women are not educated such that they do not see the importance of ITNs. The other assumption is that, some mothers do not know how malaria is transmitted hence low utilization of ITNs.

1.4.1 **Service Related Factors**

1.4.2.1 **Health Staff Shortage**

Staff shortage at health centres could lead to inadequate supervision and monitoring of activities being implemented to reduce malaria. On the

other hand, shortage of staff may result into poor health education leading to inadequate information among women on the prevention of malaria using ITNs.

1.4.2.2 **Insufficient Training of NHC Members**

Neighbourhood health committee members if they are not adequately trained on use of ITNs may not be able to sensitize the community on the importance and use of the product. Low utilization of ITNs among mothers may also be due to inefficient NHCs in the district. This problem may be compounded by staff shortage at health centres who are supposed to supervise NHC members.

1.4.2.3 **Staff Attitude**

Attitude of staff if it's bad may have a negative impact on women. If women are not attended to immediately when they go to the health centre, they may be discouraged to use the health services. Women may be kept waiting for along time either when they go for antenatal or children's clinic. This could lead to low attendance at the health facility. Once this happens women won't receive adequate information concerning preventive measures for malaria and other health problems.

1.4.2.4 Distance from the health facility

Low utilization of health services including ITNs could be due to long distance to the health facility. Instead of going to the health centre maybe those who stay very far prefer going to traditional healers within their communities for medical help. As such mothers may not know the services provided at the health centre. Hence continued increase of malaria prevalence in the community.

1.4.2.5 Irregular Supply of ITNs and Retreatment Kits

ITNs and retreatment kits maybe irregular in supply at the health centre from the District health office or any other service provider. This could be a major contributing factor to low utilization. If the ITNs are not available, even if mothers are given information on them won't take it serious. Some might not even know how they look like. Furthermore, ITNs could be expensive to the community, especially those found in retail shops. This may also contribute to low utilization of ITNs in prevention of malaria.

1.4.2.6 Source of Information on ITNs

Possible sources of information are the local NHCs, Health Centre staff, church organisations and the media such as radios. Information from the media may not be well understood because the listener has no

opportunity to ask questions, where as peers may mislead each other on use and effectiveness of ITNs. The source of information could have a negative effect on the women's health seeking behaviour.

1.4.3 Disease Related Factors

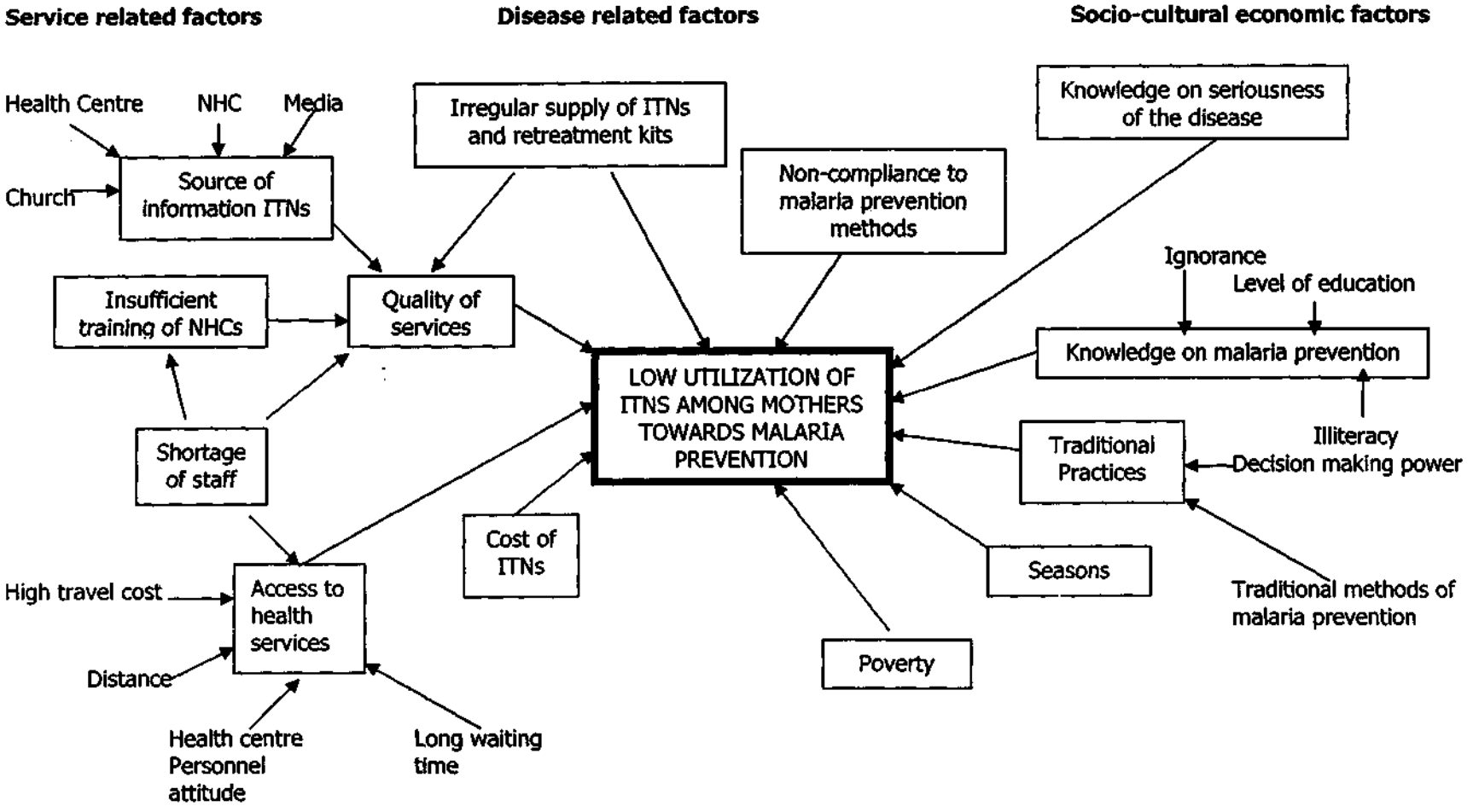
1.4.3.1 Non Compliance to malaria prevention methods

Mothers in the community may have ITNs without using them. Some may not believe that the disease is caused by mosquito bites as such they see no reason to protect themselves against the vectors.

1.4.3.2 Lack of knowledge on the seriousness of the disease

Malaria causes anaemia, abortions, prematurity and ill health to mothers especially in pregnancy. Children maybe started and malnourished due to constant attacks. Problems like these may be regarded as being caused by witchcraft. Therefore, if women have such belief due to lack of knowledge on the seriousness of the disease may concentrate on seeking treatment from traditional healers without taking preventive measures against malaria.

FIGURE 1.
DIAGRAM SHOWING POSSIBLE FACTORS INFLUENCING THE KNOWLEDGE, ATTITUDE AND PRACTICES OF MOTHERS TOWARDS ITNS AS AMEANS OF MALARIA PREVENTION



1.5 JUSTIFICATION OF THE STUDY

The high incidence of malaria prevailing in Chipata district compelled the researcher to conduct this study considering the fact that malaria can be prevented. It is also hoped that the results from the study will benefit health care providers and other stakeholders in malaria prevention programmes. The findings will assist in addressing problems associated with utilization of ITNs. The information obtained from this study will also be used to improve provision of ITNs and retreatment kits to the community, making them accessible and affordable. It will also assist in the modification of teaching programmes and strategies being used by the health care providers.

Recommendations will be made to relevant authorities so that national policy on ITNs can be improved. ITNs are an effective method of preventing mosquito bites, which cause malaria. It is important, therefore, to know and address factors, which lead to low utilization of ITNs. If ITN coverage is improved, morbidity and mortality due to malaria will be reduced. Hence promoting good health of women and children below the age of five years.

1.6 RESEARCH OBJECTIVES

1.6.1 General Objective

- To determine the knowledge, attitude and practices of the mothers in the community towards utilization of ITNs in malaria prevention.

1.6.2 Specific Objectives

- To determine the mothers' level of knowledge on malaria and its prevention.
- To determine mothers' practices towards malaria prevention.
- To establish mothers attitude towards ITNs.
- To identify areas needing further research.
- To make recommendations to relevant authorities.

1.6.3 Hypotheses

1.6.3.1 Inadequate knowledge on effectiveness of ITNs in malaria prevention has led to low utilization of the nets and an increase in cases of malaria among mothers and children under the age of five years.

1.6.3.2 Mothers' negative attitude towards use of ITNs has led to high incidence of malaria.

1.6.3.3 Inavailability of ITNs in the community has led to poor practices in prevention of Malaria.

1.7 OPERATIONAL DEFINITION OF TERMS

Malaria

It is a febrile infection transmitted from man to man by a female anopheline mosquito, produced by the species of the genus plasmodium. It is characterised by periodic attacks of shivering, fever, profuse sweating and headache.

Knowledge

Information or facts that one has in mind about ITNs.

Attitude

A stand taken by a person over use of ITNs. The way the person thinks.

Practice

What people do, not just having ideas or theories.

Incidence

The rate of occurrence of the disease.

Endemic

It refers to a disease, which is peculiar to a certain region or occurs constantly in any particular locality.

Morbidity

The ratio of the number of sick individuals to the total population of the community, or the state of being diseased.

Mortality

The number of deaths in a particular period of time and place.

Utilization

It is to use something for a special purpose.

Mother

A female parent who takes care of children and other people.

Insecticide treated mosquito nets

These are nets treated with special chemicals like synthetic pyrethroids to kill mosquitoes on contact and protect people from mosquito bites who sleep under the net.

1.8 VARIABLES

A variable is characteristic or attribute of a person or object that varies within the population under study such as age, height and blood pressure (Dempsey P.A. and Dempsey A.D., 2000). The identified study variables are:-

1. Knowledge.
2. Attitude
3. Practice.

1.8.1 Dependent Variable

The variable that is hypothesized to depend on or be caused by another variable – independent variable. (Polite F.D and Hungler P.B., 1997). See table 1.4 below.

1.8.2 **Independent variable**

This is a variable that is purposely manipulated or changed by the researcher (Dempsey P.A. and Dempsey, D.A., 2000). Refer to table number 1.4 below.

TABLE 1.4: IDENTIFIED STUDY VARIABLES

DEPENDENT VARIABLE	**INDEPENDENT VARIABLE**
Practice	Knowledge
	Attitude

1.8.3 **Cut Off Points**

These are attributes used to explain the conceptual and operational definition of variables used.

TABLE 1.5: VARIABLES, INDICATORS AND CUT OFF POINTS

VARIABLES	CUT OFF POINTS	INDICATORS	QUESTION NUMBER
Independent Knowledge	High	When the respondent is able to define, state mode of transmission, clinical features and prevention of the disease or answers any of the three, scores 9 to 12.	9 to 22
	Moderate	When the respondent scores 5 to 8 out of 12 total scores.	" "
	Low	When the respondent scores between 0 and 4 out of 12 total scores.	" "
Attitude	Positive	Believes that ITNs can prevent malaria and can recommend use of ITNs to others (6-10scores).	23 to29
	Negative	Cannot recommend use of ITNs to others (0-5 scores).	" "
Practice	Good	Have ITN and use it. Treats ITN at least once per year (6-10scores).	30 to37
	Poor	Don't have ITN or have but do not use it always and does not treat (0-5 scores).	" "

CHAPTER TWO

1.81 LITERATURE REVIEW

1.82 INTRODUCTION

The movement to fight malaria is referred to as Roll Back Malaria (RBM). This is a global partnership backed by governments, development agencies and banks, research groups, the private sector and ordinary men and women around the world. It is based on collective strategies and actions that aim at reducing malaria suffering and death, and to alleviate poverty made worse by the disease. One of the best tools used to fight malaria is the use of ITNs (WHO, 2000).

Insecticide treated mosquito nets have shown significant impact on malaria morbidity and mortality in recent worldwide trials. Several trials on the impact of ITNs have been conducted in Africa. Most of the studies carried out show a reduction of 20% to 60% in malaria prevalence following the introduction of the ITNs. Furthermore, it has been estimated that, it costs approximately 10 working days to treat a case of malaria in Africa, and malaria is ranked first in terms of disability adjusted life years (DALYS) cost in sub Saharan Africa (Tsuyuoko, R. et al, 2002).

In order to combat the disease, the RBM partnership has set ITN coverage target for Africa of 60% children under five years of age sleeping under ITNs by the year 2005. Children below the age of five and pregnant women are more

vulnerable to malaria and are most likely to benefit from the use of ITNs. It is therefore, imperative for RBM to monitor progress towards this target so that short falls in implementation can be identified and acted upon (Miller, J., 2003). The literature review focus on studies conducted on mothers' knowledge, attitudes and practices towards utilisation of ITNs. Literature review is a stage in the research process, which refers to the activities involved in identifying and searching for information on a topic and developing a comprehensive picture of the state of knowledge on the topic. The main purpose of literature review is to enable the researcher conceive the research topic in a way that permits a clear formulation of the problem and the hypothesis, and background information. It reveals unresolved questions in the topic under study.

This literature review is based on primary data from individuals, organisations and published information, written reports and medline (computer data base). The context within this literature review was discussed is as follows:-

- Global perspective,
- Regional perspective,
- National perspective.

1.83 GLOBAL PERSPECTIVE

Malaria is one of the world's most devastating disease. More than 40% of the world's population lives in areas within on going malaria transmission leading to an estimate of 300 to 500 million clinical cases each year (Zucker, J., 1997).

