DETERMINANTS OF OPTIMAL UTILIZATION AND PROTECTION TIME CONFERRED BY INSECTICIDES TREATED NETS AND SULFADOXINE – PYRIMETHAMINE INTERMITTENT PREVENTIVE THERAPY DURING PREGNANCY IN BUKOBA URBAN DISTRICT.

Joyce Protas,

Master of Science Tropical Disease Control Dissertation

Muhimbili University of Health and Allied Sciences

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By

Joyce Protas ,

A dissertation Submitted in Partial fulfillment of the Requirements for the Degree of Master of Science in Tropical disease control of Muhimbili University of Health and Allied sciences

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CERTIFICATION

The Undersigned certify that they have read and hereby recommend for acceptance dissertation report entitled' ***Determinants of optimal utilization and protection time conferred by insecticides treated nets and sulfadoxine pyrimethamine intermittent prevent therapy during pregnancy in Bukoba urban Distrct'*** in partial fulfillment of the requirement for the degree of Master of Science in Tropical Diseases Control of Muhimbili University of Health and Allied Sciences.

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Dr.D.Tarimo
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Date_____

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Dr.C.Moshiro
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Date_____

DECLARATION AND COPYRIGHT

I **Joyce Protas** declare that this Dissertation report is my own original work and that it has not been presented and will not been presented to any other University for a similar or any other degree award.

Signature…….. Date……..

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I wish to express my sincere thanks to my supervisors **Dr. Donath Tarimo** and **Dr. Candida Moshiro** as they spent their valuable time to read between the lines and provide constructive inputs and critiques which at the end of the day yielded this work.

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Lastly I would like to thank the almighty God who guided me to complete this work.

DEDICATION

This dissertation is dedicated to my beloved husband **Dr.Herman Wella** and our son **Stephen** for their lovely commitment and support and to my parents **Lucia K .Temu** and late **Protas Mlay.**

Abstract

Background: Insecticides Treated Nets (ITNs) and Intermittent Preventive Therapy with two doses of Sulfadoxine-Pyrimethamine (SP IPTp) are the cornerstone for malaria control in pregnancy. Although the coverage of these interventions is high, it is not known whether they confer optimal protection time against malaria in pregnancy. Optimal protection time to the baby against placental malaria only occurs when these interventions are used for the entire period when the baby is at the greatest risk to placental malaria. Placental malaria is known to peak in the 2nd trimester; thus for ITNs to confer optimal protection an ITN must be obtained in the 1st antenatal clinic visit between the 12th to 18th weeks of pregnancy while two SP doses must be received in the 2nd visit between the 16th to 24th weeks and in the 3rd visit between the 28th & 34th weeks of gestation. This study investigated the timing of SP &ITNs uptake during pregnancy, the determinants of timely uptake and pregnancy time protected.

Methods: A facility based quantitative cross-sectional study was carried out in Bukoba urban district from 16th April to 29 May 2013. Pregnant women and post natal mothers attending in the Reproductive & Child Health (RCH) clinics of three health facilities were included in the study. Using questionnaire they were asked a series of closed questions about their socio-economic background, pregnancy history and attendance to RCH clinics in the antenatal period. They were also interviewed on the receipt of a voucher and acquisition of an ITN as well as receipt of SP for IPTp; their responses were validated from the records of antenatal cards.

Results: A total of 530 women were recruited into the study. The overall uptake of SP IPTp was 96%, uptake of two SP doses was 86%; only a small percentage (14%) received a single SP dose reasons being unavailability of SP and late antenatal booking. Out of 508 who received SP IPTp, 370 (72.8%) received 1st dose timely. Timely uptake of 1st dose was predicted by early antenatal booking, [OR.1.40 (1.23-1.69) P=0.001], and the availability of SP at the facility [OR.5.28 (2.78-10.008) P=0.000]. Uptake of 2nd dose was independent of any predictor factors. A total of 486 (91.6%) women received ITNs discount vouchers at different gestations; of these less than a quarter (21.4%) received the voucher timely.

Timely receipt of discount voucher was highly predicted by early antenatal booking [OR349 (116-512.86) P=0.000].

Conclusion: Although there is high coverage of SP IPTp & Discount vouchers for ITNs, timely uptake and therefore optimal protection time depended on early antenatal booking, the availability of (SP IPTp) and discount voucher at the facility.

LIST OF ABBREVIATIONS

ANC	Antenatal clinic
IPTp	Intermittent Preventive Therapy in Pregnancy
ITN	Insecticide Treated (Bed) Net
NMCP	National Malaria Control programme
RCH	Reproductive and child health clinic
SP	Sulfadoxine- Pyrimethamine
WHO	World Health Organization
TNVS	Tanzania National Voucher Scheme

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CHAPTER ONE

INTRODUCTION

1.1 Background information

1.11Burden of Malaria in Africa

Malarial infection during pregnancy is a major public health problem in tropical and subtropical regions throughout the world. In most endemic areas of the world, pregnant women are the main adult risk group for malaria. Malaria during pregnancy has been most widely evaluated in Africa south of the Sahara where 90% of the global malaria burden occurs (1). The burden of malaria infection during pregnancy is caused chiefly by *Plasmodium falciparum*, the most common malarious species in Africa (2). Every year at least 25 million pregnancies occur among women in malarias areas of Africa, most of who reside in areas of relatively stable malaria transmission. According to the World Health Organization malaria accounts for over 10,000 maternal and 200,000 neonatal deaths per year (1).

In areas of high and moderate (stable) malaria transmission, most adult women have developed enough immunity that, even during pregnancy, *P. falciparum* infection does not usually result in fever or other clinical symptoms. In these settings, the deleterious impact of malaria is particularly apparent in first and second pregnancies, these include malaria-related anemia in the mother and with the presence of parasites in the placenta result to impairment of fetal nutrition which contributes to low birth weight which is a leading cause of poor infant survival and development(1,3). In areas of Africa with stable malaria transmission, *P. falciparum* infection during pregnancy is estimated to cause as many as 10 000 maternal and 200,000 neonatal deaths each year, 8% to 14% of all low birth weight babies, and 3% to 8% of all infant deaths (4–7)

1.12 Burden of Malaria in Tanzania

Malaria remains a major public health burden in Tanzania, a country with the world's third largest population at risk of stable malaria, after Nigeria and the Democratic Republic Congo (8,9). About 35 million Tanzania's population are at risk, pregnant women and under five children being the most vulnerable groups (8,10). The NMCP's Mid-term Strategic Plan for 2002–2007 reports that malaria account for about 1.3% reduction in national economic growth, 30% of the national disease burden. One recent study in northern Tanzania reported malaria to be responsible for about 20% of all deaths among pregnant women (11) while malaria related anemia contributes significantly to maternal deaths in Tanzania (5).

1.13 Recommended interventions for malaria prevention and control during pregnancy

During the past decade potentially more effective strategies for the prevention and control of malaria in pregnancy have been developed and demonstrated to have a remarkable impact on improving the health of mothers and infants. The World Health Organization (WHO) currently recommends a package of interventions for controlling malaria during pregnancy in areas with stable (high) transmission of *P. falciparum*(12), which includes the use of insecticide-treated nets (ITNs), intermittent preventive treatment (IPT) and effective case management of malaria and anemia. In areas of stable *P. falciparum* transmission, prevention of asymptomatic malaria infection through a two-pronged approach of IPT and ITNs will result in the greatest health benefits.

Policies for malaria prevention and control during pregnancy in areas of stable transmission should emphasize a package of intermittent preventive treatment and use of insecticide-treated nets and ensure effective case management of malaria illness and anemia. The facts that in most African countries over 80% of pregnant women make multiple antenatal clinic visits provides a major opportunity for prevention of malaria, along with other priority diseases affecting pregnant women (12–14).

1.14 Intermittent preventive treatment

Currently, the most effective drug for IPT is Sulfadoxine–Pyrimethamine (SP) because of its safety in pregnancy, effectiveness in reproductive-age women and feasibility for use in programs, since it can be delivered as a single-dose treatment under observation by a health worker(3). IPT with SP has been shown to be effective in reducing the risk of malaria during pregnancy and associated adverse pregnancy outcomes including maternal anemia, placental parasitemia and the incidence of low birth weight(15,16). Current scientific evidence suggests that at least two doses of IPT with SP are required to achieve optimal benefit in most women (6,17,18). The National Malaria Control Programme (NMCP) for mainland Tanzania adopted the WHO recommendations for prevention of malaria in pregnancy in 2001. In Tanzania it is a National policy to offer SP to all pregnant women attending antenatal clinics at between 16-24 weeks for the first IPTp and between 28 to 32weeks for the second IPTp (17).

