FACTORS AFFECTING UTILIZATION OF INSECTICIDE TREATED MOSQUITO NETS AMONG PREGNANT MOTHERS ATTENDING ANTENANTAL CARE AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL ISHAKA

BY

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A RESEARCH REPORT SUBMITTED TO UGANDA NURSES AND MIDWIVES EXAMINATIONS BOARD IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DIPLOMA IN NURSING SCIENCES

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Abstract

A study was carried out in Kampala International University Teaching Hospital, Bushenyi District with the purpose of identifying the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers. A descriptive and cross sectional design was employed and 60 (sixty) respondents were selected using convenient sampling method. Data was collected using a questionnaire.

The study found out that respondents faced various social factors affecting utilization of ITNs among pregnant mothers and although all the respondents 60 (100%) had ever heard of ITNs and 60 (100%) understood ITNs as an insecticide treated bed net which prevents mosquito bites, the majority of respondents 40 (66.7%) did not own an ITN while the majority 40 (66.7%) reported that they only sometimes slept under an ITN every night due to various factors including 14 (26.9%) causing too much heat, 12 (23.2%) said ITNs made it difficult to breathe, 8 (15.4%) disturbed to put up and down every night while 6 (11.5%) said it contained dangerous chemicals.

In conclusion, the researcher noted that respondents faced various factors affecting utilization of ITN among pregnant mothers and this hence required immediate intervention to put preventive measures in practice and reduce the spread of malaria among pregnant mothers in the study setting.

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Dedication

I dedicate my research to my dear father Mr. Matovu David, my dear sisters Nabukenya Irene, Nakibende Alice, Nabacwa Agnes and all my brothers and also to my academic group (Nansubuga R, Nakayenga M, Namaiso J, and Mukose M).

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Definition of terms

Antenatal care: Is the care offered to a pregnant mother from the time of Conception until delivery

Attitudes: The way one thinks, feels, and behaves towards something.

Knowledge: The information, understanding and skills that one gained through Education or experience

Malaria: An infection caused by Plasmodium parasites which invade the human red blood cells.

Maternal morbidity: Is the number of pregnant women or mothers who become sick or diseased.

Maternal mortality: is the number of women or mothers who die from any cause related to or aggravated by pregnancy or its management during pregnancy and childbirth or within 42 days of termination of pregnancy.

Socio economic factors: These are factors related to an individual's ability to acquire or access and pay for items/services

Abbreviations

ANC : Antenatal Care

HIV : Human Immunodeficiency Virus

IPT : Intermittent Preventive Treatment

ITN : Insecticide Treated mosquito Nets

KIUTH: Kampala International University Teaching Hospital

LBW: Low Birth Weights

NGO : Non-Governmental Organization

SP : Sulfadoxine-Pyrimethamine

UNICEF : United Nations Children's Fund

WHO : World Health Organization

CHAPTER ONE: BACKGROUND OF THE STUDY

1.1 Introduction

This chapter presented the background of the study, problem statement, and purpose of the study, specific objectives, research questions and significance of the study.

Insecticide Treated Net (ITN) is a designed bed net with a drug to protect against mosquitoes that cause diseases e.g malaria (MoH, 2013). Insecticide-Treated Nets (ITNs) are known to be highly effective in protecting against mosquitoes that cause malaria and have become an important tool in the prevention of malaria (Alaii et al, 2010).

The ITN remained the most acknowledged tool in ensuring malaria prevention during pregnancy as a trial on 341 pregnant women in Thailand which compared ITNs and untreated nets showed that women using treated nets were less likely to have anaemia and miscarriages (Aygepong and Manderson, 2013). The factors affecting ITN use were many and these included fear of chemicals contained in the ITNs, perceptions that it creates too much heat as well difficulty in breathing (Haines et al, 2012).

Globally, in most endemic areas of the world, pregnant women were the main adult risk group for malaria (Abasiattai, Etukumana & Umoiyoho, 2009), however, outside Africa, malaria infection rates in pregnant women were much lower and almost nonexistent especially in developed countries such as USA, France and Germany (Cottrell, Deloron, Fievet, Sow, Gaye and Le Hesran, 2012). In Africa, particularly the sub-Saharan part which is a tropical region, the incidence of malaria related illnesses was high and therefore required an effective measure in prevention because the poverty level coupled with knowledge gaps

and poor technology cannot meet the treatment cost of the disease hence using the ITN becomes the priority (Hamel, Odhacha, Roberts and Deming, 2013).

In Sub Saharan African countries including Nigeria, Cameroon and Togo, they had already started scaling up free distribution of ITNs (Gambe, Fiekoter &Yartey, 2012). The African summit on Roll Back Malaria in April 2000, adopting the Abuja declaration in which regional leaders committed to ensuring that 60% of pregnant women in malaria endemic communities be protected using effective preventive measures and appropriate treatment against malaria by the year 2005 advocated for three strategies, integrated for control of malaria in pregnancy among mothers (Macintyre et al, 2012).

In East African countries including Kenya and Tanzania, research trials in many malaria endemic areas for the past 13 years had shown that wide spread use of treated mosquito nets reduced maternal and infant morbidity and mortality caused by malaria (Okia, 2012). This was because ITN use was simple, safe, cost effective and requires no sophisticated equipment nor technical expertise in using against exposure to mosquito bites which usually occurred during nights between 8.00pm to 5.00am when almost everyone was asleep (UNICEF, 2013).