Malaria occurs in over 100 countries and territories. Areas like Central and South America, Hispaniola (Haiti and the Dominican Republic), Africa, the Indian subcontinent, Southeast Asia, the Middle East, and Oceania are considered malaria risk areas. According to Centre for Disease Control and Prevention (CDC) in the United States of America, more than one million people die of malaria each year worldwide. CDC further reported that 1200 cases of malaria are diagnosed in the United States (US) each year. Most of the cases are found among immigrants and travelers returning from malaria risk areas, especially from Sub-Saharan Africa and the Indian subcontinent.

In the United States, each year, a few cases of malaria result from blood transfusions, are passed from mother to fetus during pregnancy or are transmitted by locally infected mosquitoes (CDC, 2000). The main preventive measures against the disease in this part of the world include taking anti-malaria drugs for prophylaxis before taking a foreign travel. Commonly used drugs are mefloquine (Loriam), 250mg salt, once per week, and primaquine 15 mg base, once per day during the period of exposure to risk areas. Other drugs are Doxycycline, Hydroxychloroquine Sulfate (plaquenil) and Proquamil (paludrine). Dose and duration depend on the age of the individual. This strategy is practical in developed nations like America. In developing nations it is not being practiced due to various factors such as poverty.

Other preventive measures being used worldwide are, wearing pants and long sleeved shirts, especially from dusk to dawn when mosquitoes that spread malaria bite, use of repellents on exposed skin and flying insect spray in the sleeping room and sleeping under treated mosquito nets with permethrine or any other recommended insecticide.

In many military operations worldwide, personal protective measures are used and are effective against a wide range of disease vectors not solely for prevention of malaria. Insecticide Treated Materials (ITM) are considered as the first line defence against malaria. Therefore, ITMs enable military personnel to remain in malaria endemic areas while maintaining their operational capabilities (Gluckman, J. & Lore V., 2003).

In Vietnam, the National Malaria Control Programme (Vietnam-NMCP) since its inception in 1991 has achieved tremendous results in malaria control using ITNs. The number of people protected by ITNs has increased from 300 000 in 1991 to about 10.8 million in 1998. This result has been achieved through active promotion of ITNs, careful training of health care providers including the community on ITNs, supervision of the district and community health staff and intensive community education about the use of treated nets. The Vietnam-NMCP, further documented that, the majority of the people in that country buy nets from the commercial sector at subsidised prices. The government only

supplies a few free nets to the poorest communities. Chemicals for retreating the nets are provided by the Vietnam government to its people free of charge throughout the country to encourage net treatment and improve protection against malaria. The community participates in insecticide distribution through community health workers (CHW), women's associations and youth groups. It is quite evident that this strategy has promoted utilization of ITNs by communities and it is most likely that it could succeed if tried in another setting. MarcHougard J. (2003) in, "WHO bulletin", reported that, the World Health Organisation consider distribution of ITNs as a major component of the global strategy for control of malaria worldwide, especially in sub-Sahara Africa where high incidence of malaria is reported annually.

In addition, Lengele C., (2004), reported that large scale ITN programmes are being implemented in Sub-Sahara Africa, Asia and Latin America using a number of operation approaches. Not less than 81 trials and over 30 descriptive studies carried out in every type of malaria setting worldwide has documented positive impact of ITNs on child and adult morbidity and mortality. In the same report it is also documented that, in five randomized controlled trials (RCT) an overall reduction in child mortality of 17% could be demonstrated with six (6) lives saved per year for every 1000 children protected.

2.3 REGIONAL PERSPECTIVE

In tropical Africa malaria remains the highest cause of morbidity and mortality. According to WHO (1995) report, malaria causes more than one (1) million deaths and produce debilitating clinical illness to millions of people in Africa. The impact of malaria is not limited to clinical malaria; parasitemia or malaria related death but also interacts in many ways with a constellation of other illnesses and conditions. Certain population subgroups are more affected than others and thereby are at high risk. McGregor J.K, proved this fact in 1994 in Nigeria in the journal entitled, "Epidemiology, Malaria and Pregnancy". He found that women have decreased resistance to malaria during pregnancy. This is because of the changes, which occur in their body. A pregnant woman's immunity is naturally lowered. While many pregnant women may have malaria, a large proportion of them will not experience noticeable signs or symptoms. Women living in endemic areas may not show many symptoms because their bodies are accustomed to the parasite and have certain level of partial immunity that keeps them from experiencing many symptoms, but allows parasites to remain in their system. The infection may be reflected in the form of anaemia and lowered energy levels, vitamin A deficiencies, decreased resistance to other infections, low birth weight and prematurity. Therefore, during pregnancy women are more susceptible to malaria than when they are not pregnant. The infection in pregnancy is more severe.

The Central Board of Health in Zambia (CBOH, 2003), in "Reproductive Health News, Zambia", reported that, in Sub Saharan Africa malaria is the cause of over 20% maternal deaths each year. It is also estimated that malaria cause up to 15% of all maternal anaemia and 35% of preventable low birth weight babies in Africa, Zambia inclusive. Alnwick, D., (2000) in the bulletin of World Health Organisation recommended that three interventions should be introduced to prevent and control malaria. The interventions are: -

- Distribution and use of insecticide treated nets,
- Rapid first line treatment of all malaria suspected cases,
- Routine intermittent presumptive malaria treatment.

The feasible strategy in developing countries is use of ITNs. Other measures are not because of poverty and inadequate anti-malarial drug supply.

These measures if combined could half the burden of malaria in the region. Net Mark Plus, the cutting edge in public and private partnerships for sustainable business and development formed in 1999, runs a project designed to reduce the impact of malaria in Sub-Saharan Africa. The project promotes increased use and sustainable supply of ITNs and insecticide treatment kits for nets through partnership and joint investment with a wide range of international and local commercial partners. The project also recommends ITNs as being the most effective method for the prevention of malaria in Sub Saharan Africa. Since 1999, Net Mark has been working with commercial sector to identify and

overcome the barriers to the creation of commercially viable markets for ITNs in Ghana, Mali, Nigeria, Senegal, Uganda and Zambia, that would lessen the burden on the public sector and to make ITNs accessible to all those at risk.

In support of Net Mark documentation on effectiveness of ITNs, Busimike, D. (1997), conducted a study in western Kenya on the use of impregnated cloth known as Mbu and ITNs. The results were that, among the 2000 households fitted with Mbu cloth, reductions in mosquito vector density was 45-94%, reduction of parasite density 73% and mortality rate due to malaria reduced by 33% in the trial areas.

Zimmerman, A. (2003), did another study in Tanzania. The study was done in two neighbouring villages of Magada and Mpapayu from 1998 to 2000. ITNs were provided to all households in Magada, but not provided in Mpapayu. After the study, the findings revealed that, incidence of malaria reduced by 20% in Magada; while in the other village remained the same. ITNs reduced transmission of the disease. In the same study, it is documented that use of ITNs will help to reduce exposure of anti-malaria drugs to malaria parasite, which may reduce drug resistance to faciparum strains.

In Zimbabwe, Tsuyuoko, R., et al (2002), conducted a study entitled, "The acceptability of Insecticide Treated Mosquito Nets on the community members in

Zimbabwe". They found that more than 90% of the people bought nets in order to avoid mosquito bites and prevent malaria. Most of the people accepted ITNs as a good intervention for prevention of malaria. However, some of the respondents could not afford to buy ITNs at market price because they were expensive. Other reasons for not having ITNs were that, they had not suffered from malaria, they did not like to use mosquito nets, did not know the efficacy of the net and there were few mosquitoes at home. These reasons are common in most of the countries in the region. The fight against malaria requires good political will from governments in the region. In June 1997, the Assembly of Heads of State and Governments of the Organisation of African Unity adopted the Harare declaration on malaria prevention and control in the context of African economy recovery and development. In the declaration, the assembly pledged to consider malaria control a priority, re-affirming the global malaria control strategy and the actions of WHO in its implementation. It called upon member states to give political support to malaria control to develop and implement plans of action against the disease and to ensure well coordinated multisectoral action (WHO, 1995).

2.4 **NATIONAL PERSPECTIVE**

Malaria is endemic throughout Zambia and continues to be a major public health concern. 2001/2 Zambia Demographic and Health Survey (ZDHS) documented that malaria is the leading cause of morbidity and second highest cause of

mortality among pregnant women and children under the age of five years. The Ministry of Health (MOH) estimated that there are more than 3.5 million cases and 50,000 deaths per year. Malaria accounts for 37% of all out patient attendance in the whole country. The annual crude incidence of malaria was reported to have increased from 225 per 1000 in 1987 to 380 per 1000 in 1997. Between 1995 and 1998, malaria was the commonest cause of hospital admissions and accounted for 46% of admissions and 28% of hospital deaths in children under the age five years (Mulenga, M., 2000). This increase in malaria has been attributed to the breakdown in malaria programmes and a rise in drug resistance. Chloroquine and sulfadoxine/pyrimethamine were recommended first and second line drugs respectively for treatment of uncomplicated malaria. Recent anti-malarial drug efficacy surveys showed that, following Chloroquine treatment, clinical and parasitological failures ranged from 28-46% and up to 68%. Because of these findings, there is a shift currently to fansidar and quinine as first and second line drugs respectively (NMCC, 2001).

In an effort to combat the disease, Zambia has been involved in the international programme to control malaria under the roll back malaria initiative since 1999. The goals of the initiative aims at ensuring that by the year 2005 at least 60% of those at risk of malaria, particularly pregnant women and children under five benefit from the most suitable combination of personal and community protective measures such as ITNs and other interventions which are accessible

and affordable to prevent infection and suffering. Another goal is to ensure that at least 60% of all pregnant women especially those in their first pregnancies have access to chemoprophylaxis or preventive intermittent treatment (CBOH, MOH and RBM, 2001). According to Zambia National Health Strategic Plan (ZNHSP, 2001/5), a well developed partnership exists for the RBM strategy. Among main aspects of the RBM strategy include market segmentation and gross subsidization for bed nets as well as integrated management of childhood illness and reproductive health. ITNs currently are most effectively marketed by the Society for Family Health (SFH) and other Non governmental organisations (NGOs), which have increased use to 60-70% in selected projects within the country. In terms of cost effectiveness, ITNs have been shown to significantly reduce child and maternal mortality.

A number of studies have been carried out in Zambia on insecticide treated mosquito nets. In Luapula province, there is a community based malaria prevention control programme supported by United International Children Emergency Fund (UNICEF). In 1995 before the project started net coverage was less than 10% in the province. The few nets, which were available, were bought from the private sector. The supply was limited and ITNs were expensive. Since 1995, the project sold sufficient nets to cover 60% of targeted individuals in the area. A recent evaluation found that a third of the population reported slept under the ITNs the previous night prior to interview; over 80% reported

retreating their nets at least once. Use of ITNs was prioritized for pregnant women and children under the age of five years. The incidence of malaria in net users was significantly lower compared with non-net users (WHO-RBM department, 2004). Even though the programme has achieved impressive coverage and health impact, there is need to consider subsidizing the nets and insecticides to increase affordability and promote equity so that the poorest in the community can have access to the product.

Another study was conducted by Siame, D., (1999), entitled, "Factors contributing to low utilization of ITNs in Mwinilunga District". He discovered that, about 97% of respondents had knowledge about ITNs, 72% of them knew how to use them, while 28% had no knowledge. Only 16% of the people interviewed were using ITNs. Further, the findings revealed that, inadequate community involvement in planning, low household income levels in the informal sector and non-availability of bed nets contributed to low utilization.

In another study conducted in Luwingu district in the year 2000, by Musonda V., on community response to cost sharing on impregnated bed nets, he found that few people who had bed nets rarely treated them with insecticides. This was attributed to non-availability of insecticides and lack of awareness where to find the chemicals. In the same study it was also discovered that many people did not have bed nets because they were not available and not affordable when

available. Despite this situation, there was poor community response to cost sharing on ITNs. This was due to inadequate information on the programme. The factors identified in the above studies could be the ones contributing to high incidence of malaria in other districts as well.

In July 2000, Net Mark conducted a study also on prevention and control of malaria in Zambia. One of the aims of the study was to identify factors that encourage and discourage acquisition of nets, retreatment of nets with insecticides and use of treated nets by under five children and pregnant women. The research was conducted in urban Lusaka, and in urban and rural sites in Mansa, Kitwe, Choma and Kaoma. Findings were as follows:

- General knowledge about malaria was good,
- Respondents recognised signs and symptoms of malaria and considered malaria to be a serious health problem,
- They had good general knowledge concerning the most vulnerable group of people to malaria.

The study further, revealed that mosquitoes were perceived as a major problem and almost everyone used some kind of mosquito control, whether commercial (coils or aerosols) or traditional (burning things). Respondents had both positive and negative perceptions of all mosquito control methods, but nets were perceived more positively than all other methods. Most respondents named several benefits of using a net such as protection against mosquito bites and

other insects, protection from illness like malaria and allowing a good night sleep. However, few respondents cited negative features of nets. They cited problems of discomfort due to heat, feeling restricted and fear of a child becoming trapped. There was also evidence of limited access to ITNs. Traders had difficulties in maintaining stocks and preferred nets by consumers were not stocked. Other findings were that, nets were not always used throughout the year, net-owning households used nets only in the rainy season. The vulnerable groups were not given priority for sleeping under a net. The findings from this study suggest that intensive education of the community on ITNs is still required in order to increase utilization rate and reduce malaria incidence.