1.15 Insecticide-treated nets

ITNs reduce human-vector contact by killing or repelling vector mosquitoes, with a documented effect in reducing malaria-related illness and death and improved pregnancy outcomes,(19) ITNs should be provided to pregnant women as early in pregnancy as possible and their use should be encouraged throughout pregnancy and during the postpartum period (2,10,20)

Tanzania has adopted the same strategy of malaria control during pregnancy using ITNs. Since October 2004, the United Republic of Tanzania's national ITN strategy (known as the Tanzania National Voucher Scheme (TNVS)) has provided subsidized ITNs targeted at pregnant women and infants (10). A voucher known as Hati Punguzo (Swahili for 'discount voucher') with a value of US$3 (75% of the cost of an ITN) is distributed to all pregnant women attending antenatal clinic. Partly as a result of this national scheme, nets are widely available throughout Tanzania (21,22). Although the coverage of these interventions is high, it is not known whether they confer optimal protection time against malaria in pregnancy. For ITNs to confer optimal protection time an ITN must be obtained in the 1st antenatal clinic visit

between the 12th to 18th weeks of pregnancy while two SP doses must be received in the 2nd visit between the 16th to 24th weeks and in the 3rd visit between the 28th & 34th weeks of gestation. There is therefore a need to investigate the timing of SP &ITNs uptake during pregnancy, the determinants of timely uptake and pregnancy time protected.

1.2 The Conceptual framework

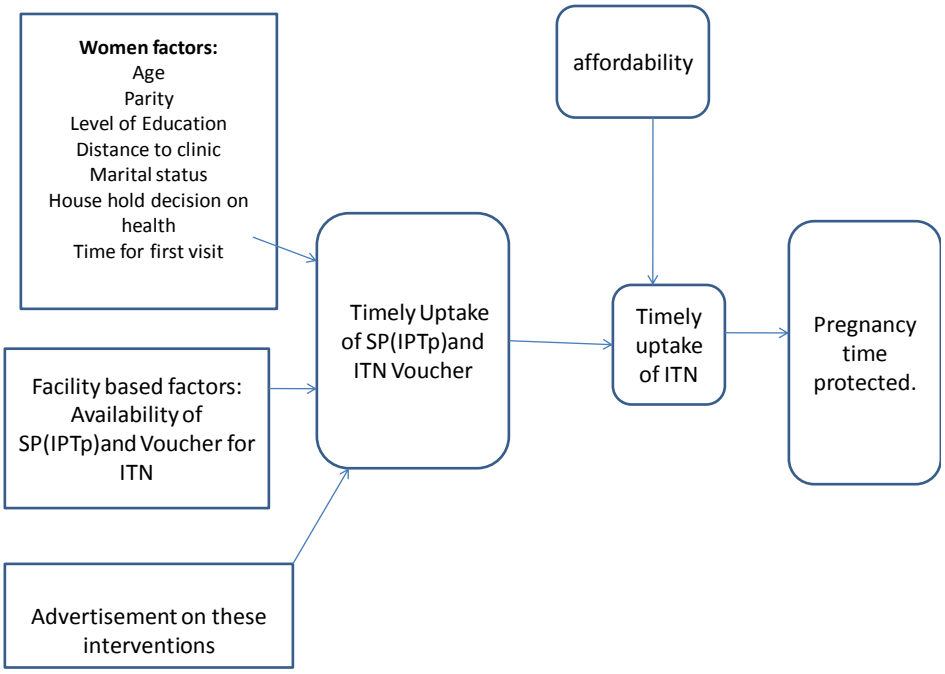
Timely uptake of (SP IPTp) and ITN voucher for ITN may be influenced by various factors (Figure 1). Among the factors may be factors related to women e.g. age, parity, level of education, marital status, household decision on health, and distance to the clinic.

Also advertisement may be one of the factors that influence timely uptake of these products because a woman might hear the importance of these interventions from the radio or TV and hence may attend timely to the clinic.

On top of that timely uptake of ITN voucher does not guarantee timely uptake of ITN because a woman must have top up money to redeem for an ITN therefore affordability may also be one of the factor.

Timely uptake may be affected by other factors related to health facility e.g. availability of these interventions, because women may attend to the clinic timely but these products may be out of stock**.**

Figure 1: Conceptual framework of timely uptake of (SP IPTp), ITN voucher and ITN



1.3 Statement of the Problem

The recommended package of interventions for controlling malaria during pregnancy in areas with stable (high) transmission of *P. falciparum* includes the use of insecticide treated nets (ITNs), intermittent preventive treatment (IPT) and effective case management of malaria and anemia (4,8,12). Although the coverage of these interventions is high (21) it is not known whether they confer optimal protection against malaria in pregnancy. Optimal protection to the baby against placental malaria only occurs when these interventions are used for the entire period when the baby is at greatest risk to placental malaria infection. Placental malaria is known to peak in the 2nd trimester (7), thus for optimal protection against malaria to occur, a voucher for an ITN must be obtained in the 1st antenatal clinic visit between 12th to 18th weeks of pregnancy, while two SP doses must be received in the 2nd visit between 16th to 24th weeks and in the 3rd visit at 28thto34th weeks of gestation in accordance to the antenatal care visit schedules(2).

The time point during pregnancy at which ITN vouchers and SP for IPT are received and used, and the pregnancy time protected as well as the determinants of timely uptake of these interventions have not been fully investigated.

This study was set out to investigate determinants of timely uptake of (SP IPTp) and ITNs discount vouchers and protection time conferred during pregnancy in Bukoba Urban District.

1.4 Research questions

1. What is the proportion of pregnant women who receive SP (IPTp) timely in Bukoba urban distrct?
2. What is the proportion of pregnant women who receive optimal protection after use of (SP IPTp) in Bukoba Urban District?
3. What is the proportion of pregnant women who receive ITN vouchers in Bukoba Urban District?
4. What is the proportion of pregnant women who receive ITN vouchers are able to get ITN nets in Bukoba Urban District?
5. What is the proportion of pregnant women who receive optimal protection after use of ITN obtained through Discount Voucher Scheme in Bukoba Urban District?
6. What are the factors associated with timely uptake of SP (IPTp), ITN voucher and ITN among pregnant women in Bukoba Urban District?

1.5 Hypothesis

Women socio demographic characteristics, timing for the first visit and availability of SP for IPTp and ITNs Vouchers at the facility affect timely uptake of (SP IPTp) and discount vouchers for ITNs.

1.6 Objectives of the study

1.6.1 Broad Objective

To investigate determinants of timely uptake and protection time conferred by Insecticides Treated Nets and Sulfadoxine- Pyrimethamine Intermittent Preventive Therapy during pregnancy in Bukoba Urban District.

1.6.2 Specific Objectives

1) To determine the proportion of pregnant women who received the doses of SP IPTp timely in Bukoba Urban district.

2) To determine the proportion of pregnant women who received ITN Voucher timely in Bukoba Urban District.

3) To determine the proportion of pregnant women who were able to access ITNs after getting ITN vouchers in Bukoba Urban district.

4) To determine the proportion of pregnant women who received optimal protection time after use of SP IPTp in Bukoba Urban district.

5) To determine the proportion of pregnant women who received optimal protection time after use of ITN obtained through Discount Voucher Scheme in Bukoba urban district.

6) To determine factors associated with timely uptake of SP IPTp) and ITN vouchers among pregnant women in Bukoba Urban District.

1.7 Rationale of the study

Most studies done on malaria control interventions in pregnancy in our region have only assessed coverage, we don't know if women receive these interventions at recommended gestational age, the findings from this study are anticipated to contribute to the current knowledge on malaria control interventions in pregnancy mainly on determinants of optimal utilization and protection time conferred by insecticides Treated Nets and Sulfadoxine–Pyrimethamine Intermittent Preventive Therapy during pregnancy which currently is not known. This will also be a base line study for designing further study which may come up with future strategies for preventing malaria in pregnant women with aim of reducing malaria-related infant morbidities and mortalities.

CHAPTER TWO

LITERATURE REVIEW

2.1Introduction

Pregnant women are particularly vulnerable to malaria as pregnancy reduces a woman's immunity to malaria making her more susceptible to malaria infection (18,23). Malaria infection during pregnancy poses substantial risks to the mother, her fetus and the newborn. Consequences of malaria infection during pregnancy include severe anemia, placental parasitemia and intra-uterine growth retardations these factors contribute to low birth weight (LBW) (8).

WHO recommendation for malaria prevention and control during pregnancy in areas of stable malaria transmission in Africa is a package of intermittent preventive treatment, insecticide treated nets with effective management of clinical malaria, which is commonly delivered through collaboration between malaria and reproductive health programme.(2,16)

2.2 Intermittent Preventive treatment (SP-IPTp)

Intermittent preventive treatment (IPTp) is efficacious in reducing the adverse outcomes of pregnancy associated malaria. However, uptake of the recommended two doses is low in Tanzania(24). Tanzania Demographic Health Survey done in 2010 reveal that the Uptake of IPTp one is 70% while the Uptake of IPTp two is 35% (21), various factors explained this difference which include health service delivery systems burdened by poor drug supply, poor health worker practices and low attendance or late presentation to antenatal clinics (24) (25).