In Uganda, the level of awareness about malaria and its transmission varies between 35% to 69%, attitudes towards ITN use were poor as well as utilization of ITNs, thus making it possible to predict that there was under-utilization of ITNs (Meghna et al, 2010). However with increasing evidence that malaria parasites were rapidly evolving to become resistant to available drugs, prevention of infection would be the best option to control malaria in pregnancy (Ladner, Leroy, Simonon, 2012), hence regular and effective use of ITNs.

1.2 Problem Statement

An estimated 75,000 to 200,000 were associated with malaria infection in pregnancy (Allesandro & Aikins, 2013). In Africa, mortality due to malaria was highly prevalent and each year in malaria prone regions of Africa, an estimated 10,000 pregnant women died as a result of malaria (Gamble, 2012).

In Uganda, malaria accounted for 25-40% of all outpatient attendances, 20% of all admissions and 14% of all in-patient deaths and because of the impact malaria had on morbidity and mortality in Uganda, thus effective malaria prevention was a top priority of the Ministry of Health (Achan et al, 2012). Furthermore, reports by WHO (2014) showed that Uganda had the world's highest malaria incidence, with a rate of 478 cases per 1000 population per year, yet malaria infection during pregnancy was the number one cause of miscarriage, still birth, pre-mature birth, intra uterine growth retardation and infertility and 90% of spontaneous abortions in Uganda were caused by malaria in pregnancy (MoH, 2013). Pregnant women often moved long distances to seek treatment for malaria in health centres and hospitals where at times antimalarial were not available yet effective use of ITNs could prevent malaria during pregnancy (Coker, Chukwuani, Ifudu and Aina, 2011). The use of ITNs among pregnant women offers hope because they were effective for the prevention of malaria during pregnancy yet they were also very cost effective. However, these benefits could only be achieved if mothers effectively utilized the ITNs (Kiwanuka, 2013).

Although efforts had been made by the government of Uganda, through the Ministry of Health to supply free insecticide treated mosquito nets to pregnant mothers and the process was still on going, malaria remained prevalent among pregnant mothers especially at

Kampala International University Teaching Hospital. It was hence against this background that the researcher picked interest to carry out this study and identified the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at Kampala International University Teaching Hospital.

1.3 Purpose of the study

The purpose of the study was to investigate the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at Kampala International University Teaching Hospital in an effort to come up with practical measures to improve the utilization of ITNs by expectant mothers.

1.4 Specific Objectives

i. To find out the social factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at KIUTH.
ii. To determine the economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at KIUTH.

1.5 Research Questions

i. What are the social factors that affect utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at KIUTH?
ii. What are the economic factors that affect utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at KIUTH?

1.6 Justification of the study

This could benefit the Ministry of Health as well as health planners and policy makers as it would enable them to plan and implement programs that ensure improved supply and utilization of ITNs among expectant mothers.

The research had direct implications for health care service providers in Kampala International University Teaching Hospital as well as Uganda as a whole as they were encouraged to regularly sensitize and health educate expectant mothers about the importance of effective utilization of ITNs during pregnancy.

This could benefit pregnant mothers at Kampala International University Teaching Hospital as well as other health facilities as they would receive improved sensitization and health education about the importance of ITN use during pregnancy.

The study could provide a valuable point of reference for future researchers carrying out similar studies and also contributed to the available body of literature on the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presented literature reviewed in relation with the specific objectives of the study including the social, economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC as well as measures to improve utilization of ITNs. The literature was referenced and presented beginning with the social factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC.

2.2 Social factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC

Newman et al, (2010) reported in a study about the prevention of malaria during pregnancy in West Africa that some of the social factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC included not taking ITN use during pregnancy as important (60%). It was further revealed that most respondents reported that ITN use at night was uncomfortable (46%).

Guyatt & Snow (2011) reported in their study about the epidemiology and burden of Plasmodium falciparum-related anemia among pregnant women in sub-Saharan Africa, findings revealed that lack of support from partners to ensure effective use of ITNs (72%) was one of the social factors affecting utilization of insecticide treated mosquito nets.

Enato, Okhamafe & Okpere (2007) documented in their study of knowledge, attitude and practice of malaria management among pregnant women from two health care facilities in Nigeria showed that one of the social factors affecting utilization of insecticide treated

mosquito nets were reports that ITNs were not effective for preventing malaria infection during pregnancy (42%).

Similarly, Duffy & Fried, (2010) reported in their study about malaria in the pregnant woman that among the pregnant mothers interviewed in the study, pregnant mothers reported that ITNs caused discomfort and too much heat when used at night (81%) and this was one of the major factors affecting utilization of insecticide treated mosquito nets among pregnant mothers.

Achan et al, (2012) documented in a study about prophylaxis and treatment of malaria in HIV-infected populations, pregnant women did not have positive attitudes towards the utilization of anti-malarial procedures such as the consistent use of insecticide treated bed nets as they believed that ITNs contained dangerous chemicals (55%) which could harm them and their children.

Idowu, Mafiana & Sotiloye (2012) documented in a survey of pregnant women in Abeokuta, Nigeria about anaemia in pregnancy, findings revealed that pregnant mothers reported that ITNs were difficult to put up and down every night (49%) and also made it difficult to breathe (50%) which was found to be a factor affecting utilization of insecticide treated mosquito nets.