CONCLUSION

Literature review demonstrated that malaria is endemic in most parts of the world. The review has clearly stated that many countries are putting effort towards the prevention of the disease. One of the recommended preventive measures by RBM is use of ITNs. It is also evident that there is low utilization of ITNs by mothers due to various factors such as customs and beliefs, poverty and lack of education. These could have strong influence on mothers' knowledge, attitude and practices towards the use of ITNs in prevention of malaria. To combat the disease consented efforts are required including community participation.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology is controlled investigations of the ways of obtaining, organising and analysing data (Polit F.D., and Hungler P.B., 1995). This study was aimed at determining the knowledge, attitude and practices of mothers towards utilization of ITNs in malaria prevention in Chipata District. Descriptive, cross sectional research design was used to carryout the study.

3.2 RESEARCH DESIGN

Polit F.D. and Hungler P.B., (1997) defined research design as the overall plan of how to obtain answers to questions under study and how to handle some of the difficulties encountered during research process. Research design spells out in advance the strategies the investigator wishes to adopt, to develop information that is accurate and interpretable.

The design, which was used for this study, is descriptive cross sectional survey. Descriptive research studies, "have as their main objectives the accurate portrayal of characteristics of individuals, situations or groups and the frequency with which certain phenomena occur", (Polit F.D. and Hungler P.B., 1995). This design assisted the researcher to systematically collect data and analyse it to give a clear picture of the whole situation. The relationship of variables under

study was described to determine their influence on prevention of malaria among mothers.

Cross sectional study is based on observations of different age or developmental groups at a single point in time for the purpose of inferring trends over time (Bless C. and Smith C.H., 2000). The researcher used this design also; because data was collected from three (3) different villages and respondents were of different age groups. The design enabled the researcher to collect both quantitative and qualitative data related to the topic. Quantitative data is information collected in the course of a study that is in a quantified (numerical) form, where as qualitative data is information collected in the course of a study that is in narrative (non numerical) form.

3.3 RESEARCH SETTING

A research setting is the physical location and conditions in which data collection takes place in a study (Polit F.D. and Hungler P.B., 1995). The study was conducted in Chipata District at Mwami Health Centre. Three villages around the health centre were selected randomly to represent all the villages in the area. Chipata Town is the headquarters of eastern province, situated 585 km from Lusaka. The district shares borders with Katete district on the west, Chadiza district on the south, Lundazi district to the north and the Republic of Malawi to the east. The district covers a total area of 6112 square kilometers. It has a

population of 409 309. Out of these 22% are women in the child bearing age, which ranges from 15 to 45 years of birth. Mwami Health Centre is situated about 30 km from Chipata town on the southeast. It is one of the 34 health centres within Chipata district. It has the catchment population of about 11467. About 22% of the total population is the number of women in the child bearing age 15 to 45 years of birth (Chipata district Action Plan, 2004).

3.4 STUDY POPULATION

A study population is the entire population in which the researcher is interested or the entire aggregation of cases that meets designated set of criteria, (Polit F. D. and Hungler P.B., 1997). The target accessible populations in this study were mothers between the age of 18 to 45 years. These were selected because they are the most vulnerable to malaria and are the ones who take care of the children under the age of five years who are also vulnerable to malaria.

3.5 SAMPLE SELECTION

Sample selection is the technique by which a sample is drawn from the population (Bless C. and Smith C.H., 2000).

A sample is a group of elements drawn from the population, which is considered to be representative of the population, and which is studied in order to acquire some knowledge about the entire population (Bless C. and Smith C.H., 2000).

Dempsey P A. and Dempsey A.D., (2000) defined sample selection as a process of selecting numbers of individuals from the delineated target population in such a way that the individuals in the sample represent as nearly as possible the characteristics of the entire target population. Three villages were selected from others using simple random sampling method. This is the most basic type of probability sampling in which a sampling frame is created by enumerating all members of a population of interest and then selecting a sample from the sampling frame through completely random procedures.

A sampling frame is the technical name for the actual list of the population elements from which the same will be drawn. A sampling frame was obtained by listing all the villages in the area. The researcher selected three (3) villages using the lottery technique. Lottery technique involves assigning numbers or symbols to subjects. Symbols are placed in a container, mixed well and then the lucky members are drawn. This procedure was followed. Names of all the villages in the area were written on pieces of paper, which were placed in the container mixed and then the lucky names were drawn one at a time. The procedure was repeated until three villages were selected. Households in each village were selected using non-probability, availability sampling method. This method consists of taking all cases at hand, until the sample reaches the desired size. One mother from each household was interviewed until the desired sample

was obtained. All mothers with children below the age of five and pregnant women were potential respondents. Respondents were within 18 to 45 years of age. The chosen techniques were convenient to the researcher in terms of time and other resources.

3.6 SAMPLE SIZE

Sample size is largely a function of the purpose of the inquiry, the quality of informants and the type of sampling strategy used. It is the number of subjects in a sample (Polit F.D. and Hungler P.B., 1997).

The sample comprised of fifty (50) respondents who were selected from the households using accidental or availability technique. Fifteen (15) respondents from one village, another 15 from the other, and then 20 from the third village. This gave the researcher the required sample. The researcher selected this sample because of inadequate resources and time.

3.7 DATA COLLECTION TOOL

Data collection is the gathering of information needed to address a research problem (Polit F.D and Hungler P.B., 1997).

A tool is, "a thing that helps someone to do the job or achieve something". (Hornby A.S., 2000). Data collection tool is therefore an instrument used to collect data from respondents. The instrument that was used in this study was

an interview-structured schedule, which contained both open and closed ended questions.

Conducting interviews using the structured interview schedule enabled the researcher to ensure that all issues were discussed, but allowing flexibility in timing and the order in which questions were asked. The questions were fixed and identical for every respondent. This helped the researcher to ensure that variations, which appeared between responses, were attributed to the actual differences among the respondents, and not to the variations in the interview-structured schedule. Structured interview schedule was used because of the following advantages: -

- It is suitable for use for both literate and illiterate respondents.
- Permits clarification of questions.
- It has higher response rate than written questionnaires.
- Data can be easily analysed.

Structured interview schedule questionnaire has also disadvantages, some of them are:-

- The instrument is unable to probe a topic in depth.
- The presence of interviewer can influence responses for open-ended questions.
- Interviewees usually have no choice in the date or place of the interview as the researcher has limited time in which to conduct the project.

- It requires a trained staff to conduct an interview.

The questionnaire had four (4) sections, section A for Demographic Data, B for knowledge, C for attitude and section D, for practices.

3.7.1 **Validity**

Validity is the degree to which the instrument measures what it is intended to measure (Polit F.D and Hungler P.B., 1997). Validity asks questions such as, what does this instrument measure? And what do the results mean? If the researcher is sure that the instrument is measuring what it is supposed to measure, data interpretation will be easy.

In order to maintain validity, the questionnaire covered all the variables in the study topic and addressed set objectives. Research experts were involved in evaluating the content of the instrument. This assisted to eliminate unnecessary questions. All the questions were phrased in English and literate research assistants were used to conduct the interviews. Respondents were drawn from randomly selected villages to ensure that there was no bias in representation of the target population in the area.

3.7.2 **Reliability**

Reliability is the extent to which observable (empirical) measures that represent a theoretical concept are accurate and stable when used for the concept in several studies (Bless C and Smith C.H., 2000). Reliability of measurement is the degree to which the instrument produces equivalent results after repeated trials. It is equated to stability, consistency or dependability of the instrument. (Polit F.D and Hungler P.B., 1995). The researcher made sure that the instrument was reliable by conducting a pilot study, asking same questions to all respondents, orienting research assistants on how to conduct an interview and questions were well outlined in sequence. This eliminated biasness and minimized data collection errors.

3.8 **DATA COLLECTION TECHNIQUE**

Interview technique was used to collect data from the respondents. A technique is, "a particular way of doing something especially one in which you have to learn special skills or the skill with which somebody is able to do something practical". (Hornby A.S., 2000).

An interview is a data collection technique that involves oral questioning following structured questions. The researcher used this method to gather required data for the study. Before collecting data ethical and cultural issues

were considered. Suitable place was chosen at each household for interviews. The researcher at the beginning of each interview went through all the instructions. Each session of interview took about 20 minutes. The interviewer followed the structured interview schedule strictly to avoid biasness in questioning. After the interview each respondent was thanked for giving the answers.

3.9 **PILOT STUDY**

It is a small-scale version, or trial run, done in preparation for a major study, (Polit F.D and Hungler P.B., 1995).

The purpose of pilot study was to find out how feasible the study would be, validity of data collection tool and how possible it would be to process and analyse collected data. This would have helped the researcher to amend the tool. The tool was not amended it had no problems. The researcher used the same tool and technique for pilot study that was used for a major study. Ten percent (10%) of the actual study population was drawn from within the area of data collection, but they were not part of the major sample. Ten percent of 50 respondents (major sample) is five (5) respondents. Therefore, the researcher randomly chose 5 mothers for pilot study. Data was analyzed manually.

3.10 ETHICAL AND CULTURAL CONSIDERATION

The ethical consideration involves an understanding of the ethical codes and guidelines for protecting the rights of the research subjects. (Dempsey P.A. and Dempsey A.D., 2000).

Written permission to conduct the study was obtained from Chipata District Health Office, and Mwami Health Centre Management (see appendix IV).

Verbal permission was obtained from village headmen and verbal consent from each respondent. Brief explanation of the study purpose was done and respondents were assured of confidentiality. The questionnaires had serial numbers instead of names to maintain anonymity. Privacy was maintained during the interview process. No respondent was forced to participate in the study.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 DATA ANALYSIS

Data analysis is systematic organisation and synthesis of research data, and testing research hypotheses using those data (Polit F.D and Hungler P.B., 1995). The researcher used valid methods in analyzing data. Data was sorted; responses verified while in the field, coded and entered on a data master sheet. Data master sheet was partitioned into four categories. These were demographic data, knowledge, attitude and practices of mothers towards of malaria ITNs as a means of prevention.

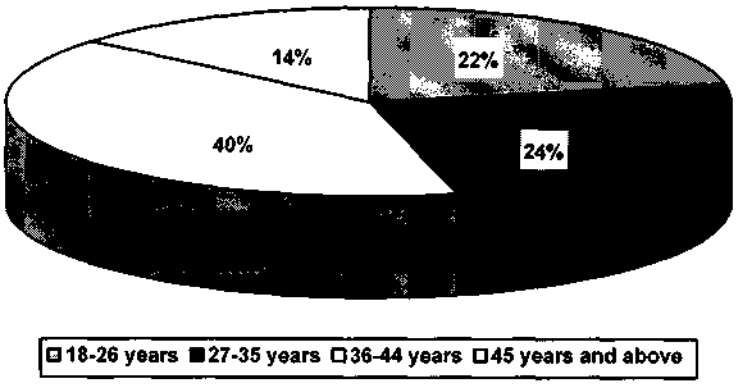
4.2 PRESENTATION OF FINDINGS

Data from the master sheet was presented in frequency cross tabulation tables and graphs such as pie charts and bar charts. Cross tabulation is determination of the number of cases occurring when simultaneous consideration is given to the values of two or more variables. The results are presented in a table with rows and columns divided according to the variables (Polit F.D. and Hungler P.B., 1995).

Tables and graphs were used to present the findings because they are effective and simple way of communicating the results.

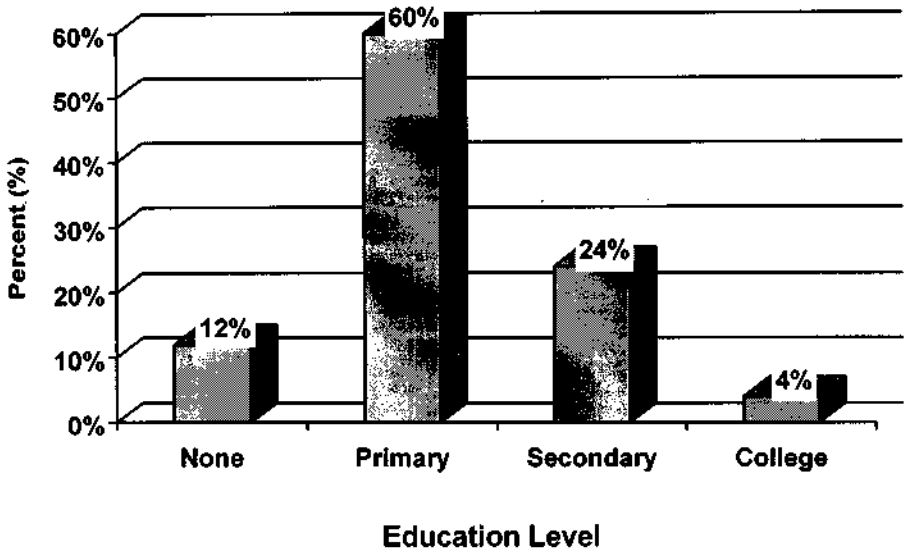
DEMOGRAPHIC CHARACTERISTICS

FIGURE 2: DISTRIBUTION OF RESPONDENTS BY AGE (N=50)



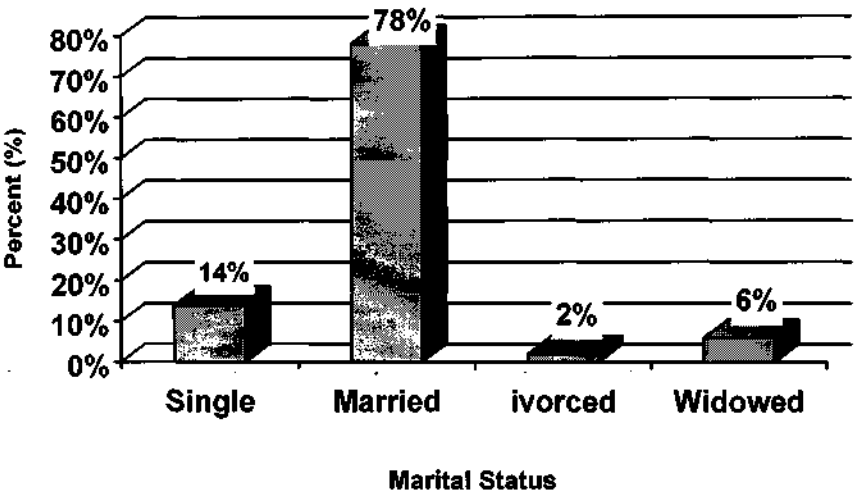
About 20 (40%) were aged between 36 and 44 years of age, 12 (24%) of the respondents aged between 27 and 37 years, 11(22%) were aged 18-26 years and 7(14%) were aged 45 years and above.