2.3 Determinants of Uptake of (SP IPTp)

Various studies have assessed the determinants of uptake of (SP IPTp); one study done in Jinja and another study done in Kenya shows that age, parity, travel time to an ANC, mother education and wealth status influenced the uptake of (SP IPTp), (25)

2.4 Timing of Uptake of SP (IPTp)

There is one study done in North East part of Tanzania on timing of delivery of the first dose of IPTp which revealed that only 67% of women receive the first dose of IPTp at the recommended gestational age (24).

Also another study done in Blantyre Malawi assessed the timing of uptake of first dose and second dose of SP; found that the mean time for the first dose of SP was 22.8weeks while that for the second dose was 31.1weeks (26)

2.5 Use of insecticide-treated nets (ITNs) and its determinants

ITNs reduce human-vector contact by killing or repelling vector mosquitoes, with a documented effect in reducing malaria-related illness and death and improved pregnancy outcomes (23), ITNs should be provided to pregnant women as early in pregnancy as possible and their use should be encouraged throughout pregnancy and during the postpartum period (10,27,28).

A study done at Kigoma Tanzania on determinants of ITN use among Pregnant women revealed that factors influencing use of bednets among pregnant women in Kigoma urban district include marital status, educational level and occupational status (29)

Also a study done in rural Kenya ITN and net use did not vary significantly with the age of the pregnant women. However, when only adolescent mothers (15–19 years of age), who are considered to be a special risk group were selected, ITN use was lower than the overall (30).

2.6 Timing of Uptake of ITN Voucher

Most studies done in our region have only assessed coverage. There is only One Study done in Tanzania on monitoring and evaluation of Tanzania National Voucher Scheme from 2005 to 2007 which found that the Discount Voucher Scheme which were timely taken provide 61% of optimal protection (28).

Also another study done in Tanzania for assessing Use and misuse of a discount voucher scheme as a subsidy for insecticide-treated nets for malaria control in southern reveal that 'Parents had apparently decided to buy subsidized ITN once the child was born and not during pregnancy (31).

2.7 Redeeming of ITN from discount voucher

One study done in Ghana reveal that 57.4% of pregnant women who receive discount voucher obtains net through that (32)**.**

From the literature, it appears that studies which assess the timing of uptake of Malaria Control interventions are quite few. Furthermore, studies on determinants of timely uptake and protection time offered by these interventions have not been done. There is therefore a need of addressing this important public health problem.

CHAPTER THREE

METHODOLOGY

3.1 Study area

The study was conducted in Bukoba Urban District, this District was purposefully selected, due to the fact that, Bukoba is one of the districts in Kagera Region, one of the lake zone regions with high prevalence of malaria (21). Available data show that there is high discrepancy in percentage use of full dose of (SP IPTp) and those who use single dose which is 32% and 87% respectively (21). Bukoba is a town in northwest Tanzania on the western shore of lake Victoria lies only 1º degree of the equator .It is the capital city of the kagera region and the administrative city for Bukoba urban District.Bukoba municipal council has a total of 80 square kilometere where by 22sqkm of that area is covered by water and remaining 58sqkm is land.

In the provision of health services the town has one regional hospital three health centers, ten dispensaries, two private pharmacy and 34 port of drug shops some are run by government and other under private ownership.

A substantial area of Bukoba Municipality is fully utilized for subsistence farming to enable the inhabitants to earn their living. Coffee is the major cash crop grown in the area and banana, maize, sweet potatoes, cassava and yams are the main food.

The people in Bukoba are relatively homogenous in that they are Bantu and Wahaya forming the largest tribe.

3.2 Study design

A facility based quantitative cross-sectional study was carried out in Bukoba urban district to investigate the determinants of timely uptake and protection time conferred by Insecticides Treated Nets and Sulfadoxine- Pyrimethamine Intermittent Preventive Therapy during pregnancy.

3.3 Study population

The study population included pregnant women with 36^{+} weeks of gestation and postnatal mothers attending to the Reproductive & Child Health (RCH) clinics of three public health facilities.

3.31 Inclusion criteria.

All Pregnant women with 36^{+}weeks of gestation and postnatal mothers attending ANC for their first visit (seven days after delivery) were included in the study upon informed consent.

3.32 Exclusion criteria.

Pregnant women who were very sick and who cannot offer sufficient interaction during interview, postnatal mother attending ANC with more than 7 days after delivery and pregnant women below 36 weeks of gestation were not included in the study.

3.4 Variables

Dependent variable

Primary outcome: Timely Uptake of SP IPTp and ITN Voucher

Secondary outcome: Pregnancy time protected, by ITN and SP IPTp

Independent variables

Women socio-demographic characteristics, early attendance to ANC, Availability of SP and ITN at the facility, Advertisement and affordabilityon these interventions.

3.5 Definition of outcome variable

- Timely Uptake of ITN Voucher is self report receiving of ITN Voucher at 12 to 18 weeks of gestation and not more than 18weeks.
- Timely uptake of ITN is self report redeeming of ITN Voucher at 12 to 18 weeks and not more than 18weeks.
- Timely Uptake of (SP IPTp) is self report receiving of:

  First dose of SP between 16th to 24th weeks of pregnancy

  Second dose of SP between 28th to 34th weeks of pregnancy

- Optimal protection is appropriate amount of time for which protection against malaria is conferred by uptake of either of these products.

  For SP between 16-20weeks .(One must receive two doses on time)

  For ITNbetween 22-28 weeks. (One must receive an ITN Voucher, redeem for

  Between 12 to 18 weeks of gestation and use it)

3.6 Sample size estimation

$$n=\frac{z^2 p(100-p)}{d^2}$$

Where; n = number of subjects required.

P= expected proportion of pregnant woman who received the first dose of SP timely= 67%(24)

D=margin of error on p, which is taken to be 4%

Z=standardized Normal Deviate corresponding to significance level of 5 % = 1.96

This gives total number of participants 530.

3.7 Sampling procedures

3.7.1 Selection of the facility

Since in Bukoba Urban District there are Seven Government Health facilities among these facilities there is only one hospital which automatically was included in the study then I made two Strata based on the remaining level of Health Facility. The first strata consist of Health centre and the second consist of Dispensaries. From each Strata one facility was randomly selected, which were Kashai dispensary and zamzam health center.

3.7.2 Selection of women in each facility.

The allocation of the participants per health facility was based on the available information on average minimum number of pregnant women with 36^{+} weeks of gestation and postnatal women attending ANC at Bukoba Urban District per day. This was 4 from Dispensary, 6 from Health centre and 15 from hospital. This made the ratio of 4:6:15.Thus among 530 women 85, 127 and 318 were recruited from the Dispensary, Health center and Hospital respectively. To obtain the required sample size in each health facility,convenience method of sampling was employed. The Research assistants were at the selected health facility from Monday to Friday. Data were collected from 16th April to 29th May 2013.Consecutive women who were attending at these facilities and met the inclusion criteria were included in the study.

3.8 Development of Data collection tool

The tool for data collection was semi-structure questionnaire which comprised of closed questions on the socio-economic background, pregnancy history and attendance to antenatal clinic, It also comprised questions on when do they receive a voucher and acquisition of an ITN; and receipt of SP for IPTp as well as reasons for non-use of these interventions. The questionnaire was translated from English to Swahili.

3.9 Pretesting of research instrument

Pre-testing of the questionnaire before the data collection was done in Bukoba .This was meant to see the logical flow of the questions.

3.10 Training of Research Assistants

Two research assistants were trained on how to interview the participants using questionnaire, this helped the research assistant to familiarize with the tool, and also help the research assistant to know how to recruit the women in this study.

3.11Data collection procedure

Prior to an interview informed consent was obtained then participants were asked a series of closed questions about their socio-economic background, pregnancy history and attendance to antenatal clinic. They were also interviewed on the receipt of a voucher and acquisition of an ITN; and receipt of SP for IPTp as well as reasons for non-use of these interventions. Also the reported use of (SP IPTp) and uptake of ITN Voucher was confirmed by checking the information from antenatal card if recorded against their verbal responses.

3.12 Data Entry, Cleaning and Analysis

Data entry and analysis was carried out using SPSS computer software version 20. Data cleaning to identify errors was done in which case frequency tables were obtained to all study variables. Descriptive analysis was done by using frequencies, percentages and means where appropriate. Association between explanatory variable and the outcome of interest was done using 2×2 tables.

Bivariate and multivariate logistic regression analyses were used to examine independent variables that influence the outcome variable. Odds Ratios with corresponding 95% confidence interval are presented, all independent variable found significant in the univariate analysis were included in the multivariate analysis. A p value of less than 0.005 was considered statistically significant.