2.3 Economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC

Dahesh, Bassiouny and El-Masry (2009) mentioned in a study about the economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC in Fayoum Governorate, Egypt that malaria infection among pregnant mothers

increased with the decrease of socioeconomic level of families as well as the low level of educational attainment of the mothers (67%). For instance, those of low level of educational attainment did not know the importance of effective use of ITNs during pregnancy while those of low socio economic status could not afford to purchase ITNs for all members of their household.

A study by Tshikuka, Scott, Gray-Donald and Kalumba (2010) about multiple infection with Plasmodium and helminths in communities of low and relatively high socio-economic status revealed that economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC was inability to afford or purchase enough insecticide treated bed nets for the entire household (65%) due to large families and low incomes, thus exposing pregnant mothers to the dangers of malaria infection during pregnancy.

Similarly, Schaefer (2011) documented in a study about the economic impact of febrile morbidity and use of permethrin-impregnated bed nets in a malarious area as well as determinants of febrile episodes and the cost of their treatment and malaria prevention that economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC included unemployment among pregnant mothers (70%) which was a key contributory factor to malaria infection. This was attributed to the inability of mothers/caretakers to seek, access and utilize malaria prevention services due to poverty.

Adverse socioeconomic conditions (57%) were documented in a study titled “Environment, Health and Poverty as one of the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC by (Lvovsky, 2012). It was further showed

that a low social economic status of the family led to a much reduced health budget and gross inadequacy of funds for purchasing ITNs as well as accessing health care services.

Yapabandara, Wickramasinghe and Fernando (2011) reported in their study about control of malaria vectors with insect growth regulator pyriproxy fen in a gem-mining area in Sri-Lanka that low social economic status of pregnant mothers (64%) increased morbidity and mortality due to malaria. It was noted that malaria infection rates increased three-fold among those who suffer from poverty, are unable to purchase and effectively utilized ITNs, live in muddy or badly constructed houses near the breeding places. However, it was also revealed that there was a relationship between malaria infection and household wealth, thus the lower the house hold wealth, the higher the risks of malaria infection among pregnant mothers.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

The chapter focused on methodology which included the study design and rationale, study setting and rationale, study population, sample size determination, sampling procedure, inclusion criteria, definition of variables, research instruments, data collection procedure, data management, data analysis, ethical consideration, limitation of the study, dissemination of results.

3.2 Study Design and rationale

The study design was cross sectional and descriptive, employing qualitative data collection techniques. This design was appropriate because the data required in the study was collected once and for all.

3.3 Study setting and rationale

The study was conducted at ANC clinic, Kampala International University Teaching Hospital which is located in Southwestern Uganda in Ishaka municipality, Bushenyi District. The hospital is found along Mbarara to Kasese highway about 77 km from Mbarara town and about 300 km from Kampala city. The hospital has a total of 390 beds and comprises of 104 Nurses and Midwives. It consists of administrative structures comprising of executive director, deputy executive director and various other heads of departments. It offers many health care services including family planning, child health services, obstetrics and emergency care, HIV/AIDS management services, general patient management, laboratory services, nutrition services, antenatal services, ANC offers services like RCT, immunization, (TT), General Examination of the mother, screening of STI's, Booking of all pregnant

mothers, provision of mosquito nets. NC is open from Monday to Friday from 8am-5pm. The study setting was selected because it was well known to the researcher and the required number of respondents were easy to get while the problem of malaria among pregnant mothers was noted on the ground.

3.4 Study Population

The study targeted pregnant mothers attending ANC services at Kampala International University Teaching Hospital.

3.4.1 Sample Size Determination

The study consisted of a sample of 60 respondents, all pregnant mothers attending ANC at Kampala International University Teaching Hospital. This sample size was selected because the researcher deems it representative enough of the study population. The sample size was determined by the use of Krejce and Morgan (1970) sampling table below

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	**200**	**127**	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: “N” is Population Size

“S” is Sample Size.

Since the known study population was 75 mothers who attended ANC each day, the sample size was 63 mothers. However, this was revised downwards to 60 mothers which the researcher deemed representative enough of the study population. Hence, the sample size was 60mothers.

3.4.2 Sampling procedure

Due to the ready availability of respondents, the respondents for the study were selected by the use of simple random sampling procedure. In this procedure, the researcher wrote the words YES and NO on pieces of paper, folded them, placed them in an enclosed box, shook it and then offered potential respondents an opportunity to participate in the study by picking a piece of paper from the box. The box contained an equal number of 30 YES papers and 30 NO papers. Any respondent who picked a paper with the word YES written on it was requested to participate in the study. This continued until the total number of respondents to be interviewed per day was achieved. This method was used because it prevented bias and gave everyone an equal chance and opportunity to participate in the study.

3.4.3 Inclusion criteria

The study included only pregnant mothers attending ANC at Kampala International University Teaching Hospital who were available in the clinic during the data collection days and had voluntarily consented to participate in the study.

3.5 Definition of Variables

The independent variables for the study included:

Social factors affecting utilization of ITNs

Economic factors affecting utilization of ITNs

The dependent variables for the study included:

Utilization of ITNs

3.6 Research Instruments

The researcher collected data from the respondents using a questionnaire which was developed and pre-tested before the study. It had both closed and open-ended questions and was written in English. This allowed respondents to open up, go deeper and give more meaningful responses to the questions asked. The researcher was also available to translate the tool for illiterate respondents.