FIGURE 3: DISTRIBUTION OF RESPONDENTS BY THEIR LEVEL OF EDUCATION (N=50)



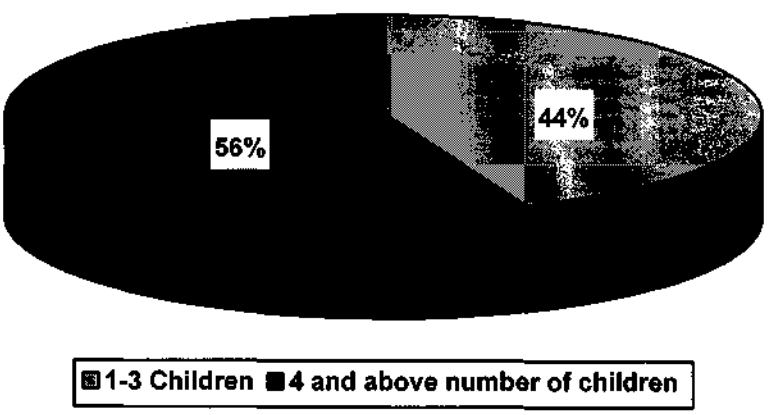
Approximately 30(60%) of the respondents attained primary education, 12(24%) attained the secondary education level, 2(4%) of the respondents attained college education while 6(12%) had no basic education at all.

FIGURE 4: DISTRIBUTION OF RESPONDENTS BY MARITAL STATUS (N=50)



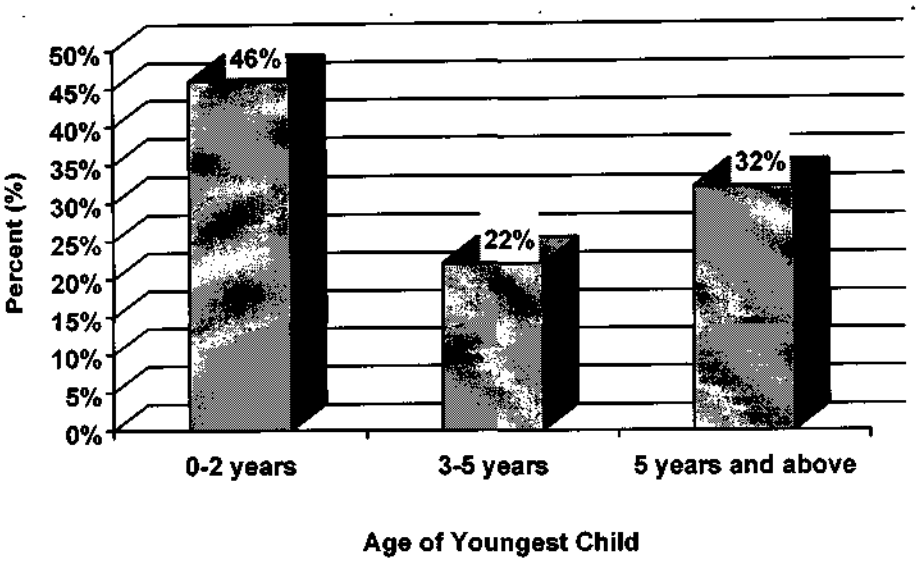
Most of the respondents, 39(78%) were married, 7(14%) were single, while 1(2%) were divorced and 3(6%) widowed respectively.

FIGURE 5: DISTRIBUTION OF RESPONDENTS BY THEIR NUMBER OF CHILDREN (N=50)



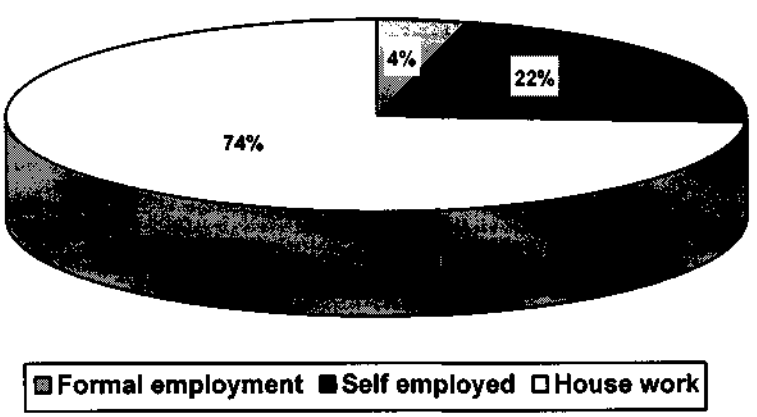
Slightly more than half of the respondents had 4 and above number of children and 22(44%) had between 1 and 3 number of children.

FIGURE 6: DISTRIBUTION OF THE RESPONDENTS IN RELATION TO AGE OF THE YOUNGEST CHILD (N=50)



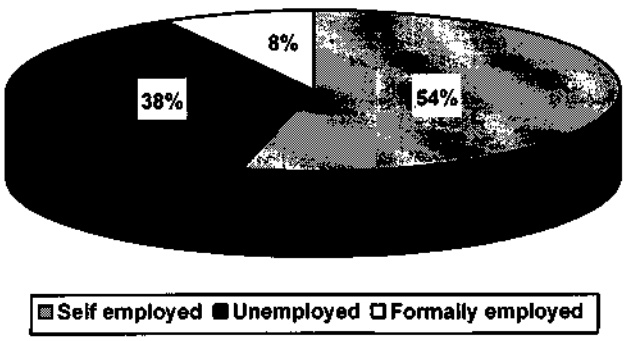
About 23(46%) of the respondents` youngest children were between the ages of 0 – 2 years and 16(32%) had their youngest children aged between 5 years and above.

FIGURE 7: DISTRIBUTION OF THE RESPONDENTS BY THEIR OCCUPATION (N = 50)



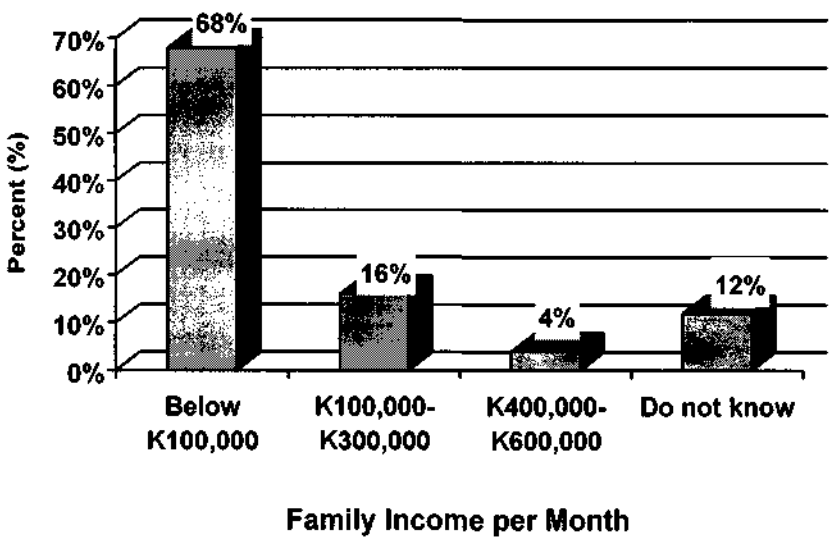
Majority of the respondents, 37(74%) were full time house wives, 11(22%) were self-employed and 2(4%) were formally employed.

FIGURE 8: DISTRIBUTION OF THE RESPONDENTS BY THEIR HUSBANDS OCCUPATION. (N=39)



The majority of the respondents' husbands 21(54%) were self-employed. Only 15(38%) of the respondents' husbands were formally employed.

FIGURE 9: DISTRIBUTION OF THE RESPONDENTS BY THEIR FAMILY MONTHLY INCOME (N=50)



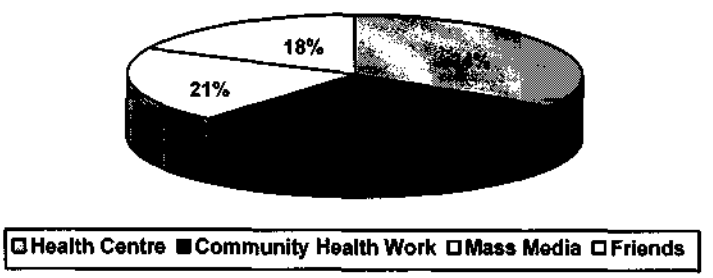
About 34(68%) of the respondents' family monthly income was below K100,000, 8(16%) had a monthly income between K100,000 and K300,000, while 2(4%) of the respondents' family income was between K400,000 and K600,000, and 6(12%) did not know their family monthly income.

TABLE 2: RESPONDENTS' KNOWLEDGE ON MALARIA (N = 50)

VARIABLE Heard about Malaria	FREQUENCY	PERCENTAGE
Yes	50	100%
No	0	-
Total	50	100%
Definition of Malaria		
Right	32	64%
Wrong	18	36%
Total	50	100%
Transmission of Malaria		
Breathing bad air	0	-
Eating contaminated food	1	2%
Bite by mosquito	47	97%
Do not know	2	4%
Total	**50**	**100%**

All the respondents 50(100%) had heard about malaria, 32(64%) were able to give the correct definition of malaria; where as 13(36%) of the respondents were unable to give correct definition of malaria. The majority of the respondents 47(94%) stated that malaria was transmitted by mosquito bite, while 2(4%) of them did not know how malaria was transmitted.

FIGURE 10: RESPONDENTS' SOURCE OF INFORMATION ON MALARIA



The majority of the respondents source of information was health centre, 47 (34%) and 25(18%) had friends as their source of information.

TABLE 3: KNOWLEDGE ON MALARIA (N=50)

VARIABLE	FREQUENCY	PERCENT
Knowledge on signs and symptoms of malaria		
Passing watery stool	4	7%
Having a cough	3	5%
Feeling body pains	41	75%
Do not know	7	13%
Knowledge on prevention of malaria		
Avoiding stagnant water	42	29%
Improving personal hygiene	7	5%
Using ITNs	47	33%
Closing windows & doors early	28	19%
Taking anti malaria drugs	20	14%

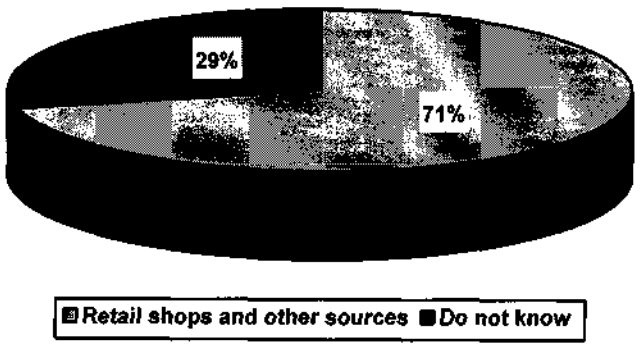
Three quarters of the respondents 41(75%) knew the signs and symptoms of malaria, 7(13%) did not know .On prevention of malaria, 47(29) of the respondents acknowledged use of ITNs as a means or prevention. Approximately 42(29%) of the respondents considered avoiding stagnant water as a means of preventing malaria.

TABLE 4: RESPONTS KNOWLEDGE ON ITNs.

VARIABLE	FREQUENCY	PERCENT
Respondents heard about ITNs		
Yes	50	100%
No	-	-
Total	50	100%
What are ITNs?		
Health Center?	41	82%
Yes	9	18%
No	50	100%
Total		
Are ITNs available at local Health Center?		
Yes	33	66%
No	17	34%
Total	**50**	**100%**

All the respondents 50(100%) had heard about ITNs. 41(82) of the respondents were able to explain what ITNS are and 9(18) of the respondents did not give the correct answer. 33(66%) of the respondents said ITNs were available at their local health center, while 17(34%) of the respondents said ITNs were not available at their local center.

FIGURE 11: RESPONDENTS' KNOWLEDGE ON SOURCE OF ITNS IF NOT AVAILABLE AT LOCAL HEALTH CENTRE (N = 17)



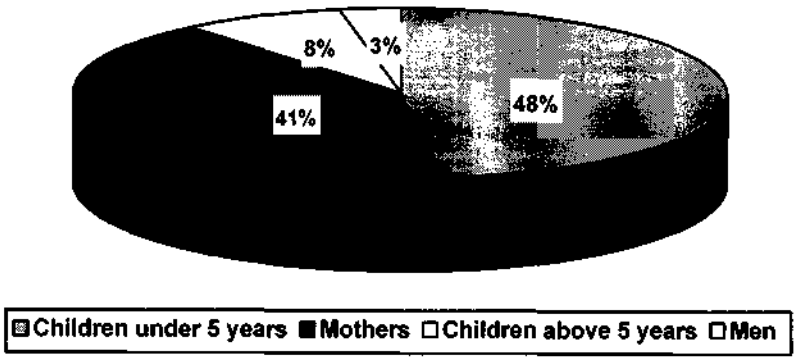
The majority of the respondents 12(71%) knew where to get ITNs when not available at the local health center, while 5(29%) of the respondents did not know.