3.13 Ethical Consideration

Ethical clearance was be obtained from Muhimbili University of Health and Allied Sciences (MUHAS)Research and Publications committee permission to conduct the study in Bukoba Urban District was be obtained from Regional Administrative Secretary(RAS), District Medical Officer and In-charge of the respective unit. Written consent from the study participants was then obtained .No names of study participants were written in the questionnaires and confidentiality on their information were highly maintained.

CHAPTER FOUR

RESULTS

A total of 530 respondents were recruited into this study in which 85 were recruited from Kashai dispensary, 127 recruited from Zamzam health center and 308 from Bukoba regional hospital. A total of 510 were pregnant women while 20 were postnatal with seven days after delivery. All pregnant women were on their 36+weeks of gestation with age range from 14-44 years; mean age 28.8 years (S.D = 5.8)

Table 1: Characteristics of study population (n=530)

Characteristic	Number	Percentage
Age (years)		
14-17	9	1.7
18-35	469	88.5
36-44	52	9.8
Occupation		
Farmer	184	34.7
Petty business	252	47.5
Employed/Business	94	17.7
Level of education		
No formal education	49	9.2
Primary education	351	66.2
Secondary and above	130	24.5
Marital status		
Married /cohabiting	431	81.3
Single/widow/separated	99	18.7
Gravidity		
Prime	161	30.4
Second	137	25.8
Multi	232	43.8
Parity		
0	182	34.3
1-3	324	61.1
4+	24	4.5

Characteristics of the study population

As shown in Table 1, most of the participants were in the age group between 18-35 years (88.5%) and nearly a half (47.5%) of the study population were petty traders followed by farmers (34.7%). Two thirds (66.2%) of the participants had primary school level of education and the majority were married (81.3%). Multi gravid formed the larger group (43.8%) and nearly two thirds (61.1%) of the participated individuals had parity of 1 to 3.

Table 2: Attendance at antenatal clinics (n=530)

Characteristic	Number	Percentage
First visit (time in weeks)		
≤18 weeks of gestation	138	26.0
>18weeks of gestation	392	74.0
Influence to make a visit		
Self	412	77.7
Husband	96	18.1
Others†	22	4.2
Hours of travel to health facility(minutes)		
≤30	353	66.6
31-60	160	30.2
>60	17	3.2
ANC visit		
One	1	0.2
Two	53	10.0
Three or more	476	89.8

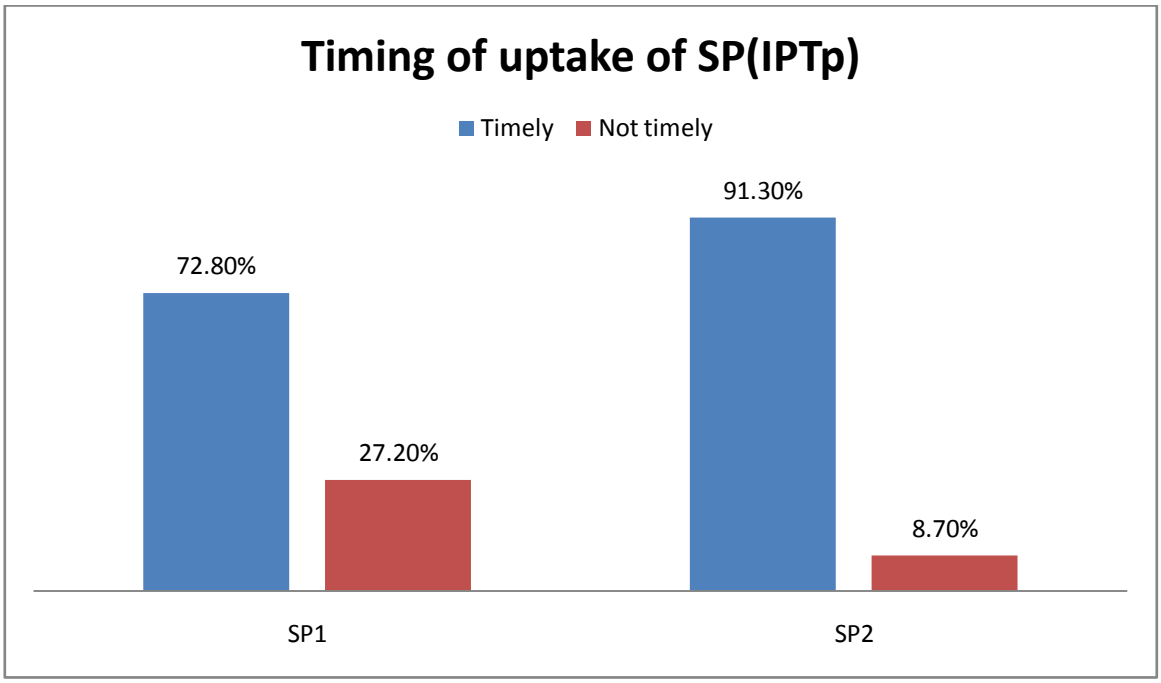
†**Others** include mothers, friends and Radio

Table 2 shows that (74%) of the respondents made their first visit at more than 18weeks of gestation against the guideline, and the majority (77.7%) made decision on their own to visit ANC. Two thirds (66.6%) of the study population walk/travel for less than 30minutes to reach their health care facility, and 476 (89.8%) persons made three or more antenatal visits.

Proportion of pregnant women who receive (SP IPTp) for intermittent preventive treatment in Bukoba urban district.

About 508 (96.0%) out of 530 respondents used (SP IPTp) as an intermittent preventive treatment during pregnancy. Only 22 (4%) did not use because SP was out of stock during the visits 18 (78%) and due to the delay of starting antenatal care 4(22%). Among those who used (SP IPTp) for intermittent preventive therapy, 438 (86%) used two doses while70 (14%) used a single dose mainly due to lack of (SP IPTp) at the facility 60(86%) and delay in starting antenatal visit 10 (14%).

Figure 2: Timing of uptake of SP (IPTp) among participants in Bukoba urban district.



SP1: Timely uptake of first dose of sp at 16 to 24 weeks of gestation.

SP2: Timely uptake of second dose of sp at 28 to 34 weeks of gestation

Figure 2 shows the percentage distribution of women who received the first and second dose of SP timely. Among 508 who received the first dose, 370 (72.8%) received the first dose timely between 16th to 24th weeks of pregnancy and the remaining did not receive the first dose timely. The mean time for receiving the first dose was 21.3 weeks of gestation. Also among 438 pregnant women who received second dose, 400 (91.3%) received the second dose timely between 28th to 34th weeks of pregnancy while the rest did not receive the second dose timely. The mean time for receiving the second dose was 30 weeks of gestation.

Proportion of women who received discount voucher at Bukoba urban district.

Out of 530 respondents, 486 (91.7%) received the discount voucher while 44(8.3%) did not receive the discount voucher. The only reason for one not receiving the discount voucher was its unavailability at the clinic. Of all 486 individuals who received discount voucher, 104 (21.4%) received timely between 12 to 18 weeks of pregnancy and 382 (78.6%) did not receive it timely. The mean time for receiving discount voucher was 20.3weeks of gestation.

Proportion of participants who managed to access ITNs after getting ITN vouchers.

Among 486 women who received discount vouchers, 468 (96%) redeemed for an ITN while 18 (4%) did not redeem for an ITN. The main reason for one not to redeem for an ITN was lack of top up money in 6 (33%) women, 11(61%) did not know shops to get an ITN and 1(6%) had bednet, and did not like to use a net obtain from discount voucher because of its bad smell. Of 468 who redeemed for an ITN, 63 (13.5%) timely redeemed for an ITN that is between 12 to 18 weeks of gestation while 405 (76.4%) did not redeem timely.

Proportion of women who received optimal protection time after using (SP IPTp) for intermittent preventive treatment in Bukoba Urban district.

Among 530 respondents, 438 (86%) received two doses of (SP IPTp) **.**Of all women who received two doses of (SP IPTp) for intermittent preventive treatment, 340 (77.6%) received an optimal protection time and 98 (22.37%) did not receive an optimal protection time. To have an optimal protection one must receive two doses, and both doses must be timely received that is for the first dose between 16^{th} to 24^{th} weeks of gestation and second dose between 28^{th} to 34^{th} weeks of gestation.

Proportion of study population who received optimal protection time after use of ITN obtained through discount voucher scheme.

About 468 women redeemed for an ITN, 63 (13.5%) received an optimal protection time and 405 (76.4%) did not receive an optimal protection time after using ITN obtained through discount voucher scheme. To have an optimal protection time one must obtain and use ITN within 12 to 18 weeks of gestation.

Table 3: Bivariate analysis of factors associated with timely uptake of the first dose of SP in Bukoba urban district.