3.7 Data Collection Procedure

The researcher administered the questionnaires to respondents from the ANC clinic at Kampala International University Teaching Hospitalor any other suitable, safe and convenient place within the hospital. This helped improve and maintain privacy and confidentiality. Data was collected for 6 days and depending on the availability of respondents, the researcher interviewed at least 10 respondents per day.

3.7.1 Data management

Data management included data editing before leaving the area of study to ensure that there were no mistakes or areas left blank, and any mistakes found were corrected before leaving the area of study. Data management also included double checking all the questionnaires for completion before losing contact with the respondents. Questionnaires were coded for easy identification. Data was stored under lock and key and only accessed by the researcher.

3.7.2 Data analysis and presentation

The study data was first analyzed manually, by use of paper and pens and tallying. Data was

presented in form of tables, graphs and pie charts using Microsoft Excel 2010.

3.8 Ethical Considerations

A letter of introduction was obtained from the head of department, Kampala International University, Western Campus, introducing the researcher to the administration of Kampala International University Teaching Hospital and seeking permission to carry out the study. After permission was granted, the medical director introduced the researcher to the in-charge of the ANC clinic who introduced the researcher to the respondents. The study only commenced after the objectives of the study had been clearly and well explained to participants and they had understood and voluntarily consented to participate in the study. Respondents were assured of maximum confidentiality of all the information given and numbers were used instead of respondents' names.

3.9 Limitation of the study

The researcher encountered financial constraints in gathering information from the internet and libraries as well as printing costs. The researcher overcame this limitation by drawing up a budget which was strictly followed to utilize the available means.

The researcher also encountered time constraints in the course of the study, balancing the research study and other demanding course works. The researcher overcame these limitations by considering only priorities.

3.10 Dissemination of results

The results were forwarded to:-

- Uganda nurses and Midwives examination board
- KIUTH Library

CHAPTER FOUR: RESULTS OF THE STUDY.

4.1 Introduction

This chapter presented results from respondents. The researcher gathered data from interview guides. The findings were analyzed and presented in form of tables, figures and graphs where frequency and percentages were used. The researcher interviewed 60 respondents.

4.2 Demographic and Social Characteristics

Table 1: Demographic characteristics of respondents n=60

Age	**Frequency**	**Percentage (%)**
18 – 25 years	30	50
26 – 35 years	17	28.3
35 years and above	13	21.7
Total	**60**	**100**
Level of education	**Frequency**	**Percentage (%)**
No formal education	22	36.7
Primary level	16	26.7
Secondary level	14	23.3
Tertiary level	8	13.3
Total	**60**	**100**
Occupation	**Frequency**	**Percentage (%)**
House wife	30	50
Professional	8	13
Peasant farmer	12	20
Self employed	10	17
Total	**60**	**100**
Marital status	**Frequency**	**Percentage (%)**
Single	10	16.7
Married	50	83.3
Total	**60**	**100**

Results showed that half of the respondents 30 (50%) were in the age range of 18 – 25 years, 17 (28.3%) were in the age range of 26 – 35 years while the least 13 (21.7%) were 35 years

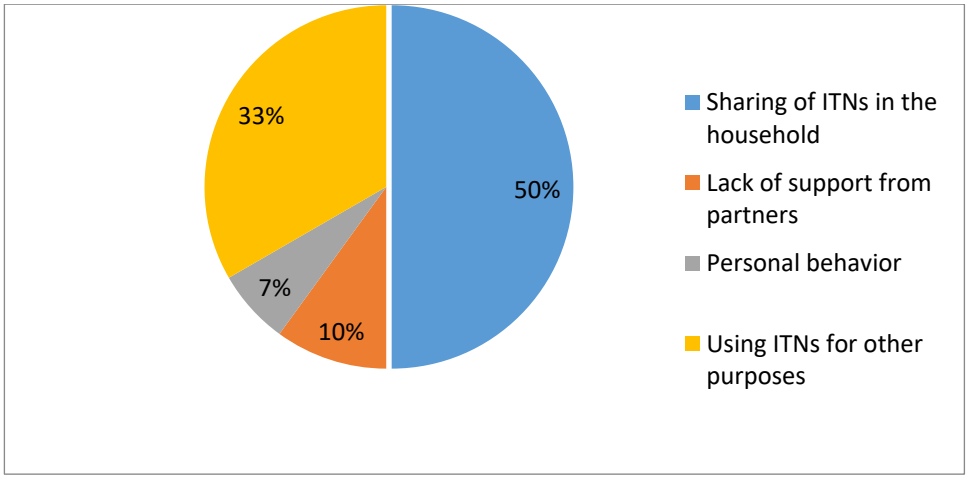
and above. Findings show that 22 (36.7%) respondents had not attained any formal education, 16 (26.7%) attained primary level education, 14 (23.3%) attained secondary level education and 8 (13.3%) attained tertiary level education.

Half of the respondents30 (50%) were house wives, 12 (20%) were peasant farmers, 10 (17%) were self-employed and 8 (13%) were professionals.

The majority of respondents 50 (83.3%) were married while the least 10 (16.7%) were single.

4.3 Social factors affecting utilization of ITNs among pregnant mothers

Figure1: Social factors that affect the use of ITNs n=60



Half of the respondents 30 (50%) reported sharing of ITNs in the household, 20 (33.3%) using ITNs for other purposes, 6 (10%) reported lack of support from partners while the least 4 (6.7%) mentioned personal behavior.