TABLE 5: RESPONDENTS' KNOWLEDGE ON MALARIA (N=50)

VARIABLES	FREQUENCY	PERCENT
Can malaria be treated		
Yes	50	100%
No	-	-
Total	50	100%
Drugs used to treat malaria		
Right answer	50	100%
Wrong answer	-	-
Total	50	100%
Is malaria dangerous?		
Yes	48	96%
No	2	4%
Total	**50**	**100%**

All the respondents 50(100%) knew at least one drug used to treat malaria such as Fansidar and Quinine. About 48(96%) of the respondents acknowledged that malaria was dangerous, while 2(4%) do not consider it dangerous.

FIGURE 12: RESPONDENTS' KNOWLEDGE WHO IS THE MOST AFFECTED BY MALARIA? (N=50)



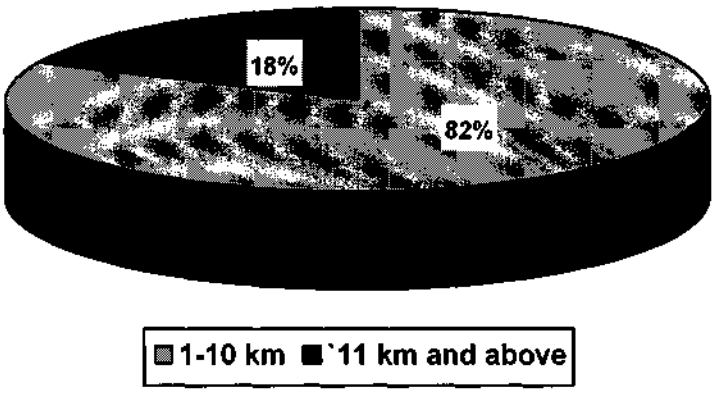
About 47(48%) of the respondents knew that children below the age of 5 years were the most affected by malaria and 40 (41%) also considered mothers the most affected as well.

TABLE 6: RESPONDENTS' ATTITUDE TOWARDS MALARIA AND ITS PREVENTION (N=50)

VARIABLES	FREQUENCY	PERCENT
Where respondents seeking for medical assistance?		
Traditional healers	0	-
Medical personnel	50	100%
Self treatment	0	-
Total	**50**	**100%**
Can ITNs help in prevention of malaria?		
Yes	49	98%
No	1	2%
Total	**50**	**100%**
Would you recommend use of ITNS to others		
Yes	50	100%
No	-	-
Total	**50**	**100%**

All the respondents 50(100%) sought medical help from medical personnel. Approximately 49(98%) of the respondents believed that ITNs could be used in prevention of malaria, while 1(2%) did not support the use of ITNS. However, all the 50(100%) of the respondents would recommend use of ITNs to other people.

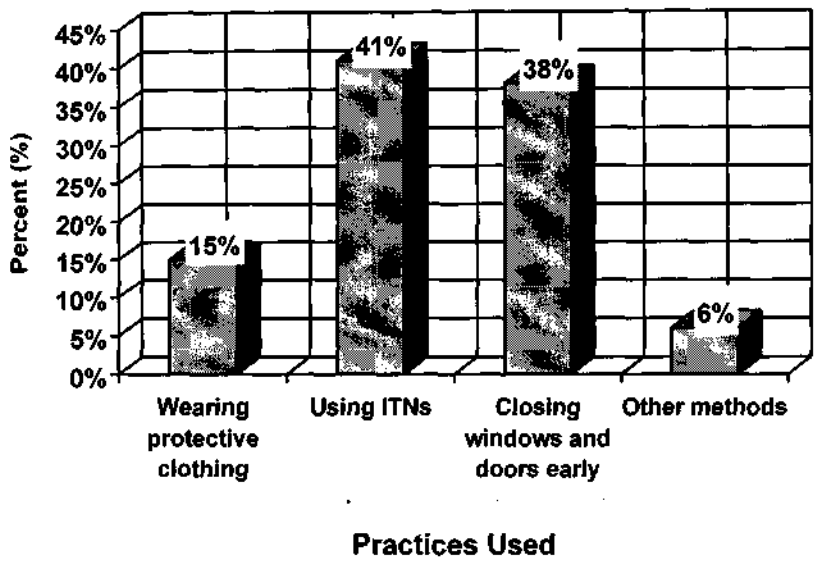
FIGURE 13: DISTANCE FROM THE NEAREST HEALTH FACILITY (N=50)



Majority of the respondents 41(82%) lived within the range of 1-10km and 9(18%) lived within a distance of about 11 km or more away from the health facility.

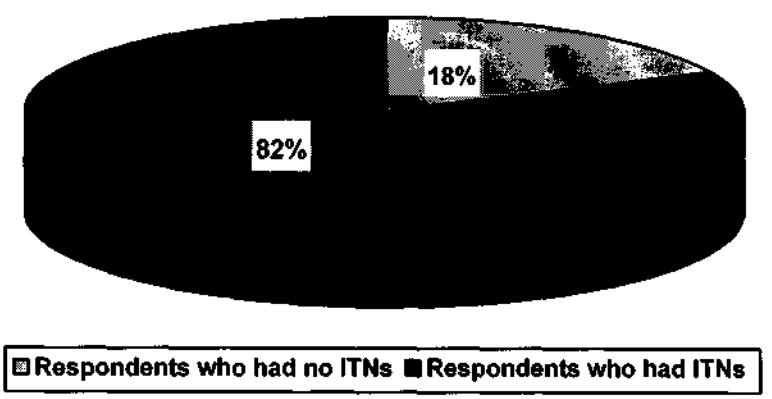
PRACTICES OF RESPONDENTS IN TREATMENT AND PREVENTION OF MALARIA

FIGURE 14: PRACTICES IN PREVENTION OF MALARIA (N=50)



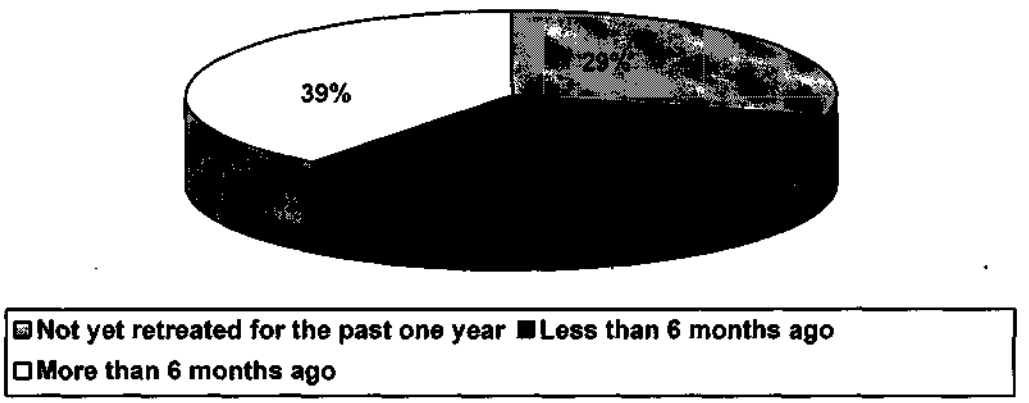
About 41(41%) of the respondents used ITNs in malaria prevention, while 6(6%) of them used other (traditional) methods.

FIGURE 15: RESPONDENTS WHO HAD ITNS (N=50)



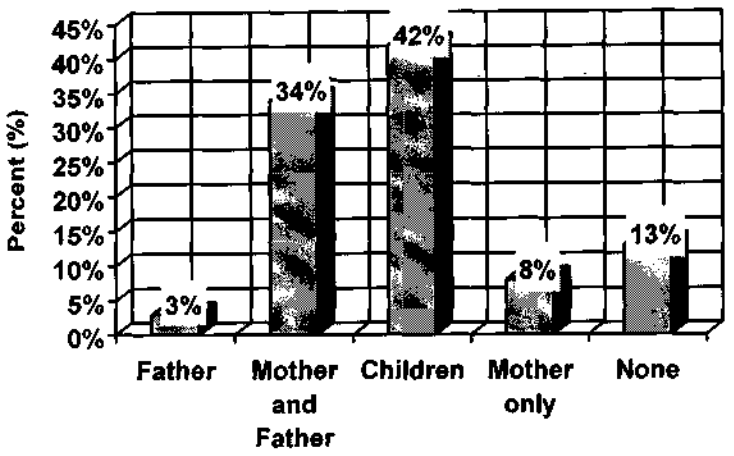
Most of the respondents 41(82%) had ITNs and 9(18%) of them did not have.

FIGURE 16: RESPONDENTS' PRACTICE ON ITNs RETREATMENT



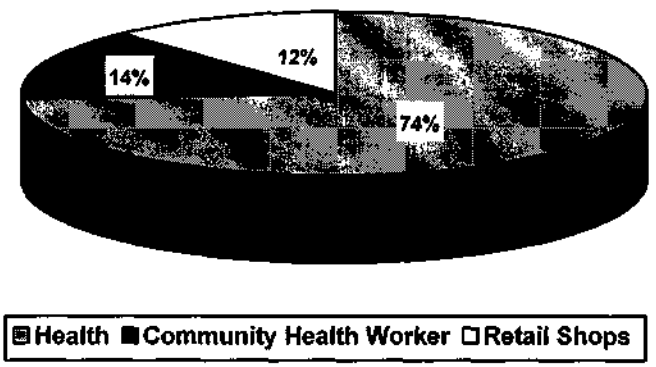
Majority of the respondents 16(39%) had their ITNs retreated more than 6 months ago, 12(29%) had not yet retreated their ITNs for the past year at the time of interview and 13(31%) had their ITNs retreated less than 6 months ago at the time of the interview.

FIGURE 17: PRACTICE OF RESPONDENTS ON USE OF ITNs EVERY NIGHT (N=41)



About 28(42%) of the respondents who had ITNs their children slept under ITN a night before the interview, where as 9(13%) of the respondents did not sleep under the ITN.

FIGURE 18: RESPONDENTS SOURCE OF ITNs (N=41)



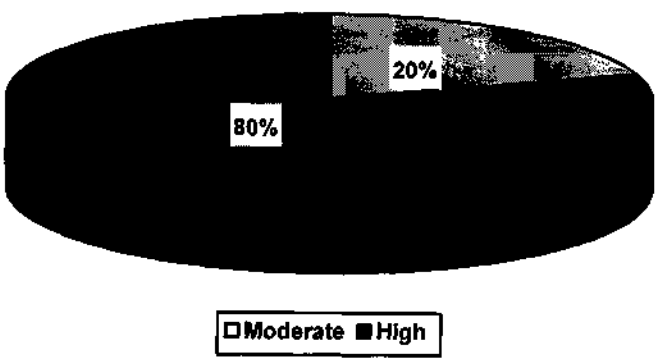
About three quarters of the respondents 32(74%) bought ITNs from the local health centre, 6(14%) of the respondents bought their ITNs from the community Health workers and 5(12%) of the respondents bought their ITNs from retail shops.

TABLE 7: RESPONDENTS' SUGGESTIONS ON HOW TO ENCOURAGE OTHER PEOPLE TO BE USING ITNs (N=50)

SUGGESTIONS ON HOW TO ENCOURAGE OTHERS	FREQUENCY	PERCENT
ITNs should be available at the health facility	15	30%
Health workers to strengthen health education on transmission of malaria and importance of ITNs	24	48%
Cost of ITNs should be reduced	6	12%
ITNs are not comfortable to use and are expensive (negative suggestion).	5	10%
Total	**50**	**100%**

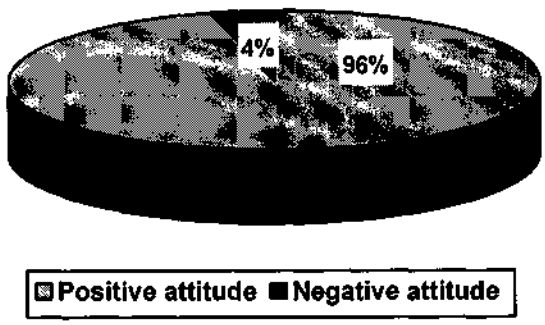
About 24(48%) of the respondents suggested that health education on transmission of malaria and importance of ITNs should be strengthened but 5(10%) of the respondents said that ITNs were not comfortable to use and were expensive.

FIGURE 19: RESPONDENTS' LEVEL OF AKNOWLEDGE ON MALARIA AND ITS PREVENTION (N=50)



Majority of the respondents 40(80%) had high level of knowledge while 10(20%) of the respondents had moderate level of knowledge on malaria and its prevention.

FIGURE 20: RESPONDENTS' ATTITUDE TOWARDS MALARIA AND ITS PREVENTION (N=50)



About 48(96%) of the respondents had positive attitude towards malaria and its prevention while 2(4%) had negative attitude.

FIGURE 21: RESPONDENTS' PRACTICES IN PREVENTION OF MALARIA (N=50)

Three quarters of the respondents 38(76%) were taking adequate preventive measures against malaria while 12(24%) were not.