Variable	Total received first dose of SP (n=508)	Timely uptake first dose of SP (n=370) No. (%)	OR (95% CI)	P value
Age(Years)				
14-17	7	6(85.7)	1	
18-35	449	334(74.4)	0.47(0.26-1.08)	0.18
36-44	52	30(57.7)	0.23(0.03-2.20)	0.12
Marital status				
Not married	95	67(70.5)	1	
Married	413	303(73.4)	1.15(0.70-1.80)	0.53
Education				
No formal	45	30(66.7)	1	
Primary	341	254(74.5)	1.19(0.57-2.48)	0.63
Secondary/college	122	68(70.5)	1.18(0.52-1.29)	0.39
occupation				
Farmer	177	133(75.1)	1	
Petty business women	244	180(73.8)	0.67(0.39-1.14)	0.14
Business women	87	57(66.6)	0.63(0.36-1.09)	0.10
Visit(weeks of gestation)				
Late>18weeks	375	257(68.5)	1	
Early≤18weeks	133	113(85.0)	2.59(1.53-4.38)	<0.0001
Availability of SP				
No	54	22(40.7)	1	
Yes	454	348(76.7)	4.78(2.66-8.57)	<0.0001
Distance to health facility				
≤ 30minutes	340	262 (77.1)	1.45 (0.16-1.61)	0.14
31-60	153	101(66.0)	1.26(0.92-1.74)	0.11
>60	15	7 (46.7)	1	
Influence to make visit				
Friends/radio	20	8(40.0)	1	
Husband	91	69(75.9)	1.48(1.97-2.07)	0.002
Self	397	293(73.8)	1.59(1.51-4.47)	0.003
Parity				
0	170	126 (74.1)	1	
1-3	314	234(74.5)	1.01(0.10-1.60)	0.07
4+	24	10(41.7)	0.24 (0.10-1.59)	0.09
Gravity				
Prime	223	150(67.3)	1	
Second/multipara	285	220(77.2)	1.26(1.20-1.59)	0.013

Table 3 shows factors associated with timely uptake of first dose of SP. Early attendance for the first visit influences early uptake of first dose of SP. Those who attended to the facility early were 2.6 times more likely to receive the first dose timely compared to those who made their first visit after 18weeks of gestation [OR=2.59((1.54-4.38),p<0.0001]. Also women who attend to the facility when SP was available were 4.8 times more likely to receive the first dose timely compared to women who attend when SP was out of stock [OR=4.78(2.66-8.57); p<0.0001]. Furthermore, secondgravida or multigravida women were 1.26 times more likely to receive the first dose timely compare to primigravida [OR=1.26(1.20-1.595),p=0.013].The decision to attend the health facility also has an impact on early uptake of first dose of SP. Women who were influenced by their husband to make their first visit were 1.4 times more likely to receive the first dose of SP timely compared to those who were influenced by friends and hear announcements from radio [OR=1.48(1.97-2.07); p=0.002] .Those who self decide to attend were 1.6 times more likely to receive their first dose of SP timely compared to those who were influenced by friends/hear announcement from radio[OR=1.59(1.51-4.47); p=0.003]. Other factors like age, level of education, occupation, marital status distance to the health facility were not statistically significant.

Table 4 below shows the results from multivariate analysis of factors associated with timely uptake of first dose. Women who made their first visit on time were 2.6 times more likely to receive their first dose of SP as the guideline suggest [Adjusted OR=2.59(1.51-4.46) p=0.001]. Also availability of SP at the facility influenced early uptake., Women who attended to the facility when SP was available at the facility were 4.6 times more likely to receive their first dose of SP timely as compared to women who attended when SP was out of stock [Adjusted OR=4.63(2.51-8.54); p=000

Table 4: Multivariate analysis of factors associated with timely uptake of first dose of SP.

Variable	Adjusted OR(95%CI)	P value
Visit (weeks of gestation)		
Late>18weeks	1	
Early≤18weeks	2.59(1.51-4.46)	0.001
Availability of SP		
No	1	
Yes	4.63(2.51-8.54)	<0.0001
Gravity		
Prime	1	
Second/multipara	1.16(0.99-1.59)	0.07
Influence to make a visit		
Friends/radio	1	
Husband	1.42(0.97-2.07)	0.39
Self	1.17(0.51-4.47)	0.69

Table 5 below shows the results from bivariate analysis of factors associated with timely uptake of second dose of SP. None of the factors were significantly associated with timely uptake of second dose of SP.

Table 5:Bivariate analysis of factors associated with timely uptake of second dose of SP

Variable	Total received second dose of SP (n=438)	Timely uptake second dose of SP (n=400) No. (%)	OR(95%CI)	P value
Age(years)				
14-17	7	7(100)	1	
18-35	385	353(91.7)	0.61(0.24-1.53)	0.29
36-44	46	40(87.0)	0.01(0.00-1.03)	0.99
Marital status				
Not married	82	73(89.0)	1	
Married	356	327(91.9)	1.39(0.63-3.06)	0.41
Education				
No formal	40	38(95.0)	1	
Primary	290	265(91.4)	0.83(0.39-1.75)	0.33
Secondary/college	108	97(89.8)	0.46(0.09-2.19)	0.44
occupation				
farmer	157	150(95.5)	1	
Petty business women	207	185(89.4)	0.86(0.38-1.96)	0.72
Business women	74	65(87.8)	0.34(0.12-1.94)	0.08
Visit(weeks of gestation)				
Late>18 weeks	321	290(90.3)	1	
Early≤18 weeks	117	110(94.0)	1.68(0.71-3.93)	0.24
Availability of SP				
No	8	6(75.0)	1	
Yes	430	394(95.5)	3.64(0.71-18.73)	0.12
Distance to health facility				
>60	9	7(77.8)	1	
31-60	133	121(91)	1.34(0.06-1.86)	0.15
≤ 30 (minutes)	296	272(91.9)	1.38(0.61-1.57)	0.21
Influence to make visit				
Friends/radio	15	14(93.3)	1	
Husband	79	69(87.3)	0.42(0.97-2.07)	0.07
Self	344	317(92.2)	1.12(0.51-4.47)	0.09
Parity				
0	145	131(90.3)	1	
1-3	271	251(92.6)	1.08(0.14-1.62)	0.24
4+	22	18(81.8)	0.35(0.11-1.61	0.08
Gravity				
Prime	307	283(92.2)	1	
Second/Multipara	131	117(89.3)	0.41(0.37-2.82)	0.33

Table 6: Bivariate analysis of factors associated with timely uptake of discount voucher

Variable	Total received discount voucher (n=486)	Timely uptake of discount voucher (n=104)	OR(95%CI)	P value
		No. (%)		
Age (years)				
14-17	8	3(37.5)	1	
18-35	427	95(22.2)	0.47(0.19-1.12)	0.9
36-44	51	6(11.8)	0.22(0.04-1.17)	0.08
Marital status				
Not married	85	21(24.7)	1	
Married	401	83(20.7)	0.79(0.46-1.37)	0.44
Education				
No formal	48	9(18.8)	1	
Primary	324	67(20.7)	1.25(0.75-2.07)	0.389
Secondary/college	114	28(24.6)	1.41(0.61-3.27)	0.42
Occupation				
Farmer	177	33(18.6)	1	
Petty business women	230	54(23.5)	1.86(0.38-1.96)	0.72
Business women	79	17(21.5)	1.19(0.62-2.31)	0.59
Visit(weeks of gestation)				
Late>18 weeks	360	6(1.7)	1	
Early ≤18 weeks	126	98(77.8)	206(83.15-512.84)	<0.0001
Gravity				
Prime	139	44(31.7)	1	
Second/multipara	347	60(17.3)	0.45(0.28-0.71)	0.01
Distance to health facility				
>60	16	3(18.8)	1	
31-60	149	23(15.4)	0.72(0.20-2.59)	0.61
≤ 30minutes	321	78(24.4)	1.26(0.33-4.79)	0.73
Influence to make visit				
Friends/radio	17	1(5.9)	1	
Husband	86	15(17.4)	1.21(0.03-1.60)	0.13
self	383	88(23.0)	1.29(0.04-2.41)	0.26
Parity				
0	160	49(30.6)	1	
≥ 1	326	55(18.0)	2.18(1.39-3.39)	0.001

Table 6 above shows bivariate analysis of factors associated with timely uptake of discount vouchers. Only three factors were significantly associated with timely uptake of discount voucher. Early visit was significantly associated with timely uptake of the discount voucher. Women who made their first visit timely were 206 times more likely to receive their discount voucher timely than women who made their first visit late [0R=206(83.15-512.84) p=0.000] .Also gravidity was significantly associated with timely uptake of discount voucher. Women who were secondgravida and multigravida were less likely to receive their discount voucher on time compared to primigravida. [OR=0.45, (0.28-0.71); P=0.01]].Lastly parity also influence early uptake of discount voucher. Women with a child were 2.18times more likely to receive the discount voucher timely than prime [OR=2.18(1.39-3.39); P=0.001].