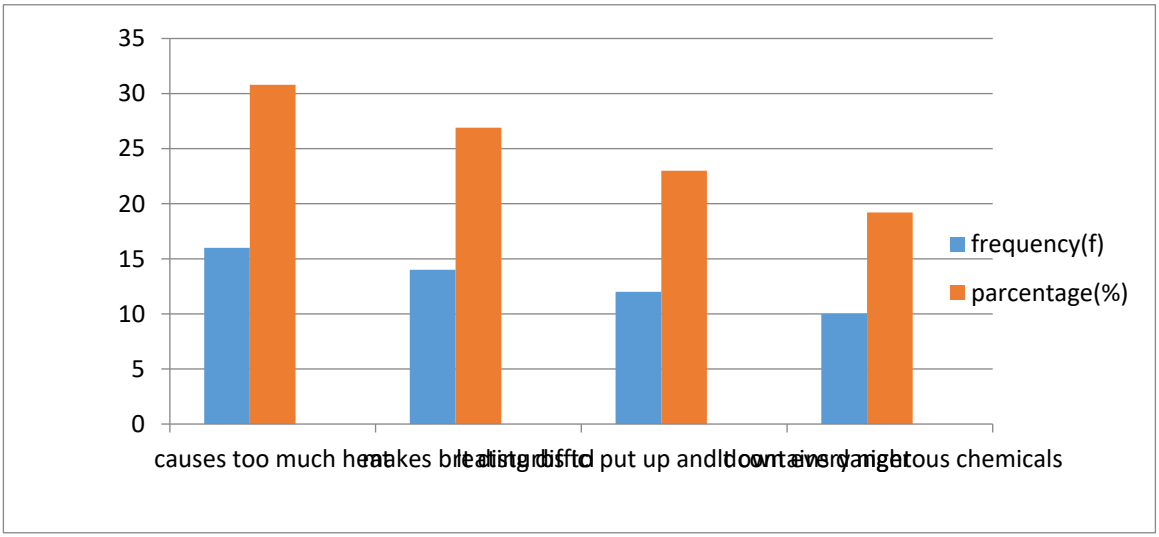
Table 2: Distribution of respondents who had ever heard of ITNs, understanding of ITNs, respondents who had ITNs as well as whether respondents slept under ITNs every night n=60

Responses	**Frequency**	**Percentage (%)**
Yes	60	100
No	0	0
Total	**60**	**100**
Understanding of ITNs	**Frequency**	**Percentage (%)**
An insecticide treated bed net which prevents mosquito bites	60	100
Total	**60**	**100**
ITN ownership	**Frequency**	**Percentage (%)**
Yes	20	33.3
No	40	66.7
Total	**60**	**100**
Responses	**Frequency**	**Percentage (%)**
Sometimes	40	66.7
Always	12	20
Never	8	13.3
Total	**60**	**100**

All of the respondents 60 (100%) had ever heard of ITNs and 60 (100%) understood ITNs as an insecticide treated bed net which prevents mosquito bites. The majority of respondents 40 (66.7%) did not own an ITN while the least 20 (33.3%) owned an ITN.

Most respondents 40 (66.7%) reported that they sometimes slept under an ITN every night, followed by 12 (20%) who said they always sleep under an ITN every night while the least 8 (13.3%) never slept under an ITN.

Figure 2: Reasons for not sleeping under an ITN every night n=52



Out of the 52 respondents who did not ensure that they slept under ITNs every night, most 16 (30.8%) said the ITNs caused too much heat, followed by 14 (26.9%) who said the ITNs made it difficult to breathe, 12 (23%) said it disturbed to put up and down every night while the least 10 (19.2%) said it contained dangerous chemicals.

Table 3: Whether effective use of ITNs during pregnancy reduce the spread of malaria and social factors affecting utilization of ITNs among pregnant mothers n=60

Responses	**Frequency**	**Percentage (%)**
Yes	40	66.7
No	20	33.3
Total	**60**	**100**

Most respondents 40 (66.7%) agreed that effective use of ITNs during pregnancy reduced the spread of malaria because it prevented mosquito bites while the least 20 (33.3%) disagreed.

4.4 Economic factors affecting utilization of ITNs among pregnant mothers

Table 4: What respondents did to earn a living, whether income is enough to purchase household items such as ITNs, n=60

Occupation	**Frequency**	**Percentage (%)**
Peasant farmer	24	40
Self employed	20	33.3
Casual labourer	16	26.7
Total	**60**	**100**
Whether income is enough to purchase items such as ITNs	**Frequency**	**Percentage (%)**
Yes	24	40
No	36	60
Total	**60**	**100**
Whether all household members own ITNs	**Frequency**	**Percentage (%)**
Yes	20	33.3
No	40	66.7
Total	**60**	**100**

Results showed that 24 (40%) were peasant farmers, 20 (33.3%) were self-employed while the least were casual laborers. The majority of respondents 36 (60%) reported that their income was not enough to purchase items such as ITNs while the least 24 (40%) said it was

enough. Results showed that most respondents 40 (66.7%) reported that not all their house hold members owned ITNs while the least 20 (33.3%) said all their household members owned ITNs.