TABLE 8: RESPONDENTS' LEVEL OF KNOWLEDGE ON MALARIA IN RELATION TO EDUCATION LEVEL (N=50)

LEVEL OF KNOWLEDGE	LEVEL OF EDUCATION				TOTAL
	None	Primary	Secondary	College	
High	4(67%)	23 (77%)	12(100%)	1(50%)	40(80%)
Moderate	2(33%)	7(23%)	0	1(50%)	10(20%)
Low	0	0	0	0	0
Total	6(12%)	30(60%)	12(24%)	2(4%)	50(100%)

All the respondents 12(100%) with secondary education had high level of knowledge, followed by those with primary education 23 (77%) had also high level of knowledge. Those who had no formal education 2(33%) of them had moderate level of knowledge.

TABLE 9: LEVEL OF KNOWLEDGE IN RELATION TO AGE (N=50)

LEVEL OF KNOWLEDGE	RANGE OF AGE IN YEARS				TOTAL
	18-26	27-35	36-44	45 and above	
High	11(100%)	10(83%)	17(75%)	6(86%)	42(84%)
Moderate	0	2(17%)	5(25%)	1(14%)	8(16%)
Low	0	0	0	0	0
Total	11(22%)	12(24%)	20(40%)	7(14%)	50(100%)

Respondents who had high level of knowledge were aged between 18-26 years 11(100%), followed by those aged between 36-44 years 15(75%).

TABLE 10: LEVEL OF KNOWLEDGE IN RELATION TO MARITAL STATUS (N-50)

LEVEL OF KNOWLEDGE	MARITAL STATUS					TOTAL
	Single	Married	Divorced	Widowed	Separated	
High	6(86%)	32(82%)	0	3(100%)	-	41(82%)
Moderate	1(14%)	7(18%)	1(100%)	0	-	9(18%)
Low	0	0	0	0	-	-
Total	7(14%)	39(78%)	1(2%)	3(6%)	-	50(100%)

The majority of the married respondents 32(82%) had high level of knowledge, while 1(14%) of the single respondents had moderate level of knowledge.

TABLE 11: LEVEL OF KNOWLEDGE IN RELATION TO NUMBER OF CHILDREN (N=50)

LEVEL OF KNOWLEDGE	NUMBER OF CHILDREN			TOTAL
	None	1-3	4 and above	
High	-	18(82%)	22(79%)	40(80%)
Moderate	-	4(18%)	6(21%)	10(20%)
Low	-	-	-	-
Total	-	22(44%)	28(56%)	50(100%)

Respondents who had 1-3 children had high levels of knowledge 18(82%), followed by those who had 4 or more children 22(79%).

TABLE 12: LEVEL OF KNOWLEDGE IN RELATION TO RESPONDENTS' MONTHLY INCOME. (N=50)

LEVEL OF KNOWLEDGE	MONTHLY INCOME				TOTAL
	Below K100, 000	K100, 000 to K300, 000	K400, 000 to K600, 000	Do not know	
High	26(76%)	7(88%)	1(50%)	5(83%)	39(78%0
Moderate	8(24%)	1(13%)	1(50%)	1(17%)	11(22%)
Low	0	0	0	0	0
Total	34(100%)	8(16%)	2(4%)	6(12%)	50(100%)

About 7(88%) of the respondents whose monthly income was between K100,000 and K300,000 had high level of knowledge , followed by 26(76%) whose monthly income was below K100,000, where as 1(17%) of those who did not know their monthly income had moderate knowledge.

TABLE 13: ATTITUDE IN RELATION TO EDUCATION LEVEL (N=50)

LEVEL OF KNOWLEDGE	EDUCATION LEVEL					TOTAL
	None	Primary	Secondary	College	University	
Positive	5(83%)	29(97%)	12(100%)	2(100%)	-	48(96%)
Negative	1(17%)	1(3%)	0	0	-	2(4%)
Total	6(12%)	30(60%0	12(24%)	2(4%)	-	50(100%)

Respondents who had primary 29(97%) and secondary education 12(100%) had opposite attitude towards use of ITNs. Only 1(17%) of the respondents with no basic education had a negative attitude (N=50)

TABLE 14: ATTITUDE IN RELATION TO MARITAL STATUS (N=50)

LEVEL OF ATTITUDE	EDUCATION LEVEL				TOTAL
	Single	Married	Divorced	Widowed	
Positive	7(100%)	37(95%)	1(100%)	3(100%)	48(96%)
Negative	0	2(5%)	0	0	2(4%)
Total	7(14%)	39(78%)	1(2%)	3(6%)	50(100%)

About 37(95%) of the married respondents had positive attitude toward the use of ITNs, whereas only 2(5%) of them had a negative attitude.

TABLE 15: ATTITUDE IN RELATION TO MONTHLY INCOME (N=50)

LEVEL OF ATTITUDE	MONTHLY INCOME				TOTAL
	Below K100,000	K100,000 to K300,000	K400,000 to K600,000	Do not know	
Positive	32(94%)	8(100%)	6(100%)	48(96%)	48(96%)
Negative	2(6%)	0	0	0	2(4%)
Total	34(68%)	8(16%)	2(4%)	6(12%)	50(100%)

The majority of the respondents 48(96%) had a positive attitude regardless of their monthly income, while 2(6%) of the respondents whose monthly income was below K100, 000 had a negative attitude.

TABLE 16: PRACTICE IN RELATION TO RESPONDENTS' MONTHLY INCOME (N=50)

LEVEL OF PRACTICE	MONTHLY INCOME				TOTAL
	Below K100, 000	K100, 000 to K300, 000	K400, 000 to K600, 000	Don't know	
Good	25(74%)	3(38%)	2(100%)	5(63%)	35(70%)
Poor	9(26%)	5(63%)	-	1(17%)	15(30%)
Total	34(68%)	8(16%)	2(4%)	6(12%)	50(100%)

The respondents, 25(74%) whose monthly income was below K100,000 had good practice, while 5(63%) whose monthly income was between K100,000 had poor practices towards prevention of malaria.

TABLE 17: PRACTCE IN RELATION TO MARITAL STATUS (N=50)

LEVEL OF PRACTICE	MARITAL STATUS					TOTAL
	Single	Married	Divorced	Widowed	Separated	
Good	4(57%)	32(82%)	1(100%)	3(100%)	-	40(80%)
Poor	3(43%)	7(18%)	-	-	-	10(20%)
Total	7(14%)	39(78%)	1(2%)	3(6%)	-	50(100%)

The married respondents, 32(82%) had good practice where as 3(43%) of the respondents had poor practices towards prevention of malaria.

TABLE 18: PRACTICE IN RELATION TO EDUCATION ATTAINMENT (N=50)

LEVEL OF PRACTICE	EDUCATION ATTAINMENT				TOTAL
	None	Primary	Secondary	College	
Good	3(50%)	24(80%)	10(83%)	2(100%)	39(78%)
Poor	3(50%)	6(20%)	2(16%)	0	11(22%)
Total	6(12%)	30(60%)	12(24%)	2(4%)	50(100%)

Respondents with formal primary education level were 24 (80 %) and 10 (83%) with secondary education had good practices compared with those who had no formal education 3 (50%).

TABLE 19: PRACTICE IN RELATION TO DISTANCE FROM THE HEALTH CENTRE (N=50)

LEVEL OF PRACTICE	DISTANCE		TOTAL
	1-10 km	11 km and above	
Good	31(76%)	8(89)	39(78%)
Poor	10(24%)	1(11%)	11(22%)
Total	41(82%)	9(18%)	50(100%)

About 8(89%) of the respondents who lived within a distance of 11km and above from the health centre facility had good practices, while 10(24%) of the respondents who lived within a distance of 1-10km from the health center facility had poor practices towards malaria.

CHAPTER FIVE

DISCUSSION OF FINDINGS AND IMPLICATIONS TO THE HEALTH CARE SYSTEM

INTRODUCTION

The study was aimed at determining the knowledge attitude and practices of mothers towards insecticide treated mosquito nets as a means of malaria prevention in Kanjakata, Chitanza and Luangeni villages in Chipata District. A standard structured interview schedule was used to collect data (appendix 1).

CHARACTERISTICS OF THE SAMPLE

The sample consisted of fifty (50) respondents selected from the three (3) villages in the study area in Chipata. All the respondents were females.

The majority of the respondents 20(40%) were aged between 36 and 44 years (figure 2). About 12(24%) of the respondents were aged between 18 and 27 and 35 years, 11(22%) were aged between 18 and 26 years and 7(14%) were aged between 45 years and above.

The study revealed that 30(60%) of the respondents had attained primary education, 12 (24%) had secondary education, 2 (4%) had college

education 6 (12%) had no formal education at all (figure 3). These results are similar to what is described in CSO report (2003), which states that gross secondary school ratio was lowest in Eastern Province, at 23.5% and highest in Copperbelt Province at 47%. These results could be due to inaccessibility of secondary education by the majority of school going population in rural parts of Zambia. Other factors could be that there are inadequate secondary school facilities and high poverty levels in rural areas (CSO report, 2003). This picture correlates with the situation, which exist in the area where the researcher conducted the study.

The area where the study was done doesn't have adequate schools to cater for the existing population. There is only one-day secondary school, one basic school and primary schools. Majority of pupils stop school at primary level. Hence most of the respondents in this study attained primary education only.

Most of the respondents 39(78%) were married, 7(14%) were single 3 (6%) widowed and 1 (2%) was divorced (figure 4). This is because marriage is universal in Zambia. 28(56%) of the respondents had 4 and above number of children, and 22(44%) had between 1-3 numbers of children (figure 5). All the respondents had children. This assisted the researcher to determine their knowledge, attitude and practices towards

ITNs use in malaria prevention because the respondents were expected to protect their families from malaria and not only themselves as individuals. Figure 6 reveals that 23(46%) of the respondents, youngest children were aged between 0-2 years, 11(22%) of the respondents, youngest children were aged between 3-5 years and 16(32%) youngest children were aged 5 years and above. All the respondents had children regardless of their marital status. This could be attributed to the fact that children are regarded as source of parental security.

The occupation status of the respondents is shown in figure 7. About 37 (74%) of the respondents were housewives, 11 (22%) were self employed and 2 (4%) were in formal employment. Out of the married respondents only 3(8%) had husbands who were in formal employment, 21 (54%) were self employed and 15 (38%) were not employed. Close to three quarters of the respondents 34 (68%) had their monthly income below K100 000, 8(16%) of them was between K100, 000 and K300, 000, 2 (4%) of the respondents was between K400, 000 and K600, 000 while 6 (12%) did not know how much they were getting per month (figure 9). The findings of this study are confirmed by the CSO, 2003 report that revealed high unemployment levels in the country, (68.2%) regardless whether one has no basic education or has primary education. It further states that over quarter of unemployed population (28.7) had secondary

education. The high unemployment levels could be attributed to structural adjustment policies.

5.2 DISCUSSION OF VARIABLES

5.2.1 KNOWLEDGE ON MALARIA AND ITS PREVENTION

Knowledge is a state of knowing a bout a particular fact or situation (Hornby A .S., 2000). Majority of the respondents in this study had high level of knowledge on malaria and its prevention .To measure the respondents` level of knowledge the following aspects were considered, transmission, definition, signs and symptoms of malaria, drugs used for its treatment and preventive measures.

The study revealed that 10(20%) of the respondents had moderate knowledge on malaria and its prevention and 40(80%) had high level of knowledge (figure19). All the respondents who had secondary education had high level of knowledge while 33% of those who did not have formal education had moderate knowledge. This indicates that education attainment has an influence on mothers' knowledge on malaria and its prevention. However, all the respondents 50(100%) whether they had formal education or no formal education had moderate to high level of knowledge. Furthermore, respondents 11(100%) who were aged between 18-26 years had high level of knowledge while the respondents

5(25%) aged between 36-44 years had moderate level of knowledge. This implies that majority of the respondents with high level of knowledge had primary education. This could be attributed to the fact that the respondents were able to assimilate information easily. It could also be due to the fact that they were taught at school about malaria and its prevention. The study also reveals that respondents were exposed to multiple source of information on malaria and its prevention.

Education attainment is one of the indicators of the status of women in society. The data from 2001-2002 ZDHS show that younger respondents, especially women are more likely to have attended school than the older ones (92% and 89%) of women aged 15-19 and 20-24 respectively compared with 78% of those aged 45-49 years). In this study, respondents with the younger age group had high level of knowledge as indicated in Table 9. It is assumed that these respondents had formal education.

Majority of the respondents 32(82%) had high level of knowledge while other respondents regardless of their marital status had moderate to high level of knowledge (Table 10). The respondents 18(82%) who had 1-3 number of children also had high level of

knowledge and 22(79%) of those with more than four numbers of children had high level of knowledge. None of the respondents had low level of knowledge. High to moderate level of knowledge was demonstrated by respondents' ability to state the correct mode of transmission of malaria. Only 2(4%) did not know how malaria was transmitted (table 2). Majority of the respondents 41(75%) said that feeling body pains was one of the main signs and symptoms of malaria. On preventive measures of malaria, only 7(5%) of the respondents acknowledged that use of ITNs is the most effective method of preventing malaria (Table 3). These results could be due to respondents' accessibility to information as depicted by figure 10. Most of the respondents had multiple sources of information.

These findings are in line with CBOH, (2002) Reproductive Hearth News report, which states that over 93% of women in Zambia go to clinic for antenatal care at same stage during their pregnancy. At antenatal and children's clinic women are educated on malaria and its prevention. This may be one of the reasons why none of the respondents had low level of knowledge concerning malaria.