Table 7: Multivariate analysis of factors associated with timely uptake of discount voucher

Variable	Adjusted, OR(95%CI)	P value
Visit (weeks of gestation)		
Late>18weeks	1	
Early≤18weeks	200(80.38-498)	<0.0001
Gravidity		
Prime	1	
Second/Multipara	0.56(0.25-1.24)	0.15
Parity		
0	1	
≥ 1	1.85(0.19-3.75)	0.83

Table 7 shows the results from multivariate analysis. Women who made their first visit timely were 200 times more likely to receive the discount voucher on time compare to women who made the visit late after adjusting for parity and gravidity, [Adjusted OR=200(80.38-4.98) P<0.0001]

CHAPTER FIVE

DISCUSSION AND STUDY LIMITATIONS

5.1Discussion

Roll back malaria (RBM) movement promotes the use of insecticides treated bednets (ITNs) and intermittent preventive treatment (IPTp) for protection against adverse effects of malaria among pregnant women in Africa (2,14)

The Tanzanian government recommends women who attend antenatal care (ANC) to accept receiving intermittent preventive treatment against malaria during pregnancy (IPTp) and voucher for insecticides treated nets (ITNs) to obtain ITN at subsidized price. (SP IPTp) must be given in two doses to all pregnant women; the first dose should be given at 16 to 24 weeks of pregnancy, and second dose between 28 to 34 weeks of pregnancy (14).

Findings of this study show that majority of respondents used (SP IPTp) for intermittent preventive treatment, 508(96%) used (SP IPTp) while 22(4%) did not use (SP IPTp) for intermittent preventive treatment. The main reason for not using (SP IPTp) was 18(78%) out of stock of SP for IPTp at the facility and 4(22%) was due to delay in starting antenatal visit.

Among 508 respondents 438(72%) used two doses of (SP IPTp), this is higher proportion than that reported in previous study where the uptake of the first dose was 87% and for second dose was 32% (21), the increased in percentage of pregnant women taking SP for IPTp may be a result of continued advocacy and sensitization carried out in the country by various stakeholder under NMCP, the reason for single dose use of (SP IPTp) was 60(86%) out of stock of SP at the facility and 10(14%) was due to the late attendance at the clinic these reasons are the same as that were reported in other study done to explore the use and miss use of (SP IPTp) at the facility (33).

Proportion of pregnant woman who received first dose of SP timely and second dose differ, while 370 (72.8%) received first dose timely the mean time for receiving first dose was 21.3 weeks of gestation, 400 (91.3%) received second dose timely and the mean time for receiving

second dose was 30 weeks of gestation .The observed difference might be due to the fact that majority of the study population made their first visit late and hence affects timely uptake of the first dose and not the second dose. Also the percentage of pregnant women who use first dose timely was also higher compared with that reported in the other study done in Northeast Tanzania. The difference might be due to the fact this study was done in area of low malaria transmission so people attitude and perceptions differ (24).

The main factor which influences early uptake of first dose of SP was early booking for the first visit, availability of SP at facility, gravity and decision to make a visit, availability and early attendance for the first visit make easier for a woman to receive the dose on time, also second and multpara were more likely to receive the first dose on time compare to primgravida the difference observed might be due to the fact that second and multigravida perceive the benefit of malaria control interventions during pregnancy and hence attend to the facility on time and receive the dose on time. This finding is different from that observed in previous study (24) where the only factor which predict timely uptake of first dose based only on health care facility issue and no factor which was based on individual characteristic. The main reason for this difference may be due to the fact that this study was done in area of low malaria transmission so perception and attitude differ.

From our findings, none of the factors were associated with timely uptake of the second dose of SP. This is similar to finding in another study which was done in Blantye Malawi (26).

Slightly more than three quarters of pregnant women receive optimal protection time after use (SP IPTp).Optimal protection time only occur if a pregnant women receive two doses as the guideline suggest. The low proportion of pregnant women who receive two doses of SP might be due to the fact that more than half of the women made their first visit after 18 weeks of pregnancy.

Since 2004 Tanzania has implemented a discount voucher system at a National level to deliver insecticide treated net to pregnant women ,although relatively simple this process involve a

sequence of steps that a woman has to attend to ANC, receive the discount voucher and also redeem it for an ITN (23,28) Findings of this study show that the proportion of pregnant women who received discount voucher was 486 (92%) this is a higher percentage compared to other study done in Ghana (32) where only 50.7% of pregnant women received discount voucher. The observed difference might be due to the fact that in Tanzania there is strong National commitment to increase distribution of insecticide treated net ITN among pregnant woman. For the 44(8%) who did not receive the discount voucher the main reason for missing the opportunity to receive voucher was that voucher was unavailable at the clinic. Among the 486 pregnant women who received discount voucher, only104 (24%) received the discount voucher timely, timely uptake of discount voucher was uptake at 12-18 weeks of gestation and not more than that, the low percentage observed for timely uptake of discount voucher might be due to the fact that majority of study population made their first visit late.

Majority of study participants who receive discount voucher468 (96%) redeem for an ITN. This is different observation from another study done in Ghana which shows that only 66.7% (32) of discount voucher was also redeemed for an ITN, the observed difference might be due to the fact that other study was done in rural location so socio economic status of respondents differ, very few who were unable to redeem the main reason was 6(33%) did not have top up money,11(61%) did not know shops to get an ITN and 1(6%) have bed net and don't like to use net obtained from discount voucher because of its smell.

Also the proportion of pregnant women who receive optimal protection after use ITN obtained through discount voucher was 63 (13.5%) and 405 (76.4%) did not obtain optimal protection time. The main reason might be due to the fact that majority of study participants receive the discount voucher when their mid way of the pregnancy the mean time was 21 weeks of gestation, on top of that the study found that while 104 receive discount voucher timely only 63 redeemed on time.

The factor that determines the timely uptake of these was mainly early booking and availability of these products at the facility.

The results of this study suggest that the timely uptake of malaria preventive interventions during pregnancy depends on early attendance and availability of SP and insecticides treated voucher at the facility.

5.2 STUDY LIMITATIONS

- This study was done in Bukoba town, therefore may overestimate the use of (SP-IPTp) and ITN voucher, as attitudes, practices and availability of these products at the facility may differ from those in rural areas.
- Information that reflect the use of (SP IPTp) was based on individual responses and confirmation by looking on information recorded on RCH card, there were no test to confirm the use of (SP IPTp).
- Also information based on redeeming for an ITN was also based on individual responses and observation to RCH card (Red Cross on top of voucher number) than actual bed verification.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study found that the use of both (SP IPTp) and discount voucher at Bukoba Urban district was high; proportion of pregnant women who received these products at recommended gestational age was low. This was affected by late booking for the first visit and availability of (SP IPTp) and discount voucher at the facility.

This study showed that effective delivery of malaria control interventions to pregnant women is hampered by the combined effect of women's timing of ANC attendance and availability of SP and ITN voucher at the facility.

This suggests that efforts to encourage timely ANC attendance only are unlikely to improve the timely uptake of malaria control interventions during pregnancy because availability of these products at the facility is also important.

6.2 Recommendations

- There need to prioritize strategies for maximizing early attendance to boost timely uptake of both (SP IPTp) and discount voucher.
- The ministry of Health should ensure that these products are available at the facility at all time.
- Improved Information-Communication-Education approaches**:** This is not a question of distributing brochures and posters to health facility, but efforts to actually educate the mothers and community at large through diverse means such as use of village health worker and traditional birth attendants; this can foster early booking and awareness on the importance of malaria preventive measures during pregnancy.
- This study assessed on protection time conferred by these products, did not go further to compare heath outcome in these different group. Other studies are recommended in this field to compare heath outcome among those who receive optimal protection time and those who did not receive optimal protection time.

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8 APPENDECES

8.1 Questionnaire English Version

DETERMINANTS OF OPTIMUM UTILIZATION OF SP FOR IPTP AND ITNS AND PREGNANCY TIME PROTECTED AT BUKOBA URBAN DISTRICT.

SECTION ONE: IDENTIFICATION

1. Name of Health Care Facility_____

2. Hospital Registration Number/File number_____

3. Name of the interviewer_____

SECTION TWO: SOCIO DEMOGRAPHIC CHARACTERISTCS.