Table 5: Number of ITNs owned in the household, whether ITNs are shared when sleeping and number of people sharing each ITN n=20

Responses	**Frequency**	**Percentage (%)**
1 ITN	4	20
2 – 3 ITNs	10	50
More than 3 ITNs	6	30
Total	**20**	**100**
Sharing of ITNs	**Frequency**	**Percentage (%)**
Yes	15	75
No	5	25
Total	20	100
Number of people sharing each ITN	**Frequency**	**Percentage (%)**
2 – 3	10	66.7
3 people and more	5	33.3
Total	**15**	**100**

The majority of respondents 10 (50%) reported owning 2 – 3 ITNs in their household, 6 (30%) reported owning more than 3 ITNs while the least 4 (20%) reported owning 1 ITN. Most respondents 15 (75%) reported that ITNs where shared in their household when sleeping while the least 5 (25%) did not share them. Most respondents 10 (66.7%) reported that each ITN was shared between 2 – 3 people while the least 5 (33.3%) said it was shared by 3 people and more.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, RECOMMENDATIONS AND NURSING IMPLICATIONS

5.1 Introduction

This chapter presented the discussion of findings, conclusions and recommendations of the study which were obtained after data analysis.

5.1.1 Discussion

5.1.2 Demographic and Social Characteristics

Results showed that half of the respondents 30 (50%) were in the age range of 18 – 25 years, 17 (28.3%) were in the age range of 26 – 35 years. This demonstrated that most respondents were relatively young and this could affect their awareness and utilization of ITN during pregnancy due to inexperience.

Findings showed that 22 (36.7%) respondents had not attained any formal education, 16 (26.7%) attained primary level education, which demonstrated that most respondents had attained little or no education and this could affect their level of knowledge and awareness about factors affecting utilization of ITN among pregnant women attending ANC. This study was in line with Dahesh, Bassiouny and El-Masry (2009) who mentioned in a study about the economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC in Fayoum Governorate, Egypt that malaria infection among pregnant mothers increased with the decrease of socioeconomic level of families as well as the low level of educational attainment of the mothers (67%). For instance, those of low level of educational attainment did not know the importance of effective use of ITNs

during pregnancy while those of low socio economic status could not afford to purchase ITNs for all members of their household.

Half of the respondents 30 (50%) were house wives, 12 (20%) were peasant farmers, which implied that most respondents were not involved in any income generating activity and thus relied on their husbands/partners to ensure adequate access to health care services.

5.1.3 Social factors affecting utilization of ITNs among pregnant mothers

Half of the respondents 30 (50%) reported sharing of ITNs in the household as a social factor affecting use of ITNs, 20 (33.3%) using ITNs for other purposes, 6 (10%) reported lack of support from partners while the least 4 (6.7%) mentioned personal behavior. This shows that most respondents were adequately aware of the factors affecting ITN use which implied that they could come up with solutions to improve the use of ITNs in the homesteads.

All of the respondents 60 (100%) had ever heard of ITNs and 60 (100%) understood ITNs as an insecticide treated bed net which prevents mosquito bites, however, the majority of respondents 40 (66.7%) did not own an ITN which demonstrated that despite awareness of ITNs, ownership of ITNs remained very low and this needed to be improved upon in an effort to reduce the rate of malaria among pregnant mothers.

Most respondents 40 (66.7%) reported that they sometimes slept under an ITN every night. This study is in line with a study by Tshikuka, Scott, Gray-Donald and Kalumba (2010) about multiple infection with Plasmodium and helminths in communities of low and relatively high socio-economic status reveals that economic factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC was inability to afford or purchase enough insecticide treated bed nets for the entire household (65%) due to

large families and low incomes, thus exposing pregnant mothers to the dangers of malaria infection during pregnancy.

Out of the 52 respondents who did not ensure that they sleep under ITNs every night, most 16 (30.8%) said the ITNs caused too much heat, 12 (23%) said it disturbed to put up and down every night while the least 10 (19.2%) said it contained dangerous chemicals. This demonstrated that various reasons affecting the use of ITNs among pregnant women existed which required addressing. This study is in line with a study by Achan et al, (2012) who documented in a study about prophylaxis and treatment of malaria in HIV-infected populations, pregnant women did not have positive attitudes towards the utilization of anti-malarial procedures such as the consistent use of insecticide treated bed nets as they believed that ITNs contained dangerous chemicals (55%) which could harm them and their children. Results showed that 12 (23.2%) respondents reported that ITNs made it difficult to breathe which was not different from the findings of Idowu, Mafiana & Sotiloye (2012) who documented in a survey of pregnant women in Abeokuta, Nigeria about anaemia in pregnancy, findings reveal that pregnant mothers reported that ITNs are difficult to put up and down every night (49%) and also made it difficult to breathe (50%) which was found to be a factor affecting utilization of insecticide treated mosquito nets.

Most respondents 40 (66.7%) agreed that effective use of ITNs during pregnancy reduced the spread of malaria because it prevented mosquito bites which demonstrated that most respondents were aware of the importance of using IPT during pregnancy. This study is in line with Mugisha, Kouyate, Gbangou and Sauerborn (2012) who documented in a study examining out of-pocket expenditure on health care in Nouna, Burkina Faso and

implications for health policy, findings revealed that socio economic factors leading to the spread of malaria were many. It was further revealed that women and children were exposed to mosquito bites while weeding bean fields while men were less exposed because they spent much of the evening away from home and only return late at night.