All the respondents 50(100%) had heard about ITNs. About 41(82%) of the respondents were able to describe what ITNs are (Table 4). The results also show that ITNs were not always available at the health facility. The alternative sources for ITNs when not available at the health facility were retail shops. The CBOH (2002) Reproductive Health News report supports these findings. It states that ITNs are sold in various shops and sometimes are made available through Health centers and antenatal clinics.

The respondents were asked some questions on whether malaria is dangerous and which category of people is the most affected. About 48(96%) of the respondents said it was dangerous (table 5). Mothers and children were considered to be the most affected by the disease. Only 3(3%) of the respondents considered men to be among the most affected by malaria (figure 12) These findings are supported by 2001-2002, ZDHS findings which states that malaria is the leading cause of morbidity and the second highest cause of mortality among pregnant women and children under the age of five.

Moreover, the findings of this study are similar to the results of the study conducted by Netmark (2000) in urban and rural sites in Lusaka. Mansa, Kitwe, Choma and Kaoma where it was found that general knowledge of the respondents about malaria was good and ITNs were considered as the most effective preventive measure against mosquito bites.

The study findings further show that the respondents 9 (82%) who were self employed had high level of knowledge where those who were house wives 30(81%) had also high level of knowledge. The difference between the two groups of respondents is minimal. Therefore, occupation did not affect respondents' level of knowledge provided health education campaigns were carried out in the community and at the health center facilities against malaria.

On the other hand the results of this study are contrary to the study, which was conducted by Mutemwa, S. (1995) where it was found that knowledge of respondents was not adequate and this was attributed to lack of information, education and communication on malaria and its prevention from health care providers. In this study, high level of knowledge is attributed to effective health

education campaigns against malaria both at health center and community levels.

In general, the study results on respondents' knowledge do not support the hypothesis which states that inadequate knowledge on effectiveness of ITNs in malaria prevention has led to low utilization of the nets and an increase in cases of malaria among mothers and children under the age of five.

5.2.2 ATTITUDE TOWARDS MALARIA AND ITS PREVENTION

Attitude is the way that one thinks and feels about something or the way one behaves towards somebody (Hornby A.S., 2000). Most of the respondents` attitude towards use of ITNs as a means of prevention of malaria was good. Majority of the respondents were in favor of use of ITNs and would recommend them to other people in the community.

The respondents were asked some questions concerning their perception towards malaria and its prevention, for instance question was asked on medical seeking behaviour when one is sick in the family. All the respondents 50(100%) sought medical assistance from the health personnel. In addition, health personnel

were considered as the only source of medical treatment for malaria (Table 6).

The majority of the respondents 41(82%) lived between a distance of 1-10km away from the health centre while 9(18%) lived within a distance of 11km and above away from the health facility (figure 13). This did not affect respondents' attitude as all the respondents in this study had access to information on malaria hence their positive attitude towards malaria and its prevention. The respondents were asked another question concerning use of ITNs. It was found that majority of the respondents 49(98%) had positive attitude towards use of ITNs, only 1(2%) had a negative attitude. Negative attitude exhibited by one respondent could be due to misinformation about effectiveness of ITNs. However, all the respondents 50(100%) recommended use of ITNs to other people in the community (Table 6). This could be as a result of effective health education programmes concerning malaria and its prevention. Figure 14 shows that among the respondents with formal education only 1(3%) had negative attitude towards use of ITNs. Education attainment is therefore, an important factor for the respondents to understand the effectiveness of ITNs as a means of malaria prevention.

The study further revealed that 2(5%) of the married respondents had negative attitude. Other respondents 48(96%) regardless of their marital status had positive attitude (Table 14). The negative attitude shown by a small percentage of respondents could be compounded by many factors such as poor economic status and inconsistence in supply of ITNs at Health Centres. Table 15 shows that 2 (4%) of the respondents whose monthly income was below K100 000 had negative attitude. According to these findings economic status has an influence on people's attitude towards issues like malaria and its prevention. The 2001-2002, ZDHS report complement the results and it states that, "most women engaged in agricultural work are self employed (78%) work seasonally or part of the year (82%) and received no payment for their work (63%)". This kind of economic situation could contribute to negative attitude among some of the respondents.

The study results in general show that 48(96%) of the respondents had positive attitude towards use of ITNs as a means of malaria prevention while 2(4%) had negative attitude. This implies that the study findings contradict the hypothesis, which states that

mothers negative attitude towards the use of ITNs has led to high incidence of malaria.

5.2.3 PRACTICE TOWARDS PREVENTION OF MALARIA

Practice refers to what people do, not just having ideas or theories. Majority of the respondents 38(76%) were taking adequate preventive measures against malaria while 12(24%) were not (figure 21). On average the respondents` practice was good.

The study shows that the majority of the respondents 41(82%) had ITNs while 9(18%) did not have (figure 15). Those who did not have ITNs said they could not afford to buy mosquito nets because of financial constraints. They further said that ITNs were not always available at the health center. These two factors may contribute to low utilization of ITNs among women. The 2001/2 ZDHS report supports these findings, as it revealed that most rural women were involved in agriculture and their income is seasonal. They only get cash after selling their agricultural produce in dry season when mosquitoes are few and not a major problem. This is a true reflection of respondents who were involved in the study.

To determine what mothers do to prevent malaria the researcher asked a number of questions to the respondents. The study

revealed that all the respondents 50(100%) used more than one method to protect themselves against mosquito bites. Majority of the respondents 41(41%) were using ITNs, about 6(6%) were using traditional methods such as burning herbal medicine so that the smoke drives mosquitoes away from the house (figure14). The results are contrary to Siame, D. (1999)`s findings in the study entitled, Factors contributing to low utilization of ITNs in Mwinilunga District. He found that only 16% of the people interviewed were using ITNs and about 84% were not using the nets.

The study results further show that the respondents 41(100%) who had bed nets, 16(39%) of them had their nets retreated more than 6 months ago and 12(29%) had not yet retreated their nets for the past one year at the time of interview (figure16). Lack of ITN retreatment by the respondents could be due to little knowledge on the importance of treating their nets and lack of retreatment kits. However, majority of the respondents had their nets retreated within the acceptable period. These results are not in line with the study conducted by Musonda against, (2000) in Luwingu district. He found that few people who had ITNs rarely treated them. This was attributed to lack of insecticides for retreating the nets. The

respondents were also asked whether they slept under ITN a night prior to the interviews. Figure 17 shows that 28(44%) of the respondents who had ITNs said that their children slept under the net, 23(34%) of the respondents said mother and father slept under the net as well, while 9(13%) reported that none slept under the net. The results show that, most of the respondents were using their ITNs and they knew the most at risk individuals. The 2001/2 ZDHS report on use of bed nets revealed that children 16% under five years were reported as having slept under a mosquito net a night before the survey, with 7% of children reported as having slept under a treated net. The results indicate that few children slept under the treated nets while the majority slept under untreated nets. Similarly, most of the respondents in this study may have been using untreated nets since there is no programme to monitor net retreatment in the area.

The respondents 9(13%) who reported that they did not use ITNs as shown in figure 17, said that there was no need to sleep under a net because there were no mosquitoes and it was hot. Some complained that nets harbored dust. It is therefore, true to state that seasons may have an influence on the use of ITNs as

respondents preferred to use ITNs in rain season than in dry season.

The research findings in relation to respondents monthly income and practice show that, majority of the respondents 5(63%) whose monthly income was between K100, 000 and K300, 000 had poor practices, where as 25(74%) of the respondents whose monthly income was below K100, 000 had good practices (Table 16). The reason for such results is not clear. There was need to probe further if time allowed. However, the respondents with poor practices could be among mothers who had many children such that the little financial resources they could get was not adequate to meet all the needs of the family including purchase of ITNs.

The results of this study (as indicated in Table 17) show that single respondents 3(43%) had poor practices towards prevention of malaria. Poor economic status could be one of the factors contributing to this situation. In most cases single mothers have financial problems and are unable to support their families adequately.

Table 18 shows that respondents with primary 24(80%), secondary 10(83%) and college 2 (100% education level had good practices compared with 3(50%) of those without formal education. These results mean that the higher the level of education, the better the practices of the respondents. Education attainment helps people to understand health matters and adopt positive practices. Furthermore, respondents' practice was related to distance away from the health centre. The respondents 10(24%) who lived between a distance of 1-10 km had poor practices whereas those who lived between a distance of 11 km or more had good practices (figure 20). The general assumption is that increased distance away from the health facility and sales points for ITNs decrease net purchase hence contributing to poor practices in malaria prevention. There is need to conduct another study to verify these findings. The question is why is it that respondents who lived near the health facility had poor practices than those who lived far? It could be that respondents who lived near the health centre were taking health messages lightly because they had access to medical care whenever were in need of medical services.

The respondents were also asked to give suggestions on how to encourage more people to use ITNs. Table 7 shows that 24(48%)

of the respondents suggested that health education on malaria and its prevention and importance of ITNs should be intensified. About 6(12%) said that the cost of ITNs should be reduced, 15(30%) of the respondents suggested that ITNs should be made available all the time at the health facility for people to be buying. These are positive suggestions in the promotion of ITNs as a means of malaria prevention. Among the respondents 5(10%) said that they could not encourage other people to use ITNs because they are not comfortable and are expensive. This is another factor that may contribute to low utilization of ITNs.

The results prove the hypothesis correct which state that unavailability of ITNs in the community has led to poor practices among mothers in prevention of malaria. This is because the health centres have irregular supply of ITNs and retreatment kits. It is also true to state that mothers in the community who have ITNs do not use them correctly. This could be the reason why cases of malaria are still on an increase in the area despite the majority of the respondents having mosquito nets.

The results of this study are complemented by World Health Organisation (WHO 2000) findings in the survey entitled, "Insecticide Treated Nets in the 21st century," which revealed that,

the price of nets and insecticides was not the only factor, which influenced cost and affordability. The users also incurred costs in terms of time related to purchasing, hanging and treating nets. It was also documented that many rural households only have cash at certain times of the year, which may not coincide with malaria season, or the time when ITNs are available. Gender differences on who makes household financial decisions could be a contributing factor to lack of ITNs and poor practices in the prevention of malaria.

5.3 IMPLICATIONS TO VARIOUS HEALTH CARE SYSTEMS

The study revealed that respondents' knowledge on malaria and its prevention was moderate 10 (20%) to high 40(80%) levels. This means that most of the people in the area where the study was conducted have some knowledge on malaria. Therefore, there is need to reinforce health education in the area so that the levels of knowledge is increased and sustained.

The attitude of the majority of the respondents 48(96%) was positive, only 2 (4%) had negative attitude. This is an indication that three villages where the researcher conducted the study some people have negative attitude towards ITNs as a means of malaria prevention. People`s

attitude can be improved through education. As such there is need for the health care providers to spend much time in the community and provide information on the use and effectiveness of ITNs. This will require more resources in terms of time and human resources. Therefore, health centre managers need to come up with comprehensive plans of action for outreach services. This is the only way of reaching out to the majority and vulnerable people in the community to improve their attitude.

The study results also show that the practice of respondents was not very good. About 38 (76%) respondents had good practices while 12 (24%) had poor practices. The findings further revealed that 41 (82%) had ITNs while 9 (18%) did not have. Therefore, there is need for Ministry of Health to make ITNs and retreatment kits available in the community through health centre facilities. Availability of ITNs will be a motivating factor to the community to acquire and use them in prevention of malaria.

Health centre staff needs to provide information to the community on economic value of ITNs and their effectiveness. This can be achieved by working with and through church leaders, Traditional Birth Attendants (TBAs), Community Health Workers (CHWs) and other influential people in the community. Provision of information, education and communication

on malaria and its prevention should be intensified at different levels in society in order to combat malaria pandemic.

5.4 CONCLUSION

The study sought to determine the knowledge, attitude and practice of mothers towards utilization of ITNs as a means of malaria prevention in Luangeni, Kanjakata and Chitanza villages in Chipata district.

The study revealed that the majority of the respondents 40 (80%) had high level of knowledge on transmission and prevention of malaria. About 41 (82%) of the respondents had ITNs while 9 (18%) did not have. This is a good indicator that people can manage to protect themselves against mosquito bites provided they use ITNs in the correct way. The study results further show that ITNs were not used throughout the year. This could be one of the reasons for continued increase in the number of cases of malaria.

About 12 (24%) of the respondents had poor practices towards prevention of malaria. This was attributed to poor economic status of the women and lack of power to make individual decisions on health matters. Most of the respondents were full time housewives who were depending on their partners for final decision on financial matters as a result some

could not manage to purchase ITNs and retreatment drugs for the nets. Some of the respondents 2 (4%) had negative attitude towards use of ITNs. This was attributed to inadequate knowledge and misinformation about ITNs.

It was also discovered that ITNs and retreatment kits were not always available at the health centers for the community to access them. This could contribute to negative attitude and poor practices among the respondents. This suggests why cases of malaria are still on an increase. Absence of retreatment kits depicts that Nets were not retreated even if some of the respondents 29 (71%) claimed that their Nets were treated at least once per year.

5.5 RECOMMENDATION

- There is need to carryout a similar study on a large scale in the whole of Chipata district to obtain more accurate information on malaria and its prevention using ITNs.

- The Ministry of Health should consider printing more education materials on malaria in vernacular languages such as Chewa and Nyanja. These teaching aids should be made available to the community based health providers to make it easy for them to communicate to the people.

- The District Health Management Team (DHMT) should initiate a viable credit revolving fund to facilitate the acquisition of bed nets by Neighbourhood Health Committees (NHC) at each health center in the district.

- There is need for the government through the Ministry of Health to further subsidise ITNs so that the majority of the people in the community can access them.