1. What is your Age _____in Years.
2. What is your Occupation (*Tick the appropriate option*)
   1. A farmer ☐ 2. Employed ☐
   3. Business Woman 4. No job/unemployed
   5. Other specify_____
3. What is your Education(*Tick the appropriate option*)
   1. No education ☐
   2. Primary education ☐
   3. Secondary education ☐
   4. College education ☐
   5. University education ☐
4. *What is your Marital Status*(*Tick the appropriate option*)
   1. Single ☐
   2. Co-habitating ☐
   3. Married ☐
   4. Widow ☐
   5. Separated/Divorced ☐

6. Deserted. ☐

Section Three: **Obstetric History**

5. How many pregnancies did you have before----------(Please check on ANC if Recorded)
6. How many live birth(s)did you have----------
7. Do you have children(s)(*Tick the appropriate option*)
   1. Yes ☐
   2. No ☐

   How many kids did you have_____mention.

Attendance at ANC.

8. How many months pregnant were you when you first received antenatal care for this pregnancy?_____

   At what gestational age (weeks) check if recorded_____

   What was the fundal height check if recorded?_____
9. Who influenced you to made such a visit
   1. Your self ☐
   2. Your husband ☐
   3. Other family member Please Specify----------
10. For how long do you walk on your way to Health Facility
    1. in 30 minutes ☐
    2. 31-45 ☐
    3. one hour ☐
    4. More than one hour. Please specify_____
11. How many times during this pregnancy did you receive antenatal care? ----------
    (Please check at ANC Card)

Use of intermittent Preventive Therapy.

12. Did you receive SP(IPTp)for intermittent preventive therapy
    1. Yes ☐
    2. No.☐

    If the answer is yes go to question 13-19

    If the answer is No go to question 20
13. How many doses of SP did you get during pregnancy for intermittent preventive therapy

    _____
14. At what gestation age (weeks of pregnancy) did you receive the first dose of SP(IPTp)----------(Please check if recorded at ANC card.
15. Did you receive the first dose of SP
    1. under direct observation ☐
    2. Allowed to swallow at my convenience ☐
    3. Other specify ☐
16. At what gestation age(weeks of pregnancy did you receive the second dose of SP(IPTP)----------Please check if recorded at ANC Card
17. If you did not receive the second dose of SP(IPTp) give the reason:
    1. Late booking at ANC ☐
    2. was not available ☐
    3. I was not told ☐
    3. Other please specify----------
18. Did you suffer any consequences following the use of SP in pregnancy
    1. Yes ☐
    2. No ☐
19. If yes what are these consequences

    ----

20. Why didn't you receive even a single dose of SP(IPTp)
    1. Late booking at ANC ☐
    2. No availability of SP(IPTp)at the facility ☐
    3. Other please specify_____
21. What can you say about accessibility of SP at ANC
    1. Very easily accessible ☐
    2. Not easily accessible ☐
    3. Not accessible ☐
22. Do you believe that the use of Sp might cause harm to your Health
    1. Yes ☐
    2. No ☐

Use of Insecticide treated Net.

23. Did you receive discount Voucher for Insecticides treated net
    1. Yes ☐
    2. No ☐

If yes go to question 24

If No go to question 32

24. If yes when did you receive at what ----------gestation age (Check if recorded at ANC card.
25. Did you redeem for ITN
    1. Yes ☐
    2. No ☐

If yes go to question 26-28

If No go to question 29

26. After receiving your discount voucher when did you redeem for ITN----------
    1. The same day you receive your discount Voucher
    2. after a week ☐
    3. after a month ☐
    4. Other time please specify------

27. Are you using the Net obtained through Discount Voucher Scheme

    1. Yes ☐
    2. NO ☐

28. If the answer is NO Why_____

29. Why did not redeem it for ITN

    1. Did not have a top up money ☐
    2. No shops ☐
    3. Other please specify ☐

30. Why didn't you receive the Discount voucher

    1. Late booking at ANC ☐
    2. was not available at ANC ☐
    3. Other please specify ☐

31. At home how many bed nets do you own_____

32. How many have insecticides_____

33. Is discount voucher issued in every pregnancy

    1. Yes ☐
    2. No ☐

34. Apart from voucher is there alternative

    1. Yes ☐
    2. No ☐

35. If yes what is it?

36. Did you sleep under ITN s the previous night before admitted at the facility

    1. Yes ☐
    2. No ☐

37. Do you think ITN can prevent from getting malaria

    1. Yes ☐
    2. No ☐

38. Did you get any problem following the use of ITNs

    1. Yes ☐

2. NO ☐

39. If the answer is yes which problem----------Specify

40. Do you believe that sleeping under ITNs might cause health problem to your health

1. Yes ☐
2. No ☐

History of Malaria in Pregnancy

41. Did you suffer from malaria when you were pregnancy

1. Yes ☐
2. N0 ☐

42. Did you attend health care facility for this illness?

1. Yes ☐
2. No ☐

If the answer is yes go to question 45.

43. Which drug were you given----------

44. Did you receive Iron Supplement for prevention of Anemia in Pregnancy/

1. Yes ☐
2. No ☐

45. Did you receive Folic Acid Supplement for prevention of Anemia in Pregnancy

1. Yes ☐
2. NO ☐

46. Did you receive it concomitantly with SP

1. Yes ☐
2. No ☐

47. Did you take antiheliminthes

1. Yes ☐
2. No ☐

48. In your house hold IRS has been done.

1. Yes ☐ 2. N0 ☐

8.2 Questionnaire Kiswahili Version

Utafiti kuhusu Sababu zinazopelekea Mama mjamzito kutumia vidonge vya SP(IPTp) na Hati punguzo kwa wakati kulingana na muongozo wa wizara ya afya.

UTAMBULISHO.

1. Jina la kituo cha afya_____
2. Namba ya Mama ya Hospitali_____/Namba simuyaMama_____
3. Jina la Msaaili_____

Sehemu ya Pili.Taarifa za kijamii.

4. Una umri gani?----------miaka mingapi?
5. Unafanya Kazi ipi?(weka vema jibu sahihi)

1. Mkulima ☐

2. Nimeajiriwa ☐

3.Mfanyabiashara mkubwa ☐

4. Mfanyabiashara mdogo/mama lishe ☐

4. Sina kazi ☐

5.Nyinginezo ainisha_____

6. Kiwango chako cha elimu ni kipi? ?(weka vema jibu sahihi)

1 .Sijasoma kabisa ☐ 2.Elimu ya msingi ☐ 3. Elimu ya Sekondari ☐

4. Elimu ya chuo kikuu☐ 5.Nyinginezo ainisha_____

7Hali ya mahusiano ya ndoa ?(weka vema jibu sahihi)

1. Sijawahi kuolewa ☐ 2.Nimewekwa kinyumba ☐ 3.Nimetelekezwa ☐ 4.Nimeolewa ☐

5. Mjane ☐ 6.Tumetengana kwa muda ☐ 7.Tumeachana ☐

Taarifa ya Uzazi.

8 Huu ni ujauzito wako wa ngapi?Angalia kadi ya kliniki ya mama

9. Je?Umewahi kuzaa watoto hai mara ngapi?----------Angalia kadi ya mama.

10. Je una watoto? ?(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

Kama jibu ni ndiyo

Watoto wangapi_____taja.

Mahudhurio ya Kliniki

11 Je kwa mara ya kwanza kuhudhuria kiliniki Ujauzito wako ulikuwa na miezingapi?_____taja

Umri wa mimba wiki_____angalia kwenye kadi.

Kima cha mimba_____angalia kwenye kadi.

12. Nani alikushauri kuhudhuria kiliniki kwa mara ya kwanza. ?(weka vema jibu sahihi)

1. Mimi mwenyewe ☐
2. Mume wangu ☐
3. Mtu mwingine wa familia----------taja.

13 Unatembea muda wa_____Masaa mangapi mpaka ufike kwenye kituo chako cha mahudhurio ya kiliniki? ?(weka vema jibu sahihi)

1. Dakika 30 ☐
2. Dakika 31-45 ☐
3. Saa moja ☐

4. Zaidi ya saa moja taja_____

14 Katika Ujauzito huu,umehudhuria kiliniki mara ngapi?_____taja Angalia kwenye kadi kudhibitisha_____

Matumizi ya Dawa kwa ajili ya kujikinga na madhara ya malaria kwa Wajawazito.