More than half of the respondents 32 (53.3%) reported lack of interest as a social factor affecting utilization of ITNs among pregnant mothers, followed by 18 (30%) who said they feared chemicals in the ITNs while the least 10 (16.7%) mentioned lack of awareness. This demonstrated that despite aware of the benefits of effective utilization of ITNs, there were various reasons as to why the ITNs were not adequately and effectively used by pregnant women. This study was in agreement with Duffy & Fried, (2010) who reported in their study about malaria in the pregnant woman that among the pregnant mothers interviewed in the study, pregnant mothers reported that ITNs caused discomfort and too much heat when used at night (81%) and this was one of the major factors affecting utilization of insecticide treated mosquito nets among pregnant mothers.

5.1.4 Economic factors affecting utilization of ITNs among pregnant mothers

Results showed that 24 (40%) were peasant farmers, 20 (33.3%) were self-employed while the least were casual laborers. This showed that respondents were of low economic status and this could affect their ability to own and use ITNs for malaria prevention. This study was in line with another study which further showed that a low social economic status led to a much reduced health budget and gross inadequacy of funds for drugs as well as accessing health care services. Furthermore, it was revealed that high birth rates led to a rapid increase in the susceptible population and this, coupled with poor health seeking behavior results into

higher risks of morbidity and mortality associated with malaria infection (Kachur and Slutsker, 2013).

The majority of respondents 36 (60%) reported that their income was not enough to purchase items such as ITNs which implied that since they could not purchase ITNs, many would remain highly predisposed to the risk of malaria infection. This showed that malaria infection was expensive to treat and this could affect the reduction of malaria infection especially for those who are suffering from poverty. Adverse socioeconomic conditions were documented as one of the leading contributors to malaria infection by (Lvovsky, 2012). It was further showed that a low social economic status led to a much reduced health budget and gross inadequacy of funds for drugs as well as accessing health care services. Furthermore, it was revealed that high birth rates led to a rapid increase in the susceptible population and this, coupled with poor health seeking behavior results into higher risks of morbidity and mortality associated with malaria infection (Kachur and Slutsker, 2013).

Results showed that most respondents 40 (66.7%) reported that not all their house hold members owned ITNs. This showed that poverty was one of the major factors affecting use of ITNs in the study setting. This study is in line with Yapabandara, Wickramasinghe and Fernando (2011) who reported low social economic status of mothers to increased morbidity and mortality of these children due to malaria. It was noted that malaria infection rates increased three-fold among those who lived in muddy or bad constructed house near the breeding places. However, it was also revealed that there was a relationship between malaria infection and household wealth, thus the lower the house hold wealth, the higher the risks of malaria.

The majority of respondents 10 (50%) reported owning 2 – 3 ITNs in their household, 6 (30%) reported owning more than 3 ITNs. Most respondents 15 (75%) reported that ITNs were shared in their household when sleeping with 10 (66.7%) reporting that each ITN was shared between 2 – 3 people. This demonstrated that ITN ownership remained very low and yet still, those who owned them shared them which further predisposed to the risk of malaria infection.

The majority of respondents 40 (66.7%) reported that not all their household members owned ITNs which demonstrated that ITN ownership was very low among respondents and their household members in the study setting, a situation which could lead to increased rates of malaria cases among pregnant mothers.

5.2 Conclusion

The study found out that respondents faced various social factors affecting utilization of ITNs among pregnant mothers and although all the respondents had ever heard of ITNs and understood ITNs as an insecticide treated bed net which prevents mosquito bites, the majority of respondents did not own an ITN and reported that they only sometimes slept under an ITN every night due to various factors including ITNs causing too much heat, difficulty to breathe, disturbed to put up and down every night and contained dangerous chemicals.

Respondents faced various economic factors affecting utilization of ITNs among pregnant mothers and although respondents were involved in various activities, their income was little and they could not purchase enough ITNs for each household member, hence leading to sharing of ITNs and increased exposure to malaria infection.

5.3 Recommendations

5.3.1 Recommendations to the Ministry of Health

The Ministry of Health should emphasize upon its sensitization programs for pregnant mothers on the dangers of malaria during pregnancy as well as how it could be prevented.

5.3.2 Recommendations for health workers at Kampala International University Teaching Hospital

Health workers at Kampala International University Teaching Hospital should endeavor to regularly sensitize and health educate pregnant mothers about the dangers of malaria during pregnancy as well as the importance of effective malaria prevention.

Health workers should further endeavor to effectively provide fansidar and encourage pregnant mothers to take all the recommended doses to effectively prevent malaria.

Health workers should emphasize use of IPT as well as ITNs as preventive measures of malaria during pregnancy.

Health workers should ensure that pregnant mothers at Kampala International University Teaching Hospital take all the recommended doses of fansidar during pregnancy and hence avoid all the potential complications associated with malaria during pregnancy.

5.3.3 Recommendations for mothers in Kampala International University Teaching Hospital

Mothers in Kampala International University Teaching Hospital should ensure that they adequately use IPT during pregnancy as a preventive measure of malaria infection.

They should also ensure that they always sleep under ITNs every night and also ensure that they have good sanitation around their homes including removing any stagnant water and slashing bushes around or near the home.

Mothers should have good health seeking behavior for malaria screening and treatment services upon noticing any signs and symptoms of malaria infection.