- The District Health Office through the health centers should provide regular technical support and visits to the NHC to monitor malaria prevention programmes.

- Intersectoral collaboration must be promoted by DHMT to make ITNs affordable, accessible, develop regulatory framework and guide lines which can be used by the health centers in their work plans for distribution and retreatment of Nets.

There is need for health centre staff to organize capacity building sessions for NHCs and CHWs on use of ITNs.

Health care providers should continue conducting comprehensive health education programmes at community level.

.6 PLAN FOR DISSEMINATION OF FINDINGS

Dissemination refers to spreading of information, knowledge and other findings so that it reaches many people (Hornby, A.,2000).

Dissemination of the findings will be done through written reports. The researcher will make five copies of the report. The copies of the report will be distributed to the Department of Post Basic Nursing, University of Zambia Medical Library, Ministry of Health, Chipata District Health Office and one copy to the researcher.

5.7 LIMITATION ENCOUNTER DURING THE STUDY

- The study was carried out within a short specified time, which made it impossible for the researcher to conduct focus group discussion to obtain more information on the study problem.

- Funding was inadequate, could not allow the researcher to conduct a large-scale study.

- The size of the sample was small; hence the study findings could not be generalized to a large population in the district.

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APPENDIX I

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

STRUCTURED INTERVIEW SCHEDULE FOR MOTHERS

TOPIC: KNOWLEDGE, ATTITUDE AND PRACTICE OF MOTHERS TOWARDS UTILIZATION OF ITNS IN MALARIA PREVENTION

INSTRUCTIONS TO THE INTERVIEWER

Serial No.:..... Name of Interviewer:.....

Date of Interview:..... Place of Interview:.....

1. Introduce yourself to the respondents.
2. Establish rapport and explain the purpose of the interview.
3. Assure respondents of confidentiality and anonymity.
4. Get verbal consent from the respondent before the interview.
5. Tick ☑ in the box corresponding to the correct answer or write response(s) in the space provided.
6. Ensure that all questions are answered.
7. Do not write the name of the respondent on the interview schedule.

SECTION A: DEMOGRAPHIC DATA

FOR OFFICIAL USE ONLY

1. What was your age on your last birthday?

   .....

2. What is the highest level of education you have attained?

   (a) None
   (b) Primary
   (c) Secondary
   (d) College
   (e) University

3. What is your marital status?

   (a) Single
   (b) Married
   (c) Divorced
   (d) Widowed
   (e) Separated

4. How many children do you have? .....

5. How old is your youngest child? .....

6. What do you do for your living?

   (a) House work
   (b) Self employed
   (c) Formal employment
   (d) Unemployed

7. What does your husband do for a living?

   (a) Unemployed
   (b) Formal employment
   (c) Self employed

FOR OFFICIAL USE ONLY

8. What is your family income per month?

(a) Below K100,000
(b) K100,000 to K300,000
(c) K400,000 to K600,000
(d) Do not know

SECTION B: KNOWLEDGE

9. Have you ever heard of a disease called malaria?

(a) Yes
(b) No

10. If yes to question 9, what is malaria?

.....

.....

11. Which was your source of information?

(a) Health Centre
(b) Friends
(c) Mass media
(d) Community Health Worker

(e) Others (specify) .....

12. How does a person get infected with malaria?

(a) By breathing bad air
(b) By eating contaminated food
(c) Bite by mosquito
(d) Do not know

(e) Others (specify) .....

FOR OFFICIAL USE ONLY

13. How would you know that one has malaria?

(a) By passing watery stool
(b) When one has a cough
(c) By feeling body pains
(d) Do not know?

14. How can malaria be prevented?

(a) Improving personal hygiene
(b) Avoiding stagnant water
(c) Using ITNs
(d) Closing windows and doors early
(e) Taking anti-malaria drugs
(f) Do not know

(g) Others (specify) .....

15. Have you ever heard that there are ITNs?

(a) Yes
(b) No

16. If yes to question 15, what are ITNs?

.....

.....

17. Are ITNs available at your local health centre?

(a) Yes
(b) No

18. If No to question 17, where do people get ITNs?

.....

.....

19. Do you think malaria can be treated?

(a) Yes
(b) No

FOR OFFICIAL USE ONLY

20. If yes to question 19, what drugs are used to treat malaria?

.....

.....

21. In your opinion, do you think malaria is dangerous?

(a) Yes
(b) No

22. If yes to question 21, who do you think is the most affected by malaria?

(a) Men
(b) Mother
(c) Children under 5 years
(d) Children above 5 years

SECTION C: ATTITUDE

23. Where do you seek medical assistance when you or your child get malaria?

(a) Traditional healers
(b) Medical personnel
(c) Self treatment

(d) Others (specify) .....

24. How far is the nearest health centre from your village?

.....

25. In your opinion, do you think ITNs can help to prevent malaria?

(a) Yes
(b) No

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26. If No, give reasons for your answer.

.....

.....

27. Would you recommend ITNs to others in the community?

(a) Yes
(b) No

28. If No to question 27, explain.

.....

.....

29. Who do you think is responsible for prevention of malaria?

(a) Neighbours
(b) Health workers
(c) Everybody in the family
(d) Do not know

SECTION D: PRACTICE

30. As a family, which of these do you practice to prevent mosquitoes from biting you and children?

(a) Wearing protective clothing
(b) Using mosquito nets when sleeping
(c) Closing windows early

(d) Others (specify) .....

31. Do you have an ITN in your home?

(a) Yes
(b) No

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32. If No to question 31, explain.

.....

.....

33. If you have an ITN when was it last treated?

(a) Less than 6 months ago
(b) More than 6 months ago
(c) Not yet treated for the past one year

(d) Others (specify) .....

34. Where did you buy your ITN?

(a) Health centre
(b) Community health workers NHC
(c) Retail shop

35. Who slept under the ITN last night?

(a) The father
(b) Mother and father
(c) Children
(d) Mother (yourself)
(e) None

36. If no one slept under the ITN, explain.

.....

.....

37. Could you suggest on how we can encourage more mothers to use ITNs.

.....

.....

.....

Thank you for your cooperation and participation

***** End of interview *****

APPENDIX II

WORK PLAN

2004 TO 2005

S.N.	ACTIVITY	RESPONSIBLE PERSON	DURATION	TIMING	PERSON DAYS OF INVOLVEMENT
1.	Literature Review	Researcher	19th April to 17th December 2004	Weeks (34) 16-49	170 days
2.	Finalizing Research Proposal	Researcher	19th April to 6th August, 2004	Weeks (27) 16-28	135 days
3.	Data Collection Tool	Researcher	19th April to 6th August, 2004	Weeks (27) 16-28	135 days
4.	Clearance from UNZA Research Committee	Researcher and Supervisor	2nd August to 27th August, 2004	Weeks (4) 30-33	20 days
5.	Conducting Pilot Study	Researcher	30th August to 9th September, 2004	Weeks (2) 34-35	9 days
6.	Training Research Assistants	Researcher	10th September 2004	Weeks (1) 34-35	1 day
7.	Data Collection	Researcher Research Assistants	13th September to 24th September, 2004	Weeks (2) 36-37	10 days
8.	Data Analysis	Researcher	27th September to 8th October, 2004	Weeks (2) 38-40	10 days
9.	Report Writing	Researcher	11th October to 29th October 2004	Weeks (3) 41-43	15 days
10.	Draft Report – PBN	Researcher	1st November to 12th November, 2004	Weeks (2) 44-45	10 days
11.	Finalizing of Report	Researcher	15th November to 13th December 2004	Weeks (5) 46-49	25 days
12.	Monitoring and Evaluation	Researcher and supervisor	19th April, 2004 to January, 2005	Weeks (38) 16-04	190 days

APPENDIX III
GANTT CHART 2004 – 2005

MONTHS		APR	MAY				JUNE				JULY				AUGUST				SEPT				OCT				NOV				DEC				JAN	FEB	MAR
WEEKS			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
WEEKS	Responsible Person																																				
Literature Review	Researcher																																				
Finalize Research Proposal	Researcher																																				
Data collection Tool	Researcher,																																				
Clearance	Researcher, Supervisor																																				
Pilot Study	Researcher																																				
Training Research Assistants	Researcher																																				
Data Collection	Researcher																																				
Data Analysis	Researcher																																				
Report Writing	Researcher																																				
Draft Report to PBN	Researcher																																				
Finalization of Report	Researcher																																				
Monitoring and Evaluation	Researcher and Supervisor																																				

University of Zambia
School of Medicine
Post Basic Nursing Department
P.O. Box 50110
LUSAKA

SEVENTH DAY ADVENTIST CHURCH
MWAMI HEALTH CENTRE
01 SEP 2004
PRIVATE BAG 5 CHIPATA ZAMBIA

August 2004

The In Charge
Mwami Health Centre
P/B5
CHIPATA

U.F.S.: The Head
Department of Post Basic Nursing
School of Medicine
LUSAKA

Dear Sir/Madam,

RE: PERMISSION TO CONDUCT A RESEARCH STUDY

I am a fourth year student at the University of Zambia, School of Medicine undertaking a Bachelor of Science degree in Nursing. As a requirement of the programme, I am required to carryout a research project. My topic of study is "To Determine Knowledge, Attitude and Practices of Mothers Towards Utilization of Insecticide Treated Mosquito Nets in Malaria Prevention". The chosen study site are villages in your catchment area.

I am requesting for permission to carryout a pilot study and collect data for the main study from a random sample of households within the mentioned area above. This is expected to take place in the month of September 2004. I have already obtained permission from Chipata district health office and a copy is attached herewith.

Your assistance will be highly appreciated.

Yours faithfully,

Kaliyangile Benius

Telefax: 21298

In Reply Please Quote

No.

REPUBLIC OF ZAMBIA

MINISTRY OF HEALTH

CHIPATA DISTRICT HEALTH BOARD

OFFICE OF THE DISTRICT DIRECTOR OF HEALTH P.O. Box 511205
Chipata, Zambia

6th September 2004.

Benius Kaliyangile
University of Zambia
School of Medicine
Post basic Nursing Department
P.O. Box 510110
LUSAKA

Dear Sir,

RE: PERMISSION TO CONDUCT A RESEARCH STUDY

We write to acknowledge receipt of your letter dated August 2004 in which you referred to the above subject matter.

We would like to advise you to go ahead to conduct your research in the said area "Mwami Health Centre catchment area".

It our sincere hope that you will receive the maximum support from the concerned communities.

Yours faithfully

Dr. P. M Zulu
District Director of Health
CHIPATA DISTRICT
PMZ/rbm

APPENDIX V

BUDGET

	DESCRIPTION OF ITEMS	NO. OF ITEMS/PERSONS	PERSON DAYS	UNIT COST IN KWACHA	TOTAL COST
1.	**Personnel**				
	Lunch allowance				
	• Researcher	1	20 days	50,000	1,000,000.00
	• Research Assistants	3	10 days x 3	20,000	600,000.00
	Transport				
	• Researcher	1	20 days	20,000	400,000.00
	• Research Assistants	3	10 days x 3	10,000	300,000.00
			SUB TOTAL		**2,300,000.00**
2.	**Stationery**				
	• Flip Chart	1		8,000	8,000.00
	• Markers	2		10,000	20,000.00
	• Pens	8		1,000	8,000.00
	• Pencils	4		500	2,000.00
	• Rubbers	4		300	1,200.00
	• Tippex	1		12,000	12,000.00
	• Stapler	1		15,000	15,000.00
	• Staples	1 box		5,000	5,000.00
	• Scientific Calculator	1		50,000	50,000.00
	• Note books	2		5,000	10,000.00
	• Folders	4		5,000	20,000.00
	• Bond paper	3 Reams		28,000	84,000.00
			SUB TOTAL		**235,200.00**
3.	**Typing Services**				
	• Typing	70 pages		2,000	140,000.00
	• Research Proposal	70 pages		1,000	70,000.00
	• Printing Research Proposal	70 pages		250	17,500.00

	• Photocopying Research Proposal	6 pages		2,000	12,000.00
	• Typing Interview Schedule	6 pages		1,000	6,000.00
	• Printing Interview Schedule	390 pages		250	97,500.00
	• Photocopying Interview Schedule	120 pages		3,000	360,000.00
	• Report Typing (Research) and printing.	120 pages		250	90,000.00
	• Photocopying research report				
			SUB TOTAL		**793,000.00**
	• Binding research proposal	2		15,000	30,000.00
	• Binding research report	4		20,000	80,000.00
	• Diskette	1		3,000	3,000.00
					113,000.00
4.	**Contingency Fund** (10% of budget)				**3,441,200.00 x 10%**
					344,120.00
			GRAND TOTAL		**3,785,320.00**

BUDGET JUSTIFICATION

PERSONNEL

The researcher and Research Assistants need lunch and transport allowance to enable them travel from their residential places to selected villages for data collection. Funds for meals and transport are required.

STATIONERY

Stationery is needed to carryout the study. Stationery include flip chart for data analysis, markers for making lines and tables for data analysis, pens and pencils for writing and drawing, rubbers and tippex for erasing in case of mistakes, note books for writing and other special observations during research process, stapler and staples for putting the papers (records) in an orderly manner, folders for carrying questionnaires, bond paper for printing the questionnaire research proposal and the final reports, scientific calculator is for mathematical calculations during data analysis.

SECRETARIAL SERVICES

Funds are required for typing services. The services include photocopying, printing research proposal, questionnaires and the final research report.

CONTINGENCY FUND

The 10% of the total amount for the budget is added to the whole budget to cover unforeseen expenses which will be required during the research.