15 Je ulipata dawa ya kujikinga na madhara ya malaria wakati wa ujauzito(SP)?(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

Kama jibu ni ndiyo jibu swali la 16-20

Kama jibu ni hapana jibu swali la 22

16 Je umetumia dawa hii mara ngapi?

1. Mara moja ☐
2. Mara mbili ☐
3. Mara tatu.----------
4. Zaidi ya mara tatu Taja._____

17 Ulipata dozi yako ya kwanza wakati ujauzito wako una wiki_____.Angalia kwenye kadi

18 Je ulitumia dozi ya kwanza ya dawa hiyo?(weka vema jibu sahihi)

1. Papo hapo chini ya Uangalizi wa mtoa huduma. ☐
2. Nyumbani kwa wakati wangu. ☐
3. Nyingine taja_____

19 . Ulipata dozi yako ya pili wakati ujauzito wako una wiki_____.Angalia kwenye kadi

20 Je ulitumia dozi ya pili ya dawa hiyo?(weka vema jibu sahihi)

1.Papo hapo chini ya Uangalizi wa mtoa huduma. ☐

2.Nyumbani kwa wakati wangu. ☐

3. Nyingine taja_____

21 Kwa nini hukutumia dawa ya pili_____?(weka vema jibu sahihi)

1. Ulichelewa kuanza kiliniki ☐

2. Haikuwepo kituoni ☐

3. Sababu nyingine taja._____

22 Kwa nini hukupata hata dose moja ya SP(IPTp)?(weka vema jibu sahihi)

1. Ulichelewa kuanza kiliniki ☐

2. Haikuwepo kituoni ☐

3. Sababu nyingine taja._____

23 Unasemaje kuhusu upatikanaji wa vidonge vya SP Kwenye vituo vya kutolea huduma ya mama na motto?(weka vema jibu sahihi)

1. Vinapatikana kwa urahisi ☐

2. Havipatikani kwa urahisi ☐

3. Havipatikani ☐

24 Je kuna madhara yoyote uliyoyapata baada ya kutumia vidonge vya SP wakati wa ujauzito??(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

25 .Kama ndiyo ni madhara gani?Taja_____

Matumizi ya vyandarua Vilivyotiwa dawa

26 Je ulipata Hati Punguzo kwa ajili ya kununua neti iliyotiwa dawa.?(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

Kama jibu ni ndiyo jibu swali la 27-28

Kama jibu ni hapana jibu swali 33

27 Je ulipata hati punguzo wakati ujauzito wako una wiki ngapi_____Taja

28 Je ulitumia hati punguzo kupata neti kutoka kwenye maduka.?(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

Kama jibu ni ndiyo jibu swali la 29-31

Kama jibu ni hapana 32

29 Je baada ya kupata hati punguzo ulipata Neti yako baada ya ?(weka vema jibu sahihi)

1. siku hiyohiyo ☐
2. Baada ya wiki ☐
3. Baada ya mwezi ☐
4. Muda mwingine tafadhali taja_____

30 Je unatumia neti uliyopata kupitia hati punguzo?(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

31 Kama jibu hapana kwanini?_____

32 .Kwanini hukutumia hati punguzo kupata neti ?(weka vema jibu sahihi)

1. Sikuwa na pesa ya kuongeza ☐

2. Hakuna maduka ☐

3. Sababu nyingine taja_____

33 Kwanini hukupata hati punguzo(weka vema jibu sahihi)

1. Ulichelewa kuhudhuria kiliniki ☐

2. Hazikuwapo kiliniki ☐

3. Sababu nyingi taja_____

34 Je nyumbani kwako kuna vyandaruaa vingapi vya kulala

_____ Taja

35 .Kati ya hivyo vingapi vina dawa ya muda mrefu_____

36 Je ulilala kwenye neti usiku kabla ya kuja kliniki(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

37 Je unafikiri vyandarua vina kinga watu kupata malaria?

1. Ndiyo ☐

2. Hapana ☐

38 Je unapata madhara yoyote ukitumia vyandarua(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

39 Kama jibu ni ndiyo taja_____

40 Je unaamini kuwa kulala kwenye vyandarua vilivyoweka dawa kwa muda murefu vinasababisha madhara ya kiafya(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

Historia ya kuumwa Malaria wakati wa ujauzito.

41 Je uliumwa malaria katika ujauzito huu(weka vema jibu sahihi)

1. Ndiyo ☐

2. Hapana ☐

42 Je likwenda hosipitali (weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

43 Je dawa gani ulipata_____

44 Je ulipata vidonge vya kuongeza damu katika ujauzito huu(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

45 Je ulitumia vidonge vya kuongeza damu (weka vema jibu sahihi)

1.wakatihuohuo na vidonge vya kuzuia malaria ☐

2.Ulipumzika kwa muda wa wiki mbili ndipo ukaendelea na dawa ☐

46 Je ulitumia vidonge vya kutibu minyoo(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

47 Je makazi yako yamepuliziwa dawa ya kuua mbu na mazalia?(weka vema jibu sahihi)

1. Ndiyo ☐
2. Hapana ☐

Informed Consent form, English Version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCIES (MUHAS)

INFORMED CONSENT FORM FOR PREGNANT WOMEN.

Consent to participate in research

Greetings! I Joyce Protas, a student from Muhimbili University of Health and

Allied Sciencies, Studying Master of Science in Tropical Disease Control I am doing a study

on; DETERMINANTS OF OPTIMAL UTILIZATION AND PROTECTION TIME CONFERED BY INSECTICIDES TREATED NET AND SULFADOXINE PYRIMETHAMINE INTERMITTENT PREVENTIVE THERAPY DURING PREGNANCY IN BUKOBA URBAN DISTRICT.

Purpose of this study

The aim of this study is to determine the factors associated with Timely Uptake of Malaria Control Interventions for Pregnant women in Bukoba Urban Distrcct..

Confidentiality

All issues pertaining to your participation will be kept confidential and no any unauthorized person will have access to this information.

Risks

There is no harm for those who will voluntary participate in this study.

Benefits

The result from this study is anticipated to provide knowledge on Mainly determinants for Timely Uptake of Malaria Control interventions which will provide New evidence and approach for malaria control in Pregnancy.

Who to Contact

In case you encounter problems you may contact me through this address: Joyce Protas**MUHAS, P.O BOX 65015 Dar es Salaam**, or if you have serious issues about your rights as a participants you may contact **Prof. Mainen J. Moshi, Chairman of the Science and Publications Committee, P.O.BOX 65001. Dar es Salaam. Tel:2150302-6, 2152489.**

Agreement part

I therefore request you to participate in this study; participation in this study will involve asking you some questions on Regarding your pregnancy History and the Use of Malaria Control interventions..

Do you agree? YES: …… NO: …… (Tick appropriately)

I, _____ have read the consents in this form. My questions have been answered. I agree to participate in this study with my child.

Participants …….. Date ……..

Witness sign (participant cannot read)…… Date……..

Data collector sign: ……. Date ……Informed

Consent form, Swahili Version

CHUO KIKUU CHA SAYANSI YA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

Fomu ya Makubaliano ya Wazazi au Walezi wa mtoto

Namba ya utambulisho

Habari! Mimi naitwa Joyce Protas mwanafunzi wa Chuo Kikuu cha sayansi ya afya na sayansi shirikishi Muhimbili ninayesomea shahada ya uzamili katika fani ya kujikinga na magonjwa ya yanayoathiri ukanda wa joto.Ninafanya utafiti kuhusu Sababu zinazopelekea Mama mjamzito kutumia vidonge vya SP(IPTp)na Hati punguzo kwa wakati kulingana na muongozo wa wizara ya afya.

Dhumuni kuu

Dhumuni kuu la utafiti huu ni kuangalia kwamba njia za kuzuia ugonjwa wa malaria kwa mama mjamzito zinatolewa kwa wakati kuendana na muongozo wa wizara ya afya..

Usiri

Taarifa zote za mshiriki zitatunzwa kwa usiri na kamwe hazitatolewa kwa mtu yeyote asiyehusika.

Hasara

Hapatakuwa na tatizo lolote kwa wale watakaokubali kwa hiari yao wenyewe kushiriki katika utafiti huu.

Faida

Ushiriki wenu katika utafiti huu utasaidia kujua kama utumiaji wa huduma hii ya kujikinga na malaria kwa mama wajawazito kama inatolewa kwa wakati,pia majibu kutoka kwenye utafiti huu yatasaidia kuboresha huduma katika eneo hill.

Mawasiliano

Kwa yeyote mwenye kutaka kujua zaidi au kapata tatizo kutokana na utafiti huu anaweza kuwasiliana na mimi kwa barua, akiniandikia kupitia anuani hii Joyce Protas**, MUHAS, S.L.P 65015 Dar es Salaam**. Au anaweza kufanya mawasiliano na**Prof. Mainen J.Moshi,**Mwenyekiti wa kamati ya bodi ya chuo ya utafiti na uchapishaji. **S.L.P 65001, Dar es Salaam.Simu:2150302-6, 2152489.**

Kipengele cha Makubaliano

Baada ya maelezo hapo juu, naomba ushiriki wako wa hiari.Nitakuuliza maswali kuhusu historia ya uzazi wako.na kama ulitumia kinga ya kujikinga na malaria kama inavyostahili,.

Je **Unakubali? Ndiyo: ……** **Hapana: ……** (weka tiki panapostahili)

Mimi _____nimesoma maelezo ya fomu hii. Maswali yangu yote yamejibiwa na ninakubali kwa hiyari yangu mwenyewe kushiriki .

Sahihi ya mama: …… Tarehe……

Sahihi ya shuhuda…… Tarehe…….

Sahihi ya mtafiti: ……. Tarehe ……