5.4 Implications to nursing practice

Health workers, especially those in Kampala International University Teaching Hospital can play an important role in the reduction of malaria infection rates among pregnant mothers. This can be achieved through effective provision of IPT to pregnant mothers as well as continuing the sensitization and health education of mothers about the importance of ensuring effective use of ITNs every night as well as adequate sanitation near or around their homes.

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APPENDIX I: CONSENT FORM

Introduction.

My name is **Nemalidde Lydia**, a student at **Kampala International University, Western Campus.** I am carrying out a study to identify the "Factors Affecting Utilization of Insecticide Treated Mosquito Nets among Pregnant Mothers Attending ANC at Kampala International University Teaching Hospital".

Purpose of the study

To find out the factors affecting utilization of insecticide treated mosquito nets among pregnant mothers attending ANC at Kampala International University Teaching Hospital", so as to come up with measures to improve effective ITN use among pregnant mothers. Your contributions will be highly considered confidential; do not write your name and phone number on this questionnaire. The information to be generated from you will give a considerable meaning to the purpose of the study.

Statement of consent.

The purpose and nature of this study has been explained to me and I thoroughly understand that my participation in it is voluntary, with no harmful effects and any information/views/responses given will be treated with utmost confidentiality and only used for the purpose indicated above.

I therefore sign down, to show consent for my approval to participate in it.

Signature/thumbprint……

Date……

Appendix II: Questionnaire

My name is **Nemalidde Lydia**, a student at **Kampala International University, Western Campus.** I am carrying out a study to identify the "Factors Affecting Utilization of Insecticide Treated Mosquito Nets among Pregnant Mothers Attending ANC at Kampala International University Teaching Hospital". You have consented to participate in the study and the information you will give is very valuable and will be treated with maximum confidentiality.

Instructions

Please endeavor to respond to all questions asked by ticking the most correct one and filling in where necessary.

Answer as truthfully as possible to enhance data quality

Section A: Demographic and Social Characteristics

1. Age
   a) 18 – 25 years ☐
   b) 26 – 35 years ☐
   c) 35 years and above ☐
2. Highest level of education
   a) No formal education ☐
   b) Primary level ☐
   c) Secondary level ☐
   d) Tertiary level ☐

3. Occupation

   a) House wife ☐

   b) Professional ☐

   c) Peasant farmer ☐

   d) Self employed ☐

4. Marital status

   a) Single ☐

   b) Married ☐

   c) Divorced ☐

Section B: Social factors affecting utilization of ITNs among pregnant mothers

5. What social factors affect the use of ITNs?

   a) Sharing of ITNs in the household

   b) Using ITNs for other purposes ☐

   c) Lack of support from partners ☐

   d) Personal behavior. ☐

6. Have you ever heard of ITNs?

   a) Yes ☐

   b) No ☐

7. If yes, what is an ITN?

   .....

8. Do you have an ITN?

   a) Yes ☐

b) No ☐

9. If yes, do you sleep under an ITN every night?

a) Sometimes ☐

b) Always ☐

c) Never ☐

10. If never or sometimes, give reasons for your answer……

11. Did you sleep under an ITN last night?

a) Yes ☐

b) No ☐

12. If no, give reasons why not?.....

13. Do you believe that effective use of ITNs during pregnancy reduce the spread of malaria?

a) Yes ☐

b) No ☐

14. Give reasons for your answer……

15. What other social factors affect utilization of ITNs among pregnant mothers?.....

Section C: Economic factors affecting utilization of ITNs among pregnant mothers

16. What do you do to earn a living?.....

17. Is your income enough to purchase items such as ITNs?

a) Yes ☐

b) No ☐

18. Do all members in your household own an ITN?

a) Yes ☐

b) No ☐

19. If yes, how many ITNs do you have……

20. Are these ITNs shared when sleeping?

a) Yes ☐

b) No ☐

21. If yes, how many people share ITNs? ……

Thanks for your participation

Appendix III: Introductory Letter

KAMPALA INTERNATIONAL UNIVERSITY
WESTERN CAMPUS
EXPLORING THE HEIGHTS

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Office of the Dean - School of Nursing Sciences

TO WHOM IT MAY CONCERN

Allowed
KAMPALA INTERNATIONAL UNIVERSITY
KIU
23 FEB 2017
SPNO
TEACHING HOSPITAL

Dear Sir/Madam

RE: NEMALIDDE LYDIA - DNS/E/2891/153/DU

The above mentioned is a student of Kampala International University – School of Nursing Sciences undertaking Diploma in Nursing Science and she is in her final academic year.

She is recommended to carry out her data collection as a partial fulfillment for the award of the Diploma in Nursing Science.

Her topic is FACTORS AFFECTING UTILIZATION OF INSECTICIDE TREATED MOSQUITO NETS AMONG PREGNANT MOTHERS ATTENDING ANTENANTAL CARE AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL - ISHAKA

Any assistance rendered to her will be highly appreciated.

Thank you in advance for the positive response.

KAMPALA INTERNATIONAL UNIVERSITY
22 FEB 2017
DEAN SCH. OF NURSING
P.O. BOX 71, BUSHENYI

Nabaliisa Sarah
RESEARCH COORDINATOR

"Exploring the Heights"

Appendix V: Map of Uganda showing Bushenyi District

BUSHENYI DISTRICT

Appendix VI: Map of Bushenyi District showing Bushenyi District Ishaka municipality where KIU –TH is located.